



Licence Number	L7779/1978/6
Licence Holder	Delta Corporation Limited (ACN: 009 225 567)
Registered business address	1305 Hay Street WEST PERTH WA 6005
Date of amendment	Monday, 27 February 2017
Prescribed Premises	Category 13: Crushing of building material Category 61A: Solid waste facility
Premises	Delta Corporation Limited Lot 3 on Diagram 36851 Campersic Road HERNE HILL WA 6056

Amendment

The Chief Executive Officer (CEO) of the Department of Environment Regulation (DER) has amended the above licence in accordance with section 59 of the *Environmental Protection Act 1986* as set out in this Amendment Notice.

Date signed: 27 February 2017

Alan Kietzmann

MANAGER LICENSING (WASTE INDUSTRIES)

an officer delegated under section 20 of the Environmental Protection Act 1986 (WA)

Amendment Notice

This Notice is issued under section 59 of the *Environmental Protection Act 1986* (EP Act) to amend the licence issued under the EP Act for a prescribed premises as set out below. This notice of amendment is given under section 59B(9) of the EP Act.

Amendment Description

Delta Corporation Limited (the Licence Holder/Delta) was granted an amended licence (L7779/1978/6) on 27 April 2016. The licence authorises an annual 'approved premises production or design capacity' of up to 20,000 tonnes of concrete waste generated on the Premises to be crushed onsite.

This Amendment Notice is the result of a Licence Holder initiated amendment. On 13 January 2017, the Licence Holder submitted an amendment application to accept construction and demolition (C&D) waste from a third party (Denison (WA) Pty Ltd) to be crushed at the Premises. The Licence Holder has not applied to increase the premises throughput as the accepted C&D waste will supplement the reduction of concrete waste generated onsite due to reduced production capacity.

Location, environmental siting and potential receptors

The premises is located within the City of Swan within an area zoned Swan Valley Rural. Immediately east to the premises is an area zoned Rural Living. The closest sensitive receptors, being residences, are located approximately 150m south-west and 325m north-west of the crusher location.

The premises is within a Carnabys Cockatoo confirmed breeding area. Bushforever site 784, as classified under the Department of Planning's State Planning Policy 2.8, *Bushland Policy for the Perth Metropolitan Region*, is located 1.16km south of the premises boundary. Other prescribed premises in the area include the Hanson Construction Materials Pty Ltd's Red Hill Quarry. The boundary of the Quarry is located immediately adjacent to Delta's premises boundary.

The nearest surface water body is the Strelley Brook, a tributary of the Jane Brook, is located approximately 520m south of the premises boundary. The Susannah Brook, being a significant stream, is located 2.3km north of the premises and the Swan River is located 3.7km north-west of the premises. Using DER's GIS mapping software, groundwater has been identified groundwater at a depth of 18m AHD with an inferred groundwater flow direction from east to west towards the Swan River.

The potential emission risks from the acceptance and processing of C&D waste are dust (including asbestos) and noise.

Risk assessment

The processing of C&D waste is unlikely to generate additional dust or noise emissions as there will not be an increase in throughput and the application does not propose to introduce additional processing equipment. The Delegated Officer considers that the processing of C&D waste poses an asbestos risk to public health. The Delegated Officer has determined that because the crushing facility is within 1,000m of sensitive receptors, there is an elevated risk to the public, and may require greater regulatory controls. Consequently, fugitive dust emissions (including asbestos

fibres) are reassessed to ensure regulatory controls are adequate.

Fugitive dust emissions

Emission description

Emission: Fugitive dust emissions from the crushing and screening of C&D waste which have the potential to contain asbestos, dust lift-off from trafficked roads, lift-off from stockpiles, and handling of C&D wastes and screened products.

Impact: Degradation of local air quality. Degradation to surface water quality in the Strelley Brook located 520m south of the premises. Nuisance impacts on the comfort, amenity, and wellbeing impacts on sensitive receptors located 150m south-west of premises boundary. Potential human health impacts from any asbestos fibres in dust emissions.

Impacts to human receptors include:

- Health
 - Asbestosis;
 - Irritation of eyes;
 - Coughing;
 - Sneezing;
 - Hayfever;
 - Increasing symptoms of existing respiratory conditions such as:
 - Asthma;
 - Emphysema; and
 - Chronic obstructive airways disease.
- Nuisance
 - Dust covering people's homes and property;
 - Impacting of people's amenities; and
 - Impacting on people's comfort.

DER has received 3 complaints since 2015 in regards to dust emissions from the Premises.

The relevant criteria for assessment of dust emissions as PM₁₀ is 50µg/m³ over 24 hours as specified in the National Environment Protection (Ambient Air Quality) Measure (NEPM). The NEPM is the relevant criteria for assessment in relation to human health and wellbeing.

Controls: The following controls are used by the Licence Holder for general dust mitigation which assists in preventing the release of asbestos fibres if these controls are applied to C&D waste:

- Concrete is wet down prior to being crushed;
- The crusher conveyor belts have been fitted with water sprays to suppress dust during the crushing process;
- A water cart is used around the Premises as required;
- Feed material is contained in 3-sided bins.

Delta has provided an Asbestos Management Plan (AMP) as part of the licence

amendment application however the AMP is very limited and does not reflect the requirements specified in the Guidelines for managing asbestos at construction and demolition waste recycling facilities (2012) published by the department of Environment and Conservation (DER Asbestos Guidelines).

Denison (WA) Pty Ltd, who will be undertaking the processing of the C&D waste at the premises on behalf of the Licence Holder has also provided an AMP however this is also limited and does not meet the requirements of the DER Asbestos Guidelines.

Risk assessment (dust)

Consequence: Based on the sensitivity of residential receptors, the Delegated Officer has determined that fugitive dust emissions may cause mid-level impacts to amenity and the NEPM is at risk of being exceeded. Impacts to the Strelley Brook may experience low-level off-site impacts. Therefore, the Delegated Officer considers the consequence to be **Moderate**.

Likelihood: Based on the close proximity to sensitive receptors, consideration that dust complaints have been received by DER, and proponent controls, the Delegated Officer has determined that moderate impacts could occur at some time. Therefore, the Delegated Officer considers the likelihood to be **Possible**.

Risk Rating: The Delegated Officer has compared the consequence and likelihood ratings described above for the Risk Criteria (Appendix A) and determined the overall rating for the risk of fugitive dust emissions from the crushing of C&D waste to be **Medium**.

Regulatory Controls

The Delegated Officer has determined that because of the close proximity to sensitive receptors, there is an elevated risk to the environment and public health, and may require greater regulatory controls.

Conditions 1.2.17 to 1.2.19 for dust emissions management have been included on the licence to reflect the dust abatement measures proposed by the Licence Holder, as these were not previously on the licence.

Table 1.2.2 has been amended to limit stockpiles to 5m in height, and require all loads to be wet down during loading and unloading. The Delegated Officer considers that these controls will assist in mitigating fugitive dust impacts on sensitive receptors. Table 1.2.2 has also been amended to include the requirement for feed materials to be stored in 3-sided bins with covers, which is a Licence Holder proposed control.

Risk assessment (asbestos fibres)

Consequence: Based on the sensitivity of residential receptors, the Delegated Officer has determined that asbestos emissions may cause adverse health impacts. Therefore, the Delegated Officer considers the consequence to be **Severe**.

Likelihood: Based on the close proximity to sensitive receptors and limited information provided for asbestos management, the Delegated Officer has determined that severe impacts would probably not occur in most circumstances. Therefore, the Delegated Officer considers the likelihood to be **Unlikely**.

Risk Rating: The Delegated Officer has compared the consequence and likelihood ratings described above for the Risk Criteria (Appendix A) and determined the overall rating for the risk of asbestos emissions from the crushing of C&D waste to be **High**.

Regulatory controls

The Delegated Officer considers that the inclusion of conditions 1.2.3 to 1.2.15 for asbestos management will reduce the likelihood of the consequence from unlikely to rare. The included conditions for fugitive dust emissions will also assist in the reducing the likelihood of asbestos fibres being released from the crushing of C&D waste. The inclusion of these licence conditions will still result in a high risk however the Delegated Officer considers that with these regulatory controls in place, the risk is acceptable.

Decision

The Delegated Officer considers that the acceptance of C&D waste from external sources poses a high risk to public health from the release of asbestos fibres within C&D waste.

The Delegated Officer has determined that an amendment is to be made to include conditions 1.2.3 to 1.2.15 to manage the high risk posed by asbestos emissions. Table 1.2.1 has been amended to authorise the acceptance and processing of C&D waste. Table 1.2.2 has been amended to include specific dust mitigation measures to assist in reducing the risk of asbestos fibres in fugitive dust and conditions 1.2.17 to 1.2.19 have also been included for this purpose.

Table 3.2.1 has been amended to require asbestos sampling results to be provided in the Annual Environmental Report and the Premises Map has been replaced with a new map depicting the location of the crusher. Attachments 1 – 3 have been included onto the licence in regards to asbestos management and sampling. Definitions have been included on the licence to assist in clarification of licence conditions.

The Delegated Officer considers that the reprocessing of the C&D waste will meet the definition of a category 61A solid waste facility as defined in Schedule 1 of the *Environmental Protection Regulations 1987*, and accordingly, this category has been included onto the licence.

In granting this amendment the Delegated Officer has considered the following DER guidance statements:

- *Setting Conditions Division 3, Part V, Environmental Protection Act 1986, October 2015;*
- *Licensing and works approvals process Part V Environmental Protection Act 1986, September 2015;*
- *Decision Making (November 2016); and*
- *Risk Assessments (November 2016).*

Amendment History

Instrument	Issued	Amendment
L7779/1978/6	25/01/2013	Amendment to include improvement conditions for asbestos management
L7779/1978/6	16/04/2015	Amendment to convert licence into new format
L7779/1978/6	27/04/2016	Amendment to reporting requirements
L7779/1978/6	27/02/2017	Amendment Notice 1: Inclusion of C&D waste and asbestos conditions

Licence Holder's Comments

The Licence Holder was provided with the draft Amendment Notice on 22 February 2017. A comment relating to the storage requirements of C&D feed material in bins with covers (Table 1.2.2) was received from the Licence Holder. The Delegated Officer has considered the comment and the wording in Table 1.2.2 has been amended to remove the covering of the feed material but restrict the height of the materials stored within the bins. The 21-day waiver form was signed and returned on 24 February 2017.

Amendments

- The 'Prescribed premises category' table on page one of the licence has been amended by the inclusion of the text shown in red and underlined below:

Category number	Category description	Category production or design capacity	Approved premises production or design capacity
13	Crushing of building material: premises on which waste building or demolition material (for example, bricks, stones or concrete) is crushed or cleaned.	1,000 tonnes or more per year	<u>Combined limit of 20,000 tonnes per annual period</u>
<u>61A</u>	<u>Solid waste facility: premises (other than premises within category 67A) on which solid waste produced on other premises is stored, reprocessed, treated, or discharged onto land.</u>	<u>500 tonnes or more per year</u>	

- The following definitions have been inserted into section '1.1. Interpretation' of the licence:

'Acceptance Criteria' has the meaning defined in Landfill Definitions;

'ACM' means Asbestos Containing Material;

'asbestos containing material' has the meaning defined in the Guidelines for Assessment, Remediation and Management of Asbestos Contaminated Sites, Western Australia, (DOH, 2009);

'Attachment 1' means Attachment 1 of this Licence unless otherwise stated;

'Attachment 2' means Attachment 2 of this Licence unless otherwise stated;

'Attachment 3' means Attachment 3 of this Licence unless otherwise stated;

'averaging period' means the time over which a limit is measured or a monitoring result is obtained;

'classified load' means the classification of waste loads during acceptance and post acceptance based on the risk of waste material containing asbestos or ACM and through visual inspection. Classification of waste loads shall be undertaken in accordance with the provisions outlined in Section 3.3 and 3.4 DER Asbestos Guidelines;

'controlled waste' has the definition in Environmental Protection (Controlled Waste) Regulations 2004;

'damp' means moist to the touch;

'DER' means the Department of Environment Regulation;

'DER Asbestos Guidelines' means document titled "Guidelines for managing asbestos at construction and demolition waste recycling facilities", published by the Department of Environment and Conservation, as amended from time to time;

'usual working day' means 0800 – 1700 hours, Monday to Friday excluding public holidays in Western Australia.

3. 'Specification' column of Table 1.2.1 has been amended by the removal of the text shown in strikethrough below:

Table 1.2.1: Waste acceptance		
Waste type	Quantity Limit	Specification¹
Inert Waste Type 1	20,000 tpa	Limited to waste generated by Delta Corporation Limited concrete batching operations. Waste containing visible asbestos or asbestos containing material shall not be accepted.

4. Conditions 1.2.3 to 1.2.15 has been inserted into the licence as shown below:

1.2.3 The Licensee shall ensure that any waste that does not conform to the waste acceptance criteria in Table 1.2.1 due to asbestos content, is covered or bagged and kept within a clearly identified, labelled, segregated and secure container prior to being removed off site to an appropriate authorised facility within 48 hours.

1.2.4 The Licensee must advise all source material providers that asbestos or potentially asbestos contaminated material is not accepted at the Premises.

1.2.5 The Licensee must include a 'no asbestos' clause in all contracts with all

source material providers.

- 1.2.6 *The Licensee must maintain a clearly visible sign saying 'No Asbestos' at the entry to the Premises.*
- 1.2.7 *The Licensee must visually inspect all loads of waste when they arrive at the Premises prior to unloading to determine the risk of a load containing asbestos or ACM and each load shall be classified in accordance with the risk classification procedure outlined in Attachment 1.*
- 1.2.8 *Where the inspection required by condition 1.2.7 confirms that the load does contain asbestos or ACM, the Licensee must:*
- (a) reject the waste for acceptance;*
 - (b) maintain accurate records of all rejected loads on the Premises and the documentation must be made available to DER officers upon request; and*
 - (c) record the details of the waste source, material carrier, registration number of the vehicle and date of rejection.*
- 1.2.9 *The Licensee shall direct each accepted and Classified Load to an unloading area at the site for further inspection. The unloading area shall be appropriately designed and constructed to ensure the waste will not mix with other waste.*
- 1.2.10 *The Licensee shall dampen all Classified Loads prior to unloading and maintain the waste in a damp state throughout the inspection process using appropriate dust suppression measures.*
- 1.2.11 *The Licensee must inspect and maintain records for all unloaded waste in accordance with the low risk and high risk load procedure as outlined in Attachment 2.*
- 1.2.12 *The Licensee must continue to visually inspect waste on the Premises at all stages of the storage, sorting and screening process. Suspect asbestos identified at any stage of the process must be handled in accordance with the high risk load procedure outlined in Attachment 2.*
- 1.2.13 *The Licensee must maintain waste and processed waste on the Premises in at least two separate stockpile areas for unprocessed waste, processed waste tested for ACM and:*
- (a) unprocessed waste and processed waste areas must be kept clearly separated at a minimum 3 m distance;*
 - (b) processed waste tested for ACM and processed waste awaiting testing for ACM must be clearly separated by a minimum 3 m distance OR clearly delineated and separated with impermeable barriers; and*
 - (c) clearly visible and legible signage must be erected on individual stockpiles to clearly identify and delineate tested processed waste, untested processed waste and unprocessed waste.*
- 1.2.14 *The Licensee shall ensure that the asbestos content of any recycled output originating from Inert Waste Type 1 does not exceed the contamination limit of 0.001% w/w for asbestos (in any form).*
- 1.2.15 *The Licensee shall ensure that recycling outputs originating from Inert*

Waste Type 1 are sampled and tested in accordance with Attachment 3.

5. Former condition 1.2.3 has been renumbered in the licence to condition 1.2.16 as shown in strikethrough and the underlined red text below:

1.2.3~~16~~ The Licensee shall ensure that wastes accepted onto the Premises are only subjected to the process(es) set out in Table 1.2.2 and in accordance with any process limits described in that Table.

6. Table 1.2.2 has been amended by the removal of the text shown in strikethrough and the insertion of the red text shown in underline below:

Table 1.2.2: Waste processing		
Waste type	Process(es)	Process limits
Inert Waste Type 1	Receipt, handling and storage of waste prior to treatment.	Waste shall only be stored within designated storage bays provided with dust control measures.
	Mechanical treatment consisting only of screening and crushing	Treated materials shall only be stored within designated storage bays provided with dust control measures.
	Storage of treated materials	<u>Stockpiles must not exceed 5m in height from the base of the stockpile.</u> <u>All loads to be wet down prior to unloading, loading and processing.</u> <u>Feed material must be stored in 3-sided bins at a height not exceeding the side of the bins.</u>

7. Conditions 1.2.17 to 1.2.19 have been inserted into the licence as shown below:

1.2.17 *The Licensee shall maintain and operate a water truck on all stockpiles and trafficable roads as required to suppress dust.*

1.2.18 *The Licensee shall use inbuilt water spray systems on the crusher and screener at all times when the equipment is operational.*

1.2.19 *The Licensee shall ensure that the crusher and screener are located in the area depicted as 'Crushing Area' as depicted in the **Premises Map** in Schedule 1.*

8. Table 3.2.1 has been amended by the insertion of the red text shown in underline below:

Table 3.2.1: Annual Environmental Report		
Condition or table (if relevant)	Parameter	Format or form¹
-	Summary of any failure or malfunction of any pollution control equipment and any environmental incidents that have occurred during the annual period and any action taken	None specified
<u>1.2.15</u>	<u>Recycled outputs sampling and testing data</u>	<u>None specified</u>
<u>Table 2.1.1</u>	<u>Monitoring data of inputs and outputs</u>	<u>None specified</u>
3.1.2	Compliance	Annual Audit

Table 3.2.1: Annual Environmental Report

Condition or table (if relevant)	Parameter	Format or form ¹
		Compliance Report (AACR)
3.1.3	Complaints summary	None specified

9. The 'Premises Map' in Schedule 1 has been replaced with the following image:



8. Attachments 1, 2 and 3 have been inserted into the licence as shown below:

Attachment 1: Section 3.3 of the DER Asbestos Guidelines (page 10 - 11)

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- Ensuring a “no asbestos” clause is included in any contracts with C&D waste suppliers;
- Installing a clearly visible sign saying “No Asbestos” is present at the entry to the facility;
- Establishing a system to record the details of loads arriving/received at the site which have been found to contain asbestos.

DEC has a supply of brochures that outline the rules on disposal of asbestos loads that can be handed to customers. Please contact DEC’s Waste Management Branch on (08) 6467 5323 for copies.

3.3 Acceptance procedures

When waste arrives at the recycling facility, acceptance procedures must serve to confirm that the characteristics of the waste are consistent with the waste types permitted by the Part V licence and to determine the risk of the load containing asbestos.

To follow on from the pre-acceptance procedures, all persons bringing waste onto the premises must be asked to sign a declaration or provide a ‘customer warranty’ on a vehicle load specific basis confirming that their load is free from asbestos. The associated documentation should be retained on the premises and be available for DEC to inspect. Where an individual is not prepared to sign this disclaimer or provide such a warranty the load shall be refused entry.

All loads must be visually inspected when they arrive at the recycling site. Where the inspection identifies that the wastes are not permitted by the licence and/or asbestos is visually identified in the load it shall be rejected for acceptance. A record of all rejected loads must be maintained on the premises and be available for DEC to inspect. As a minimum, a record must be made of the waste producer, waste carrier, registration number of the vehicle and the date of rejection.

The risk of a load containing asbestos is related to the type and source of the waste. In general, buildings and structures constructed after 1990 are unlikely to have asbestos containing materials within them, whereas buildings and structures constructed before this date may have been built using asbestos containing materials.

Because large buildings and structures undergo regulated asbestos removal programs and inspections before they are demolished the probability of asbestos being present in the demolition debris should be low. However, a risk of contamination can remain from asbestos formwork embedded or attached to concrete columns that cannot be readily identified through the asbestos clearance certification process and from asbestos piping from reclaimed road, car park areas and water supply systems.

It is also common for mixed waste from unknown sources, particularly those in skip bins or from small-scale demolition or refurbishment activities to contain amounts of asbestos waste. These sources must be considered high risk.

To determine the risk of an incoming load containing asbestos the gatehouse operator shall establish:

- The source of the load including the site location and if possible the age of any building or structure from which the C&D waste originated;

- The content/waste types within the load; and
- The type of load.

Where the source of the load can clearly be determined to be a building or structure constructed after 1990 then the load can be considered to represent a low risk of asbestos contamination and managed as outlined in the following section. Where the waste originates from a building constructed before 1990 or there is uncertainty over this issue, the risks associated with asbestos in the load must be established in line with the Risk Classification Matrix below.

Once classified, each load must be directed to the appropriate area for unloading and further inspection in line with the following sections.

Risk Classification Matrix			
Material Type	Type of load		
	Commercial	Public, utes, cars and trailers*	Skip bins
Clean Concrete (without formwork)	Low	High	High
Clean Brick	Low	High	High
Clean Bitumen / Asphalt	Low	High	High
Mixed Construction waste	High	High	High
Mixed Demolition waste	High	High	High

* if it is possible to view the entire load of incoming C & D material (eg a small trailer with a shallow load, then consideration may be given to classifying these loads as low risk
(Risk Matrix Classification adapted from WorkSafe Victoria 2006 and WMAA 2009)

3.4 Load inspection after acceptance

Each accepted and classified load shall be directed to an unloading area at the site which is appropriately designed and constructed to ensure the waste will not mix with other waste. Where feasible, separate unloading areas shall be provided for low risk and high risk wastes.

All loads shall be dampened prior to unloading and maintained in a dampened state throughout the inspection process. Operators will need to ensure there are adequate facilities on the premises to achieve this.

Low risk load procedure

Loads classified as "low risk", must be visually inspected while the material is being unloaded to determine whether any asbestos can be identified.

If suspect fibrous asbestos (FA) or asbestos fines/fibres (AF) are detected, the load must be isolated, kept wet and once appropriately contained in accordance with the Asbestos Factsheet in Appendix A, redirected to an appropriately authorised disposal facility. If suspect ACM is identified, the load must be reclassified as "high risk" and continue to be processed in accordance with the high risk procedure below. Where the visual inspection confirms that the

Attachment 2: Section 3.4 of the DER Asbestos Guidelines (page 11 and page 12)

- The content/waste types within the load; and
- The type of load.

Where the source of the load can clearly be determined to be a building or structure constructed after 1990 then the load can be considered to represent a low risk of asbestos contamination and managed as outlined in the following section. Where the waste originates from a building constructed before 1990 or there is uncertainty over this issue, the risks associated with asbestos in the load must be established in line with the Risk Classification Matrix below.

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* if it is possible to view the entire load of incoming C & D material (eg a small trailer with a shallow load, then consideration may be given to classifying these loads as low risk
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3.4 Load inspection after acceptance

Each accepted and classified load shall be directed to an unloading area at the site which is appropriately designed and constructed to ensure the waste will not mix with other waste. Where feasible, separate unloading areas shall be provided for low risk and high risk wastes.

All loads shall be dampened prior to unloading and maintained in a dampened state throughout the inspection process. Operators will need to ensure there are adequate facilities on the premises to achieve this.

Low risk load procedure

Loads classified as "low risk", must be visually inspected while the material is being unloaded to determine whether any asbestos can be identified.

If suspect fibrous asbestos (FA) or asbestos fines/fibres (AF) are detected, the load must be isolated, kept wet and once appropriately contained in accordance with the Asbestos Factsheet in Appendix A, redirected to an appropriately authorised disposal facility. If suspect ACM is identified, the load must be reclassified as "high risk" and continue to be processed in accordance with the high risk procedure below. Where the visual inspection confirms that the

load is clear of suspect ACM, FA and AF, the load may then be added to the waste stockpiles awaiting further processing eg crushing and screening.

High risk load procedure

Loads classified as "high risk" must be unloaded and spread over a sufficiently large area to enable a comprehensive visual inspection of all sides of the material to be undertaken. One method of achieving this is to spread the material to a depth of less than 30cm and to turn over the material with the use of an excavator or similar. Where appropriate, larger sections of concrete should be inverted to permit a visual check for embedded or underlying asbestos product debris.

If suspect FA or AF are detected, the load must be isolated, kept wet and once appropriately contained in accordance with the Asbestos Factsheet in Appendix A, and redirected to an appropriately authorised disposal facility.

Where suspect ACM is identified within a load and is not capable of being easily removed by hand, the load must be rejected and should be isolated, kept wet and once appropriately contained in accordance with the Asbestos Factsheet in Appendix A, and redirected to an appropriately authorised disposal facility.

Where suspected ACM fragments capable of being easily removed by hand are identified in a load, the suspect ACM must be removed from the load and either:

1. Appropriately isolated and covered for asbestos testing. If testing of representative samples confirms the material is ACM it must be redirected to an appropriately authorised disposal facility. If testing confirms the material is not ACM the waste can be added to the stockpile awaiting further processing; or
2. Assumed to be ACM and redirected to an appropriately authorised disposal facility.

All suspected or assumed ACM must be segregated. Material must be clearly labelled, kept secure and sufficiently contained to prevent the release of asbestos including wind blown fibres.

Once all suspected or assumed ACM has been removed from a load in line with the above procedure the residual waste can be added to the stockpile awaiting further processing.

Records must be kept to ensure that the process from receipt of C&D material to the completion of the unloading procedure is auditable and that any loads found to contain suspect asbestos can be traced back to the customer and originating site. Through Part V licence conditions, DEC will require records of loads found to contain asbestos and action taken by the C&D recycler to address this issue with the customer, to be submitted on a regular basis. DEC will take follow up action with customers delivering asbestos containing waste to the premises as necessary.

4 Monitoring and Testing

Monitoring must be undertaken to confirm that risk management measures are effectively meeting their objectives. This shall include qualitative and quantitative monitoring and product testing.

4.1 Qualitative monitoring

Site operatives must undertake visual inspections whilst the facility is operational to ensure that fugitive emissions of dust are being adequately controlled and are not being carried outside of the premises. Where fugitive dust releases are identified their source must be investigated and all reasonable and practicable measures implemented to prevent or minimise the release.

Where risk management measures are ineffective or likely to be ineffective at preventing visible dust crossing the site boundary, for example during adverse weather conditions, waste processing activities must cease until additional measures have been put in place to prevent the discharge or until the adverse weather conditions have passed.

4.2 Quantitative environmental monitoring

On some sites it may be necessary for ambient dust or asbestos fibre air monitoring to be undertaken to provide further confidence in risk management measures. Such monitoring may be required where recycling sites are located in close proximity to sensitive receptors, are within a relevant Environmental Protection Policy area or have a poor compliance history relating to fugitive dust control. Where quantitative dust monitoring is not proposed, the proponent/operator must provide a risk based justification as to why it is not considered necessary at their premises.

Dust monitoring provides a useful surrogate measure to evaluate the potential generation and distribution of airborne dust and asbestos fibres and will normally be sufficient on most sites. Dust monitoring equipment must demonstrate that dust levels are kept as low as reasonably possible. Tapered Element Oscillating Microbalance (TEOM) (or equivalent) equipment is preferred to provide continuous and accurate perimeter air monitoring for community protection. Any site perimeter monitoring for this purpose should be conducted to ensure compliance with the National Environmental Protection Measure (NEPM) ambient air 24 hour PM_{10} goal of $50 \mu g/m^3$.

Where air quality monitoring is required, an air quality monitoring and reporting strategy must be developed by a person suitably experienced in dust/asbestos sampling and exposure assessment and any associated analysis be undertaken by a laboratory accredited by NATA for this purpose.

4.3 Product testing and supply

To ensure that recycled products have been produced to the required specification in relation to asbestos content it is necessary for product testing to be undertaken. The testing procedures detailed in this section have application for the three main recycled products:

1. Recycled drainage rock 20-27mm;

2. Recycled sand, screened to <10mm; and
3. Recycled road-base, <19mm.

The testing must be documented as outlined under Section 5.3.

Product specification

To ensure the health of those using or coming into contact with recycled C&D products is protected, the asbestos content (in any form) of any recycled products must not exceed 0.001% asbestos weight for weight (w/w).

Inspection and sampling requirements

All types of recycled product must be inspected and/or sampled and tested for ACM, FA and AF, as outlined below. Inspections and sampling may be undertaken by staff employed by the licensee as long as they have received the required asbestos training for operational staff set out in section 5.2.

ACM and FA are subject to visual inspection and sampling procedures since they are larger in size (>7mm) and AF (<7mm) is assessed by submitting samples for laboratory analysis.

Recycled products may be sampled from conveyors or stockpiles. Whichever approach is adopted, the operator will need to ensure that they have appropriate systems in place to allow them to identify where in the product stockpiles each sample is from to allow further testing or separation to occur if required.

Stockpile inspection and sampling

In the case of recycled drainage rock and recycled road-base a visual inspection should be undertaken in a systematic grid fashion over the any new stockpile material to identify any suspect asbestos material.

No sampling is required for recycled drainage rock, other than to determine by laboratory analysis if necessary whether a suspect fragment is asbestos.

For recycled road-base and screened sand, sampling is necessary and must be spread evenly over the whole stockpile surface or samples may be taken at regular intervals (as per conveyor sampling) during construction of the stockpile. Suspect asbestos material or areas must be targeted for sampling.

Sampling of road base and screened sand products must occur at a minimum rate of 40 locations per 4000 tonnes or 14 samples per 1000m³ of product.

Conveyor sampling

Sampling of road base and screened sand products must occur at a minimum rate of 1 sample per 70m³ of a product output. Suspect asbestos material or areas must be targeted for sampling.

Sample treatment

Each sample collected must be at least 10 litres in volume and then be divided into 2 size fractions (>7mm and <7mm) in the field by sieving through a 7mm screen or spread out for inspection on a contrasting colour fabric. The >7mm fraction should be examined for any suspect asbestos material and this be retained to calculate the level of contamination.

The <7mm fraction will need to be a minimum 500 ml, be wetted, and submitted for laboratory analysis. This sample size is considered necessary to improve the limit of detection for asbestos in the analysis procedure.

Reduced Sampling Criteria

Once premises have demonstrated that their procedures are able to consistently produce recycled product that meets the product specification and undertake their activities to a high standard, DEC may authorise a reduced product testing rate including down to 5 locations per 4000 tonnes (1 sample per 600m³) of product.

The criteria that DEC will use to consider and determine a reduction in product sampling frequency are:

1. Activities at the premises have been validated through a DEC inspection or audit to comply with these guidelines;
2. DEC has confirmed through an inspection or audit that the conditions of the Part V licence are being met;
3. DEC has not undertaken any enforcement action in relation to the activities at the premises in the last 6 months;
4. Product testing has demonstrated that the product specification has been consistently achieved at the premises for a continuous 6 month period;
5. The presence of mitigating factors such as best practice management measures, high control of source material or use of the product for low risk purposes;
6. The quantity of waste processed in the last 6 months and the different sources/types of material processed at the premises; and
7. DoH has agreed to the reduction in product sampling rate at the premises.

All requests for a reduced product sampling rate must be submitted in writing to the relevant DEC Industry Regulation Regional Leader for the Premises, details of which can be found in the interpretation section of the Part V licence for the Premises.

DEC will refer all requests to the DoH and operators must ensure that all requests include sufficient evidence, particularly in relation to product testing, to support compliance with the above criteria.

Proponents should note however, that despite a premises meeting the above reduced sampling criteria, there may be occasions where a reduced sampling rate is not approved by DEC. This

may occur for example where the site is close to sensitive receptors, contentious and/or there is a need to provide public confidence in the activities at the site.

Where a reduced sampling rate is approved at a premises, DEC will provide written notification of the approval and will continue to closely monitor that premises to ensure it remains compliant with the reduced sampling criteria. DEC's monitoring of the premises will be further supported by the annual process audits required by section 5.1 and the results of the product sampling.

DEC will withdraw the approval to implement a reduced sampling frequency where the reduced sampling criteria are not being met on an on-going basis. Where DEC withdraws approval for a reduced sampling frequency, proponents will be provided with the reasons for the withdrawal.

In the event that approval for a reduced sampling rate is withdrawn by DEC, proponents will be required to make a new reduced sampling frequency request and demonstrate that they have:

1. Implemented appropriate measures to prevent a re-occurrence of the non-compliance that caused the previous agreement for a reduced sampling frequency to be withdrawn; and that
2. The product specification (sampled at the 40 samples per 4000 tonnes rate) has been consistently met for a 6 month period following the implementation of the measures identified in 1. above.

Sample Analysis Method

>7mm sample fractions

Asbestos concentrations (ACM and FA) should be calculated in accordance with the methods detailed in section 4.1.7 of Department of Health (DoH), 2009, *Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia*. As detailed in the DoH Guidelines, averaging asbestos levels across the stockpile is not appropriate and asbestos levels within each sample should be reported.

<7mm sample fractions

Each <7mm sample fraction must be analysed for FA and AF.

Asbestos analysis must be undertaken by an independent NATA certified laboratory and comply with Australian *Standard Method for the Qualitative Identification of asbestos in bulk samples* (AS4964-2004) or be demonstrated to be able to achieve the equivalent level of results to this Australian Standard.

AS4964-2004 is currently the only method in Australia that has NATA certification, however the practicable level of detection for this standard polarized light microscopy method (PLM) and dispersion staining (DS) is 0.01%w/w. It is possible however, to measure asbestos contamination at or lower than 0.001%w/w where an increased sample size used, however DEC recognises that any reporting of concentrations below 0.01%w/w will be outside the conditions set by NATA.

Therefore, to determine whether recycled products meet the product specification for asbestos content, samples must be a minimum of 500mL in size. Proponents must adopt one of the following analytical approaches:

1. Detected/non-detected – where any quantity of asbestos is detected by the PLM method it must be assumed, without further analysis, to be in concentrations above the product specification limit of 0.001%w/w. A weight of evidence approach may be adopted i.e. the frequency and occurrence of other positive results in the stockpile can be taken into account, to determine whether the stockpile being assessed is considered to meet the product specification or not; or
2. Where any quantity of asbestos is detected by the PLM method, the sample is subject to further testing in the form of a semi-quantitative method with a lower level of detection for asbestos. A number of laboratories have developed such semi-quantitative methods for the analysis of low levels of asbestos. Techniques include:
 - The extraction and weighing of fibre bundles or fibre cement material from the total sample; and
 - Measuring the width and length (ie volume) of individual fibre by Phase Contrast Microscopy (PCM) and calculating the weight of fibres in the extracted sub-sample.

The use of either of these methods is considered acceptable to DEC.

Whatever analysis methods are adopted by an operator, DEC expects a number of assessment based statements to be included in all laboratory analytical reports. These include:

- Details of the sample size;
- A Statement of Limit of Detection of the analysis;
- Results in relation to asbestos detected or not – note that AS4964-2004 allows for a nil detection if the asbestos is less than a certain concentration and is non-respirable however DEC would consider a positive result to exceed the 0.001% w/w limit;
- Description of any asbestos detected; and
- Estimate of the concentration of asbestos detected if practical to do so.

Interpreting Inspection and Sampling Results

If the visual inspection, sieve sample or analytical results identify asbestos above or possibly above the 0.001%w/w criteria then that stockpile or product process should be deemed potentially contaminated and considered for off-site disposal as asbestos waste, or subject to further actions to remediate it or to demonstrate its acceptability by further assessment. A record should be made of the decision making and action taken eg off-site disposal, further assessment undertaken etc, in relation to that stockpile.

In addition to the above, where asbestos is identified above or possibly above the 0.001%w/w criteria, an investigation into the likely cause for the presence of asbestos in the product should be undertaken and measures implemented to prevent a reoccurrence. A record of the

investigation and its findings together with the details of any preventative measures implemented at the site should be made.

As a guide, in the case of recycled drainage rock identification of a piece of ACM or FA per 10m² of surface would be deemed to exceed the specification for that area, and for the whole stockpile if repeated in 2 or more other separate areas. A single fragment exceedance can be considered an isolated occurrence in the absence of other contamination evidence and the stockpile allowed for beneficial use. If there is multiple contamination only of a localised area then that area can be excavated to the extent of any visible asbestos and then the remainder of the stockpile considered to be suitable for use.

For laboratory analysis it is important that each result be considered on its own merits in regard to the asbestos control specification and that there is no averaging across samples. In the case of a single exceedance at a level less than 0.01% w/w, the stockpile (nominally 4000 tonnes) may not be deemed contaminated if repeat samples of immediately adjacent areas do not demonstrate specification exceedances.

The same approach as indicated in the preceding paragraph can be applied to the results of the >7mm sieve sampling in regard to the recycled sand material and roadbase. In this case a 1cm³ fragment of ACM or FA would be deemed to exceed the specification for a 10L sample.

It should be noted that specification exceedances in regard to different assessment methods for the same type of stockpile should not be viewed in isolation from each other.

Product Supply

Recycled products should only be supplied to customers from stockpiles that have been sampled and tested in accordance with section 4.3 and shown to conform to the product specification.

Appendix A - Risk Criteria

Likelihood	Consequence				
	Slight	Minor	Moderate	Major	Severe
Almost Certain	Medium	High	High	Extreme	Extreme
Likely	Medium	Medium	High	High	Extreme
Possible	Low	Medium	Medium	High	Extreme
Unlikely	Low	Medium	Medium	Medium	High
Rare	Low	Low	Medium	Medium	High

Likelihood		Consequence		
The following criteria has been used to determine the likelihood of the risk / opportunity occurring.		The following criteria has been used to determine the consequences of a risk occurring:		
		Environment	Public Health* and Amenity (such as air and water quality, noise, and odour)	
Almost Certain	The risk event is expected to occur in most circumstances	Severe	<ul style="list-style-type: none"> on-site impacts: catastrophic off-site impacts local scale: high level or above off-site impacts wider scale: mid level or above Mid to long term or permanent impact to an area of high conservation value or special significance[^] Specific Consequence Criteria (for environment) are significantly exceeded 	<ul style="list-style-type: none"> Loss of life Adverse health effects: high level or ongoing medical treatment Specific Consequence Criteria (for public health) are significantly exceeded Local scale impacts: permanent loss of amenity
Likely	The risk event will probably occur in most circumstances	Major	<ul style="list-style-type: none"> on-site impacts: high level off-site impacts local scale: mid level off-site impacts wider scale: low level Short term impact to an area of high conservation value or special significance[^] Specific Consequence Criteria (for environment) are exceeded 	<ul style="list-style-type: none"> Adverse health effects: mid level or frequent medical treatment Specific Consequence Criteria (for public health) are exceeded Local scale impacts: high level impact to amenity
Possible	The risk event could occur at some time	Moderate	<ul style="list-style-type: none"> on-site impacts: mid level off-site impacts local scale: low level off-site impacts wider scale: minimal Specific Consequence Criteria (for environment) are at risk of not being met 	<ul style="list-style-type: none"> Adverse health effects: low level or occasional medical treatment Specific Consequence Criteria (for public health) are at risk of not being met Local scale impacts: mid level impact to amenity
Unlikely	The risk event will probably not occur in most circumstances	Minor	<ul style="list-style-type: none"> on-site impacts: low level off-site impacts local scale: minimal off-site impacts wider scale: not detectable Specific Consequence Criteria (for environment) likely to be met 	<ul style="list-style-type: none"> Specific Consequence Criteria (for public health) are likely to be met Local scale impacts: low level impact to amenity
Rare	The risk event may only occur in exceptional circumstances	Slight	<ul style="list-style-type: none"> on-site impact: minimal Specific Consequence Criteria (for environment) met 	<ul style="list-style-type: none"> Local scale: minimal to amenity Specific Consequence Criteria (for public health) met