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Waste Management Plan
Kariong Sand and Soil Supplies
90 Gindurra Rd, Somersby

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Executive Summary

The Davis Family are the owners of IN1 General Industrial zoned land at 90 Gindurra Rd, Somersby (Lot 4/DP227279). The site is currently used for storing and screening soil and sand, which is sold for landscaping. The site is referred to as the Kariong Sand and Soil Supplies (KSSS) site. The site was originally approved as a Sand and Metal Recycling Facility on 28/02/1992 (DA 15337). As part of the original approval, only the front section of the site was approved for this use.

Subsequently, approval has been given to construct a warehouse, office building and driveway at the northern end of the site (DA52541/2017). The building design and location was modified and approved by Central Coast Council on 21/09/2018 under DA52541/2017.2.

It is proposed that the KSSS site be developed to receive, process and store up to 200,000 tonnes per annum of soil, sand and building materials. The additional development will require: clearing of vegetation in the proposed development area; construction of hardstand area across the proposed development area; installation of processing equipment for processing material; construction of storage bays for incoming waste and processed material; construction of on-site roads suitable for large vehicles; installation of equipment for a small Materials Recovery Facility (MRF) for processing mixed building waste; installation of a weighbridge.

The main operational area will be divided into two main areas; one for receiving and processing incoming material, and another area for storage of final product and sale of material to landscape supplies customers. Mixed building waste will be received in the receival area, then transferred to the secondary processing facility located in the warehouse for sorting.

The development consists of clearing of vegetation, earthworks to facilitate on-site drainage, construction of on-site roads, construction of a hardstand area, construction of a stormwater management system, construction of noise barriers, construction of product storage bays, installation of a weighbridge and installation of sorting equipment in the warehouse building.

The waste generated during the demolition / construction phase of the project is estimated to be 18,090 m^3 of inert material (recycled concrete, rubble, soil), 5 m^3 of scrap metal, 100 m^3 of woody garden organics and 3 m^3 of municipal solid waste (MSW). Existing concrete stockpiles on site need to be sampled and tested for compliance with the EPA's *Recovered Aggregate Resource Recovery Order* 2014 to confirm the material is acceptable for use in construction works on the site. The metal will be recycled at a scrap metal recycling facility, off-site. The woody garden organics will be shredded to produce mulch, and either used on-site or sold. The MSW will be removed from site and disposed in a licensed landfill.

During the operational phase, up to 200,000 tpa of waste materials will be received on site for recycling. The majority will be soil or source-separated inert material. It is estimated that the recycling rate for the facility will be approximately 95%, with approximately 5,225 tpa of residual waste being removed for disposal to landfill. The recovered material will be processed into various building and landscaping products, and sold from the premises.

This facility will make a major contribution towards meeting the NSW Waste Strategy's target of 80% recycling of C&D waste by 2021.

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1. Introduction

1.1. Background

The Davis Family are the owners of IN1 General Industrial zoned land at 90 Gindurra Rd, Somersby (Lot 4/DP227279). The site is currently used for storing and screening soil and sand, which is sold for landscaping. The site is referred to as the Kariong Sand and Soil Supplies (KSSS) site. The site was originally approved as a Sand and Metal Recycling Facility on 28/02/1992 (DA 15337). As part of the original approval, only the front section of the site was approved for this use.

The development consent permits only limited processing and storage at the site. The majority of the site is bushland, with two areas cleared in use. The original consent permitted an operational area of approximately 10,000 m^2. An additional area of approximately 14,000 m^2 is currently being used as a processing and sorting area. Development approval is required to obtain consent to increase the permitted operational area to allow the design and construction of a resource recovery facility in line with best practice.

Subsequently, approval has been given to construct a warehouse, office building and driveway at the northern end of the site (DA52541/2017). The building design and location was modified and approved by Central Coast Council on 21/09/2018 under DA52541/2017.2.

It is proposed that the KSSS site be developed to receive, process and store up to 200,000 tonnes per annum of soil, sand and building materials. The additional development will require: clearing of vegetation in the proposed development area; construction of hardstand area across the proposed development area; installation of processing equipment for processing material; construction of storage bays for incoming waste and processed material; construction of on-site roads suitable for large vehicles; installation of equipment for a small Materials Recovery Facility (MRF) for processing mixed building waste; and installation of a weighbridge.

The main operational area will be divided into two main areas; one for receiving and processing incoming material, and another area for storage of final product and sale of material to landscape supplies customers. Mixed building waste will be received in the receival area, then transferred to the secondary processing facility located in the warehouse for sorting.

The update of the site will be conducted in two stages. The first stage will be construction work at the front of the site, involving demolition of the existing buildings, construction of a front office and warehouse, front parking areas and install the security fencing. The second stage involves clearing of vegetation, earthworks to facilitate on-site drainage, construction of on-site roads, construction of a hardstand area, construction of a stormwater management system, construction of noise barriers, construction of product storage bays and establishment of the MRF in the warehouse building.

The proposed development will provide a broader range of recycling options and make progress towards the NSW Government's recycling targets. The project will create 5 jobs in construction over a 3-month period and 11 new permanent jobs, injecting more than $73.8 million into the local economy over a 20-year period.

1.2. Objectives

The objectives of the Waste Management Plan as stated in the *Gosford Development Control Plan* 2013 (the DCP) are to:

- Maximise reuse and recycling of materials;
- Minimise waste generation;
- Ensure appropriate collection and storage of waste;

- Minimise the environmental impacts associated with waste management;
- Avoid illegal dumping;
- Promote improved project management;
- Optimise adaptive reuse opportunities of existing building/structures;
- Ensure appropriate waste storage and collection facilities;
- Maximise source separation and recovery of recyclables;
- Ensure waste management facilities are as intuitive for occupants as possible and readily accessible to occupants and service providers;
- Ensure appropriate resourcing of waste management systems, including servicing;
- Minimise risk to health and safety associated with handling and disposal of waste and recycled material and ensure optimum hygiene;
- Minimise adverse environmental impacts associated with waste management; and
- Discourage illegal dumping by providing on site storage, and removal services.

1.3. Legislative requirements and related documentation

The explicit details of managing particular types of wastes are clearly defined in the *EPA Waste Classification Guidelines* of the *Protection of Environment Operations Act 1997 (POEO Act*) to manage different waste types generated on-site. These include:

- Taking waste to the right waste management facility; and
- Specialised storage, handling, treatment and disposal requirements.

Other relevant legislation and publications are:

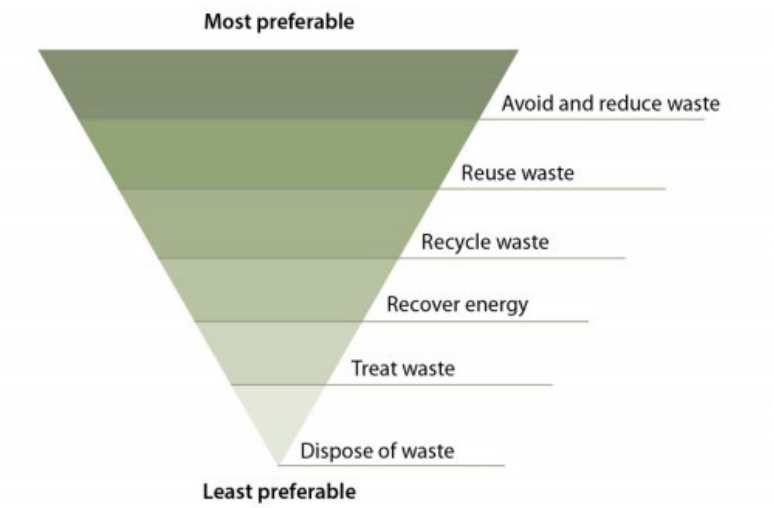
- *Environmental Planning and Assessment Act* 1979;
- *Waste Avoidance and Resource Recovery Act* 2001;
- *Protection of the Environment Operations (Waste) Regulation* 2014;
- *Work Health and Safety Act* 2011 and the *Work Health and Safety Regulations* 2011;
- *Environmental Protection (Controlled Waste) Regulation* 2001;
- *State Environmental Planning Policy (Exempt and Complying Development Codes)* 2008: Part 5A, Division 4, Clause 5A.26 Garbage and waste storage;
- Australian Standards 2601-2001 Demolition of Structures;
- Gosford Development Control Plan 2013 – Part 7.2 Waste Management;
- *Recovered Aggregate Order* 2014 and *Recovered Aggregate Exemption* 2014;
- *"Batch Process" Recovered Fines Order* 2014 and *"Batch Process" Recovered Fines Exemption* 2014;
- NSW EPA (2014) *Draft Protocol for managing asbestos during resource recovery of construction and demolition waste;* and
- NSW EPA (2018) *Standards for Managing Construction Waste in NSW.*

The *Waste Avoidance and Resource Recovery Strategy* 2014-21 has the following objectives:

- Waste Avoidance
- Increase recycling rate of Construction and Demolition waste to 80%
- Divert 75% waste from landfill
- Manage problem wastes better
- Reduce Litter
- Reduce Illegal Dumping

The manner in which waste is to be managed is driven by the Ecologically Sustainable Development principles. Guidance in managing waste has been provided by the hierarchical chart below.

Figure 1. The waste hierarchy as published in the NSW Waste Avoidance and Resource Recovery Strategy 2014-21.



2. Project Description

The project is to establish a C&D recycling facility at 90 Gindurra Rd, Somersby. There will also be a building and landscape supplies business at the site, which will source the majority of its products for sale from the construction and demolition (C&D) waste recycling facility.

The project consists of two stages; the demolition / construction phase and the operational phase.

The demolition and construction phase involves the following activities:

- Clear selected vegetation from the front half of the site as determined by the Fauna and Flora and Vegetation Management Plan;
- Conduct civil and drainage works to ensure the site directs storm water into a catchment dam;
- Re-develop the existing storm water catchment dam;
- Install a hardstand across the operational areas of the site;
- Allocate areas for vehicle parking and manoeuvring;
- Install a weighbridge;
- Install storage bunkers for receiving incoming material for processing and bunkers for storing processed products ready for sale;
- Install sorting equipment into the Secondary Processing Warehouse;
- Install crushing and shredding machinery;
- Construct a noise barrier along the Eastern boundary of the site; and
- Construct two noise barriers within the operational areas of the site.

Most of the site development activities relate to earthmoving, which will utilise recycled materials as far as possible.

The operational phase involves the operation of the C&D recycling facility to produce recycled products from C&D waste. The building and landscape supplies business will mainly sell recycled C&D materials produced by the C&D

recycling facility. However, it will also import some additional products from off-site, such as compost and specialist soils.

2.1. Demolition and construction phase

The demolition / construction phase consists of removing existing stockpiles of concrete, rubble and metal from the site. The site then needs to be cleared and levelled. This will involve excavating some areas and filling other areas of the site. The site will then be compacted, to form a working hard stand using recycled concrete aggregate above a geotextile membrane. Selected areas of the site will be surfaced in recycled asphalt (under the landscaping material storage bays and waste storage bays), which will be brought onto the site. The crushed concrete aggregate hardstand areas will be compacted to form a hardstand surface suitable to support the operational machinery and heavy vehicle traffic. The main access driveway and the tip and spread inspection area will be provided with an engineered concrete hardstand.

Material in the existing stockpiles will be used for pavement construction as far as possible. Cleared woody garden organics and trees will be mulched and either used on site or sold.

2.2. Operational phase

The operational phase of the project consists of receiving, inspecting, processing and storing waste materials from off-site. The resulting products will be stored and sold through a landscape and building supplies business on the site.

All material received and leaving the site will be weighed on the weighbridge. Therefore, the facility operators will know how much material is has been processed, is on-site and has been removed from site. Amounts of waste received, processed and removed from site will be reported via the New South Wales Waste and Resource Reporting Portal (WARRP).

In accordance with the NSW EPA (2018) *Standards for managing construction waste in NSW* and the NSW EPA's Draft Protocol for managing asbestos during resource recovery of construction and demolition waste, incoming loads will be thoroughly inspected using a two-stage process; initial inspection at the weighbridge and a thorough inspection at the waste receiving area.

All material arriving on site will be unloaded in a designated receiving tip and spread area (bunded concrete hardstand with 25kL pump-out tank for any contaminated stormwater for off-site disposal at a licenced facility). The load will be spread out to a height of no more than 100mm using an excavator. The load will be inspected to ensure no unacceptable materials are in the load. Loads with unacceptable material (such as hazardous materials, asbestos, etc.) will be re-loaded and removed from site.

Non-hazardous contaminants, such as plastic, treated timber and paper/cardboard, will be removed during the inspection stage. These will be stored separately in a bunker or skip bin awaiting removal from site for disposal at a licensed landfill. Recoverable materials are sorted and stored in separate storage bunkers awaiting processing.

Mixed building waste will be inspected in the receival area, then transferred to the secondary processing shed for sorting.

The processing equipment includes a crushing, shredding and screening equipment. Inert materials, such as concrete, bricks, rubble, rocks are crushed, screened and blended to meet product specifications. The final products, such as aggregate, roadbase, soil substitute, are transferred to the storage bunkers or stockpiles in the building supplies business area. All products will be tested in line with EPA requirements to ensure products meet the requirements of the relevant regulatory instrument and the client's specification.

Clean timber and tree waste will be shredded to product mulch, which will be sold through the landscape and building supplies business.

Scrap metal will be stored in bunkers and periodically removed from site by a scrap metal recycler.

3. Waste Management

The implementation of waste management practices outlined in this waste management plan meet the key objectives of Gosford DCP Part E7.2. These measures address the economic, environmental and safety imperatives during the demolition and construction phases and into the operational phase. These enhanced management practices also produce triple bottom line benefits including financial efficiencies, sustainable demolition and construction methods and a safe work site for the duration of the demolition and construction process.

These positive outcomes will be achieved through thorough planning and procurement of exacting measurements reducing upfront costs of demolition and construction which will benefit the business directly.

The benefits of the management practices outlined in the plans will be realised from the outset by both the business and the broader community in the form of reduced costs of disposal, reduced costs of legal liability and common good through:

- Separation of waste at the source during the demolition phase;
- Maximising recovery of valuable resources;
- Exercising due diligence for safe disposal of waste; and
- Providing a safe worksite.

3.1. Demolition and construction phase

The development phase of the project does not involve the demolition or construction of any built structures. There are a number of stockpiles on site, mainly used concrete (approximately 18,090 m^3). There is also a small stockpile of recyclable metal.

This phase of the project involves levelling the site, removing excess stockpiled material, and constructing a crushed concrete hardstand across the operational area of the site using a concrete aggregate base.

3.1.1. Waste generation

The waste streams generated on site during the demolition and construction phase are as summarised in **Table 3.1** below.

It should be noted that existing concrete stockpiles on site need to sampled and tested for compliance with the EPA's *Recovered Aggregate Resource Recovery Order* 2014 to confirm the material is acceptable for use in construction works on the site. Non-compliant materials will be removed for disposal at an appropriate facility.

Table 3.1. Estimated waste generation during demolition and construction phase.

Source	Material	Description	Estimated amount
Land clearing	Woody garden organics	Tree stumps and branches, as well as some grasses.	100 m^3
Stockpile removal, processing	Stockpiled C&D waste	Existing concrete stockpiles on site need to sampled and tested for compliance with the EPA's *Recovered Aggregate Resource Recovery Order* 2014 to confirm the material is acceptable for use in construction works on the site.	18,090 m^3

Source	Material	Description	Estimated amount
		There are also small amounts of scrap metal stockpiles at the site.	
Site levelling	Soil	In order to level the site, some soil may need to be removed.	500 m^3
Site capping / pavement construction	Recycled concrete and asphalt	Recycled crushed concrete will be used as an engineered pavement (above a geotextile membrane) across the operation areas. Recycled asphalt will be brought onto the site to be laid down and compacted to produce a final sealed layer beneath the waste storage bays, landscaping storage and aggregate storage bays.	5,000 m^3
Employee waste	MSW	Small amounts of packaging waste and other MSW will be generated by employees on site conducting the development project.	240L per week for 12 weeks

3.1.2. Waste management measures

The management and destination of waste materials from the demolition and construction phase of the project is summarised in Table 3.2 below.

As noted above, the stockpiles of used concrete need to be inspected and tested for compliance with the EPA's *Recovered Aggregate Resource Recovery Order* 2014 to confirm the material is acceptable for use in construction works on the site.

Table 3.2. Waste management measures during demolition and construction phase.

Material	Treatment / destination	Estimated recovery rate
Woody garden organics	Woody garden organics will be shredded and either used as mulch on site or sold as mulch in the landscape products business.	100%
Stockpiled C&D waste	Concrete stockpiles will be investigated and tested for compliance with EPA *Recovered Aggregate Resource Recovery Order* 2014. Compliant materials to be used a base for the hardstand area. Scrap metal will be sold. Any non-useable material, including stockpiles found to be contaminated will be removed from site and disposed in a licensed landfill.	95%
Soil	Any excess material will be sold directly off-site as fill or stockpiled for sale in the building products business.	100%
Recycled asphalt	Recycled asphalt brought onto the site will comply with EPA *Reclaimed Asphalt Pavement Resource Recovery Order* 2014 the will be used as a top layer for the hardstand that forms the operational area of the site in accordance with the EPA *Reclaimed Asphalt Pavement Resource Recovery Exemption* 2014. Any excess will be sold as product in the building supplies business.	100%
MSW	MSW will be collected in a MGB and removed weekly by a licensed waste removal contractor, and disposed at a licensed landfill.	0%

The overall waste recovery rate for the demolition / construction phase will be 95-100%.

Residual waste will be collected in a separate stockpile or skip bin and regularly removed from site for disposal in a licensed landfill (Genesis Landfill, Eastern Creek, EPL: 13426). Recovered metal will be removed to a metal recycler off-site (One-Steel, EPL: 1977).

3.2. Operational phase

The operational phase consists of the operation of the 200,000 tpa C&D recycling facility, as well as the 10,000 tpa landscape supplies business. The C&D recycling facility will be operated in accordance with the NSW EPA's *Standards for Managing Construction Waste in NSW* and the NSW EPA's *Draft Protocol for Managing Asbestos During Resource Recovery of Construction and Demolition Waste.*

3.2.1. Waste generation

The site operations will generate very little waste itself. The vast bulk of "waste" materials will be brought onto site for processing. While a small proportion of this material will be non-recyclable "residual" waste, most material will be recovered, processed and sold as products. The total amount of residual waste is expected to range from approximately 2,500 tonnes in the first year of operation up to approximately 5,225 tpa once the facility reaches full capacity. Figure **3.2** shows the anticipated composition of the material that will be delivered to the site for processing. Figure 3.3 shows the extrapolated tonnes received over the first 6-7 years of operation, assuming the facility reaches full capacity in 2025. As these charts show, the majority of the waste will be source-separated, inert material, such as soil or concrete/brick/tiles. The aim will be to recover as much material as possible to recycle into products for sale through the landscape and building supplies business to be located at the site.

Figure 3.2. Composition of incoming waste stream.

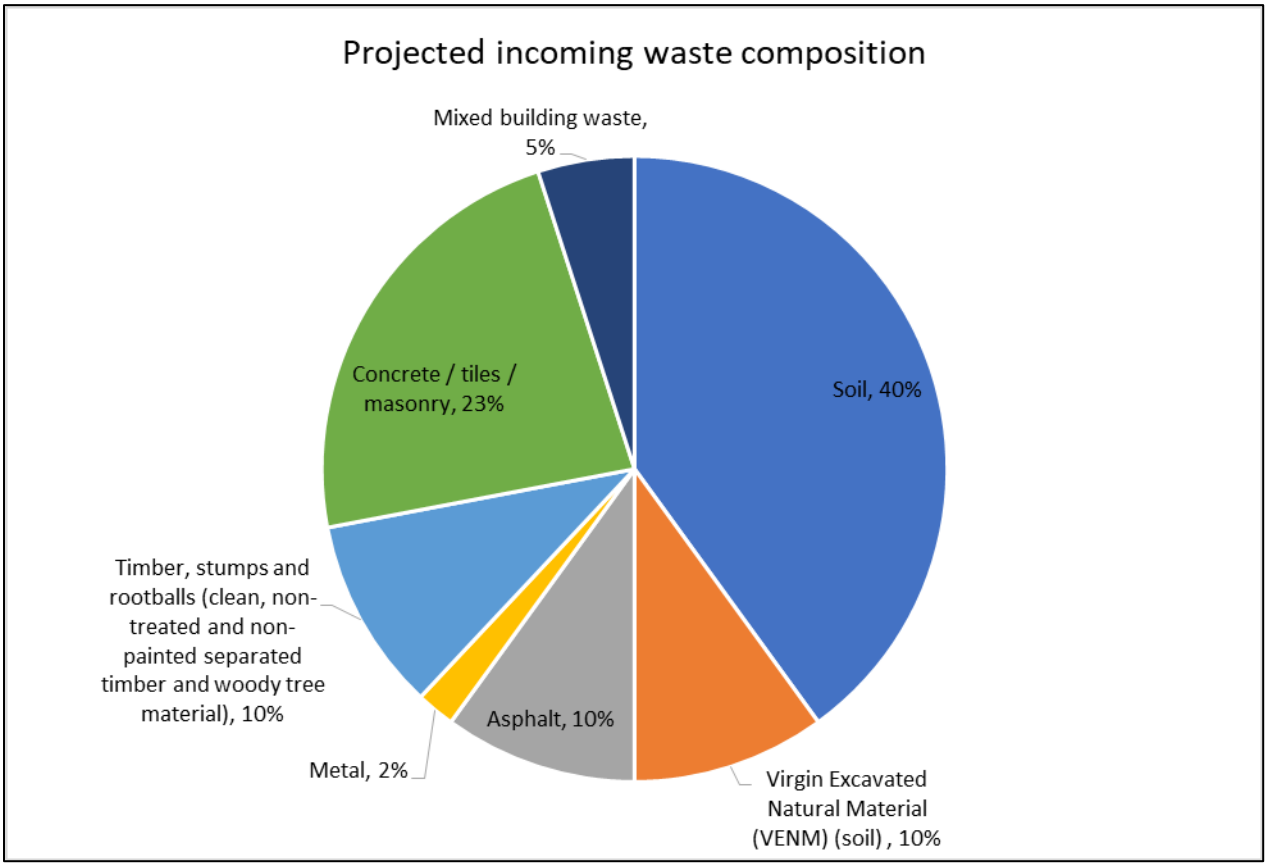
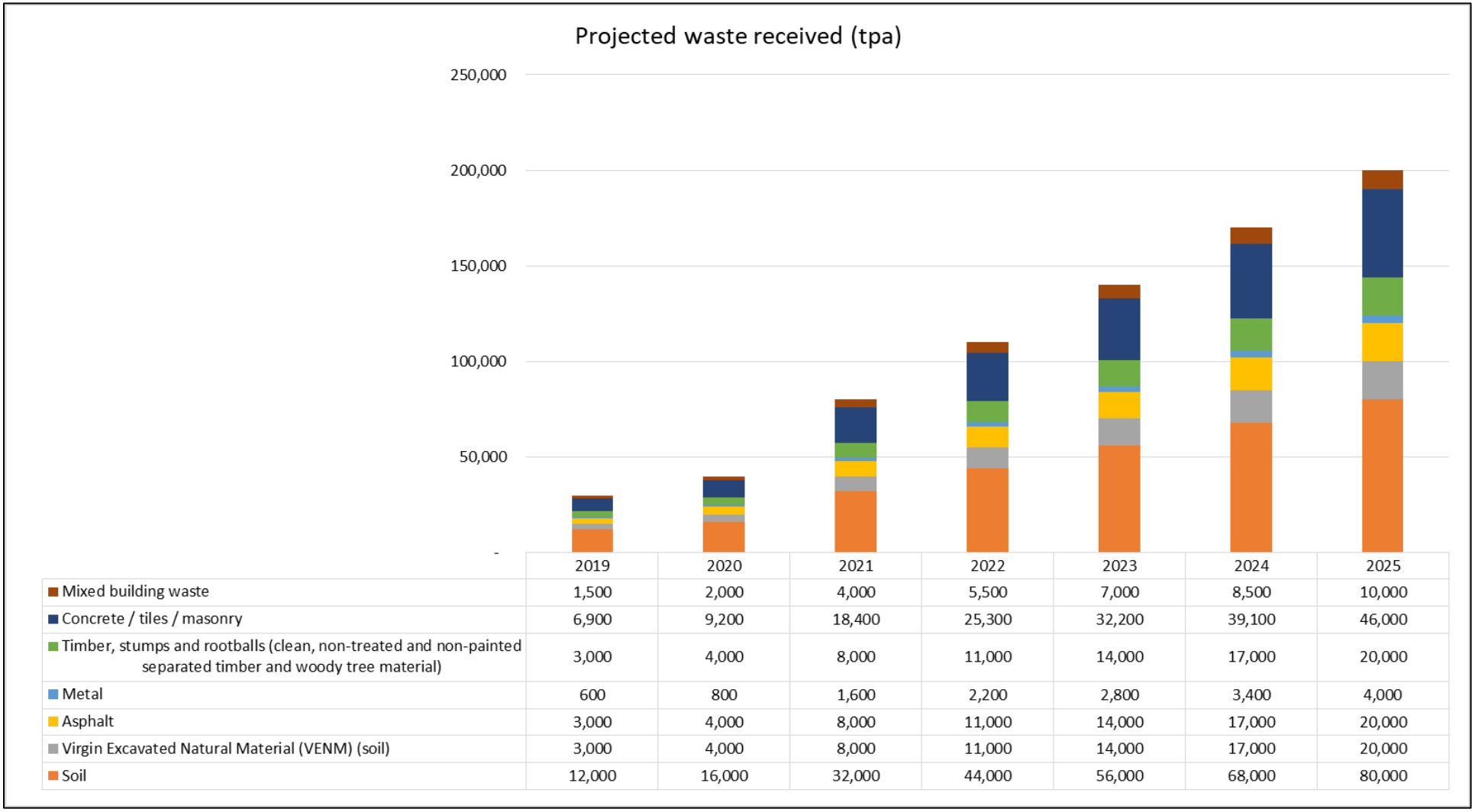


Figure 3.3. Estimates of annual amounts of incoming waste during the operational phase.



	2019	2020	2021	2022	2023	2024	2025
Mixed building waste	1,500	2,000	4,000	5,500	7,000	8,500	10,000
Concrete / tiles / masonry	6,900	9,200	18,400	25,300	32,200	39,100	46,000
Timber, stumps and rootballs (clean, non-treated and non-painted separated timber and woody tree material)	3,000	4,000	8,000	11,000	14,000	17,000	20,000
Metal	600	800	1,600	2,200	2,800	3,400	4,000
Asphalt	3,000	4,000	8,000	11,000	14,000	17,000	20,000
Virgin Excavated Natural Material (VENM) (soil)	3,000	4,000	8,000	11,000	14,000	17,000	20,000
Soil	12,000	16,000	32,000	44,000	56,000	68,000	80,000

The anticipated daily and weekly amounts of incoming waste when the facility is at maximum capacity is presented in Table 3.3.

Table 3.3 Estimated weekly and daily amounts.

Incoming waste	Weekly amount	Daily amount
Soil	1,538	256
Virgin Excavated Natural Material (VENM) (soil)	385	64
Asphalt	385	64
Metal	77	13
Timber, stumps and root balls (clean, non-treated and non-painted separated timber and woody tree material)	385	64
Concrete / tiles / masonry	885	147
Mixed building waste	192	32
TOTAL	3,846	641

3.2.2. Waste inspection, acceptance and non-conforming waste

The incoming waste inspection and management of non-conforming loads will conform to the standards in the NSW EPA's *Standards for managing construction waste in NSW*[1].

Standard 1 Inspection requirements

At the verified weighbridge on entry into the facility, trained personnel must:

1. Inspect the entire top of each load from an elevated inspection point or by using a video camera connected to a monitor and determine whether or not the load contains any asbestos waste and any other unpermitted waste;

2. Where the load is identified as containing, or is reasonably suspected to contain, any asbestos waste, reject the entire load of waste by directing the driver to immediately leave the facility and record the information required by Standard 1.4 into the C&D waste facility's rejected loads register; and

3. Where the load is not rejected, record the details as required by clause 27 of the Waste Regulation and direct the driver and the load of waste to proceed directly to inspection point 2.

At inspection point 2 – tip and spread inspection area, trained personnel must:

1. Direct the driver of the vehicle to tip the entire load on the tip and spread inspection area;

2. Spread the entire load and inspect the visible surface area for any asbestos waste and any other unpermitted waste;

3. Manually turn, or direct a plant operator to turn, the entire load and inspect the entire load for any asbestos waste and any other unpermitted waste on or beneath the visible surface;

4. Where any asbestos waste is identified, reject the entire load of waste.

[1] NSW EPA (2018), Standards for managing construction waste in NSW, internet: https://www.epa.nsw.gov.au/-/media/epa/corporate-site/resources/wasteregulation/18p1270-standards-for-managing-construction-waste-in-nsw.pdf ; accessed 4/12/2018.

5. Where any other unpermitted waste is identified under this Standard 1.2, remove that waste from the load or reject the entire load of waste.

6. Where a load is rejected under this Standard 1.2, ensure that the entire load is immediately reloaded onto the vehicle in which it arrived or onto another vehicle and ensure that the vehicle with the rejected load leaves the C&D waste facility on the same business day and then immediately record the information required by Standard 1.4 into the C&D facility's rejected loads register; and

7. Ensure that all waste that may lawfully be received at the C&D waste facility proceeds to be sorted and stored in accordance with Standards 2, 3 and 4.

A load of construction waste received at the C&D waste facility that, upon receipt, only contains waste that meets the requirements of a resource recovery order, as evidenced by a statement of compliance for that waste which has been provided and kept in accordance with the applicable resource recovery order and is current at the time of receipt. The statement of compliance must be made available for inspection to an authorised officer of the EPA if requested. This load of waste must be immediately transferred to the appropriate waste storage area referred to in Standard 4.

3.2.3. Waste management measures

Figure 3.4 shows the process flow chart for accepting, inspecting and processing the incoming waste material.

Table 3.3 summarises the waste treatment and destination for each of the incoming waste streams. The majority of waste received at the site will be processed into re-usable products for sale through the on-site building and landscape supplies business. The small amount of dry residual waste will be stored separately on-site, in either skip bins or bunkers, prior to removal to a licensed landfill for disposal.

It is noted that the NSW Government has revoked the general Resource Recovery Order and Resource Recovery Exemption for recovered fines[2]. As a consequence, KSSS intends to apply for a site-specific resource recovery order to enable it to sell its recovered fines as a replacement soil product for construction works. In the meantime, KSSS will seek EPA-approved landfill alternative daily cover markets for its recovered fines.

3.2.4. Stockpile heights

Stockpile heights have been based on best practice guidelines outlined in the South Australian Environmental Protection Agency (EPA SA, 2010)[3] in order manage fire, dust and odour:

- Stockpiles of waste materials in the designated waste storage area will be limited to 3m. Height guidance will be provided by the 3m height of the concrete block bays;
- Stockpiles of inert material such as concrete, brick, soil etc. will be limited to a maximum of 5m in height in the processing and blending areas. Height poles to the exact length (5m) will provide on-site guidance for stockpile management;
- Stockpiles of organic material such as timber and mulch will be limited to a maximum of 3m in height in the processing and blending areas. Height poles to the exact length (3m) will provide on-site guidance for stockpile management; and

[2] NSW EPA (2018). Waste management reforms commence on 16 November 2018. Internet publication: https://www.epa.nsw.gov.au/your-environment/waste/industrial-waste/construction-demolition/construction-and-demolition-waste

[3] EPA South Australia (2017). Guideline for stockpile management: Waste and waste derived products for recycling and reuse. Internet publication: http://www.epa.sa.gov.au/environmental_info/waste_management/solid_waste/storage_and_stockpiling

- Stockpiles of all processed products, aggregates and landscaping supplies will be limited to 3m. Height guidance will be provided by the 3m height of the concrete block bays.

Figure 3.4. Flowchart of waste acceptance and processing operations during operational phase.

Table 3.3. Waste Management during the operational phase.

Incoming Material	Description	Processing / treatment	Destination	Resource Recovery Order for Products	Expected recovery rate (wt%)
Mixed building waste	Mixed building waste from demolition or construction projects. Waste may contain cardboard, plastic, etc. among the concrete, bricks, soil, metal.	Loads will be received separately in B-Doubles, semi-trailers, skip bins or rigid trucks, tipped in the unloading bay associated with the 'Waste receiving area', then moved via front end loader to the 'Mixed building waste' storage bay. Material will then be subject to a primary sorting process using a grab excavator to remove concrete, steel and timber. Residual waste to be stored in skip bin or a separate bunker and disposed off-site. Concrete, masonry, clean timber from the primary sorting process will be separated and crushed/shredded and screened to specifications to produce saleable products. Residual waste from the primary sorting process will be stored in skip bin before being transferred to a secondary sorting facility located in the warehouse building at the North of the site. The secondary sorting process consists of a screen trammel, a picking station, a magnet and a blower. Concrete, brick, asphalt, paper, cardboard, plastic and metals will be separated at the secondary processing stage. Separated materials will be storied in skip bins prior to being transferred for recycling. Residual waste from the secondary processing stage will be stored in skip bins prior to being disposed off-site at a landfill.	Recovered materials will be processed into saleable products and sold either directly to customers or through the on-site building supplies business. Aggregate will be sold to construction and road projects. Recovered fines will be sold as landfill alternative daily cover. Re-useable timber will be sold for construction and landscape projects. Residual waste will be collected in a separate bunker or skip bin and regularly removed from site for disposal in a licensed landfill (Genesis Landfill, Eastern Creek, EPL: 13426).	Recovered Aggregate Resource Recovery Order 2014; "Batch process" Recovered Fines Resource Recovery Order 2014 Mulch Resource Recovery Order 2016; Recovered Plasterboard Resource Recovery Order 2014.	85%

Incoming Material	Description	Processing / treatment	Destination	Resource Recovery Order for Products	Expected recovery rate (wt%)
Concrete / tiles / masonry	Source-separated inert building materials, such as concrete, tiles, bricks and rubble.	Loads will be received separately in B-Doubles, semi-trailers or rigid trucks, tipped in the unloading bay associated with the 'Waste receiving area', then moved via front end loader to the 'Concrete/tiles/masonry' storage bay. Material will then be crushed / screened in the 'Processing area' then stored in a pile then moved to the 'Landscape supplies' bunker for sale.	Clean, inspected material will be crushed, screened and blended to produce aggregate and soil-replacement products. These will then be sold either directly to customers or through the on-site building supplies business. Any contaminants will be collected in a separate bunker or skip bin and regularly removed from site for disposal in a licensed landfill (Genesis Landfill, Eastern Creek, EPL: 13426).	Recovered Aggregate Resource Recovery Order 2014; "Batch process" Recovered Fines Resource Recovery Order 2014	99%
Timber, stumps, and rootballs	Clean, non-treated and non-painted separated timber and woody tree material.	Loads will be received separately in rigid trucks, tipped in the unloading bay associated with the 'Waste receiving area', then moved via front end loader to the 'Timber' storage bay. Material will then be chipped in an on-site shredder. Chipped material will then be moved via front end loader to the 'timber' mulch storage bay in the landscape supplies area	Clean, inspected material will be shredded, screened and blended to produce a range of mulches and landscape products. These will then be sold either directly to customers or through the on-site building supplies business. Any contaminants will be collected in a separate bunker or skip bin and regularly removed from site for disposal in a licensed landfill (Genesis Landfill, Eastern Creek, EPL: 13426).	Mulch Resource Recovery Order 2016	99%
Metal	Steel, iron, copper, aluminium and other metal items.	Loads will be received separately in rigid trucks, tipped in the unloading bay associated with the 'Waste receiving area', then moved via front end loader to the 'Metals' storage bay. Material will then be picked up and taken off-site for recycling in a semi-trailer on a periodic basis.	Clean, inspected metals will be sorted into metal types. Some scrap metal may be shredded to reduce size and save space. Recovered metal will be removed to a metal recycler off-site (One-Steel, EPL: 1977). Any contaminants will be collected in a separate bunker or skip bin and regularly removed from site for disposal in a licensed landfill (Genesis Landfill, Eastern Creek, EPL: 13426).	n/a	99%

Incoming Material	Description	Processing / treatment	Destination	Resource Recovery Order for Products	Expected recovery rate (wt%)
Asphalt	Recovered asphalt from re-surfacing roads and pavements.	Loads will be received separately in B-Doubles, semi-trailers or rigid trucks, tipped in the unloading bay associated with the 'Waste receiving area', then moved via front end loader to the 'Asphalt' storage bay. Material will then be crushed / screened in the 'Processing area' then stored in a pile then moved to the 'Landscape supplies' bunker for sale.	Clean, inspected material will be crushed, screened and blended to produce aggregate and soil-replacement products. These will then be sold either directly to customers or through the on-site building supplies business. Any contaminants will be collected in a separate bunker or skip bin and regularly removed from site for disposal in a licensed landfill (Genesis Landfill, Eastern Creek, EPL: 13426).	Reclaimed Asphalt Pavement Resource Recovery Order 2014	99%
Virgin Excavated Natural Material (VENM)	Natural material that has been excavated or quarried from the ground in an area uncontaminated by chemicals and does not contain sulphidic soils.	Loads will be received separately in B-Doubles, semi-trailers or rigid trucks (e.g. 12 t), tipped in the unloading bay associated with the 'Waste receiving area', then moved via front end loader to the 'VENM' storage bay. Material will then be screened in the 'Processing area' then stored in a pile then moved to the 'Landscape supplies' bunker for sale.	Clean, inspected material will be crushed, screened and blended to produce aggregate and soil-replacement products. These will then be sold either directly to customers or through the on-site building supplies business. Any contaminants will be collected in a separate bunker or skip bin and regularly removed from site for disposal in a licensed landfill (Genesis Landfill, Eastern Creek, EPL: 13426).	Not applicable	100%
Soil	Soils that meet the CT1 thresholds for general solid waste in Table 1 of the NSW EPA's Waste Classification Guidelines	Loads will be received separately in B-Doubles, semi-trailers or rigid trucks, tipped in the unloading bay associated with the 'Waste receiving area', then moved via front end loader to the soil storage bay. Material will then be screened in the 'Processing area' then stored in a pile then moved to the 'Landscape supplies' bunker for sale.	Clean, inspected material will be crushed, screened and blended to produce aggregate and soil-replacement products. These will then be sold either directly to customers or through the on-site building supplies business. Any contaminants will be collected in a separate bunker or skip bin and regularly removed from site for disposal in a licensed landfill.	Excavated Natural Material Resource Recovery Order 2014	99%

4. Management of hazardous, toxic and liquid waste

As far as possible, no hazardous, toxic or liquid waste will be accepted at the site. Where such material is delivered, but not detected at arrival, it will be removed and stored in a designated area awaiting removal by a licensed waste contractor. The procedure for detecting and managing unacceptable waste is provided at Attachment 1. This procedure is consistent with the NSW EPA guidelines. Chemical, flammable and radioactive wastes will be managed using the same procedures.

5. Incident Management – Spills

Spills on-site during the demolition and construction and operational phases likely to occur are oils, fuel, paints and primers.

To better manage a spill incident Spill Response Kits will be kept on-site, at various clearly identified locations in easily accessible areas.

The MSDS will be placed within sight and near spill kits. The MSDS has clear instructions on spill response management – cleanup and disposal.

6. Impacts assessment and mitigation measures

During the demolition and construction process, a series of best practice resource recovery measures will be implemented to avoid, reduce/reuse and recover waste to minimise disposal to landfill and maximise recovery.

To help in waste management planning during each stage of the project, an estimate of the types and quantities of waste to be generated during the demolition / construction and operational phases has been prepared. This analysis is given in Table 3.1 and Figure 3.3.

It is noted that the majority of materials to be generated through the demolition and construction phase is inert material, mainly soil. The majority of this will be re-used on site.

Some living and dead trees, shrubs and grasses as identified in the Fauna and Flora report will need to be cleared from the site to permit construction. As mentioned earlier all waste materials will be processed at the facility or sent to a licensed recycling facility for processing.

The overall recovery rate during the operational phase is expected to be very high (approximately 95%). It is anticipated that a maximum approximately 5,225 tpa of residual waste requiring off-site disposal will be generated at the site. This will be regularly removed from site and disposed in a licensed landfill.

Overall the waste impacts of the facility are believed to be positive, with wastes being recovered and recycled, instead of being sent to landfill.

7. Conclusion

The Davis Family are the owners of IN1 General Industrial zoned land at 90 Gindurra Rd, Somersby (Lot 4/DP227279). The site is currently used for storing and screening soil and sand, which is sold for landscaping. The site is referred to as the Kariong Sand and Soil Supplies (KSSS) site. The site was originally approved as a Sand and Metal Recycling Facility on 28/02/1992 (DA 15337). As part of the original approval, only the front section of the site was approved for this use.

It is proposed that the KSSS site be developed to receive, process and store up to 200,000 tonnes per annum of soil, sand and building materials. The complete development would require: installation of security fencing; construction of a hardstand area for processing material; construction of storage bays for processed material; construction of on-site roads suitable for large vehicles, installation of secondary processing equipment in a warehouse and installation of a weighbridge.

The main operational area will be divided into two main areas; one for receiving and processing incoming material, and another area for storage of final product and sale of material to landscape supplies customers. Mixed building waste will be received in the receival area, then transferred to the secondary processing shed for sorting.

The waste generated during the demolition / construction phase of the project is estimated to be 18,090 m^3 of inert material (recycled concrete, rubble, and soil), 5 m^3 of scrap metal, 100 m^3 of woody garden organics and 3 m^3 of municipal solid waste (MSW). The inert material will be used as fill on site. The metal will be recycled at a scrap metal recycling facility, off-site. The woody garden organics will be shredded to produce mulch, and either used on-site or sold. The MSW will be removed from site and disposed in a licensed landfill.

During the operational phase, up to 200,000 tpa of waste materials will be received on site for recycling. The majority will be soil or source-separated inert material. It is estimated that the recycling rate for the facility will be approximately 95%, with approximately 5,225 tpa of residual waste being removed for disposal to landfill once the facility is operating at full capacity. The recovered material will be processed into various building and landscaping products, and sold from the premises.

This facility will make a major contribution towards meeting the NSW Waste Strategy's target of 80% recycling of C&D waste by 2021.

Attachment 1 – Non-conforming Waste Procedure

NON-CONFORMING WASTE PROCEDURE

Kariong Sand and Soil Supplies

Sand, Soil and Building Materials Recycling Facility

90 Gindurra Rd, Somersby, NSW

1. Purpose of This Procedure

To ensure that non-conforming waste (waste that does not meet the NSW EPA classification of *General waste – non putrescible*) is not received at the site

If non-conforming waste is found on the site, to ensure it is managed in a way that minimises harm to human health and the environment.

2. Responsible Person

Operations Manager

3. Associated Internal Documents

Rejected Load Register and Rejected Load Certificate

Asbestos Inspection Register

Pollution Incident Response Management Plan

4. External Reference Documents

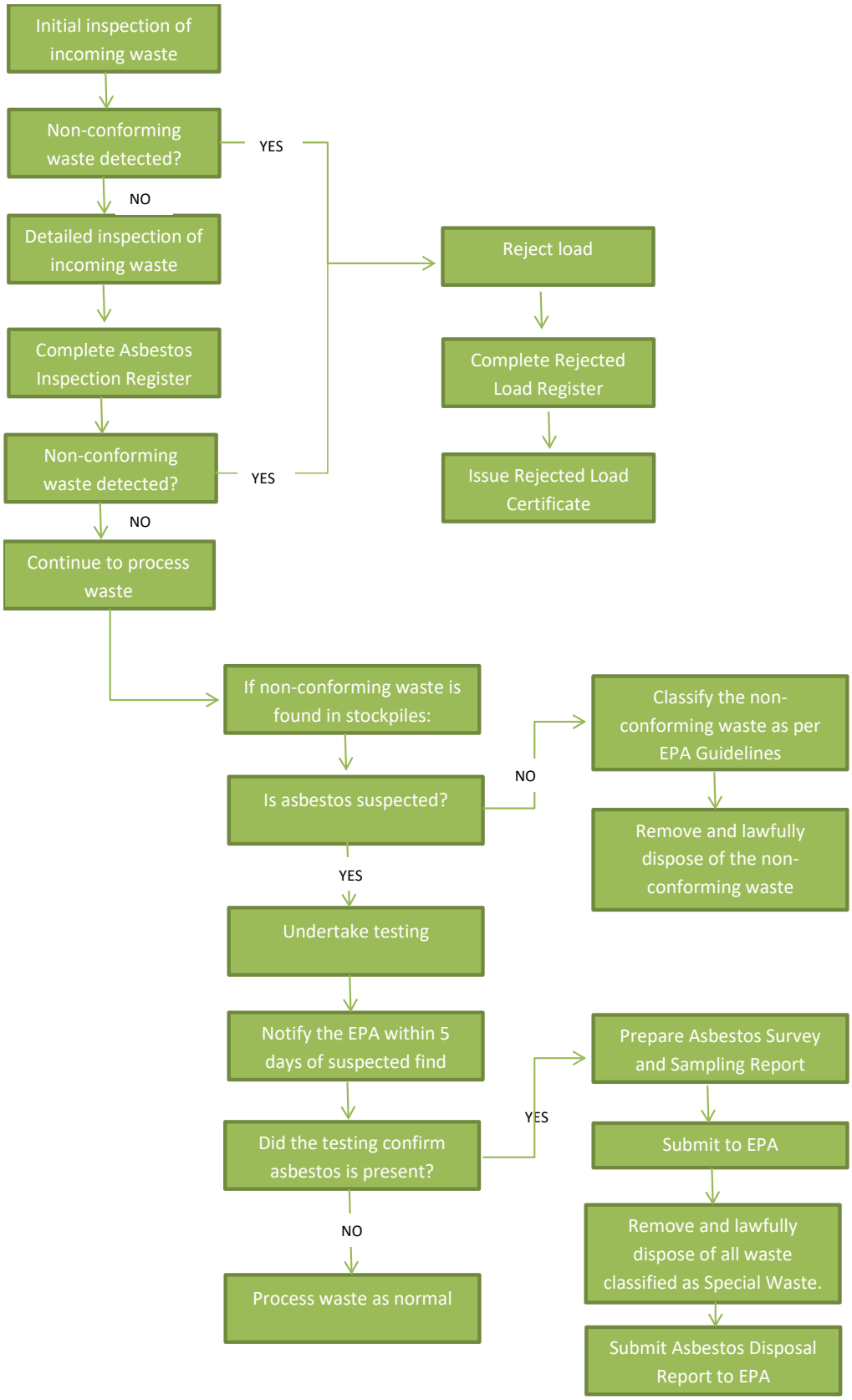
NSW EPA *Waste Classification Guidelines* 2014

NSW EPA *Draft Protocol for managing asbestos during resource recovery of construction and demolition waste* 2014

NSW EPA (2017) Reforms to the construction waste recycling sector

NSW *Protection of the Environment Operations Act* 1997

5. Steps to be undertaken for all incoming waste loads



6. Detail of Each Step in the Procedure

6.1 Initial inspection of incoming waste

When a load arrives at the gate, check the top of the load to see if non-conforming waste is visible. Also check for smell of putrescible waste.

If non-conforming waste is visible or you can smell putrescible waste, reject the load (see *Rejection of non-conforming loads*)

If non-conforming waste is not suspected, allow provisional acceptance of the waste

6.2 Detailed inspection of incoming waste, and Asbestos Inspection Register

Once the waste is tipped, spread and visually inspect the waste again for non-conforming materials.

If non-conforming waste is visible, reject the load load (see *Rejection of non-conforming loads* below)

If asbestos is suspected, wet down the load immediately.

For each load that underwent a detailed inspection, fill out the Asbestos Inspection Register.

If non-conforming waste is not suspected, process the waste as normal.

6.3 Rejection of non-conforming loads

Inform driver that load is being rejected due to presence of non-conforming waste.

Record details of the rejected load in the Rejected Load Register.

Issue the driver with a Rejected Load Certificate and keep a copy on file.

6.4 Non-conforming waste suspected in stockpiles

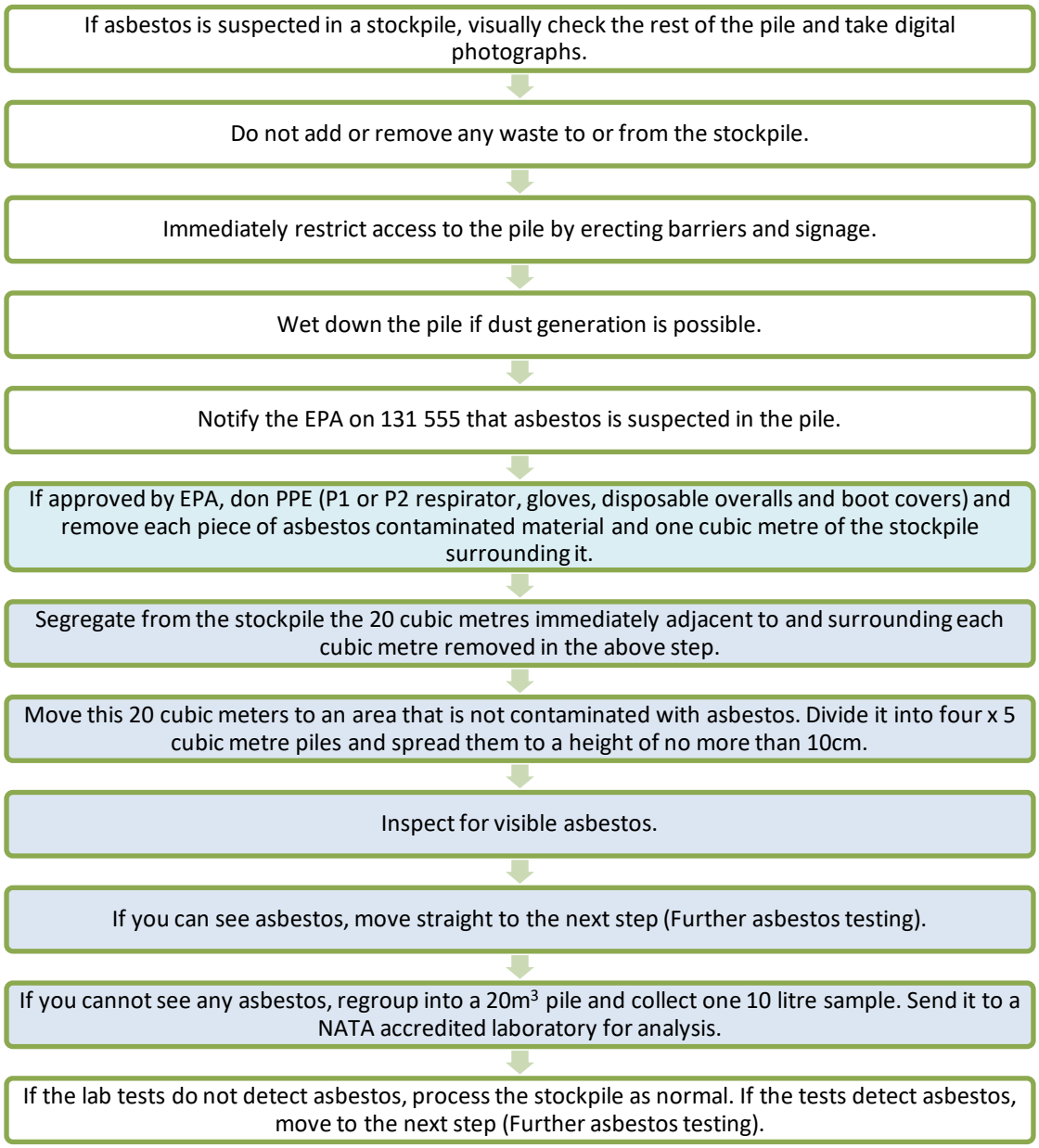
If non-conforming material other than asbestos is found, don appropriate PPE and remove it from the stockpile, to a bunded area if necessary. Arrange lawful disposal based on classification in accordance with EPA Guidelines.

If asbestos is suspected in a stockpile, DO NOT attempt to pick it out either manually or with equipment.

If asbestos is suspected, implement the next steps below.

6.5 Asbestos testing and notification

NOTE: all blue steps must be undertaken by a suitably qualified expert who has previous experience in classifying waste in accordance with the NSW Guidelines.



6.6 Further asbestos testing

NOTE: all blue steps must be undertaken by a suitably qualified expert who has previous experience in classifying waste in accordance with the NSW Guidelines.

If asbestos is found in the above step by visual inspection or by lab analysis, the 40m³ surrounding each 20m³ sampled above must be tested using the same procedures as the above step.

If asbestos is found in the 40m³ tested above, the step must be repeated on more adjacent 40m³ samples until it can be demonstrated that the waste material is free of asbestos.

6.7 Asbestos survey and sampling report

NOTE: all blue steps must be undertaken by a suitably qualified expert who has previous experience in classifying waste in accordance with the NSW Guidelines.

Once sampling and testing are finished, prepare an Asbestos Survey and Sampling Report.

Include a volumetric survey of the pile, indicating observed locations of asbestos.

Include all digital photographs taken.

Include details of all waste sources, and the name and contact details of known or possible generators and transporters of the waste in the pile.

Include details of any blending, processing or movement of the waste in the pile.

Include contact details of anyone who may have received waste from the pile

Include details of how the waste has been sampled.

Include waste classification reports and amount in m³ and tonnes of each waste type identified in the pile.

Include the current locations of the separated contaminated waste and other waste.

Include a proposed timeline for removal of the contaminated waste.

Include a list of steps will be taken to minimise future risk of asbestos contamination in stockpiles.

Submit the report to the EPA.

6.8 Removal of asbestos-contaminated waste

Once permission is granted by the EPA, arrange for lawful transport and dipsosal of all waste now classified as Special Waste (and any other waste identified to be removed) by trained personnel in accordance with the timelines in the Asbestos survey and sampling report.

6.9 Asbestos Disposal Report

Prepare an Asbestos Disposal Report

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Include a a signed, dated statement from Site Representatvive saying that you complied with the requirements of the NSW Draft Protocol for Managing Asbestos During Resource Recovery of Construction and Demolition Waste.

↓

Include all the weighbridge dockets showing that the Special Waste (and any other waste required to be removed) was disposed to a facility that can lawfully receive it.

↓

Include a signed and dated statement from the landfill that received the waste, confirming dates of receipt of waste, amounts received each day, and total amount received.

↓

Provide the report to the EPA within 7 days of final disposal of Special Waste, or if removal takes more than a month, within 7 days after every month that waste is being disposed.