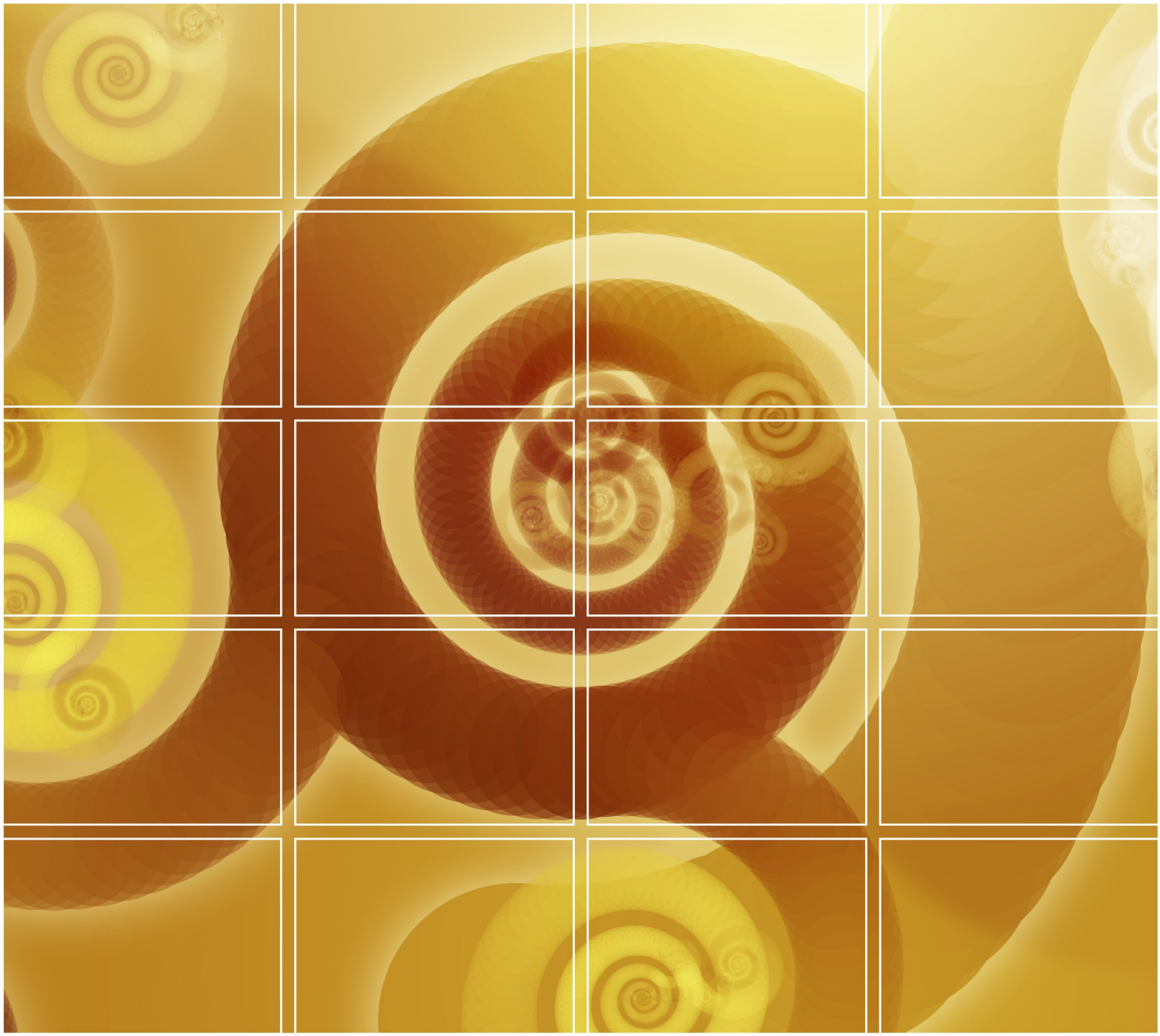
Annex C

HAZMAT Reporting and Asbestos Management Plan



Lot 12 Old Maitland Road Sandgate, NSW

Hazardous Materials Assessment

For Crawfords Freightlines Pty Ltd

Date - 28 March 2012

Job Number 0143175

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ERM

FINAL REPORT

Crawfords Freightlines Pty Ltd.

12 Old Maitland Road, Sandgate, NSW
Hazardous Materials Assessment

March 2012

Reference: 0143175

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ANNEXURES

1 INTRODUCTION

1.1 BACKGROUND

Environmental Resources Management Australia Pty Ltd (ERM) was commissioned by Crawfords Freightlines Pty Ltd (Crawfords) to undertake a hazardous materials survey of its leased property located at Lot 12 Old Maitland Road, Sandgate, NSW (refer to *Figure 1, Annex A*).

This report presents the findings from the survey, an assessment of the risks associated with the hazardous materials identified and recommendations for their management on-site.

1.2 SITE DESCRIPTION

The survey area consisted of the following buildings:

- Administration Building - central and southern sections;
- Shed C; and
- Shed D.

Refer to (*Figure 2 Annex A*) for site layout. The Administration Building consists of three sections; the northern, central and southern sections. The northern section was not inspected as this area is not controlled (leased) by Crawfords.

The areas inspected and thus controlled by Crawfords consisted of the following:

- the southern section of the Administration Building included office areas, a meeting room, kitchen and toilets;
- the central section of the Administration Building included a caretaker's office, men's amenities including toilets, showers, locker area, kitchen, lunchroom and private shift workers quarters;
- Shed C consisted of a main warehouse area utilised for the storage of ammonium nitrate and an office and amenities area within the south east section of the warehouse; and
- Shed D consisted of a main warehouse area utilised for the storage of ammonium nitrate and an office, amenities and a quarantine inspection area within the eastern section of the warehouse.

1.3 SCOPE OF WORKS

The survey included the following tasks:

Physical inspection of the buildings for hazardous materials including asbestos containing materials (ACM), synthetic mineral fibres (SMF), lead paint, polychlorinated biphenyls (PCBs) and ozone-depleting substances (ODSs).

The survey included the following tasks:

- a visual inspection and sampling of suspected hazardous materials within the subject site buildings and structures from floor to ceiling, or as necessary, to provide an assessment of hazardous materials at the site;
- analysis of selected materials to confirm the presence and/or absence of hazardous materials; and
- preparation of a report and a hazardous materials register.

1.4 LEGISLATION

This survey was conducted in general accordance with relevant Australian and NSW regulations, acts, codes of practices and guidance notes as follows:

- NSW Government, *Work Health and Safety Regulation 2011*;
- *Dangerous Substances (General) Regulations, 2004*;
- *Ozone Protection and Synthetic Greenhouse Gas Management Act, 1989*;
- Safe Work Australia, *Code of Practice, How to Manage and Control Asbestos in the Workplace*, August 2011;
- Australian and New Zealand Environment and Conservation Council, *Identification of PCB-Containing Capacitors, An information booklet for electricians and electrical contractors*, 1997 (Revised 2005);
- Australian and New Zealand Environment and Conservation Council, *Polychlorinated Biphenyls Management Plan* (*Revised Edition*), 2003.
- Standards Australia, *HB 40.1 – 2001 The Australian Refrigeration and Air-conditioning Code of Good Practice*, 2001;
- National Occupational Health and Safety Commission, *National Standard for the Control of Inorganic Lead at Work [NOHSC: 1012 (1994)]*; and
- Worksafe Australia, *Synthetic Mineral Fibre National Standard & National Code of Practice*, May 1990.

1.5 LIMITATIONS OF THIS REPORT

The findings of this report are based on the Scope of Work described above. ERM performed the services in a manner consistent with the normal level of care and expertise exercised by members of the environmental auditing profession. No warranties express or implied, are made.

Subject to the Scope of Work, ERM's assessment is limited strictly to identifying typical conditions associated with the subject property area and does not include evaluation of any other issues.

The survey has attempted to locate all the hazardous materials within the buildings inspected in accordance with the ERM proposed scope of work (ERM Ref: *P0053100*) as approved by Crawfords Freightlines Pty Ltd. As the survey was a visual inspection and sampling process, only those hazardous materials that were physically accessible could be located and only those materials that could be sampled without increasing the potential health risks could be identified. Therefore, it is possible that materials, which may be concealed within inaccessible areas/voids, may not have located during the survey. Such inaccessible areas fall into a number of categories:

- those areas accessible only by dismantling equipment or performing minor localised demolition works (e.g. potential asbestos sheeting below wall and/or floor tiles in wet areas);
- those areas accessible only by altering or affecting the potential safety of the offices and service areas that were operational at the time of the inspection;
- service shafts, ducts etc., concealed within the building structure (such as the air conditioning plant within the southern section of the Administration Building);
- equipment, air conditioning ducts etc;
- areas which were unable to be sampled due to height restrictions; and
- inaccessible areas such as voids and cavities created and concealed within the building structure. These voids are only accessible during major demolition works.

Destructive surveying and sampling techniques were not employed to gain access to those areas listed above. Consequently, without substantial demolition of the buildings, it is not possible to guarantee that every source of hazardous materials has been detected. Therefore, during the course of any refurbishment or demolition works, care should be exercised when entering any previously inaccessible areas and it is imperative that work cease pending further sampling if materials suspected of containing asbestos or unknown materials are encountered.

This report is not intended to be used for the purposes of tendering, programming of works, refurbishment works or demolition works unless used in conjunction with a specification detailing the extent of the works. To ensure its contextual integrity, the report must be read in its entirety and should not be copied, distributed or referred to in part only.

The results of this assessment are based upon a site inspection conducted by ERM personnel and information from regulatory agencies. All conclusions and recommendations regarding the property area are the professional opinions of the ERM personnel involved with the project, subject to the qualifications made above. While normal assessments of data reliability have been made, ERM assumes no responsibility or liability for errors in any data obtained from regulatory agencies, statements from sources outside of ERM, or developments resulting from situations outside the scope of this project.

ERM is not engaged in environmental auditing and reporting for the purpose of advertising, sales promoting, or endorsement of any client interests, including raising investment capital, recommending investment decisions, or other publicity purposes. The client acknowledges that this report is for the exclusive use of the client, its representatives and advisers and any investors, lenders, underwriters and financiers who agreed to execute a reliance letter, and the client agrees that ERM's report or correspondence will not be, except as set forth herein, used or reproduced in full or in part for such promotional purposes, and may not be used or relied upon in any prospectus or offering circular.

2 METHODOLOGY

The assessment was completed on 23 February 2012 by ERM's Andrew Morris and Rose Lindsay-Brown. For each area inspected for hazardous materials, where applicable, the following details were noted:

- specific area location;
- material type and description;
- sample number (if collected);
- estimated quantity of the Hazardous Material;
- if the hazardous material was a suspected ACM an assessment of whether it was friable or bonded;
- condition of material and/or adequacy of encapsulation;
- risk of disturbance;
- priority of action; and
- any other comments.

Exact recorded details are listed within the hazardous materials registers located in *Annex B*. The survey and risk assessment was undertaken as detailed within the following sections.

2.1 ASBESTOS CONTAINING MATERIALS

For the purposes of this survey the following definitions were utilised to rank the condition of suspected ACMs at the time of observation:

- *Friable ACM*, refers to asbestos-containing material which, when dry, is or may become crumbled, pulverised or reduced to powder by hand pressure (eg, pipe and boiler lagging); and
- *Bonded ACM* refers to any material that contains asbestos in a bonded matrix. It may consist of cement or various resin/binders and cannot be crushed by hand when dry (eg, asbestos cement products and electrical metering boards in good condition).

Each area inspected for ACM has been listed within the *Asbestos Register* (refer to *Annex B*) including details of the survey and laboratory results. The Register has been utilised to indicate priorities for action using a risk classification system. The risk class for identified ACM listed within the register has been determined by multiplying the *Adequacy of Encapsulation* for the given asbestos type by the *Risk of Disturbance*. The risk classes used have been assigned according to the risk matrix listed in *Table 2.1.*

Table 2.1 Asbestos Risk Matrix

		Risk of Disturbance		
		High	**Moderate**	**Low**
Adequacy of Encapsulation	**Poor**	Critical	High	Moderate
	Fair	High	High	Moderate
	Good	Moderate	Moderate	Low

The risk classes used are *Critical, High, Moderate* and *Low* and exist as prompts for priority to implement recommendations to control the risk of airborne asbestos exposures to persons in the working environment.

The risk classes are defined as follows:

Critical - Materials that pose an immediate or elevated health risk to employees or the public. The level of risk is applicable to the presence of friable material such as limpet asbestos insulation and asbestos ropes. The materials are readily accessible, in poor or friable condition. Immediate actions should be taken. Removal by a licensed asbestos removal contractor is recommended.

High - Products or materials that pose a potential health risk to employees and the public in their current state. This level of risk is applicable to damaged or unstable material that is friable with force, accessible within a high activity area such as broken or deteriorated cement sheeting, which presents a potential immediate health risk if disturbed. Control measures to stabilise the material should be initiated immediately and regular monitoring of the material is recommended for these materials. Formal abatement should be considered when capital allows or where planned maintenance, refurbishment or demolition works will disturb these materials. Removal, when required should be undertaken by licensed asbestos removal contractors.

Moderate - Products or materials that pose little health risk to employees and the general public. They consist of materials that currently are in a damaged stable or non-friable condition with a low accessibility. The material does not present a health risk unless further disturbed. Maintenance work should be carried out to stabilise or repair the damaged area. Control must be implemented to protect these materials from further damage including materials identified by warning signs. Reassessment of the priority rating will be required if any planned maintenance, refurbishment or demolition works impact on their condition. If any damage is present, maintenance work should be carried out to stabilise and repair the damaged area. Removal, when required should be undertaken by licensed asbestos removal contractors.

Low – Products or Bonded Asbestos Materials that pose negligible health risk to employees and the general public that consist of materials that currently are in an undamaged, stable, non-friable condition within a low accessible

area. The material does not present a health risk unless disturbed by intrusive work such as drilling, cutting, breaking or sanding. Control must be implemented to protect these materials from damage including materials identified by warning signs.

Reassessment of the priority rating will be required if any planned maintenance, refurbishment or demolition works impact on their condition. If damage occurs, maintenance work should be carried out to stabilise and repair the damaged area.

2.2 *LEAD PAINT*

The *National Standard for the Control of Inorganic Lead at Work [NOHSC: 1012 (1994)]* stipulates that a lead process is any of the processes listed in Schedule 1 or Schedule 2 of the above document. The removal of paint is listed under *Schedule 1, Lead Processes I (h)* as follows:

> *Machine sanding or buffing or surfaces coated with paint containing greater than one per cent by dry weight of lead.*

ERM screened the painted materials for lead content by the use of *Lead Check*™ swabs. The *Lead Check*™ swabs are able to detect lead levels above approximately 1-2 micrograms within paint products. This detection level is considered to be sufficient for the purposes of this inspection. If a positive result of the screening test was identified the sample would be submitted for analysis at a NATA laboratory.

Painted surfaces on ACMs were not sampled due to the potential health risks and hierarchy of hazardous materials significance. ACMs are required to be encapsulated or sealed to limit exposure to asbestos fibres. In accordance with Safe Work Australia, *Code of Practice, How to Manage and Control Asbestos in the Workplace*, August 2011, ACMs under no circumstances should be water blasted or dry sanded in preparation for painting, coating or sealing.

2.3 *SYNTHETIC MINERAL FIBRE (SMF)*

The survey of SMF was conducted with reference to the Worksafe Australia, *Synthetic Mineral Fibre National Standard & National Code of Practice*, May 1990. The identification of material containing Synthetic Mineral Fibres (SMF) is by visual inspection of accessible and representative materials.

2.4 *POLYCHLORINATED BIPHENYLS (PCBS)*

Light fittings suspected to contain polychlorinated biphenyls (PCBs) were included within the hazardous materials survey. Field survey activities and detailed information regarding the suspected age and type of light fittings were noted and cross-referenced against the Australian and New Zealand

Environment Conservation Council (ANZECC) "*Identification of PCB-containing capacitors*" database (1997) to verify confirmation as containing PCBs. Capacitors identified in the ANZECC publication are classified as a Scheduled PCB waste, as defined by the ANZECC *Polychlorinated Biphenyls Management Plan (Revised Edition 2003*).

PCBs within light fittings are likely to have one or more of the following characteristics:

- a resonant start;
- a date mark from the 1950s through to the 1970s;
- a capacitor that is round, cylindrical or rectangular, encased in an aluminium container with a weld running all the way around the top edge with two terminals with quick connect tags; and
- a capacitor encased in a rectangular tin container with soldered seams.

Capacitors which are PCB-free are usually encased within a plastic casing or material of similar properties to plastic.

2.5 *OZONE DEPLETING SUBSTANCES*

The survey aimed to identify refrigerants, which may be banned substances or those which are to be phased out.

This component of the assessment was carried out by visual observation and the cross referencing of information (ASHRAE/ARI refrigerant designated R-number) against applicable air-conditioning/refrigeration industry Codes of Practice and Guidelines [(*The Australian Refrigeration and Air-conditioning Code of Good Practice* (*HB 40.1 – 2001*)].

3 AUDIT RESULTS

3.1 ASBESTOS CONTAINING MATERIALS

A total of seven samples were collected from the three buildings and submitted to the laboratory for asbestos analysis. All of the suspect materials observed were not sampled as ERM was able to base the presence or absence of ACMs on grouping similar representative materials.

From these laboratory results ERM was able to identify ACM within 47 specific areas within the three buildings.

ACM was identified at the properties in the following building material types:

- fibrous cement sheeting – walls and ceilings;
- corrugated fibrous cement sheets– roofing products;
- moulded fibrous cement – facia boards, gutters and end capping;
- compressed fibrous cement sheets – shower screen partitions; and
- vinyl tiles - flooring.

Materials regarded as a high priority for action according to their risk rating included the external ACMs to the Administration Building, Shed C and Shed D. The ACMs included the corrugated roofing sheets, gutters and roof gable capping were noted to be in a weathered and potentially degraded condition. If these materials were to further deteriorate there is potential for asbestos fibres to be releases to the environment following rainfall events.

For details of the locations, types and risk ratings of the ACM products at the site please refer to the *Asbestos Register* located in *Annex B* and *Photographic Log* in *Annex C*. Laboratory reports are located within *Annex D*.

3.2 LEAD PAINT

The following painted materials were screened for lead content:

- masonry block work painted within Shed D, non-detect for lead content;
- timber painted surfaces within Shed C and D, non- detect for lead content.

All samples screened were identified to not contain lead above the screening levels of the *Lead Check*™ swabs. Painted ACM was not tested and no laboratory analysis was undertaken for lead.

The exterior and interior surfaces associated with the Administration Building were observed to be in good condition and were likely to have been painted within the last ten years. Given this and based on the areas of the building to be refurbished, no paint samples were collected from these areas due to the paint being considered to be of modern (low lead) types.

3.3 SYNTHETIC MINERAL FIBRE (SMF)

SMF materials were identified at the site in the following material types:

- insulation batts to the ceilings void of the Administration Building and to the amenities area of Shed D;
- insulation sarking to the roof lining of the Administration Building;
- insulation within the water heaters within Shed D; and
- suspected SMF insulation to the water heaters located within the Administration Building.

An SMF Register is provided in *Annex B*.

3.4 POLYCHLORINATED BIPHENYLS (PCBS)

A number of old-style fluorescent lights of varying types were observed within the office building. Details of capacitors in lights were inspected in a representative number of the different types of lights. These capacitor details were not listed in the Australian and New Zealand Environment Conservation Council (ANZECC) Identification of PCB-Containing Capacitors database (1997) both in the "containing" and "not containing PCBs" sections. The Guide states that '*If there is any doubt as to whether a capacitor or any electrical equipment contains PCBs, treat the equipment as if it does contain PCBs*'. The capacitors within the inspected lights appeared to be of an age that PCBs were used. Therefore, it cannot be ruled out that the fluorescent lights contain PCB containing capacitors.

A number of old-style fluorescent and metal-halide lights were observed within the warehouse buildings (Shed C and Shed D). These lights were of an age which PCBs may have been used within the ballasts. The lights were not in operation as they appear to be have been superseded by newer metal-halide lights. Access to the ballasts was not possible due to height restrictions. When disposing of these products until confirmed otherwise these lights should be treated to as PCB containing capacitors.

3.5 OZONE DEPLETING SUBSTANCES (ODSS)

Ozone depleting substances (ODSs) were identified (or presumed present) at the site within the following locations:

Administration Building:

- air conditioner located within the caretakers office, central section of the Administration Building (R22, an ODSs, presumed to be present);

- two refrigerators located within the caretakers office, central section of the Administration Building. The Westinghouse fridge is labelled to contain R12, an ODS. The older style refrigerator, BGE Super-90, was not labelled but estimated to be constructed in the 1960s and considered to have a high likelihood of containing ODSs.

Shed D

- air conditioner within the office area of the amenities area within Shed D was identified from the placard that refrigerant R22, an ODS, was installed during manufacture.

Further details can be found within the *Ozone Depleting Substances Register* located in *Annex B*.

4 CONCLUSIONS

The audit of hazardous materials on the Crawfords Freightlines site at Lot 12 Old Maitland Road, Sandgate, NSW, identified ACM, SMF, potential PCBs and ozone depleting substances. Details of the locations of these are within the hazardous materials registers in *Annex B*.

The survey identified ACM roofing products on the three buildings at the site were a high risk and therefore a high priority for action. This was due to the current condition and risk of disturbance during extreme weather events. Control measures to stabilise the material should be initiated immediately and regular monitoring of the material is recommended for these materials. Formal abatement should be considered when capital allows or where planned maintenance, refurbishment or demolition works will disturb these materials. Removal works should be undertaken by a licensed asbestos removal contractor.

SMF was identified within the roof cavity of the Administration Building and the amenity section of Shed D and within the water heaters within the same buildings. A water heater within Shed D was identified to be in a degraded state with SMF being released from the piece of equipment. It is recommended that this water heater be removed and disposed to a licensed landfill. Other SMF identified has been recorded in the SMF register.

There is a potential for PCB materials to be present within the fluorescent light fittings and metal halide light ballasts in Shed C and Shed D. These were unable to be assessed due to height restrictions however, due to their age are considered to be likely to contain PCBs. When disposing of these products until confirmed otherwise these lights should be treated to contain PCB containing capacitors.

Refrigerants within two air conditioners and two refrigerators were identified to be ODSs. It is recommended that the refrigerants be recovered from these items to minimise potential losses of ODSs to the environment. In accordance with national regulations persons who handle ODSs within equipment are required to hold a *Refrigerant Handling Licence*. In addition companies or persons who acquire, possess or dispose of these substances are required to hold a *Refrigerant Trading Authorisation*.

Annex A

Figures

Legend
Site

N

0 200m

Source:
© 2010 Google Earth Pro

Client:	Crawfords Freightlines Pty Ltd		
Drawing No:	0143175pm_HAZ_C001_R0.cdr		
Date:	07/03/2012	Drawing size:	A4
Drawn by:	JD	Reviewed by:	AM

This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.

Figure 1 - Locality Plan

Crawfords Freightlines Pty Ltd
Hazardous Materials Assessment

Environmental Resources Management Australia Pty Ltd

Auckland, Adelaide, Brisbane, Canberra, Hunter Valley, Melbourne, Perth, Port Macquarie, Sydney

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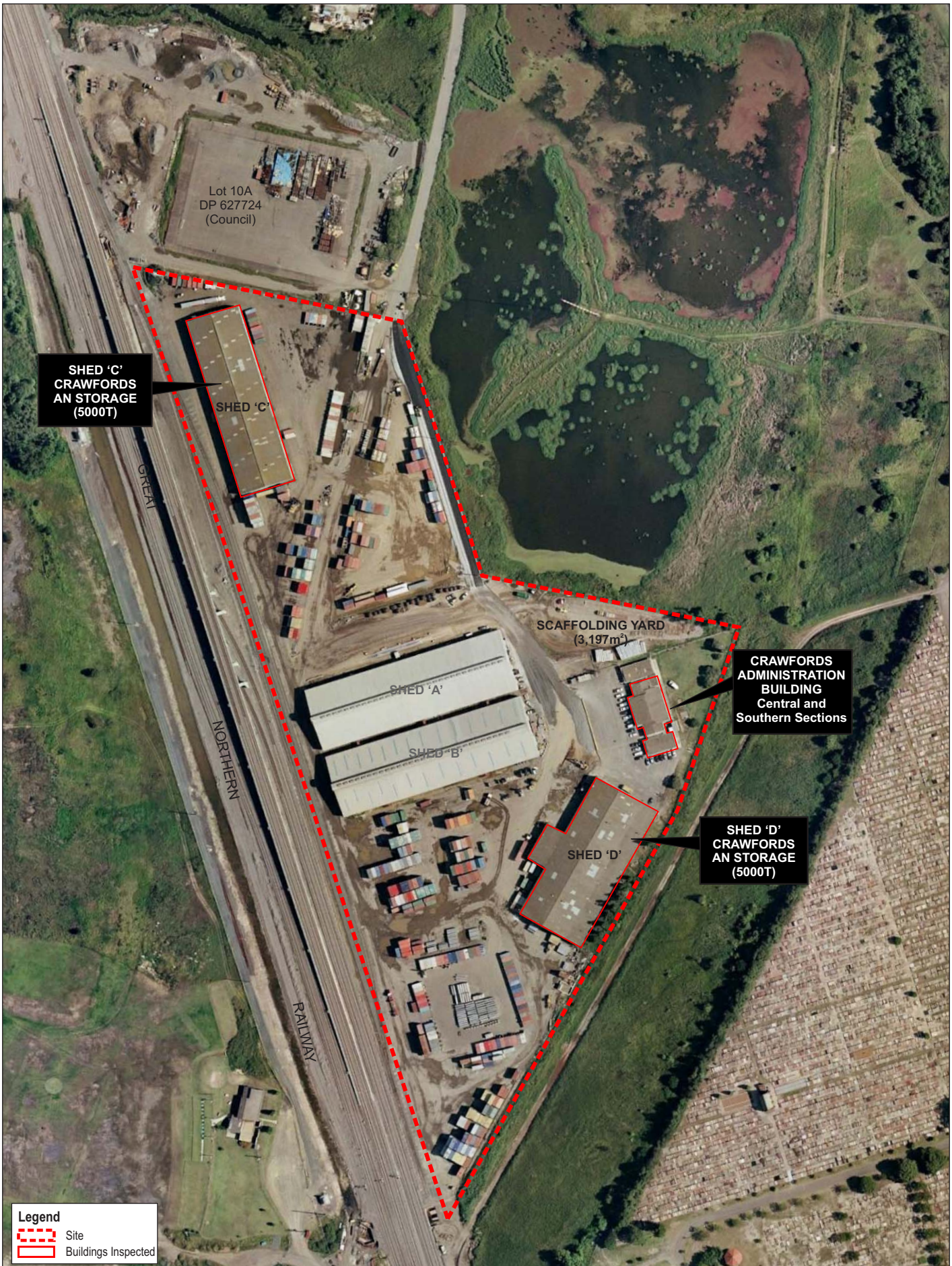

Legend

Site

Buildings Inspected

Notes:

1. This plan should not be used for critical design dimensions.

N

0 50m

Source:

© 2010 Google Earth Pro

Client:	Crawfords Freightlines Pty Ltd		
Drawing No:	0143175pm_HAZ_C002_R0.cdr		
Date:	07/03/2012	Drawing size:	A4
Drawn by:	AM	Reviewed by:	JC

This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.

Figure 2 - Site Layout Plan

Crawfords Freightlines Pty Ltd
Hazardous Materials Assessment

Environmental Resources Management Australia Pty Ltd

Auckland, Adelaide, Brisbane, Canberra, Hunter Valley, Melbourne, Perth, Port Macquarie, Sydney

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Annex B

Hazardous Materials Registers

Asbestos Register

Crawfords Freightlines Pty Ltd
Old Maitland Road, Sandgate, NSW
Project 0143175

Specific Area LOCATION	Material Type & Description	Asbestos Sample #	Asbestos Laboratory Result	Estimated Quantity ACM (m2)	Friable (F) or Bonded (B)	Risk of Disturbance	Condition / Adequacy of Encapsulation	Priority for Action	Comments if applicable	PHOTO
SHED - D - Internal Areas										
Shower Block										
Ceiling	Fibrous cement	Assume positive	Asbestos	51	B	M	P	H	Broken ceiling panelling - large fragments hanging from ceiling	1
Shower partitions	Compressed fibrous cement	Assume positive	Asbestos	8	B	L	P	M	Ceramic tiles covering sheeting falling off.	3
Toilet area	Fibrous cement to section of partition between toilets	Assume positive	Asbestos	0.5	B	L	G	L	-	4
Floor covering	Vinyl tiles	ERM01	Chyrsotile Asbestos Detected	36	B	L	P	M	Broken tiles in various areas.	5
Quarantine Inspection Area										
Ceiling	Fibrous cement	Assume positive	Asbestos	43	B	L	F	M	Holes patched with plywood	6
Floor covering	Vinyl tiles	Assume representative of ERM01	Chyrsotile Asbestos Detected	43	B	L	G	L	Painted	7
Office										
Ceiling	Fibrous cement	Assume positive	Asbestos	40	B	L	G	L	Painted white	8
Upper wall partitions	Fibrous cement	Assume positive	Asbestos	9	B	L	G	L	Painted yellow	8
Floor covering	Vinyl tiles	Assume representative of ERM01	Chyrsotile Asbestos Detected	40	B	L	P	M	Tiling broken in large areas	9
Ammenities - External Areas										
Upper wall panels	Fibrous cement	Assume positive	Asbestos	100	B	L	G	L	-	10
Shed D - External Areas										
Roof	Corrugated fibrous cement	Assume positive	Asbestos	5000	B	M	P	H	Roofing becoming degraded with fibres identified within drainage pipes and ground surfaces adjacent to Shed.	11 & 12
Guttering	Fibrous cement	Assume positive	Asbestos	160 lineal metres	B	M	P	H	Vegetation observed to be growing out of gutters	13
Down pipes	Fibrous cement	ERM02	Chrysotile Asbestos	40 lineal metres	B	M	P	H	Down-pipe broken off beneath ground level	14 & 15
Gable edge capping	Fibrous cement	Assume positive	Asbestos	80 lineal metres	B	M	P	H	Deteriorated condition	16

RISK MATRIX
Action Levels

Adequacy of Encapsulation	Risk of Disturbance: High	Moderate	Low
Poor	Critical	High	Moderate
Fair	High	High	Moderate
Good	Moderate	Moderate	Low

Original Survey Date: February 2012
Assessed by: Andrew Morris (ERM Australia)

Specific Area LOCATION	Material Type & Description	Asbestos Sample #	Asbestos Laboratory Result	Estimated Quantity ACM (m2)	Friable (F) or Bonded (B)	Risk of Disturbance	Condition / Adequacy of Encapsulation	Priority for Action	Comments if applicable	PHOTO
ADMINISTRATION BUILDING										
External Areas										
Roofing	Corrugated fibrous cement	Assume positive	Asbestos	750	B	M	P	H	Deteriorated, high potential of fibre release	17
Eaves	Fibrous cement	Assume positive	Asbestos	150	B	L	G	L	-	18
Awning	Fibrous cement	Assume positive	Asbestos	60	B	L	G	L	-	18
Wall - infill panells beneath windows, south section of building	Fibrous cement	Assume positive	Asbestos	12	B	L	G	L	Painted brown or blue	22
Wall - infill panells beneath windows, central section of building	Fibrous cement	Assume positive	Asbestos	24	B	L	G	L	Painted brown or blue	23
Facia Board	Corrugated fibrous cement	Assume positive	Asbestos		B	L	G	L	Facia boards between gables	24
Central Section of Administration Building - Internal Areas										
Caretakers Office North End										
Flooring	Vinyl tiles	Assume representative of ERM07	Asbestos	70	B	L	G	L	Green tiles	19
Wall Lining	Fibrous cement	Assume representative of ERM04	Asbestos	27	B	L	G	L	-	19
Ceiling	Fibrous cement	Assume representative of ERM04	Asbestos	70	B	L	G	L	Polystyrene tiles attached to ACM fibrous cement	20
Wall - infill panels beneath windows	Fibrous cement	Assume representative of ERM04	Asbestos	12	B	L	G	L	-	-
Male Toilets, Showers and Wash Area										
Ceiling - Wash area and toilets	Fibrous cement	Assume representative of ERM04	Asbestos	55	B	L	G	L	-	-
Locker Area										
Ceiling	Fibrous cement	Assume representative of ERM04	Asbestos	40	B	L	G	L	Flat metal beading between fibrous sheets	21
Wall - north between locker area and showers	Fibrous cement	Assume representative of ERM04	Asbestos	30	B	L	G	L	-	-
Wall - south between locker area and kitchen	Fibrous cement	Assume representative of ERM03	NAD	30	-	-	-	-	Appears to be a newly constructed wall with plastic beading between sheets of fibrous cement	-
Wall - East	Fibrous cement	Assume representative of ERM04	Asbestos	15	B	L	G	L	-	-
Kitchen Area										
Walls - East and South	Fibrous cement	ERM04	Asbestos	40	B	L	F	M	Minor small holes to wall require sealing	-
Lunch Room - Truck Drivers										
Northern and Eastern Walls	Fibrous cement	Assume representative of ERM04	Asbestos	50	B	L	G	L	-	27
Southern wall - with doorways to private rooms	Fibrous cement	-	NAD	-	-	-	-	-	Newly installed, no access to western room	28
Toilets and Wash area										
Ceiling	Fibrous cement	Assume representative of ERM04	Asbestos	60	B	L	G	L	-	

RISK MATRIX
Action Levels

Adequacy of Encapsulation	Risk of Disturbance: High	Moderate	Low
Poor	Critical	High	Moderate
Fair	High	High	Moderate
Good	Moderate	Moderate	Low

Specific Area LOCATION	Material Type & Description	Asbestos Sample #	Asbestos Laboratory Result	Estimated Quantity ACM (m2)	Friable (F) or Bonded (B)	Risk of Disturbance	Condition / Adequacy of Encapsulation	Priority for Action	Comments if applicable	PHOTO
ADMINISTRATION BUILDING										
Southern Section of Administration Building										
Kitchen										
Wall - west	Fibrous cement	Assume representative of ERM04	Asbestos	9	B	L	G	L	Kitchen cupboards attached	25
Western Office adjacent Kitchen										
Infill panels beneath windows, top and bottom panel	Fibrous cement	Assume representative of ERM04	Asbestos	2	B	L	G	L	-	26
Flooring	Vinyl Tiles	ERM07	Chrysotile Asbestos	50	B	L	F	M	-	
Communal Office Area										
Walls	Plasterboard	-	NAD	-	-	-	-	-		-
Ceilings	Plasterboard	-	NAD	-	-	-	-	-		-
Flooring	Vinyl Tiles (beneath carpet)	ERM07	Chrysotile Asbestos	50	B	L	G	L	Carpet layed directly over top of tiles except for high traffic areas	30
Eastern Office and Meeting Room										
Walls	Plasterboard	-	NAD	-	-	-	-	-	-	-
Ceilings	Plasterboard	-	NAD	-	-	-	-	-	-	-
Flooring	Vinyl Tiles (beneath carpet)	ERM07	Chrysotile Asbestos	50	B	L	G	L	Carpet layed directly over top of tiles	-
Male and Female Toilets										
Ceiling	Fibrous cement	Assume representative of ERM04	Asbestos	3	B	L	G	L	-	-
Infil panels above windows	Fibrous cement	Assume representative of ERM04	Asbestos	1	B	L	G	L	-	-
Ceiling Void										
Insulation to ceiling	SMF	-	SMF	-	-	-	-	-	-	-
Insulation beneath roof - sarking	SMF	-	SMF	-	-	-	-	-	-	-

RISK MATRIX
Action Levels

Adequacy of Encapsulation	Risk of Disturbance: High	Moderate	Low
Poor	Critical	High	Moderate
Fair	High	High	Moderate
Good	Moderate	Moderate	Low

Specific Area LOCATION	Material Type & Description	Asbestos Sample #	Asbestos Laboratory Result	Estimated Quantity ACM (m2)	Friable (F) or Bonded (B)	Risk of Disturbance	Condition / Adequacy of Encapsulation	Priority for Action	Comments if applicable	PHOTO
SHED C - External Areas										
Roof	Corrugated fibrous cement	Assume positive	Asbestos	3000	B	M	P	H	Roofing becoming degraded with fibres identified within drainage pipes and ground surfaces adjacent to Shed.	31
Guttering	Fibrous cement	Assume positive	Asbestos	210 lineal metres	B	M	P	H	Broken sections of gutters	32
Down pipes	Fibrous cement	Assume representative of ERM02	Chrysotile Asbestos	40 lineal metres	B	M	P	H	Down-pipe broken off beneath ground level	33
Gable edge capping	Fibrous cement	Assume positive	Asbestos	60 lineal metres	B	M	P	H	Deteriorated condition	-
SHED C - Amenity Areas										
Office Areas										
Flooring	Vinyl Tiles	ERM05	Chrysotile Asbestos	220	B	L	G	L	Painted grey	-
Walls	Plasterboard	-	-	-	-	-	-	-	-	-
Toilet Areas										
Walls	Fibrous cement	ERM06	Chrysotile Asbestos	45	B	L	G	L	Minor holes around sink areas	34
Ceilings	Fibrous cement	Assume representative of ERM06	Chrysotile Asbestos	35	B	L	G	L	-	34
Shed C - Shower / Laundry										
Walls	Fibrous cement	Assume representative of ERM06	Chrysotile Asbestos	18	B	L	G	L	-	-
Shed C - Awnings to Amenities										
Awnings (x2) to south east of Shed C	Fibrous cement	Assume representative of ERM06	Chrysotile Asbestos	2	B	L	P	M	One awning severelly damaged with broken ACM throughout	-

Notes

ACM = Asbestos Containing Materials (shaded rows)
NAD = No Asbestos Detected
L = Low
M = Medium
H = High
- = Cannot be quantified or not applicable

RISK MATRIX
Action Levels

Adequacy of Encapsulation	Risk of Disturbance: High	Moderate	Low
Poor	Critical	High	Moderate
Fair	High	High	Moderate
Good	Moderate	Moderate	Low

Specific Area LOCATION	Material Type & Description	Estimated Quantity ACM (m2)	Comments if applicable	PHOTO
SHED - D - Internal Areas				
Shower Block				
Water heaters	Synthetic Mineral Fibre (SMF) insulation to heater	5	Outer casing falling off with SMF becoming degraded	2
Amenity Block				
Insulation to ceiling	SMF	160	-	1
ADMINISTRATION BUILDING				
Ceiling Void				
Insulation to ceiling	SMF	Throughout	-	35
Insulation beneath roof - sarking	SMF	Throughout	-	35

Notes
SMF = Synthetic Mineral Fibres
- = Cannot be quantified or not applicable

Specific Area LOCATION	Material Type & Description	Sample #	Laboratory Result - Lead (mg/kg)	Lead Content (%)	Condition	Priority for Action	Comments
SHED C and D							
Masonary Block work	white paint	Swab	Non-detect	Non-detect	good	-	-
Timber painted surfaces	white, grey and blue paints	Swab	Non-detect	Non-detect	good	-	-

Notes

Lead Paint >1% content (shaded rows)

G = Good

F = Fair

P= Poor

- = Cannot be quantified

Specific Area LOCATION	Material Type & Description	Estimated Quantity	Comments if applicable	PHOTO
SHED C and D				
Main warehouse areas	Fluorescent Lights	20+	Unable to be inspected due to height restrictions. Assume they contain PCBs until inspection completed. Dispose of as PCB waste.	-
Main warehouse areas	Metal Halide Lights	20+		36

Notes

PCBs = Polychlorinated Biphenyls (shaded rows)

- = Cannot be quantified or not applicable

RISK MATRIX
Action Levels

Adequacy of Encapsulation	Risk of Disturbance: High	Moderate	Low
Poor	Critical	High	Moderate
Fair	High	High	Moderate
Good	Moderate	Moderate	Low

Specific Area LOCATION	Material Type & Description	Comments if applicable	Control Recommendations
Shed D			
Office			
Air Conditioner	Kelvinator RF500G	Contains R22 a ozone-depleting hydrochlorofluorcarbon	Dispose of air conditioner where the R-22 is able to be reclaimed by a licensed technician.
Administration Building			
Air conditioner	NEC	likely to contain R22	Dispose of air conditioner where the R-22 is able to be reclaimed by a licensed technician.
Fridge	Westinghouse labelled to contain R12	R12 is a ozone depleting gas	Dispose of fridge where the R-12 is able to be reclaimed by a licensed technician.
Fridge	BGE - Super 90	No placard, age suspected to be early 60's. High likely hood of ozone depleting gasses to be present within this fridge.	Gasses to be removed by a licensed technician prior to be disposal.
Shed D			
Air conditioner	Kelvinator RF500G	Refrigerant labelled to be R22	Dispose of air conditioner where the R-22 is able to be reclaimed by a licensed technician.

Notes

ODSs = Ozone Depleting Substances (shaded rows)

- = Cannot be quantified or not applicable

RISK MATRIX
Action Levels

Adequacy of Encapsulation	Risk of Disturbance: High	Moderate	Low
Poor	Critical	High	Moderate
Fair	High	High	Moderate
Good	Moderate	Moderate	Low

Annex C

Photographic Log

Photograph: 1	*View of broken sections of fibrous cement ACM within the Shower Block of Shed D (23 February 2012).*	
Crawfords Freightlines Pty Ltd. (Lot 12, DP625053)	***ERM***	*Lot 12 Old Maitland Road, Sandgate NSW*

Photograph: 2	View of water heaters with SMF insulation falling out of the water heater to the rear of shot (23 February 2012).	
Crawfords Freightlines Pty Ltd. (Lot 12, DP625053)	***ERM***	*Lot 12 Old Maitland Road, Sandgate NSW*

Photograph: 3	*View of shower partitions with compressed asbestos cement sheeting, partition is one of five partitions in Shower Block, Shed D (23 February 2012).*

Crawfords Freightlines Pty Ltd. (Lot 12, DP625053)	***ERM***	*Lot 12 Old Maitland Road, Sandgate NSW*

Photograph: 4	View of fibrous cement ACM section of the partition between toilets (23 February 2012).

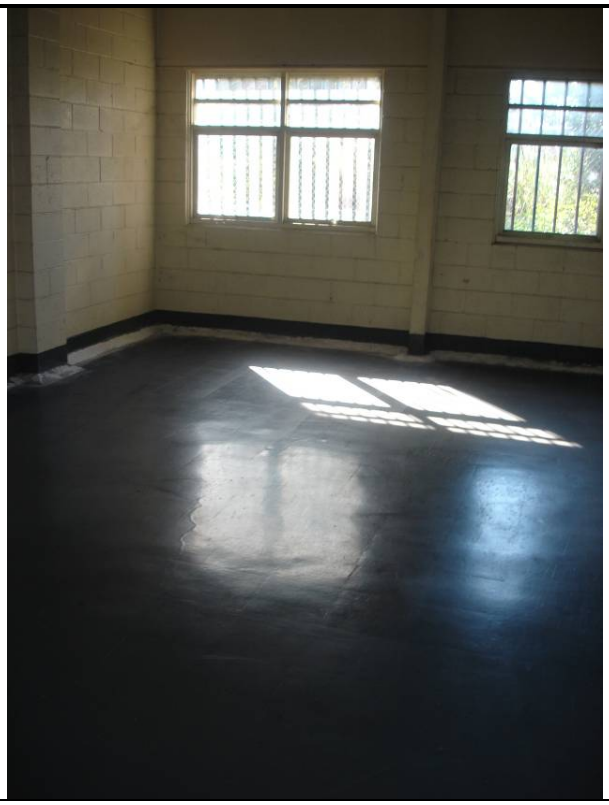
Crawfords Freightlines Pty Ltd. (Lot 12, DP625053)	***ERM***	*Lot 12 Old Maitland Road, Sandgate NSW*

Photograph: 5	*View of vinyl tile ACMs to floor of the Shower Block, Shed D (23 February 2012).*

Crawfords Freightlines Pty Ltd. (Lot 12, DP625053)	***ERM***	*Lot 12 Old Maitland Road, Sandgate NSW*

Photograph: 6	View of fibrous cement ACM with to ceiling with plywood sections used for repairing broken sections, Quarantine Inspection Area, Shed D (23 February 2012).

Crawfords Freightlines Pty Ltd. (Lot 12, DP625053)	***ERM***	*Lot 12 Old Maitland Road, Sandgate NSW*



Photograph: 7	View of vinyl floor tiles assumed to contain asbestos to Quarantine Inspection Area, Shed D(23 February 2012).

Crawfords Freightlines Pty Ltd. (Lot 12, DP625053)	***ERM***	*Lot 12 Old Maitland Road, Sandgate NSW*

Photograph: 8	View of fibrous cement ACM to ceiling and upper panels of dividing wall in Office, Shed D (23 February 2012).

Crawfords Freightlines Pty Ltd. (Lot 12, DP625053)	***ERM***	*Lot 12 Old Maitland Road, Sandgate NSW*

Photograph: 9	View of vinyl tile ACMs to floor of Office area, Shed D (23 February 2012).	
Crawfords Freightlines Pty Ltd. *(Lot 12, DP625053)*	***ERM***	*Lot 12 Old Maitland Road,* *Sandgate NSW*

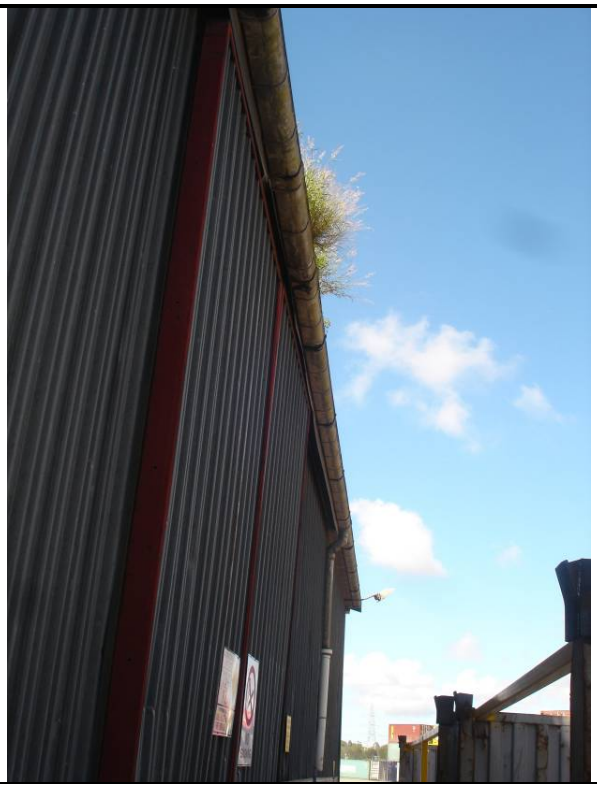
Photograph: 10	View of fibrous cement ACM to upper wall panels (23 February 2012).	
Crawfords Freightlines Pty Ltd. *(Lot 12, DP625053)*	***ERM***	*Lot 12 Old Maitland Road,* *Sandgate NSW*

Photograph: 11	View of Shed D with corrugated fibrous cement ACM roofing (23 February 2012).

Crawfords Freightlines Pty Ltd. (Lot 12, DP625053)	**ERM**	*Lot 12 Old Maitland Road, Sandgate NSW*

Photograph: 12	View of internal areas of Shed D showing underside of ACM corrugated fibrous cement roofing (23 February 2012).

Crawfords Freightlines Pty Ltd. (Lot 12, DP625053)	**ERM**	*Lot 12 Old Maitland Road, Sandgate NSW*



Photograph**: **13	View of ACM roof guttering, Shed D (23 February 2012).	
Crawfords Freightlines Pty Ltd. *(Lot 12, DP625053)*	***ERM***	*Lot 12 Old Maitland Road,* *Sandgate NSW*

Photograph**: **14	View of ACM guttering and down pipes emitting to surface on east side of Shed D (23 February 2012).	
Crawfords Freightlines Pty Ltd. *(Lot 12, DP625053)*	***ERM***	*Lot 12 Old Maitland Road,* *Sandgate NSW*

Photograph: 15	View of former downpipe extending 0.5m below ground level and broken off at ground level. Pipe identified to contain ACM (ERM02) and located on west side of Shed D (23 February 2012).

Crawfords Freightlines Pty Ltd. (Lot 12, DP625053)	***ERM***	*Lot 12 Old Maitland Road, Sandgate NSW*

Photograph: 16	View of gable end capping to roof, Shed D (23 February 2012).

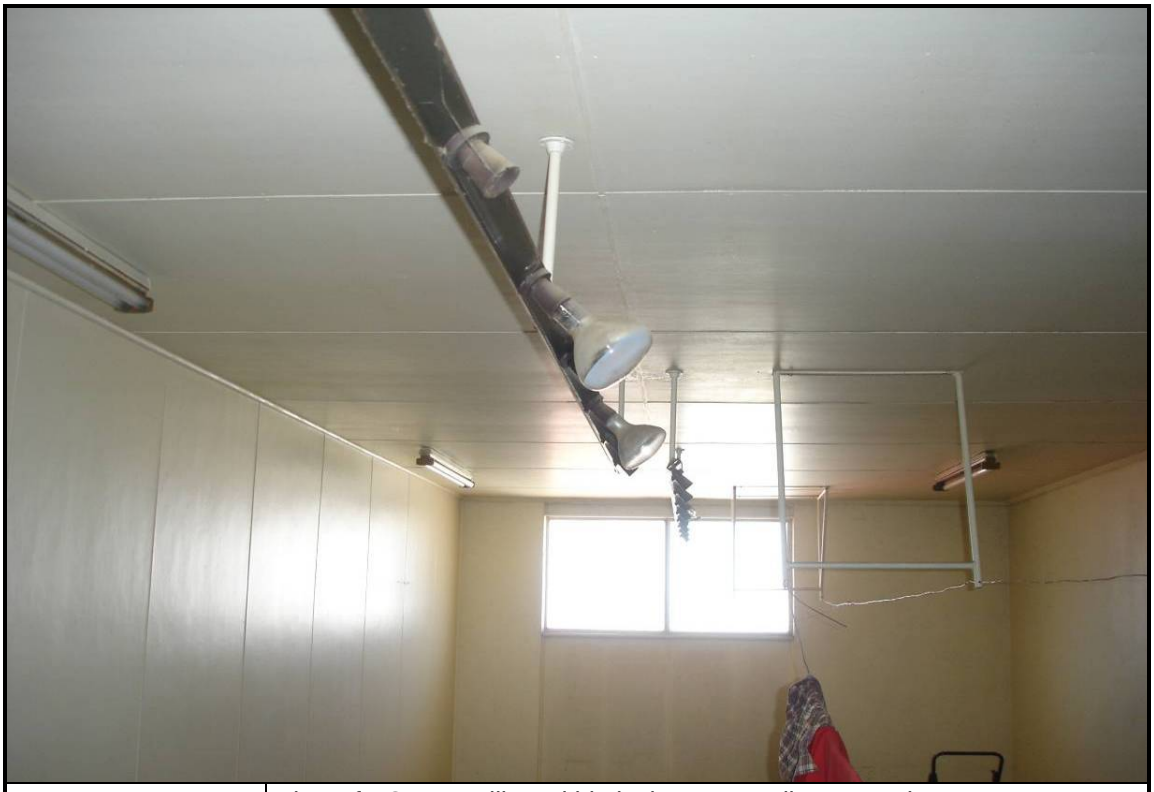
Crawfords Freightlines Pty Ltd. (Lot 12, DP625053)	***ERM***	*Lot 12 Old Maitland Road, Sandgate NSW*

Photograph: 17	View of eaves and awning area to east side of Administration Building (23 February 2012).	
Crawfords Freightlines Pty Ltd. (Lot 12, DP625053)	***ERM***	*Lot 12 Old Maitland Road, Sandgate NSW*

Photograph: 18	View of eaves and awning area to east side of Administration Building (23 February 2012).	
Crawfords Freightlines Pty Ltd. (Lot 12, DP625053)	***ERM***	*Lot 12 Old Maitland Road, Sandgate NSW*

Photograph: 19	View of ACM wall paneling and ACM vinyl tiles (23 February 2012).	
Crawfords Freightlines Pty Ltd. *(Lot 12, DP625053)*	***ERM***	*Lot 12 Old Maitland Road,* *Sandgate NSW*

Photograph: 20	View of ACM fibrous cement ceiling with polystyrene tiles glued to surface, Central section offices, Administration Building (23 February 2012).	
Crawfords Freightlines Pty Ltd. *(Lot 12, DP625053)*	***ERM***	*Lot 12 Old Maitland Road,* *Sandgate NSW*



Photograph: 21	View of ACM to ceiling within locker room adjacent to showers (23 February 2012). South Wall non-ACM with north wall ACM

Crawfords Freightlines Pty Ltd. (Lot 12, DP625053)	***ERM***	*Lot 12 Old Maitland Road, Sandgate NSW*

Photograph: 22	View of ACM fibrous cement infill panels beneath reception windows, South Administration Office (23 February 2012)

Crawfords Freightlines Pty Ltd. (Lot 12, DP625053)	***ERM***	*Lot 12 Old Maitland Road, Sandgate NSW*

Photograph: 23	View of ACM eaves and window infill panels to east of the central section of the Administration building (23 February 2012).

Crawfords Freightlines Pty Ltd. (Lot 12, DP625053)	***ERM***	*Lot 12 Old Maitland Road, Sandgate NSW*

Photograph: 24	View of ACM corrugated facia board painted blue-grey Administration Building (23 February 2012).

Crawfords Freightlines Pty Ltd. (Lot 12, DP625053)	***ERM***	*Lot 12 Old Maitland Road, Sandgate NSW*

Photograph: 25	View of ACM fibrous cement behind Kitchen cupboards (23 February 2012).	
Crawfords Freightlines Pty Ltd. (Lot 12, DP625053)	***ERM***	*Lot 12 Old Maitland Road, Sandgate NSW*

Photograph: 26	View of ACM fibrous cement, window infill panels within western office of Administration Building (23 February 2012).	
Crawfords Freightlines Pty Ltd. (Lot 12, DP625053)	***ERM***	*Lot 12 Old Maitland Road, Sandgate NSW*

Photograph: 27	View of lunchroom with ACM ceilings and ACM to northern and eastern walls to left and rear of shot (23 February 2012).	
Crawfords Freightlines Pty Ltd. (Lot 12, DP625053)	***ERM***	*Lot 12 Old Maitland Road, Sandgate NSW*

Photograph: 28	View of new fibrous cement non asbestos to private rooms off lunchroom (23 February 2012).	
Crawfords Freightlines Pty Ltd. (Lot 12, DP625053)	***ERM***	*Lot 12 Old Maitland Road, Sandgate NSW*

Photograph: 29	View of ceiling to male toilets (south end) to the central section of the Administration Building (23 February 2012).

Crawfords Freightlines Pty Ltd. (Lot 12, DP625053)	***ERM***	*Lot 12 Old Maitland Road, Sandgate NSW*

Photograph: 30	*View of vinyl tiles to flooring of southern section of the Administration Building* (23 February 2012).

Crawfords Freightlines Pty Ltd. (Lot 12, DP625053)	***ERM***	*Lot 12 Old Maitland Road, Sandgate NSW*

Photograph**: **31	View of Shed C from east (23 February 2012).	
Crawfords Freightlines Pty Ltd. *(Lot 12, DP625053)*	***ERM***	*Lot 12 Old Maitland Road,* *Sandgate NSW*

Photograph**: **32	View of broken section of ACM guttering of Shed C (23 February 2012).	
Crawfords Freightlines Pty Ltd. *(Lot 12, DP625053)*	***ERM***	*Lot 12 Old Maitland Road,* *Sandgate NSW*

***Photograph**: 33*	View from west of Shed C. ACM downpipes and gutting present along west side of building (23 February 2012).

Crawfords Freightlines Pty Ltd. (Lot 12, DP625053)	***ERM***	*Lot 12 Old Maitland Road, Sandgate NSW*

***Photograph**: 34*	View of ACM fibrous cement to walls and ceiling in Shed C (23 February 2012).

Crawfords Freightlines Pty Ltd. (Lot 12, DP625053)	***ERM***	*Lot 12 Old Maitland Road, Sandgate NSW*

***Photograph**: 35*	View of insulation to the ceiling void within the Administration Building (23 February 2012).	
Crawfords Freightlines Pty Ltd. (Lot 12, DP625053)	***ERM***	*Lot 12 Old Maitland Road, Sandgate NSW*

***Photograph**: 36*	View of metal halide light and ballast which potentially contain PCB capacitors (23 February 2012).	
Crawfords Freightlines Pty Ltd. (Lot 12, DP625053)	***ERM***	*Lot 12 Old Maitland Road, Sandgate NSW*

Annex D

Laboratory Results

AUSTRALIAN SAFER ENVIRONMENT & TECHNOLOGY PTY LTD
ABN 36 088 095 112

Our ref : ASET28829/ 32009 / 1 - 7
Your ref : 0143175
NATA Accreditation No: 14484

28 February 2012

Environmental Resources Management Aust. Pty Ltd
Suite 3, 146 Gordon Street
Port Maquarie NSW 2444

Attn: Mr Andrew Morris

Dear Andrew

Asbestos Identification,
This report presents the results of seven samples, forwarded by Environmental Resources Management Aust. Pty Ltd on 27 February 2012, for analysis for asbestos.

1.Introduction: Seven samples forwarded were examined and analysed for the presence of asbestos.

2. Methods : The samples were examined under a Stereo Microscope and selected fibres were analysed by Polarized Light Microscopy inconjunction with dispersion Staining method **(Safer Environment Method 1.)**

3. Results :

Sample No. 1. ASET28829 / 32009 / 1. ERM 01.
Approx dimensions 6.4 cm x 3.5 cm x 0.25 cm
The sample consisted of fragments of a hard vinyl floor tile.
Chrysotile asbestos detected.

Sample No. 2. ASET28829 / 32009 / 2. ERM 02.
Approx dimensions 2.4 cm x 1.3 cm x 0.2 cm
The sample consisted of a fragment of a fibro plaster cement material.
Chrysotile asbestos and Amosite asbestos detected.

Sample No. 3. ASET28829 / 32009 / 3. ERM 03.
Approx dimensions 4.2 cm x 1.8 cm x 0.35 cm
The sample consisted of fragments of a fibro plaster cement material containing organic fibres.
No asbestos detected.

Sample No. 4. ASET28829 / 32009 / 4. ERM 04.
Approx dimensions 2. cm x 1.4 cm x 0.15 cm
The sample consisted of fragments of a fibro plaster cement material containing organic fibres.
Chrysotile asbestos detected.

Sample No. 5. ASET28829 / 32009 / 5. ERM 05.
Approx dimensions 2.6 cm x 1.4 cm x 0.2 cm
The sample consisted of fragments of a hard vinyl floor tile.
Chrysotile asbestos detected.

Sample No. 6. ASET28829 / 32009 / 6. ERM 06.
Approx dimensions 1.2 cm x 0.8 cm x 0.15 cm
The sample consisted of a fragment of a fibro plaster cement material containing organic fibres.
Chrysotile asbestos detected.

Sample No. 7. ASET28829 / 32009 / 7. ERM 07.
Approx dimensions 7.3 cm x 5.2 cm x 0.25 cm
The sample consisted of a fragment of a hard vinyl floor tile.
Chrysotile asbestos detected.

Analysed and reported by,

Laxman Dias. BSc.
Approved Identifier / Analyst
Approved Signatory

This document is issued in accordance with NATA's Accreditation requirements. Accredited for compliance with ISO/IEC 17025.

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Environmental Resources Management

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Port Macquarie NSW 2444
PO Box 5711,
Port Macquarie NSW 2444

T: 61 2 6584 7155
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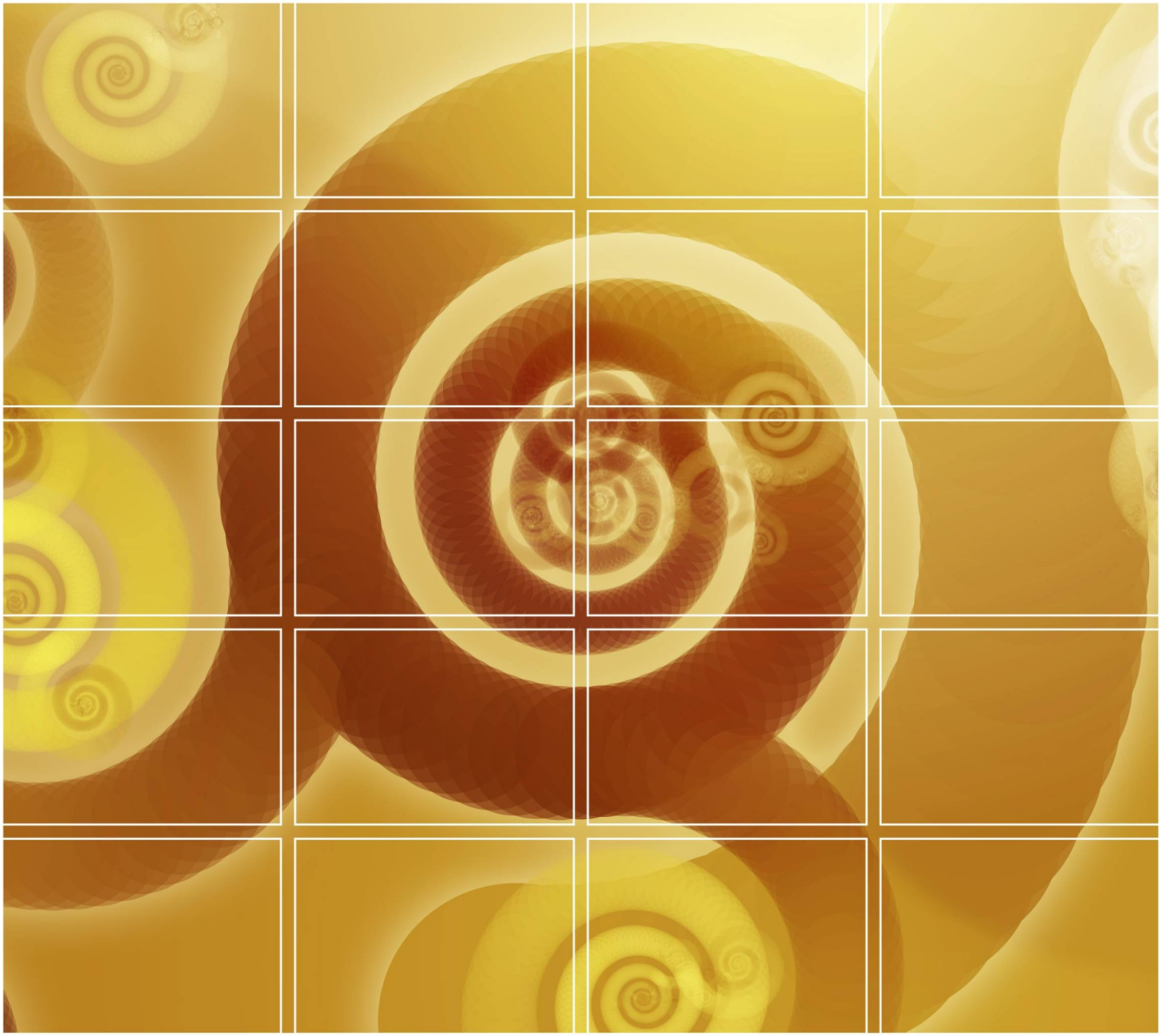

Crawfords Freightlines
Lot 12 Old Maitland Road, Sandgate, NSW

Asbestos Management Plan

for Crawfords Freightlines Pty Ltd

July 2012

0143175

www.erm.com

Crawfords Freightlines,

Lot 12 Old Maitland Road,

Sandgate, NSW

Asbestos Management Plan

Crawfords Freightlines Pty Limited

July 2012

0143175

www.erm.com

Prepared by:	*Jacinta Coulin*
Position:	*Project Manager*
Signed:	
Date:	*10 July, 2012*
Approved by:	*Will Ellis*
Position:	Partner
Signed:	
Date:	*10 July, 2012*

Environmental Resources Management Australia Pty Ltd Quality System

Certified System
Quality
ISO 9001
SAI GLOBAL

Quality-ISO-9001-PMS302

FINAL REPORT

Crawfords Freightlines Pty Ltd

Crawfords Freightlines, Lot 12 Old Maitland Road, Sandgate, NSW
Asbestos Management Plan

July 2012

Reference: 0143175

Environmental Resources Management Australia
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CONTENTS

1 INTRODUCTION

Environmental Resources Management Australia Pty Ltd (ERM) was commissioned by Crawfords Freightlines Pty Ltd (Crawfords) to prepare an Asbestos Management Plan (AMP) for it leased property located at Lot 12 Old Maitland Road, Sandgate, NSW (refer to *Figure 1, Annex A*).

Crawfords (the tenant), has management responsibilities for asbestos containing materials (ACMs) under the WHS Act at the site. Crawfords is required to ensure that workers and other persons are not at risk from asbestos exposure as a result of works being carried out as part of its operations.

This management plan outlines Crawfords' legal requirements and responsibilities for the site to ensure all site personnel, contractors and other parties are aware of the presence of asbestos on the site.

1.1 PURPOSE OF THE ASBESTOS MANAGEMENT PLAN

The AMP has been prepared to provide a detailed plan for the management of asbestos whilst asbestos remains at the site.

Specifically the plan will address work practices and procedures to:

- maintain ACM in good condition;
- develop and implement control measures;
- eliminate or minimise the risks of damage to ACM; and
- monitor the condition of ACM at the site.

1.2 LIST OF CONTACTS

The principal contacts are listed below:

Crawfords' Safety Manager (Compliance Manager)
Paul McGrath
0429 873 709

External Hazardous Materials Consultant
ERM Hunter Valley
(02) 4964 2150

1.3 LEGISLATIVE AND OTHER REQUIREMENTS

All work at the Crawfords site involving the maintenance, removal, encapsulation, transport, disposal or otherwise potential disturbance of asbestos materials, shall be performed in accordance with all relevant NSW and Federal Acts, Regulations, Codes of Practice and industry standards, including the following:

- *the Work Health and Safety Act, 2011* (the WHS Act);
- *the Work Health and Safety Regulation, 2011* (the WHS Regulation);
- Safe Work Australia, *Code of Practice, How to Manage and Control Asbestos in the Workplace*, December 2011 (SWA, 2011a);
- Safe Work Australia, *Code of Practice, How to Safely Remove Asbestos*, December 2011 (SWA, 2011b);
- NSW WorkCover, *Guide to working with Asbestos*, 2008; and
- National Occupational Health and Safety Committee (NOHSC), *Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres* [NOHSC:3003 (2005)].

Nothing contained in this report may be considered to alter or modify regulations outlined within the WHS Act or the WHS Regulation as outlined within the relevant code of practices or as outlined by NSW WorkCover legislation. Each section of this report must be read in conjunction with the whole of this report, including its annexes and attachments.

2 *ASBESTOS*

2.1.1 Introduction

Asbestos is the fibrous form of mineral silicates belonging to the serpentine and amphibole groups of the rock-forming minerals, including amosite (brown asbestos), crocidolite (blue asbestos), chrysotile (white asbestos), tremolite, actinolite, anthophyllite or mixture containing one or more of these.

2.1.2 Asbestos Products

Asbestos containing materials (ACM) were widely used in the construction industry from around 1940 to the early to mid 1980s. Asbestos was in some form or manner used in over 3,000 products. Whilst the use of ACM in new building systems has ceased, the presence of ACM in older building is still widespread and may still be present in various forms that include, but not limited to; hot water pipe insulation (lagging), spray-on fireproofing (limpet), roofing materials, fencing, floor tiles, gaskets, friction linings, piping and internal and external wall cladding.

The WHS regulation specifies that all buildings constructed prior to 31 December 2003 are required to be assessed for asbestos and ACM.

The asbestos survey of the Crawfords Sandgate site detailed within ERMs *Hazardous Materials Assessment, Crawfords Freightlines, 12 Old Maitland Road, Sandgate, NSW* completed in March 2012 (ERM reference 0143175_Rpt01), noted that asbestos is present only in the form of bonded asbestos cement sheeting, compressed asbestos cement and asbestos vinyl tiles.

2.2 HEALTH RISKS

In accordance with *WHS Regulation 420* Crawfords must ensure, so far as reasonably practical, that people at the workplace are not exposed to airborne asbestos fibres. Where this is not practical the exposure standard must not be exceeded at the workplace.

The health effects associated with asbestos exposure relate to the inhalation of airborne respirable asbestos fibres. Asbestos fibres when inhaled must first pass the filtration mechanisms lining the nose and the mouth down to the fine airways that lead to the small alveoli of the lungs. Asbestos fibres which reach the alveoli of the lungs may lead to lung changes such as the following:

- Pleural plaques
- Asbestosis
- Lung cancer
- Mesothelioma

In general, asbestos fibres cannot be released or become airborne in significant quantities unless the asbestos-containing material is disrupted, for example in the case of cutting asbestos-cement (AC) products with power saws, etc.

2.3 *ASBESTOS CONTAINING MATERIALS*

Asbestos containing materials, ACMs, refers to any materials which have a percentage of their matrix formed by asbestos fibres. ACMs have two main distinctions as defined by their physical state and potential to become airborne when disturbed, friable ACMs and non-friable (or bonded) ACMs as described below:

- *friable ACM*, refers to asbestos-containing material which, when dry, is or may become crumbled, pulverised or reduced to powder by hand pressure (eg, pipe and boiler lagging). Friable ACMs also include those materials deteriorated by weathering, damaged by fire/heat, or other mechanical action such as illegal water blasting; and

- *non-fraible / Bonded ACM* refers to any material that contains asbestos in a bonded matrix. It may consist of cement or various resin/binders and cannot be crushed by hand when dry (eg, asbestos cement products and electrical metering boards in good condition).

2.3.1 *Friable Asbestos On-site*

There were no friable ACMs identified at the site during the asbestos survey.

2.3.2 *Non-Friable Asbestos On-site*

Non-friable materials identified at the Crawfords site include fibrous cements, and vinyl floor tiles. These materials were generally in good condition with the exception of some materials noted, which are becoming degraded from weathering. These materials included the corrugated cement roofing to the Administration Building, Shed C and Shed D. and damaged fibrous cement materials to the ceiling of the Shower Block within Shed D. These materials may become classified as friable if further degradation occurs.

3 MANAGEMENT OF ASBESTOS

The AMP requires commitment from an employee of Crawfords to ensure that the plan is implemented. The implementation involves the notification of all staff, contractors and others that asbestos is located on-site when they are potentially likely to disturb the ACMs.

Specifically the plan requires:

- selection of a AMP Manager – Crawfords;
- commitment to the AMP as a procedural document;
- maintenance and management of the asbestos register;
- scheduled inspections of ACMs located at the site;
- enforcing work procedures for maintenance and removal of asbestos;
- training staff regarding asbestos; and
- emergency procedures for asbestos abatement.

3.1 ROLES AND RESPONSIBILITIES

3.1.1 *Asbestos Management Plan Manager*

The appointed manager will be responsible for the effective implementation and maintenance of the AMP and is responsible for ensuring the following occurs:

- provide an advisory service and develop awareness on asbestos matters;
- undertake and or organise inspections of structures;
- maintain the Asbestos Register(s); and
- ensure that the AMP is available to all workers, health and safety representatives of workers at the site, businesses who have previously carried out, currently carried out or intend to carry out work at the site.

3.1.2 *Controller of the Premises*

Where appropriate, the controller of the premises (Crawfords' Landlord) is required to:

- advise the AMP manager when works to be undertaken on the site that may disturb ACM so an assessment of risks can be undertaken.

- ensure reasonable precautions are taken to keep people clear of areas where ACM are being repaired, removed or upgraded;
- ensure all incidents or potential hazards for risk assessment and/or action are reported to the AMP manager;
- ensure that work practices undertaken by Contractors or site visitors comply with the requirements of the AMP; and
- advise the AMP manager where Contractors or tradespeople are seen not to follow agreed work practices;
- ensure they are informed of the responsibilities of the AMP manager and measures in place to control risks associated with ACM; and
- comply with policies, procedures and instructions as stipulated in the AMP.

3.1.3 Responsibility of Employees and Contractors

All employees and/or contractors working on site are to ensure that:

- employees and sub-contractors are aware of their responsibilities;
- employees and sub-contractors report to the Controller of the Premises before commencing work on site;
- employees and sub-contractors comply with the procedures provided in this AMP and any other procedures stipulated or specified in contract documents; and
- report incidents or potential hazards to the Controller of the Premises before further work is carried out.

The person conducting a business or undertaking who will carry out demolition or refurbishment at a workplace must obtain a copy of the asbestos register before they commence the work.

3.2 ASBESTOS SURVEYS

It is a requirement under the WHS Regulation 422 that an ACM register is prepared and kept at the workplace with all information in the register updated as required.

An asbestos register has been prepared for the site and lists all identified and potential ACM. The asbestos survey details the location, extent, type, approximate quantity and condition including risk ratings of all identified ACMs at the site in accordance with *Section 3.3.1* of this report. The asbestos surveys are only performed by competent /appropriately experienced persons

in accordance with the *Code of Practice: How to Manage and Control Asbestos in the Workplace*. Representative samples are collected during the survey and submitted to a NATA accredited laboratory in accordance with *WHS Regulation 423*.

All visible and accessible ACMs identified are documented in a tabular format in the asbestos register. Areas not accessed during the course of the survey are detailed for future reference of surveys and demolition/refurbishment works. The survey report is accompanied by a photographic log, site plan and laboratory certificates.

3.2.1 Review of Asbestos Register and Management Plan

The AMP manager shall be responsible for ensuring that the review of the Asbestos Management Plan is undertaken at the appropriate intervals and that it takes into consideration changes to:

- legislation (relevant legislation and guidance – Safe Work Australia, NSW WorkCover, NOHSC, Health, OEH and Newcastle City Council);
- methodology, standard practices and technical aspects; and
- updating details of relevant changes to the site, such as ensuring details of the Controller of the Premises are up to date.

It is a requirement in accordance with *WHS Regulation 426* and *WHS Regulation 430* that the asbestos register and AMP be reviewed and where necessary be updated by a competent person if any of the following occur:

- the asbestos management plan is reviewed;
- additional ACM is identified at the workplace;
- any ACM that has been removed, disturbed, sealed or encapsulated;
- the AMP is no longer adequate for managing ACMs; and
- if requested by a health and safety representative due to any of the points may affect the health and safety of a member of their work group and the AMP was not adequately reviewed.

The code of practices (SWA, 2011a) recommends that the asbestos register and AMP should be reviewed at least once every five years at a minimum unless any of the above occurs. A visual inspection of identified ACM should be undertaken as part of any review.

ERM recommends that a shorter timeframe of every 12 months be adopted for the review of the asbestos register in relation to the condition of ACMs. These works are able to be completed by either a competent Crawfords employee or by ERM.

3.3 MANAGEMENT OF ACM

3.3.1 ACM Risk Ratings

The Register has been utilised to indicate priorities for action using a risk classification system. The risk class for identified ACM listed within the register has been determined by multiplying the *Adequacy of Encapsulation* (ie. condition of the material) for the given asbestos type by the *Risk of Disturbance*. The risk classes used have been assigned according to the risk matrix listed in *Table 3.1.*

Table 3.1 Asbestos Risk Matrix

ACM Risk Ratings		**Risk of Disturbance**		
		High	**Moderate**	**Low**
Adequacy of Encapsulation	**Poor**	Critical	High	Moderate
	Fair	High	High	Moderate
	Good	Moderate	Moderate	Low

The risk classes used are *Critical, High, Moderate* and *Low* and exist as prompts for priority to implement recommendations to control the risk of airborne asbestos exposures to persons in the working environment.

The risk classes are defined as follows:

Critical Risk ACM

Materials that pose an immediate or elevated health risk to employees or the public. The level of risk is applicable to the presence of friable material such as limpet asbestos insulation and asbestos ropes. The materials are readily accessible, in poor or friable condition. Immediate actions should be taken. Removal by a licensed asbestos removal contractor is recommended.

High Risk ACM

Products or materials that pose a potential health risk to employees and the public in their current state. This level of risk is applicable to damaged or unstable material that is friable with force, accessible within a high activity area such as broken or deteriorated cement sheeting, which presents a potential immediate health risk if disturbed. Control measures to stabilise the material should be initiated immediately and regular monitoring of the material is recommended for these materials. Formal abatement should be considered when capital allows or where planned maintenance, refurbishment or demolition works will disturb these materials. Removal, when required should be undertaken by licensed asbestos removal contractors.

Moderate Risk ACM

Products or materials that pose little health risk to employees and the general public. They consist of materials that currently are in a damaged stable or non-friable condition with a low accessibility. The material does not present a health risk unless further disturbed. Maintenance work should be carried out to stabilise or repair the damaged area. Control must be implemented to protect these materials from further damage including materials identified by warning signs. Reassessment of the priority rating will be required if any planned maintenance, refurbishment or demolition works impact on their condition. If any damage is present, maintenance work should be carried out to stabilise and repair the damaged area. Removal, when required should be undertaken by licensed asbestos removal contractors.

Low Risk ACM

Products or Bonded Asbestos Materials that pose negligible health risk to employees and the general public that consist of materials that currently are in an undamaged, stable, non-friable condition within a low accessible area. The material does not present a health risk unless disturbed by intrusive work such as drilling, cutting, breaking or sanding. Control must be implemented to protect these materials from damage including materials identified by warning signs.

Reassessment of the priority rating will be required if any planned maintenance, refurbishment or demolition works impact on their condition. If damage occurs, maintenance work should be carried out to stabilise and repair the damaged area.

3.3.2 Hierarchy of Controls

When choosing the most appropriate control measure, the following hierarchy of controls must be considered as described in the code of practice:

- eliminating the risk (for example, removing the asbestos)
- substituting the risk, isolating the risk or applying engineering controls (for example, enclosing, encapsulation, sealing or using certain tools)
- using administrative controls (for example, safe work practices)
- using PPE.

It is prohibited under *WHS Regulation 419* to disturb ACM unless it is to complete works such as maintenance or removal of ACMs in accordance with WHS Regulations. For other exceptions please refer to *Section 1.1* of *Code of Practice, How to Manage and Control Asbestos in the Workplace.*

The ultimate long-term objective of any asbestos management strategy is for all sites to be free of asbestos materials. Although removal is the most desirable long-term goal, management of asbestos hazards in the current form if there are no immediate risks to human health may be the most appropriate control. In accordance with the management of risks in *Section 2.4* the following control strategies are relevant:

- leave in situ (defer action);
- encapsulation or sealing;
- enclosure; and
- removal.

Leave In-Situ

Products specified as a low risk to the health of employees and the general public as detailed under Low Risk in Section 2.4. The asbestos left in-situ will require regular inspections to check its integrity is maintained, requires labelling. If disturbance is likely by refurbishments must be removed prior to the works starting.

Encapsulation or Sealing

Encapsulation refers to coating the outer surface of the ACM by application of a sealant which typically penetrates the matrix of the substrate and hardens the outside surface of the material. Sealing involves the covering of the surface of the ACM with a protective impervious material. These processes protect the ACM from weathering or mechanical damage limiting the risk of the release of asbestos fibres into the airborne environment.

ACMs which are rated as a low or moderate risk may be encapsulated or sealed depending on the potential for airborne fibres to be emitted during the maintenance works.

Enclosure

Enclosure involves the construction of a barrier between the ACM and the adjacent areas. Enclosure should only be considered where removal is not reasonably practical. Enclosures may include plywood or metal products as barriers around the ACM.

Removal

Removal of asbestos must be appropriately managed and performed under controlled conditions in accordance with the relevant sections of the WHS regulation. The type of removal depends on the type of asbestos to be removed, friable or non-friable.

Friable asbestos can only be removed by a Class A licenced asbestos removalist. An asbestos assessor must also be engaged to provide air monitoring and clearance for any friable asbestos removal works.

Non-friable asbestos which has been determined that it should be removed must be completed by a licenced asbestos removalist is the area is of a size greater than 10 m^2.

The *Code of Practice: How to Safely Remove Asbestos* and *Code of Practice, How to Manage and Control Asbestos in the Workplace* provides detailed guidance on the appropriate work methods and controls during asbestos removal works. A copy of examples on maintenance and removal techniques to limit airborne fibre release from the *Code of Practice, How to Manage and Control Asbestos in the Workplace* are provided in *Annex C* of this plan.

3.3.3 Labelling

The presence and location of ACM identified at the workplace must be clearly indicated in accordance with *WHS Regulation 424*. If practical the ACM is to be identified by either a label or signage so that it is clearly visible to persons (including contractors) using the area, until it is finally removed.

Labels used for this purpose must identify the material as containing asbestos and should comply with relevant industry standards, such as Australian Standard 1216 -2006 *Class Labels for Dangerous Goods*. All warning signs should also comply with relevant industry standards, such as Australian Standard 1319-1994 *Safety Signs for the Occupational Environment* and/or those described in *Section 2.5* and *Annex B* of the *Code of Practice, How to Manage and Control Asbestos in the Workplace.*

To avoid confusion to employees and/or contractors undertaking works in areas containing ACMs it is recommended that the ideal placement of signage should be directly on, or as close as possible to the actual ACMs to ensure clear and unambiguous identification.

Should Crawfords not have appropriately trained personnel to assess, and if necessary undertake of ACMs on the sites, ERM could assist to undertake the recommended works.

3.3.4 Air Monitoring

Based on the risk ratings of the materials within the asbestos survey air monitoring for air borne fibres should be undertaken in accordance with the "Guidance Note On The Membrane Filter Method For Estimating Airborne Asbestos Fibres 2nd Edition" [NOHSC:3003(2005)]. Monitoring should be undertaken for any asbestos materials considered to be a high or critical risk. The frequency of monitoring would be established following the collection of baseline monitoring and agreement with the AMP manager and a competent person. Typically air monitoring would be completed in areas frequented by

employees adjacent to the ACM and also at the site boundaries if the materials are located externally to the buildings.

3.4 TRAINING AND AWARENESS PLANS

All workers and contractors on premises where ACMs are present or presumed to be present, and all other persons who may be exposed to ACM as a result of being on the premises, must be provided with full information on the occupational health and safety consequences of exposure to asbestos and appropriate control measures. The provision of this information should be recorded by the AMP manager

Records of all training must be kept while the worker is carrying out the work and for five years after the day the worker stops carrying out the work. The training records must be available for inspection by the regulator.

ACM training given to employees should cover the following topics in appropriate detail:

- the health risks of ACMs;
- the types of materials, uses and likely occurrence of asbestos in buildings and plant;
- where the asbestos register is located;
- the general procedures to be followed to deal with an emergency, for example, an uncontrolled release of asbestos dust into the workplace;
- how to avoid the risks associated with ACMs including use of PPE (if required); and
- health surveillance and its purpose.

Additional information, instruction and training given to employees, contractors and others, should include the following:

- the assessment of risk and the purpose of the plan of work;
- how the correct use of control measures, protective equipment and work methods can reduce the risks associated with ACMs, limit exposure to workers and limit the spread of asbestos fibres outside the work area;
- the assessment of exposure and the purpose of air monitoring;
- exposure standards; and
- appropriate maintenance and control measures.

3.5 EMERGENCY PROCEDURES AND CONTINGENCY

Situations where the health of personnel is considered to be at immediate risk i.e. exposure to friable asbestos and / or situations not previously identified where there is potential for exposure to asbestos e.g. asbestos fibre insulation located in a previously closed space:

- consult the AMP
- undertake health monitoring in accordance with *WHS Regulation 435-444*; and
- follow the guidance of the Incident Response Chart (refer to *Annex A*).

Any records of incidents relating to ACMs are to be recorded and documented and are required to be retained for a period of at least 40 years.

4 RECORDS

4.1 HEALTH SURVEILLANCE RECORDS

Health monitoring must be provided to a worker if they asbestos-related work and are at risk to exposure when carrying out the work. The monitoring includes an initial baseline medical assessment with the following considered:

- worker's demographic, medical and occupational history;
- records of the worker's personal exposure; and
- physical examination of the worker with emphasis on the respiratory system, including respiratory function tests or other forms of health monitoring recommended by a registered medical practitioner.

Workers are required to be informed of any health monitoring requirements before the worker undertakes work that may expose them to asbestos.

Details on the specific requirements of the health monitoring can be found within *Code of Practice, How to Manage and Control Asbestos in the Workplace.*

All reports must be kept as a confidential record for 40 years after the record is made and identified as a formal record for the particular worker.

4.2 ASBESTOS DISPOSAL RECORDS

All ACM must be disposed of in accordance with the NSW DECC (2008) Waste Classification Guidelines Part 1: Classifying Waste, at a landfill licensed to accept ACM waste.

Crawfords should keep record of any landfill receipts from removal works undertaken whilst they have tenure at the site.

4.3 TRANSFERRING OF DOCUMENTS

In accordance with WHS Regulations, if Crawfords end their tenure at the site, all reasonable efforts must be undertaken to provide a copy of the asbestos register to the next person who is assuming management or control of the site.

Annex A

Incident Response Chart

Incident Response Chart

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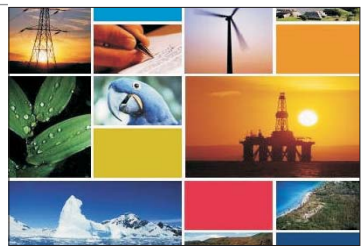

A material is disturbed which is suspected of containing asbestos

Advise the R.O.

Has the disturbance caused dust to be released or is dust likely to be released if the current activity continues

NO

YES

Stop work immediately and isolate the area

An inspection is to be undertaken of the site by competent person to establish if disturbed material material potentially contains asbestos (ACM)

Potential ACM

NO

Undertake laboratory analysis

Asbestos present

YES

Area is cordoned off and warning signs are put in place. Any persons who may have been exposed to respirable airborne particles are to be advised to report the potential exposure to site management. Site management should report the incident to the R.O. The R.O will report to the Australian Mesothelioma Register and to the relevant statutory authorities eg WorkCover.

Area is cleaned; asbestos is removed or made safe by competent persons

Clearance certificate is obtained from a certified occupational hygienist

Back to work

Annex B

Asbestos Register

Asbestos Register

Crawfords Freightlines Pty Ltd
Old Maitland Road, Sandgate, NSW
Project 0143175

Specific Area LOCATION	Material Type & Description	Asbestos Sample #	Asbestos Laboratory Result	Estimated Quantity ACM (m2)	Friable (F) or Bonded (B)	Risk of Disturbance	Condition / Adequacy of Encapsulation	Priority for Action	Comments if applicable	PHOTO
SHED - D - Internal Areas										
Shower Block										
Ceiling	Fibrous cement	Assume positive	Asbestos	51	B	M	P	H	Broken ceiling panelling - large fragments hanging from ceiling	1
Shower partitions	Compressed fibrous cement	Assume positive	Asbestos	8	B	L	P	M	Ceramic tiles covering sheeting falling off.	3
Toilet area	Fibrous cement to section of partition between toilets	Assume positive	Asbestos	0.5	B	L	G	L	-	4
Floor covering	Vinyl tiles	ERM01	Chyrsotile Asbestos Detected	36	B	L	P	M	Broken tiles in various areas.	5
Quarantine Inspection Area										
Ceiling	Fibrous cement	Assume positive	Asbestos	43	B	L	F	M	Holes patched with plywood	6
Floor covering	Vinyl tiles	Assume representative of ERM01	Chyrsotile Asbestos Detected	43	B	L	G	L	Painted	7
Office										
Ceiling	Fibrous cement	Assume positive	Asbestos	40	B	L	G	L	Painted white	8
Upper wall partitions	Fibrous cement	Assume positive	Asbestos	9	B	L	G	L	Painted yellow	8
Floor covering	Vinyl tiles	Assume representative of ERM01	Chyrsotile Asbestos Detected	40	B	L	P	M	Tiling broken in large areas	9
Ammenities - External Areas										
Upper wall panels	Fibrous cement	Assume positive	Asbestos	100	B	L	G	L	-	10
Shed D - External Areas										
Roof	Corrugated fibrous cement	Assume positive	Asbestos	5000	B	M	P	H	Roofing becoming degraded with fibres identified within drainage pipes and ground surfaces adjacent to Shed.	11 & 12
Guttering	Fibrous cement	Assume positive	Asbestos	160 lineal metres	B	M	P	H	Vegetation observed to be growing out of gutters	13
Down pipes	Fibrous cement	ERM02	Chrysotile Asbestos	40 lineal metres	B	M	P	H	Down-pipe broken off beneath ground level	14 & 15
Gable edge capping	Fibrous cement	Assume positive	Asbestos	80 lineal metres	B	M	P	H	Deteriorated condition	16

RISK MATRIX
Action Levels

Adequacy of Encapsulation	Risk of Disturbance: High	Moderate	Low
Poor	Critical	High	Moderate
Fair	High	High	Moderate
Good	Moderate	Moderate	Low

Original Survey Date: February 2012
Assessed by: Andrew Morris (ERM Australia)

Specific Area LOCATION	Material Type & Description	Asbestos Sample #	Asbestos Laboratory Result	Estimated Quantity ACM (m2)	Friable (F) or Bonded (B)	Risk of Disturbance	Condition / Adequacy of Encapsulation	Priority for Action	Comments if applicable	PHOTO
ADMINISTRATION BUILDING										
External Areas										
Roofing	Corrugated fibrous cement	Assume positive	Asbestos	750	B	M	P	H	Deteriorated, high potential of fibre release	17
Eaves	Fibrous cement	Assume positive	Asbestos	150	B	L	G	L	-	18
Awning	Fibrous cement	Assume positive	Asbestos	60	B	L	G	L	-	18
Wall - infill panells beneath windows, south section of building	Fibrous cement	Assume positive	Asbestos	12	B	L	G	L	Painted brown or blue	22
Wall - infill panells beneath windows, central section of building	Fibrous cement	Assume positive	Asbestos	24	B	L	G	L	Painted brown or blue	23
Facia Board	Corrugated fibrous cement	Assume positive	Asbestos		B	L	G	L	Facia boards between gables	24
Central Section of Administration Building - Internal Areas										
Caretakers Office North End										
Flooring	Vinyl tiles	Assume representative of ERM07	Asbestos	70	B	L	G	L	Green tiles	19
Wall Lining	Fibrous cement	Assume representative of ERM04	Asbestos	27	B	L	G	L	-	19
Ceiling	Fibrous cement	Assume representative of ERM04	Asbestos	70	B	L	G	L	Polystyrene tiles attached to ACM fibrous cement	20
Wall - infill panels beneath windows	Fibrous cement	Assume representative of ERM04	Asbestos	12	B	L	G	L	-	-
Male Toilets, Showers and Wash Area										
Ceiling - Wash area and toilets	Fibrous cement	Assume representative of ERM04	Asbestos	55	B	L	G	L	-	-
Locker Area										
Ceiling	Fibrous cement	Assume representative of ERM04	Asbestos	40	B	L	G	L	Flat metal beading between fibrous sheets	21
Wall - north between locker area and showers	Fibrous cement	Assume representative of ERM04	Asbestos	30	B	L	G	L	-	-
Wall - south between locker area and kitchen	Fibrous cement	Assume representative of ERM03	NAD	30	-	-	-	-	Appears to be a newly constructed wall with plastic beading between sheets of fibrous cement	-
Wall - East	Fibrous cement	Assume representative of ERM04	Asbestos	15	B	L	G	L	-	-
Kitchen Area										
Walls - East and South	Fibrous cement	ERM04	Asbestos	40	B	L	F	M	Minor small holes to wall require sealing	-
Lunch Room - Truck Drivers										
Northern and Eastern Walls	Fibrous cement	Assume representative of ERM04	Asbestos	50	B	L	G	L	-	27
Southern wall - with doorways to private rooms	Fibrous cement	-	NAD	-	-	-	-	-	Newly installed, no access to western room	28
Toilets and Wash area										
Ceiling	Fibrous cement	Assume representative of ERM04	Asbestos	60	B	L	G	L	-	

RISK MATRIX
Action Levels

Adequacy of Encapsulation	Risk of Disturbance: High	Moderate	Low
Poor	Critical	High	Moderate
Fair	High	High	Moderate
Good	Moderate	Moderate	Low

Specific Area LOCATION	Material Type & Description	Asbestos Sample #	Asbestos Laboratory Result	Estimated Quantity ACM (m2)	Friable (F) or Bonded (B)	Risk of Disturbance	Condition / Adequacy of Encapsulation	Priority for Action	Comments if applicable	PHOTO
ADMINISTRATION BUILDING										
Southern Section of Administration Building										
Kitchen										
Wall - west	Fibrous cement	Assume representative of ERM04	Asbestos	9	B	L	G	L	Kitchen cupboards attached	25
Western Office adjacent Kitchen										
Infill panels beneath windows, top and bottom panel	Fibrous cement	Assume representative of ERM04	Asbestos	2	B	L	G	L	-	26
Flooring	Vinyl Tiles	ERM07	Chrysotile Asbestos	50	B	L	F	M	-	
Communal Office Area										
Walls	Plasterboard	-	NAD	-	-	-	-	-		-
Ceilings	Plasterboard	-	NAD	-	-	-	-	-		-
Flooring	Vinyl Tiles (beneath carpet)	ERM07	Chrysotile Asbestos	50	B	L	G	L	Carpet layed directly over top of tiles except for high traffic areas	30
Eastern Office and Meeting Room										
Walls	Plasterboard	-	NAD	-	-	-	-	-	-	-
Ceilings	Plasterboard	-	NAD	-	-	-	-	-	-	-
Flooring	Vinyl Tiles (beneath carpet)	ERM07	Chrysotile Asbestos	50	B	L	G	L	Carpet layed directly over top of tiles	-
Male and Female Toilets										
Ceiling	Fibrous cement	Assume representative of ERM04	Asbestos	3	B	L	G	L	-	-
Infil panels above windows	Fibrous cement	Assume representative of ERM04	Asbestos	1	B	L	G	L	-	-
Ceiling Void										
Insulation to ceiling	SMF	-	SMF	-	-	-	-	-	-	-
Insulation beneath roof - sarking	SMF	-	SMF	-	-	-	-	-	-	-

RISK MATRIX
Action Levels

Adequacy of Encapsulation	Risk of Disturbance: High	Moderate	Low
Poor	Critical	High	Moderate
Fair	High	High	Moderate
Good	Moderate	Moderate	Low

Specific Area LOCATION	Material Type & Description	Asbestos Sample #	Asbestos Laboratory Result	Estimated Quantity ACM (m2)	Friable (F) or Bonded (B)	Risk of Disturbance	Condition / Adequacy of Encapsulation	Priority for Action	Comments if applicable	PHOTO
SHED C - External Areas										
Roof	Corrugated fibrous cement	Assume positive	Asbestos	3000	B	M	P	H	Roofing becoming degraded with fibres identified within drainage pipes and ground surfaces adjacent to Shed.	31
Guttering	Fibrous cement	Assume positive	Asbestos	210 lineal metres	B	M	P	H	Broken sections of gutters	32
Down pipes	Fibrous cement	Assume representative of ERM02	Chrysotile Asbestos	40 lineal metres	B	M	P	H	Down-pipe broken off beneath ground level	33
Gable edge capping	Fibrous cement	Assume positive	Asbestos	60 lineal metres	B	M	P	H	Deteriorated condition	-
SHED C - Amenity Areas										
Office Areas										
Flooring	Vinyl Tiles	ERM05	Chrysotile Asbestos	220	B	L	G	L	Painted grey	-
Walls	Plasterboard	-	-	-	-	-	-	-	-	-
Toilet Areas										
Walls	Fibrous cement	ERM06	Chrysotile Asbestos	45	B	L	G	L	Minor holes around sink areas	34
Ceilings	Fibrous cement	Assume representative of ERM06	Chrysotile Asbestos	35	B	L	G	L	-	34
Shed C - Shower / Laundry										
Walls	Fibrous cement	Assume representative of ERM06	Chrysotile Asbestos	18	B	L	G	L	-	-
Shed C - Awnings to Amenities										
Awnings (x2) to south east of Shed C	Fibrous cement	Assume representative of ERM06	Chrysotile Asbestos	2	B	L	P	M	One awning severelly damaged with broken ACM throughout	-

Notes

ACM = Asbestos Containing Materials (shaded rows)
NAD = No Asbestos Detected
L = Low
M = Medium
H = High
- = Cannot be quantified or not applicable

RISK MATRIX
Action Levels

Adequacy of Encapsulation	Risk of Disturbance: High	Moderate	Low
Poor	Critical	High	Moderate
Fair	High	High	Moderate
Good	Moderate	Moderate	Low

Specific Area LOCATION	Material Type & Description	Estimated Quantity ACM (m2)	Comments if applicable	PHOTO
SHED - D - Internal Areas				
Shower Block				
Water heaters	Synthetic Mineral Fibre (SMF) insulation to heater	5	Outer casing falling off with SMF becoming degraded	2
Amenity Block				
Insulation to ceiling	SMF	160	-	1
ADMINISTRATION BUILDING				
Ceiling Void				
Insulation to ceiling	SMF	Throughout	-	35
Insulation beneath roof - sarking	SMF	Throughout	-	35

Notes
SMF = Synthetic Mineral Fibres
- = Cannot be quantified or not applicable

Specific Area LOCATION	Material Type & Description	Sample #	Laboratory Result - Lead (mg/kg)	Lead Content (%)	Condition	Priority for Action	Comments
SHED C and D							
Masonary Block work	white paint	Swab	Non-detect	Non-detect	good	-	-
Timber painted surfaces	white, grey and blue paints	Swab	Non-detect	Non-detect	good	-	-

Notes

Lead Paint >1% content (shaded rows)

G = Good

F = Fair

P= Poor

- = Cannot be quantified

Specific Area LOCATION	Material Type & Description	Estimated Quantity	Comments if applicable	PHOTO
SHED C and D				
Main warehouse areas	Fluorescent Lights	20+	Unable to be inspected due to height restrictions. Assume they contain PCBs until inspection completed. Dispose of as PCB waste.	-
Main warehouse areas	Metal Halide Lights	20+		36

Notes

PCBs = Polychlorinated Biphenyls (shaded rows)

- = Cannot be quantified or not applicable

RISK MATRIX
Action Levels

Adequacy of Encapsulation	Risk of Disturbance: High	Moderate	Low
Poor	Critical	High	Moderate
Fair	High	High	Moderate
Good	Moderate	Moderate	Low

Specific Area LOCATION	Material Type & Description	Comments if applicable	Control Recommendations
Shed D			
Office			
Air Conditioner	Kelvinator RF500G	Contains R22 a ozone-depleting hydrochlorofluorcarbon	Dispose of air conditioner where the R-22 is able to be reclaimed by a licensed technician.
Administration Building			
Air conditioner	NEC	likely to contain R22	Dispose of air conditioner where the R-22 is able to be reclaimed by a licensed technician.
Fridge	Westinghouse labelled to contain R12	R12 is a ozone depleting gas	Dispose of fridge where the R-12 is able to be reclaimed by a licensed technician.
Fridge	BGE - Super 90	No placard, age suspected to be early 60's. High likely hood of ozone depleting gasses to be present within this fridge.	Gasses to be removed by a licensed technician prior to be disposal.
Shed D			
Air conditioner	Kelvinator RF500G	Refrigerant labelled to be R22	Dispose of air conditioner where the R-22 is able to be reclaimed by a licensed technician.

Notes

ODSs = Ozone Depleting Substances (shaded rows)

- = Cannot be quantified or not applicable

RISK MATRIX
Action Levels

Adequacy of Encapsulation	Risk of Disturbance: High	Moderate	Low
Poor	Critical	High	Moderate
Fair	High	High	Moderate
Good	Moderate	Moderate	Low

Annex C

Maintenance and Removal Procedures -

Safe Work Australia 2011: *Code of Practice: How to Manage and Control Asbestos in the Workplace* (Annex F)

SAFE WORK PRACTICE 1 – DRILLING OF ACM	
The drilling of asbestos cement sheeting can release asbestos fibres into the atmosphere, so precautions must be taken to protect the drill operator and other persons from exposure to these fibres. A hand drill is preferred to a battery-powered drill, because the quantity of fibres is drastically reduced if a hand drill is used.	
Equipment that may be required prior to starting work (in addition to what is needed for the task)	■ A non-powered hand drill or a low-speed battery-powered drill or drilling equipment. Battery-powered drills should be fitted with a local exhaust ventilation (LEV) dust control hood wherever possible. If an LEV dust control hood cannot be attached and other dust control methods such as pastes and gels are unsuitable then shadow vacuuming techniques should be used ■ Disposable cleaning rags ■ A bucket of water, or more as appropriate, and/or a misting spray bottle ■ Duct tape ■ Sealant ■ Spare PPE ■ A thickened substance such as wallpaper paste, shaving cream or hair gel ■ 200 µm plastic sheeting ■ A suitable asbestos waste container (e.g. 200 µm plastic bags or a drum, bin or skip lined with 200 µm plastic sheeting) ■ Warning signs and/or barrier tape ■ An asbestos vacuum cleaner ■ A sturdy paper, foam or thin metal cup, or similar (for work on overhead surfaces only).
PPE	■ Protective clothing and RPE (see AS1715, AS 1716). It is likely that a class P1 or P2 half face respirator will be adequate for this task, provided the recommended safe work procedure is followed.
Preparing the asbestos work area	■ If the work is to be carried out at a height, appropriate precautions must be taken to prevent falls. ■ Ensure appropriately marked asbestos waste disposal bags are available. ■ Carry out the work with as few people present as possible. ■ Segregate the asbestos work area to ensure unauthorised personnel are restricted from entry (e.g. close door and/or use warning signs and/or barrier tape at all entry points). The distance for segregation should be determined by a risk assessment. ■ If drilling a roof from outside, segregate the area below. ■ If access is available to the rear of the asbestos cement, segregate this area as well as above.

	■ If possible, use plastic sheeting, secured with duct tape, to cover any surface within the asbestos work area that could become contaminated. ■ Ensure there is adequate lighting. ■ Avoid working in windy environments where asbestos fibres can be redistributed. ■ If using a bucket of water, do not resoak used rags in the bucket, as this will contaminate the water. Instead, either fold the rag so a clean surface is exposed or use another rag.
Drilling vertical surfaces	■ Tape both the point to be drilled and the exit point, if accessible, with a strong adhesive tape such as duct tape to prevent the edges crumbling. ■ Cover the drill entry and exit points (if accessible) on the asbestos with a generous amount of thickened substance.Drill through the paste. ■ Use damp rags to clean off the paste and debris from the wall and drill bit. ■ Dispose of the rags as asbestos waste as they will contain asbestos dust and fibres. ■ Seal the cut edges with sealant. ■ If a cable is to be passed through, insert a sleeve to protect the inner edge of the hole.
Drilling overhead horizontal surfaces	■ Mark the point to be drilled. ■ Drill a hole through the bottom of the cup. ■ Fill or line the inside of the cup with shaving cream, gel or a similar thickened substance. ■ Put the drill bit through the hole in the cup so that the cup encloses the drill bit, and make sure the drill bit extends beyond the lip of the cup. ■ Align the drill bit with the marked point. ■ Ensure the cup is firmly held against the surface to be drilled. ■ Drill through the surface. ■ Remove the drill bit from the cup, ensuring that the cup remains firmly against the surface. ■ Remove the cup from the surface. ■ Use damp rags to clean off the paste and debris from the drill bit. ■ Dispose of the rags as asbestos waste, as they will contain asbestos dust and fibres. ■ Seal the cut edges with sealant. ■ If a cable is to be passed through, insert a sleeve to protect the inner edge of the hole.

Decontaminating the asbestos work area and equipment	■ Use damp rags to clean the equipment. ■ Carefully roll or fold any plastic sheeting used to cover any surface within the asbestos work area, so as not to spill any dust or debris that has been collected. ■ If necessary, use damp rags and/or an asbestos vacuum cleaner to clean any remaining visibly contaminated sections of the asbestos work area. ■ Place debris, used rags, plastic sheeting and other waste in the asbestos waste bags/container. ■ Wet wipe the external surfaces of the asbestos waste bags/ container to remove any adhering dust before they are removed from the asbestos work area.
Personal decontamination should be carried out in a designated area	■ If disposable coveralls are worn, clean the coveralls while still wearing RPE using a HEPA vacuum, damp rag or fine-water spray. RPE can be cleaned with a wet rag or cloth. ■ While still wearing RPE, remove coveralls, turning them inside-out to entrap any remaining contamination and then place them into a labelled asbestos waste bag. ■ Remove RPE. If non-disposable, inspect it to ensure it is free from contamination, clean it with a wet rag and store in a clean container. If disposable, cleaning is not required but RPE should be placed in a labelled asbestos waste bag or waste container. Refer to the *Code of Practice: How to Safely Remove Asbestos* for more information.
Clearance procedure	■ Visually inspect the asbestos work area to make sure it has been properly cleaned. ■ Clearance air monitoring is not normally required for this task. ■ Dispose of all waste as asbestos waste. Refer to the *Code of Practice: How to Safely Remove Asbestos* for more information.

SAFE WORK PRACTICE 2 – SEALING, PAINTING, COATING AND CLEANING OF ASBESTOS-CEMENT PRODUCTS	
These tasks should only to be carried out on asbestos that are in good condition. For this reason, the ACM should be thoroughly inspected before starting the work. There is a risk to health if the surface of asbestos cement sheeting is disturbed (e.g. from hail storms and cyclones) or if it has deteriorated as a result of aggressive environmental factors such as pollution. If it is so weathered that its surface is cracked or broken, the asbestos cement matrix may be eroded, increasing the likelihood that asbestos fibres will be released. If treatment is considered essential, a method that does not disturb the matrix should be used. Under no circumstances should asbestos cement products be water blasted or dry sanded in preparation for painting, coating or sealing.	
Equipment that may be required prior to starting work (in addition to what is needed for the task)	■ Disposable cleaning rags ■ A bucket of water, or more as appropriate, and/or a misting spray bottle ■ Sealant ■ Spare PPE ■ A suitable asbestos waste container ■ Warning signs and/or barrier tape.
PPE	■ Protective clothing and RPE (see AS1715, AS 1716). It is likely that a class P1 or P2 half face respirator will be adequate for this task, provided the recommended safe work procedure is followed. Where paint is to be applied, appropriate respiratory protection to control the paint vapours/mist must also be considered.
Preparing the asbestos work area	■ If work is being carried out at heights, precautions must be taken to prevent falls. ■ Before starting, assess the asbestos cement for damage. ■ Ensure appropriately marked asbestos waste disposal bags are available. ■ Carry out the work with as few people present as possible. ■ Segregate the asbestos work area to ensure unauthorised personnel are restricted from entry (e.g. close door and/or use warning signs and/or barrier tape at all entry points). The distance for segregation should be determined by a risk assessment. ■ If working at a height, segregate the area below. ■ If possible, use plastic sheeting secured with duct tape to cover any floor surface within the asbestos work area which could become contaminated. This will help to contain any runoff from wet sanding methods. ■ Ensure there is adequate lighting. ■ If using a bucket of water, do not resoak used rags in the bucket, as this will contaminate the water. Instead, either fold the rag so a clean surface is exposed or use another rag. ■ Never use high-pressure water cleaning methods.

	■ Never prepare surfaces using dry sanding methods. Where sanding is required, you should consider removing the asbestos and replacing it with a non-asbestos product. ■ Wet sanding methods may be used to prepare the asbestos, provided precautions are taken to ensure all the runoff is captured and filtered, where possible. ■ Wipe dusty surfaces with a damp cloth.
Painting and sealing	■ When using a spray brush, never use a high-pressure spray to apply the paint. ■ When using a roller, use it lightly to avoid abrasion or other damage.
Decontaminating the asbestos work area and equipment	■ Use damp rags to clean the equipment. ■ If required, use damp rags and/or an asbestos vacuum cleaner to clean the asbestos work area. ■ Place debris, used rags, plastic sheeting and other waste in the asbestos waste bags/container. ■ Wet wipe the external surfaces of the asbestos waste bags/ container to remove any adhering dust before they are removed from the asbestos work area.
Personal decontamination should be carried out in a designated area	■ If disposable coveralls are worn, clean the coveralls while still wearing RPE using a HEPA vacuum, damp rag or fine-water spray. RPE can be cleaned with a wet rag or cloth. ■ While still wearing RPE, remove coveralls, turning them inside-out to entrap any remaining contamination and then place them into a labelled asbestos waste bag. ■ Remove RPE. If non-disposable, inspect it to ensure it is free from contamination, clean it with a wet rag and store in a clean container. If disposable, cleaning is not required but RPE should be placed in a labelled asbestos waste bag or waste container. Refer to the *Code of Practice: How to Safely Remove Asbestos* for more information.
Clearance procedure	■ Visually inspect the asbestos work area to make sure it has been properly cleaned. ■ Clearance air monitoring is not normally required for this task. ■ Dispose of all waste as asbestos waste. Refer to the *Code of Practice: How to Safely Remove Asbestos* for more information.

SAFE WORK PRACTICE 3 – CLEANING LEAF LITTER FROM GUTTERS OF ASBESTOS CEMENT ROOFS	
Equipment that may be required prior to starting work (in addition to what is needed for the task)	■ A bucket of water, or more as appropriate, and detergent ■ A watering can or garden spray ■ A hand trowel or scoop ■ Disposable cleaning rags ■ A suitable asbestos waste container ■ Warning signs and/or barrier tape ■ An asbestos vacuum cleaner.
PPE	■ Protective clothing and RPE (see AS1715, AS 1716). It is likely that a class P1 or P2 half face respirator will be adequate for this task, provided the recommended safe work procedure is followed.
Preparing the asbestos work area	■ Since the work is to be carried out at a height, appropriate precautions must be taken to prevent the risk of falls. ■ Ensure appropriately marked asbestos waste disposal containers are available. ■ Segregate the asbestos work area to ensure unauthorised personnel are restricted from entry (e.g. use warning signs and/or barrier tape at all entry points). The distance for segregation should be determined by a risk assessment. ■ Segregate the area below. ■ Avoid working in windy environments where asbestos fibres can be redistributed. ■ If using a bucket of water, do not resoak used rags in the bucket as this will contaminate the water. Instead, either fold the rag so a clean surface is exposed or use another rag.
Gutter cleaning	■ Disconnect or re-route the downpipes to prevent any entry of contaminated water into the waste water system and ensure there is a suitable container to collect contaminated runoff. Contaminated water must be disposed of as asbestos waste. ■ Mix the water and detergent. ■ Using the watering can or garden spray, pour the water and detergent mixture into the gutter but avoid over-wetting as this will create a slurry. ■ Remove the debris using a scoop or trowel. Do not allow debris or slurry to enter the water system. ■ Wet the debris again if dry material is uncovered. ■ Place the removed debris straight into the asbestos waste container.

Decontaminating the asbestos work area and equipment	■ Use damp rags to wipe down all equipment used. ■ Use damp rags to wipe down the guttering. ■ Where practicable, and if necessary, use an asbestos vacuum cleaner to vacuum the area below. ■ Place debris, used rags and other waste in the asbestos waste container. ■ Wet wipe the external surfaces of the asbestos waste container to remove any adhering dust before it is removed from the asbestos work area.
Personal decontamination should be carried out in a designated area	■ If disposable coveralls are worn, clean the coveralls while still wearing RPE using a HEPA vacuum, damp rag or fine-water spray. RPE can be cleaned with a wet rag or cloth. ■ While still wearing RPE, remove coveralls, turning them inside-out to entrap any remaining contamination and then place them into a labelled asbestos waste bag. ■ Remove RPE. If non-disposable, inspect it to ensure it is free from contamination, clean it with a wet rag and store in a clean container. If disposable, cleaning is not required but RPE should be placed in a labelled asbestos waste bag or waste container. Refer to the *Code of Practice: How to Safely Remove Asbestos* for more information.
Clearance procedure	■ Visually inspect the asbestos work area to make sure it has been properly cleaned. ■ Clearance air monitoring is not normally required for this task. ■ Dispose of all waste as asbestos waste. Refer to the *Code of Practice: How to Safely Remove Asbestos* for more information.

SAFE WORK PRACTICE 4 – REPLACE CABLING IN ASBESTOS CEMENT CONDUITS OR BOXES	
Equipment that may be required prior to starting the work (in addition to what is required for the task)	■ Disposable cleaning rags ■ A bucket of water, or more as appropriate, and/or a misting spray bottle ■ 200 µm thick plastic sheeting ■ Cable slipping compound ■ Appropriately marked asbestos waste disposal bags ■ Spare PPE ■ Duct tape ■ Warning signs and/or barrier tape ■ An asbestos vacuum cleaner.
PPE	■ Protective clothing and RPE (see AS1715, AS 1716). It is likely that a class P1 or P2 half face respirator will be adequate for this task, provided the recommended safe work procedure is followed.
Preparing the asbestos work area	■ If the work will be carried out in a confined space, appropriate precautions must be taken to prevent the risk of asphyxiation. ■ Ensure appropriately marked asbestos waste disposal bags are available. ■ Carry out the work with as few people present as possible. ■ Segregate the asbestos work area to ensure unauthorised personnel are restricted from entry (e.g. use warning signs and/or barrier tape at all entry points). The distance for segregation should be determined by a risk assessment. ■ Use plastic sheeting secured with duct tape to cover any surface within the asbestos work area which could become contaminated. ■ Place plastic sheeting below any conduits before pulling any cables through. ■ Ensure there is adequate lighting. ■ Avoid working in windy environments where asbestos fibres can be redistributed. ■ If using a bucket of water, do not resoak used rags in the bucket as this will contaminate the water. Instead, either fold the rag so a clean surface is exposed or use another rag.
Replacement or installation of cables	■ Wet down the equipment and apply adequate cable slipping compound to the conduits/ducts throughout the process. ■ Clean all ropes, rods or snakes used to pull cables after use. Cleaning should be undertaken close to the point(s) where the cables exit from the conduits/ducts.

	■ Ropes used for cable pulling should have a smooth surface that can easily be cleaned. ■ Do not use metal stockings when pulling cables through asbestos cement conduits. ■ Do not use compressed air darts to pull cables through asbestos cement conduits/ducts.
Decontaminating the asbestos work area and equipment	■ Use damp rags to clean the equipment. ■ Wet wipe around the end of the conduit, sections of exposed cable and the pulling eye at the completion of the cable pulling operation. ■ If the rope or cable passes through any rollers, these must also be wet wiped after use. ■ Wet wipe the external surface of excess cable pulled through the conduit/duct, as close as possible to the exit point from the conduit, before it is removed from the work site. ■ Carefully roll or fold any plastic sheeting used to cover any surface within the asbestos work area, so as not to spill any dust or debris that has been collected. ■ If required, use damp rags or an asbestos vacuum cleaner to clean any remaining visibly contaminated sections of the asbestos work area. ■ Place all debris, used rags, plastic sheeting and other waste in the asbestos waste bags/container. ■ Wet wipe the external surfaces of the asbestos waste bags/container to remove any adhering dust before they are removed from the asbestos work area.
Personal decontamination should be carried out in a designated area	■ If disposable coveralls are worn, clean the coveralls while still wearing RPE using a HEPA vacuum, damp rag or fine-water spray. RPE can be cleaned with a wet rag or cloth. ■ While still wearing RPE, remove coveralls, turning them inside-out to entrap any remaining contamination and then place them into a labelled asbestos waste bag. ■ Remove RPE. If non-disposable, inspect it to ensure it is free from contamination, clean it with a wet rag and store in a clean container. If disposable, cleaning is not required but RPE should be placed in a labelled asbestos waste bag or waste container. Refer to the *Code of Practice: How to Safely Remove Asbestos* for more information.
Clearance procedure	■ Visually inspect the asbestos work area to make sure it has been properly cleaned. ■ Clearance air monitoring is not normally required for this task. ■ Dispose of all waste as asbestos waste. Refer to the *Code of Practice: How to Safely Remove Asbestos* for more information.

SAFE WORK PRACTICE 5 – WORKING ON ELECTRICAL MOUNTING BOARDS CONTAINING ASBESTOS	
If the asbestos-containing electrical mounting panel has to be removed for work behind the board, the procedures outlined in the *Code of Practice: How to Safely Remove Asbestos* must be followed. If drilling is required, the control process should be consistent with the measures in Safe Work Practice 1.	
Equipment that may be required prior to starting the work (in addition to what is required for the task)	■ A non-powered hand drill or a low-speed battery-powered drill or drilling equipment. Battery-powered drills should be fitted with a LEV dust control hood wherever possible. If a LEV dust control hood cannot be attached and other dust control methods, such as pastes and gels, are unsuitable then shadow vacuuming techniques should be used ■ Duct tape ■ Warning signs and/or barrier tape ■ Disposable cleaning rags ■ A plastic bucket of water and/or a misting spray bottle ■ Spare PPE ■ A suitable asbestos waste container ■ 200 µm plastic sheeting ■ An asbestos vacuum cleaner.
PPE	■ Protective clothing and RPE (see AS1715, AS 1716. It is likely that a class P1 or P2 half face respirator will be adequate for this task, provided the recommended safe work procedure is followed.
Preparing the asbestos work area	■ As the work area will involve electrical hazards, precautions must be taken to prevent electrocution. ■ Ensure appropriately marked asbestos waste disposal bags are available. ■ Carry out the work with as few people present as possible. ■ Segregate the asbestos work area to ensure unauthorised personnel are restricted from entry (e.g. use warning signs and/or barrier tape at all entry points). The distance for segregation should be determined by a risk assessment. ■ Use plastic sheeting secured with duct tape to cover any surface within the asbestos work area which could become contaminated. ■ Ensure there is adequate lighting. ■ Avoid working in windy environments where asbestos fibres can be redistributed. ■ If using a bucket of water, do not resoak used rags in the bucket as this will contaminate the water. Instead, either fold the rag so a clean surface is exposed or use another rag.

Work on electrical mounting panels	■ Providing the panel is not friable, maintenance and service work may include: ■ replacing asbestos containing equipment on the electrical panel with non-asbestos equipment ■ operate main switches and individual circuit devices ■ pull/insert service and circuit fuses ■ bridge supplies at meter bases ■ use testing equipment ■ access the neutral link ■ install new components/equipment.
Decontaminating the asbestos work area and equipment	■ Use damp rags to clean the equipment. ■ Carefully roll or fold any plastic sheeting used to cover any surface within the asbestos work area so as not to spill any dust or debris that has been collected. ■ If there is an electrical hazard, use an asbestos vacuum cleaner to remove any dust from the mounting panel and other visibly contaminated sections of the asbestos work area. ■ If there is no electrical hazard, wet wipe with a damp rag to remove minor amounts of dust. ■ Place debris, used rags, plastic sheeting and other waste in the asbestos waste bags/container. ■ Wet wipe the external surfaces of the asbestos waste bags/ container to remove any adhering dust before they are removed from the asbestos work area.
Personal decontamination should be carried out in a designated area	■ If disposable coveralls are worn, clean the coveralls while still wearing RPE using a HEPA vacuum, damp rag or fine-water spray. RPE can be cleaned with a wet rag or cloth. ■ While still wearing RPE, remove coveralls, turning them inside-out to entrap any remaining contamination and then place them into a labelled asbestos waste bag. ■ Remove RPE. If non-disposable, inspect it to ensure it is free from contamination, clean it with a wet rag and store in a clean container. If disposable, cleaning is not required but RPE should be placed in a labelled asbestos waste bag or waste container. Refer to the *Code of Practice: How to Safely Remove Asbestos* for more information.
Clearance procedure	■ Visually inspect the asbestos work area to make sure it has been properly cleaned. ■ Clearance air monitoring is not normally required for this task. ■ Dispose of all waste as asbestos waste. Refer to the *Code of Practice: How to Safely Remove Asbestos* for more information.

SAFE WORK PRACTICE 6 – INSPECTION OF ASBESTOS FRICTION MATERIALS	
This guide may be used when friction ACM (e.g. brake assemblies or clutch housings) need to be inspected or housings need to be cleaned. Compressed air must not be used to clean dust from a brake assembly.	
Equipment that may be required prior to starting the work (in addition to what is required for the task)	■ A misting spray bottle ■ Duct tape ■ Warning signs and/or barrier tape ■ Disposable cleaning rags ■ A bucket of water and detergent ■ Spare PPE ■ A suitable asbestos waste container ■ A catch tray or similar container ■ An asbestos vacuum cleaner.
PPE	■ Protective clothing and RPE (see AS1715, AS 1716). It is likely that a class P1 or P2 half face respirator will be adequate for this task, provided the recommended safe work procedure is followed.
Preparing the asbestos work area	■ Ensure appropriately marked asbestos waste disposal bags are available. ■ Carry out the work with as few people present as possible. ■ Determine whether to segregate the asbestos work area ■ Ensure unauthorised personnel are restricted from entry by using barrier tape and/or warning signs. ■ Use a suitable collection device below where the work will be carried out to collect any debris/ runoff. ■ Ensure there is adequate lighting. ■ Avoid working in windy environments where asbestos fibres can be redistributed. ■ If using a bucket of water, do not resoak used rags in the bucket as this will contaminate the water. Instead, either fold the rag so a clean surface is exposed or use another rag.
Inspection of asbestos friction materials	■ A misting spray bottle should be used to wet down any dust. If spray equipment disturbs asbestos, use alternative wetting agents e.g. a water-miscible degreaser or a water/detergent mixture. ■ Use the wet method, but if this is not possible the dry method may then be used. <u>Wet method:</u> ■ Use the misting spray bottle to wet down any visible dust. ■ Use a damp rag to wipe down the wheel or automobile part before removal. Ensure the dust is kept wet to prevent atmospheric contamination.

	■ Use hand tools rather than power tools to reduce the generation of airborne fibres. ■ Partially open the housing and softly spray the inside with water using the misting spray bottle. Any spillage of dust, debris or water must be controlled (e.g. capturing any runoff in a container) and either filtered or disposed of as asbestos waste. ■ Open the housing and clean all asbestos parts using a damp rag, ensuring all runoff water is caught in an asbestos waste container. <u>Dry method:</u> ■ Place a tray under the components to catch dust or debris spilling from the housing or components during the inspection and dispose of any material as asbestos waste. ■ Use an asbestos vacuum cleaner to remove asbestos from the brakes and rims or other materials before carrying out the inspection.
Decontaminating the asbestos work area and equipment	■ Use damp rags to clean the equipment, including the dust collection tray. ■ If necessary, use damp rags or an asbestos vacuum cleaner to clean any remaining visibly contaminated sections of the asbestos work area. ■ Place debris, used rags and other waste in the asbestos waste bags/container. ■ Wet wipe the external surfaces of the asbestos waste bags/ container to remove any adhering dust before removing them from the asbestos work area.
Personal decontamination should be carried out in a designated area	■ If disposable coveralls are worn, clean the coveralls and RPE while still wearing them using an asbestos vacuum cleaner, damp rag or fine-water spray. RPE can be cleaned with a wet rag/cloth. ■ While still wearing RPE, remove coveralls, turning them inside-out to entrap any remaining contamination and then place them into a labelled asbestos waste bag. ■ Remove RPE. If non-disposable, inspect it to ensure it is free from contamination, clean it with a wet rag and store in a clean container. If disposable, cleaning is not required but RPE should be placed in a labelled asbestos waste bag or waste container. Refer to the *Code of Practice: How to Safely Remove Asbestos* for more information.
Clearance procedure	■ Visually inspect the asbestos work area to make sure it has been properly cleaned. ■ Clearance air monitoring is not normally required for this task. ■ Dispose of all waste as asbestos waste. Refer to the *Code of Practice: How to Safely Remove Asbestos* for more information.

Annex D

Asbestos Removal Control Plan Requirements -

Safe Work Australia 2011: *Code of Practice: How to Safely Remove Asbestos* (Annex A)

APPENDIX A – ASBESTOS REMOVAL CONTROL PLAN CONTENTS

	Building & structures		Plant & equipment	
	Friable	**Non-Friable**	**Friable**	**Non-Friable**
Notification				
Notification requirements have been met and required documentation will be on site (e.g. removal licence, control plan, training records)	Yes	Yes	Yes	Yes
Identification				
Details of asbestos to be removed (e.g. the locations, whether asbestos is friable/non-friable, its type, condition and quantity being removed)	Yes	Yes	Yes	Yes
Preparation				
Consult with relevant parties (health and safety representative; workers; person who commissioned the removal work, licensed assessors)	Yes	Yes	Yes	Yes
Assigned responsibilities for the removal	Yes	Yes	Yes	Yes
Program commencement and completion dates	Yes	Yes	Yes	Yes
Emergency plans	Yes	Yes	Yes	Yes
Asbestos removal boundaries, including the type and extent of isolation required and the location of any signs and barriers	Yes	Yes	Yes	Yes
Control of other hazards including electrical and lighting installations	Yes	Yes	Yes	Yes
PPE to be used including RPE	Yes	Yes	Yes	Yes
Removal				
Details of air-monitoring program Control and clearance	Yes	No	Yes	No
Waste storage and disposal program	Yes	Yes	Yes	Yes
Method for removing the asbestos (wet and dry methods)	Yes	Yes	Yes	Yes
Asbestos removal equipment (e.g. spray equipment, asbestos vacuum cleaners, cutting tools)	Yes	Yes	Yes	Yes
Details of required enclosures, including their size, shape, structure etc, smoke testing enclosures and the location of negative pressure exhaust units	Yes	No	Yes	No
Details on temporary buildings required by the asbestos removalist (e.g. decontamination units) including details on water, lighting and power requirements, negative pressure exhaust units and the locations of decontamination units	Yes	May be required depending on the job	Yes	May be required depending on the job
Other risk control measures to prevent the release of airborne asbestos fibres from the area where asbestos removal is undertaken	Yes	Yes	Yes	Yes
Decontamination				
Detailed procedures for workplace decontamination, the decontamination of tools and equipment, personal decontamination and the decontamination of non-disposable PPE and RPE	Yes	Yes	Yes	Yes
Waste Disposal				

Method of disposing of asbestos wastes, including details on: • the disposal of protective clothing	Yes	Yes	Yes	Yes
• the structures used to enclose the removal area	Yes	No	Yes	Yes
Clearance and air monitoring				
Name of the independent licensed asbestos assessor or competent person engaged to conduct air monitoring (if any)	Yes	No	Yes	No
Consultation				
Consult with any people who may be affected by the removal work, including neighbours	Yes	Yes	Yes	Yes

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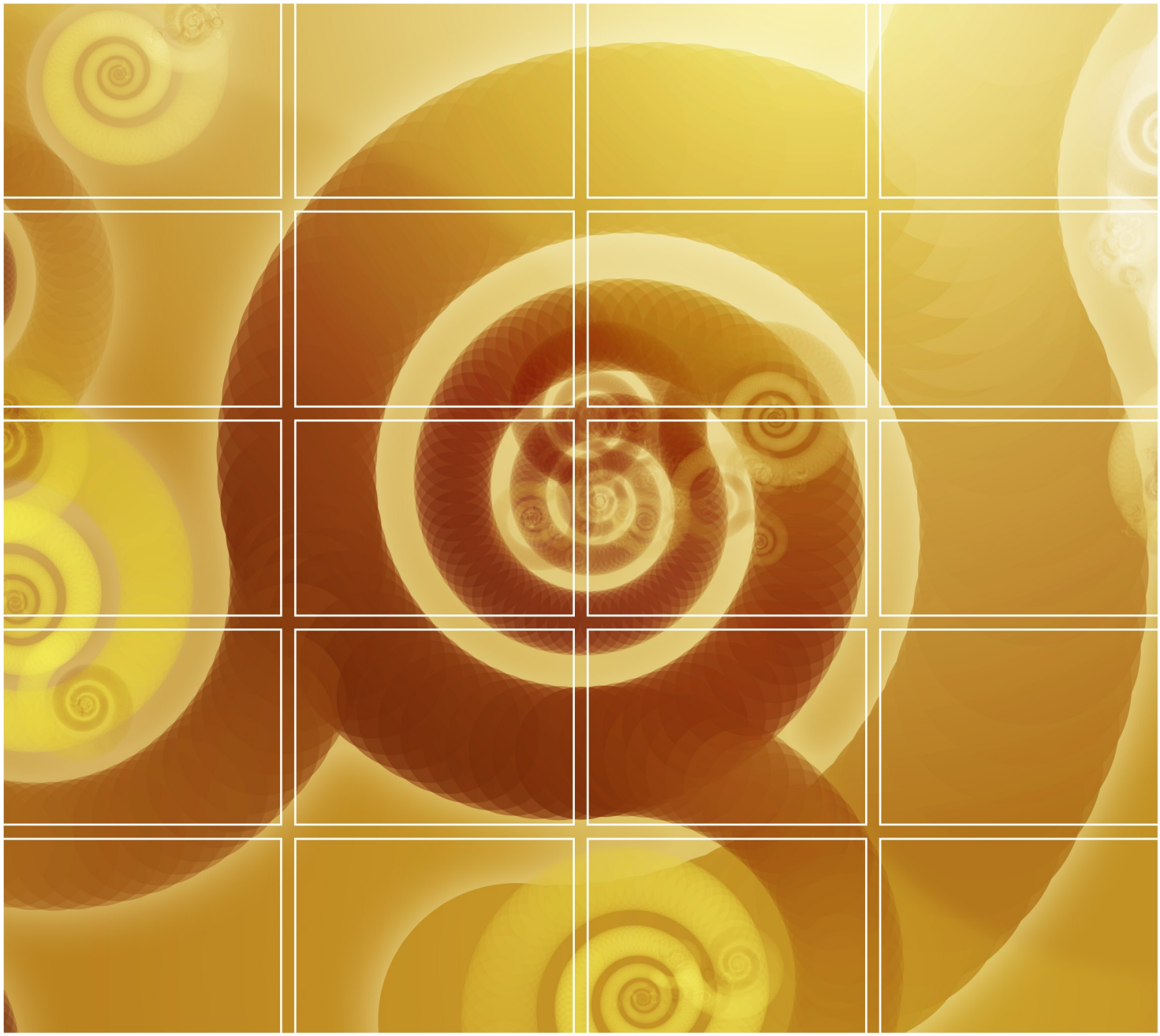
Annex D

Phase I And II Environmental Site Investigation and Assessment



Lot 12 Old Maitland Road, Sandgate NSW

Phase I Environmental Site Assessment—Final

For Crawfords Freightlines Pty Ltd

April 2012

0143175 Phase I ESA

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Phase I Environmental Site Assessment – Final

Crawfords Freightlines Pty Ltd

April 2012

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Prepared by:	*Drew Wood*
Project Manager:	*Jacinta Coulin*
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Date:	*17 April, 2012*
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Date:	*17 April, 2012*

Environmental Resources Management Australia Pty Ltd Quality System

Quality
ISO 9001
SAI GLOBAL

Quality-ISO-9001-PMS302

CONTENTS

ANNEXURES

EXECUTIVE SUMMARY

Environmental Resources Management Australia Pty Ltd (ERM) was commissioned by Crawfords Freightlines Pty Ltd (Crawfords) to undertake a Phase I Environmental Site Assessment (ESA) of a parcel of land located at 12 Old Maitland Road, Sandgate, NSW (the subject site), formally identified as Lot 12 in Deposited Plan 625053. The Site is currently owned by Sierra Sun Pty Limited, with sections of the Site either currently or historically leased to third parties for land-use under the current zoning (4(b) Port and Industry Zone).

The overall objective of the Phase I Due Diligence exercise is to identify and provide an assessment of potential liabilities in relation to key environmental issues resulting from current and historic on-site operations.

The scope of work undertaken to achieve the objectives of the assessment included a site reconnaissance, interviews with site personnel, review of publicly available information and a review of documentation stored on site.

From the assessment of information available for review, the following conclusions can be drawn with respect to key environmental issues and potential liabilities resulting from current and historic on and off-site operations:

- *the subject site is located in an area of historical industrial land use with a number of current and historical, potentially contaminating processes identified both on and off-site;*

- *the overall environmental sensitivity of the site setting is considered to be low to moderate; and*

- *contamination sources are generally associated with the storage of ammonium nitrate, historic storage and handling of hydrocarbon based fuels, historic storage and handling of general fertiliser as a result of Impact Fertiliser's operations, and possible impacts related to historic filling processes.*

1 INTRODUCTION

1.1 PROJECT OVERVIEW AND OBJECTIVES

Environmental Resources Management Australia Pty Ltd (ERM) was commissioned by Crawfords Freightlines Pty Ltd (Crawfords) to undertake a Phase I Environmental Site Assessment (ESA) of a parcel of land located at Lot 12 Old Maitland Road, Sandgate, NSW (the subject Site), formally identified as Lot 12 in Deposited Plan (DP) 625053. The site is currently owned by Sierra Sun Pty Limited, with sections of the site either currently or historically leased to third parties for land-use under the current zoning (4(b) Port and Industry Zone). Site Locality and Site Features Plans are provided as *Figures 1* and *2* of *Annex B.*

The overall objective of the Phase I Due Diligence exercise is to identify and provide an assessment of potential liabilities in relation to key environmental issues resulting from current and historic on-site operations.

The specific objectives of this Phase I ESA include the following:

- assess the key environmental regulatory operating compliance of the site in order to identify whether there are material compliance issues associated with existing and imminent local and national environmental legislation;
- characterise the environmental setting, surrounding land use, historical land use (on and off-site) of the site and related issues concerning the environmental context;
- evaluate current and past activities and related practices at the site to establish known or potential sources of soil, groundwater and/or surface water contamination and/or other environmental issues; and
- identify key issues and information gaps with respect to environmental characterisation, such that recommendations for further assessment can be made, such as an intrusive Phase II ESA if required.

For this Phase I ESA, ERM has completed an 'issues identification' process, but has not applied a '*material threshold*' value per issue. The issues identified represent identified uncertainties and therefore potential environmental liability.

1.2 SCOPE OF WORKS

1.2.1 Site Reconnaissance and Interviews

A site reconnaissance was undertaken by an ERM representative, Mr. Drew Wood, on 28 March 2012. The purpose of the reconnaissance was to observe current site conditions, infrastructure and practices, as well as adjacent properties or potentially sensitive receptors. A photolog of the reconnaissance is provided as *Annex C.*

During the Site reconnaissance, informal interviews were completed with relevant on-site personnel. The following key personnel were interviewed by ERM during the site visit:

- Paul McGrath, Compliance Manager, Crawfords Freightlines; and
- Geoffrey Phelps, Site Caretaker for the past 23 years.

Given the nature of operations and associated unoccupied status of Impact Fertilisers, company representatives of formally leased portions of the site were not present or available to be interviewed during the site reconnaissance.

1.2.2 Database Search

To facilitate the completion of the Phase I ESA, a review of the following sources of information was undertaken:

- Historical Land Titles;
- Historical Aerial Photographs;
- Dangerous Goods Information (e.g, notifications, permits, notices);
- Contaminated Sites Register;
- Groundwater Bore Registers;
- Environmental Licence Registers;
- Registered Landfills; and
- Relevant Heritage Registers / Listings.

Specific details from each of the listed sources of information are supplied within *Annex D* through *Annex I*.

1.3 LIMITATION AND EXCEPTIONS

The findings of this report are based on the Scope of Work described herein. ERM performed the services in a manner consistent with the normal level of care and expertise exercised by members of the environmental auditing profession. No warranties express or implied, are made.

Subject to the Scope of Work, ERM's assessment is limited strictly to identifying typical environmental conditions associated with the subject property area and does not include evaluation of any other issues. The absence of any identified hazardous or toxic materials on the subject property should not be interpreted as a guarantee that such materials do not exist on the site. As this is only a Phase 1 ESA, it is not intended to be comprehensive.

Additionally, in this assessment, ERM did not conduct any physical sampling or analysis, for example of soil and groundwater, potentially hazardous materials or wastes. Nor did ERM investigate any waste materials from the property that may have been disposed of off the site, nor related waste management practices.

The results of this assessment are based upon a Site reconnaissance conducted by ERM personnel and information obtained from regulatory agencies through publicly available databases and sources. All conclusions and recommendations regarding the property area are the professional opinions of the ERM personnel involved with the project, subject to the above qualifications made. While normal assessments of data reliability have been made, ERM assumes no responsibility or liability for errors in any data obtained from regulatory agencies, statements from sources outside of ERM, or developments resulting from situations outside the scope of this project.

ERM is not engaged in environmental auditing and reporting for the purpose of advertising sales promoting, or endorsement of any client interests, including raising investment capital, recommending investment decisions, or other publicity purposes. The client acknowledges that this report is for the exclusive use of the client, its representatives and advisers and any investors, lenders, underwriters and financiers who agreed to execute a reliance letter, and the client agrees that ERM's report or correspondence will not be, except as set forth herein, used or reproduced in full or in part for such promotional purposes, and may not be used or relied upon in any prospectus or offering circular.

2 SITE DESCRIPTION

2.1 SITE LOCATION AND SURROUNDING LAND USE

The subject site is located at Lot 12, Old Maitland Road, Sandgate, NSW approximately 11km northwest of Newcastle's CBD, NSW, Australia. A Site Locality Plan is provided as *Figure 1 of Annex B*.

The site is located within the Hexham swamp soil landscape and, according to the Beresfield 1:25,000 topographic map (9232-3N, 2001); elevation of the site is less than 10 m Australian Height Datum (AHD). The nearest residential areas are located approximately 300m to the northeast of the site boundary.

The site is zoned 4(b) Port and Industry Zone by the local government authority, Newcastle City Council.

Land use surrounding the site is summarised below:

North: A portion of land owned by Sierra Sun Pty Limited which currently stores stockpiled magnetite, formally identified as Lot 22 in DP 627724. Beyond this parcel of land is Sibelco Australia approximately 200m north of the subject site.

Northeast: Located immediately to the northeast is swamp land currently occupied by the 2HD Broadcasters transmission tower. At the time of the site visit, the majority of this area was covered by standing water.

West: Immediately west of the site is the Great Northern Railway followed by Newcastle Golf Practice Centre, a former Newcastle Council Landfill site commonly known as Astra Street Landfill, Shortland.

Southeast: Directly to the southeast is the current infrastructure development being The Hunter Expressway. Sandgate Cemetery is directly adjacent approximately 100 metres from site.

The location and general layout of the surrounding land-use practices is presented in *Figure 2* of *Annex B*.

2.2 *SITE LAYOUT AND CURRENT OPERATIONS*

A general Site Layout Plan is provided as *Figure 2* of *Annex B*. The subject site occupies a total area of 87,700 m², of which, 3,197 m² is currently leased by Scafflink Australia and 8,940 m² being Shed "A" and Shed "B". Shed "A" and Shed "B" have been previously leased by Impact Fertilisers as a storage facility for general fertiliser. The remaining area is leased to Crawfords Freightlines for the primary purpose of ammonium nitrate storage and distribution. Subsidiary storage products include aluminium, timber and heavy mining plant.

The site appears to have received large volumes of imported fill to raise, level and stabilise the ground surface conditions prior to and during construction of the facility.

Lot 12 of DP 625053 includes the following:

- Administration Buildings – Located in the eastern portion of the site and consist of three sections; the northern, central and southern sections. A asphalt sealed car park is situated directly adjacent to the west;
    - Northern Administration Building – Currently leased by Scafflink Austrlalia therefore is not included in this investigation;
    - Central Administration Building – Includes a caretaker's office, men's amenities including toilets, showers, locker area, kitchen, lunchroom and private shift workers quarters; and
    - Southern Administration Building – Includes office areas, a meeting room, kitchen and toilets.
- Shed "C" and Shed "D" - Consist of a main warehouse area utilised for the storage of ammonium nitrate (10,000 tonne capacity), an office and an amenities area. Within the eastern section of Shed "D" is a quarantine inspection area. A disused diesel Aboveground Storage Tank (AST) bunded area is located directly adjacent to the west of Shed "D". Both sheds are generally constructed of reinforced concrete floors, exposed steel frames and metal cladding.
- Shed "A" and Shed "B" – Occupying an area of 8,940 m² previously leased by Impact Fertilisers Pty Limited. Both sheds are generally constructed of reinforced concrete floors, exposed steel frames and a timber/metal cladding. At the time of the site visit, both sheds were vacant however were reported to have stored general fertiliser. Shed "B" currently holds a significant amount of standing water due to a roof refurbishment, which is understood to have been previously constructed of asbestos cement sheeting.

- Wash Bay – Facility including water treatment system is located directly adjacent to the west of Shed "D" occupying an area of 280 m^2. This area is an extension of Shed "D" constructed of a reinforced concrete floor, exposed steel frame and metal cladding. Chemicals utilised within this area include solvents (degreaser) and chlorine (treatment recycled water) with approximate storage volumes of 20 litres and 200 litres, respectively.

- Workshop – Consisting of an area of approximately 1000 m^2 to the south of Shed "D". The workshop is an open area over a cement stabilised roadbase which currently houses three shipping containers utilised for storage, along with small volumes of containerised fuels and oils.

- Southern Storage Facility – Consisting of an area of approximately 17,500 m^2 in the southern portion of the site partly covered by asphalt and cement stabilised roadbase. At the time of the site visit, this area was utilised for shipping container, aluminium and ammonium nitrate transit storage.

- Storage Yard – Currently occupies and area of 5,683 m^2 north of Shed "A" and is utilised for timber storage.

- Rail Siding – The property is connected to The Great Northern Railway by a rail siding which runs parallel to the site's western boundary. The siding is approximately 600m in length. During the site inspection, no visual observations of impact relating to fuel or oil releases were made.

- Scaffolding Yard – Occupying an area of 3,197 m^2 currently leased and occupied by Scafflink Australia therefore not included in the investigation. This area is utilised as a metal scaffolding storage facility.

Site utilities include electricity and potable water. The site is serviced by municipal sewer however a septic system for sanitary wastewater currently exists to the east of the administration building. Potable water is used for domestic and sanitary purposes, cleaning, fire protection and dust suppression. No process waste water, referred to in NSW as Liquid Trade Waste, was reportedly generated on site. Water used in the wash bay is recycled and treated with chlorine in the on site treatment system.

Current site features are detailed in *Figure 2* of *Annex B*.

2.3 HISTORICAL DATA REVIEW

2.3.1 Sources of Information

Information regarding the history of the site and surrounding areas was obtained through informal interviews with site personnel, a review of historical topographical maps dating from 1954 to 2011 and the Land Titles Office register of land ownership. Historical land titles and aerial photographs are provided in *Annex D* and *Annex E*, respectively.

2.3.2 On - and Off-Site History

Based upon aerial photographs and interviews with site personnel, construction of the facility and establishment of its basic layout was completed in the early 1970s. Limited information is currently available with respect to the history of the site however it is believed the site has operated as a storage and distribution facility since commencement in the early 1970s.

Aerial photographs of the subject property dated between 1954 and 2011 were reviewed for this Phase I ESA. A summary of each photograph is presented below in this section of the report.

Department of Lands – Aerial Photograph 1954

The earliest available map dated 1954 shows the site as undeveloped grass/wetland, with no distinct buildings, and a number of trees scattered throughout the property.

The immediate surrounds of the site appear to be undeveloped grass/wetland, with the exception of The Great Northern Railway immediately to the west and Sandgate Cemetery to the south.

Department of Lands – Aerial Photograph 1959

The entire site appears to have no significant changes from the 1954 aerial. The site remains as undeveloped grass/wetland however there is evidence of increased standing water across the site at the time of the photograph being taken.

The areas surrounding the site remain undeveloped with the exception of The Great Northern Railway and Sandgate Cemetery. The area to the west of the site beyond the railway line appears to contain a significant amount of standing water.

Department of Lands – Aerial Photograph 1965

The map dated 1961 shows no significant changes to the layout of the subject site since the 1959 photograph.

No significant changes are evident to the neighbouring areas surrounding the site; however, a warehouse facility has been established approximately 250m to the north.

Department of Lands – Aerial Photograph 1974

The map dated 1974 identifies the establishment of the site including Shed "D", an administration building and a warehouse structure similar to Shed "C" which currently occupies the area to date. The site appears to be utilised as a storage facility with evidence of shipping containers scattered throughout the property. The 1954, 1959 and 1965 aerial photographs suggest the potential for low lying sections (possible swamp or marsh type areas) to be present based upon observed vegetation configuration and evidence of standing water, which is then replaced by infrastructure in the 1974 aerial that is considered likely to have required the importation of fill material to level the site.

Neighbouring parcels of land appear to have been partially developed with the establishment of parts of Astra Street Landfill, Shortland, directly to the west of site beyond The Great Northern Railway. The portion of land immediately to the north has been cleared along with the addition of warehouse structures approximately 250m to the north of site. To the east within the grass/wetland area is land cleared for access tracks and the erection of the 2HD Broadcasters transmission tower. The remaining areas surrounding the site appear to be unchanged.

Department of Lands – Aerial Photograph 1983

According to the map dated 1983, the site has undergone development to include Shed "A", Shed "B" and an extension/refurbishment of Shed "C" to what currently exists to date. The remaining area appears to be utilised as a shipping container storage facility with access roads in general accordance with the site layout observed today.

No significant changes are evident to the neighbouring areas surrounding the site; however, Astra Street Landfill, Shortland appears to have undergone further land clearing compared to the 1974 aerial photograph.

Department of Lands – Aerial Photograph 1993

The 1993 aerial photograph portrays no significant changes to the subject site.

No significant changes are evident to the neighbouring areas of the site with the exception of the Astra Street Landfill, Shortland. This area has been considerably cleared through evidence of landscape scarring.

Department of Lands – Aerial Photograph 2004

The 2004 aerial photograph shows no significant changes to the layout of the subject Site with respect to the 1993 aerial photograph.

The portion of land immediately to the north of the site, formally identified as Lot 22 in DP 627724 appears to be sealed and utilised as a storage facility. The area to the west beyond the rail siding, former Astra Street Landfill, appears to be grass land with no evidence of trees/shrubs. A small warehouse building and car park is located approximately 100m west of site beyond the Great Northern Railway. The remaining surrounds appear unchanged relative to the 1993 aerial photograph.

Nearmap – Aerial Photograph 2011

The aerial photograph of the subject site dated 2011 appears unchanged with respect to the 2004 aerial photograph.

The infrastructure development being The Hunter Expressway is apparent immediately to the southeast of site extending approximately 350m along the boundary. No significant changes are apparent to the neighbouring portions of land.

2.4 PREVIOUS ENVIRONMENTAL SITE ASSESSMENTS

According to the planning certificate provided by the Newcastle City Council, Section 149 (2) and (5) of the Environmental Planning and Assessment Act 1979, three previous environmental investigations have been completed for the site and are listed below:

- *Plan of Management for the Toll Bulk Services Site Sandgate, prepared for North Mining Ltd, ERA Environmental Services Pty. Ltd (October 1994)*;
- *Soil Sampling and Analysis of the Toll Bulk Services Site at Sandgate for Peko Wallsend Operations Ltd., Enviromet (January 1993)*; and
- *Soil Sampling and Analysis of the Toll Bulk Services Site at Sandgate for Peko Wallsend Operations Ltd., Enviroment (April 1992)*.

The abovementioned reports are available for viewing at the Newcastle City Council administration centre however due to the age, only limited information was considered reliable to be used in this report.

2.5 *DATABASE SEARCH*

2.5.1 *Source of Information*

The following databases/registers containing environmental and regulatory information pertinent to the site were reviewed:

- Environmental Protection Licenses and Permits;
- Regulatory Contaminated Land Registers;
- The Australian Government Department of Sustainability, Environment, Water, Populations and Communities (DSEWPaC);
- Australian Heritage Database; and
- Section 149 Planning Certificate.

2.5.2 *Subject Site*

The NSW OEH Public Register describes licences, notices and annual returns issued under the Protection of the Environment Operations Act 1997. The OEH register confirmed that at the time of the investigation on 30 March 2012, the site does not currently hold an existing Environmental Protection Licence (EPL).

The NSW OEH Contaminated Land Register is a searchable database of sites that present a significant risk of harm to human health and/or the environment under the NSW Contaminated Land Management Act 1997. The register shows all current and former remediation orders issued on sites in NSW. At the time of investigation on 30 March 2012, the following site is listed within the OEH Contaminated Land register. The EPA has declared the following:

- Sierra Sun (NSW) Pty Ltd & Name Withheld being Lot 12 in DP625053 and Lot 22 in DP627724 located at Maitland Road, Sandgate, NSW to maintain as a remediation site under Section 28 of the CLM Act 1997.

The NSW OEH also maintains a list of contaminated sites in NSW that have been notified to OEH under the duty to report obligations in the Contaminated Land Management Act (as amended in 2008). Sites appearing on this list indicate that relevant soil and/or groundwater quality guidelines have been exceeded and that reporting to OEH is required. However, the contamination may or may not be significant enough to warrant further investigation, remediation or regulatory intervention by OEH. The following site appears on the list of NSW contaminated Site notified to OEH:

- North Limited Storage Handling Facility, Maitland Road - caused by 'other industry' with an 'OEH Management Class C and G' meaning the contamination of this site is or was regulated under the *Contaminated Land Management Act 1997*. Information about current or past regulatory action on this site can be found on the Record of EPA notices. Based on the information made available to the EPA to date, the contamination of this site is considered by EPA to be not significant enough to warrant regulatory intervention.

The Australian Government Department of Sustainability, Environment, Water, Populations and Communities (DSEWPaC) maintains a Protected Matters Search Tool (PMST) which allows a search for matters of National Environmental Significance (NES) or other matters protected by the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) and shows the likelihood of such matters to occur within an area of interest. The EPBC Act report applicable to the site is included in *Annex H*.

A search of the PMST on 29 March 2012 found there are no World Heritage Properties or National Heritage Places found within a one kilometre radius of the site. A number of threatened species and migratory species are listed as having potential of being located within a one kilometre radius; however, no specific details are supplied.

A search of the Australian Heritage Database on 30 March 2012 found the site is not listed on the Australian Heritage Database. The site is not listed in the State Heritage Inventory of items listed under the NSW Heritage Act or by Local Councils, Shires and State Government Agencies.

2.5.3 Surrounding Area

The OEH register confirmed that at the time of investigation on 30 March 2012, the following premises located in the immediate vicinity of the subject site currently hold an existing Environmental Protection Licence:

- Sibelco Australia Limited located at Old Maitland Road, Sandgate for the scheduled activity of crushing, grinding or separating – license number 1266.

At the time of investigation on 30 March 2012, one property within the immediate vicinity of the subject site is listed within the OEH Contaminated Land register. The EPA has declared the following:

- Sierra Sun (NSW) Pty Ltd & Name Withheld being Lot 12 in DP625053 and Lot 22 in DP627724 located at Maitland Road, Sandgate, NSW to maintain as a remediation site under Section 28 of the CLM Act 1997.

- Astra Street Landfill (Newcastle Council Landfill) being Part of Lot 3 in DP 1043133 and Lot 11 in DP594894 located at 1, 2, 28 Astra St, Shortland NSW to be a remediation site under Section 21 of the CLM Act 1997. The EPA has found the Site contaminated with the following substances:

    - non-metallic inorganics – ammonia, total nitrogen, and total phosphorous;

    - metals and metalloids – cobalt, copper, nickel and zinc; and

    - total Petroleum Hydrocarbons (TPH).

Two sites within the immediate vicinity of the subject site appear on the list of contaminated sites in NSW that have been notified to OEH under the duty to report obligations in the CLM Act 1997. The sites are listed as follows:

- Caltex Service Station, Pacific Highway, Sandgate caused by 'Service Station' with an OEH Management Class B meaning the EPA is awaiting further information to progress its initial assessment of this site; and

- former Astra St Landfill, 1, 2 & 28 Astra St, Shortland caused by 'Landfill' with an OEH Management Class C meaning the contamination of this site is or was regulated under the Contaminated Land Management Act 1997. Information about current or past regulatory action on this site can be found on the record of EPA notices.

3 ENVIRONMENTAL SETTING

3.1 SOURCES OF INFORMATION

The environmental setting has been established with reference to the following information sources:

- site reconnaissance;
- locally registered groundwater bore information; and
- local and regional geology, topography and hydrology maps.

3.2 GEOLOGICAL AND HYDROGEOLOGICAL SETTING

3.2.1 Geology

Based on the *Newcastle 1:100 000 Geological Sheet 9232* (1995), the site is located on both Hexham Swamp (hs) and Disturbed Terrain (xx) soil landscapes of primarily fill material underlain by quaternary estuarine/lacustrine sediments; silts and clays.

3.2.2 Hydrogeology

Given the broad estuarine plain of the site and surrounds, site hydrogeology is considered complex as the wetland maintains a permanent watertable which is no more than 60cm below the ground surface and rises to the surface during wet seasons (*Soil Landscapes of the Newcastle 1:100 000 Geological Sheet 9232* (1995)). The hydraulic gradient across the site is inferred to be towards Ironbark Creek to the northwest.

A review of the groundwater bore information indicated that no groundwater bores were registered within a one kilometre radius of the site.

3.3 SITE HYDROLOGY

The site is located within the Hexham Swamp soil landscape and is surrounded by standing water bodies directly to the northeast and west, and are considered a tributary of the surrounding swamp area. The Southern Channel of the Hunter River located approximately 700m to the northeast and Ironbark Creek located approximately 400m to the west. Both Rivers experience tidal fluctuations and are used for limited boating and recreational purposes.

For the site in general, the surface has been reshaped over time with the use of fill, to provide a relatively flat area. Surface water and runoff is directed towards the drainage network to the west of the site as depicted in *Annex I.*

3.4 SITE ENVIRONMENTAL SENSITIVITY

Given the surrounding environmental setting, it is predicted the site is located upon a shallow unconfined water zone within the fill material and estuarine sediments. It is therefore considered that groundwater vulnerability (the likelihood of contaminants reaching a receptor) is high.

Given that the groundwater beneath the site is unlikely to be of beneficial use, that there are no licences groundwater bores down hydraulic gradient of the site, and that the site is positioned in an area of long term industrial land use, it is considered that groundwater sensitivity (the potential significance of any impact) is low.

Standing water bodies are located directly to the northeast and west, and are considered a tributary to the surrounding swamp area. The South Channel of the Hunter River and Ironbark Creek surround the site to the northeast (700m) and the west (400m) respectively, it is therefore considered that surface water vulnerability (the likelihood of contaminants reaching the receptor) is moderate to high (it must be taken into account however that much of the subject site is a considerable distance from the River systems).

It is considered that the overall surface water sensitivity (the potential significance of any impact) is low to moderate, given the industrial setting and historic land use of the site and surrounding areas.

4 OPERATIONAL AND ENVIRONMENTAL PERMITS

4.1 DEVELOPMENT APPROVAL

The following information is provided by the Newcastle City Council and is pursuant to Section 149(2) and (5) of the Environmental Assessment Act 1979 as prescribed by the Environmental Planning and Assessment Regulation 2000. The following statements are applicable to the site (Lot 12 in DP625053):

- the land does not comprise a critical habitat;
- the land is not within a conservation area;
- there is not an item of environmental heritage situated on the land;
- the land is not proclaimed to be in a mine subsidence district under the Mine Subsidence Compensation Act 1961;
- the land is subject to flood related development controls;
- the land, either in whole or in part is bushfire prone land;
- there is not a property vegetation plan under the Native Vegetation Act 2003 applicable to the land; and
- council's information currently indicates that the property may be affected by land contamination. Council has adopted a policy of restricting development or imposing conditions on properties affected by land contamination.

4.2 ENVIRONNEMENTAL PROTECTION LICENCE

As discussed in *Section 2.5.2*, the subject site does not currently hold an existing EPL.

4.3 MATERIAL HANDLING AND STORAGE

According to the Dangerous Goods Information in *Annex F*, the following chemicals were found to be stored within the subject site.

- Shed "C" – 5,000 tonnes (maximum capacity) of ammonium nitrate, Class 5.1;
- Shed "D" – 5,000 tonnes (maximum capacity) of ammonium nitrate, Class 5.1; and
- Compound – 3,500 tonnes (maximum capacity) of ammonium nitrate (container storage), Class 5.1.

5 *HAZARDOUS MATERIALS*

A summary of the finding from ERM report *Hazardous Materials Assessment, 12 Old Maitland Road, Sandgate, NSW (2012)* is listed below.

The audit of hazardous materials on the Crawfords Freightlines site at Lot 12 Old Maitland Road, Sandgate, NSW, identified ACM, SMF, potential PCBs and ozone depleting substances.

The survey identified ACM roofing products on the three buildings at the site were a high risk and therefore a high priority for action. This was due to the current condition and risk of disturbance during extreme weather events. Control measures to stabilise the material should be initiated immediately and regular monitoring of the material is recommended for these materials. Formal abatement should be considered when capital allows or where planned maintenance, refurbishment or demolition works will disturb these materials. Removal works should be undertaken by a licensed asbestos removal contractor.

SMF was identified within the roof cavity of the Administration Building and the amenity section of Shed D and within the water heaters within the same buildings. A water heater within Shed D was identified to be in a degraded state with SMF being released from the piece of equipment. It is recommended that this water heater be removed and disposed to a licensed landfill. Other SMF identified has been recorded in the SMF register.

There is a potential for PCB materials to be present within the fluorescent light fittings and metal halide light ballasts in Shed C and Shed D. These were unable to be assessed due to height restrictions however, due to their age are considered to be likely to contain PCBs. When disposing of these products until confirmed otherwise these lights should be treated to contain PCB containing capacitors.

Refrigerants within two air conditioners and two refrigerators were identified to be ODSs. It is recommended that the refrigerants be recovered from these items to minimise potential losses of ODSs to the environment. In accordance with national regulations persons who handle ODSs within equipment are required to hold a *Refrigerant Handling Licence*. In addition companies or persons who acquire, possess or dispose of these substances are required to hold a *Refrigerant Trading Authorisation*.

6 SOIL AND GROUNDWATER

6.1 POTENTIAL SOURCES OF ON SITE CONTAMINATION

The potential sources of current and historical on-site soil and groundwater contamination considered to represent a potential environmental liability include the following:

- significant historical infilling to allow the reshaping and development of the site. No information is available regarding the deposition of this material due to the lack of materials tracking documentation; the imported fill has been identified as a likely source of non-petroleum hydrocarbon impact;

- the storage of ammonium nitrate within Shed "C", Shed "D" and storage area south of Shed "B" represent a potential source of contamination (nutrient loading) as a result of probable historical leaks and spills, potentially contributing to excessive levels of Ammoniacal Nitrogen and Nitrate – Nitrogen within soil and groundwater;

- historical leaks and spills are considered likely to have occurred as a result of storage of general fertiliser within Shed "A" and Shed "B" as part of Impact Fertiliser's historical operations. This represents a potential source of contamination (nutrient loading) to soil and groundwater, potentially contributing to excessive levels of Ammoniacal Nitrogen and Nitrate - Nitrogen. According to site personnel, a fertiliser release occurred from the southwest corner of Shed "B" however site staff were unable to provide information on the date and quantity of the release;

- according to site personnel, two disused diesel USTs are present on site within the vicinity of the northwestern corner of Shed "D". Information regarding installation, tank specifications, leak/spill history, and decommissioning details was not available during the completion of the Phase I ESA;

- the presence of the rail siding along approximately 600m of the western boundary. Rail sidings are traditionally associated with contamination resulting from ash ballast material (metals, phenols, sulphates, and polycyclic aromatic hydrocarbons), localised oil, fuel and grease deposits where locomotives may have stood for significant periods of time, accumulation of herbicides and spillage of cargoes. No visual observations of impact were observed during the site reconnaissance;

- one former disused Aboveground Storage Tank (AST) used for diesel storage was located in the northwest corner of the site, originally located within the bunded area adjacent Shed "D". Site staff were unable to provide information on the date of installation however historical leaks and spills are considered likely to have occurred and represent a potential for impact to soil and groundwater. Information regarding leak and spill history or the construction and integrity of the tank bund was not available for review during the completion of the Phase I ESA;

- the workshop area south of Shed "D" may be associated with contamination resulting from localised oil, fuel and grease deposits; and

- the temporary storage and application of chemicals (degreaser and chlorine) within the wash bay represents a potential for impact to soil and groundwater.

Due to the potential for contamination and lack of Phase II ESA works completed to date, a suitable degree of environmental site characterisation will be required to suitably quantify the potential environmental liabilities identified.

6.2 POTENTIAL SOURCES OF OFF-SITE CONTAMINATION

The potential sources of current and historical off-site soil and groundwater contamination are generally related to the surrounding industrial operations. Specifically, those considered to represent a potential off-site source of contamination for the site include the following:

- the parcel of land directly to the north of site, owned by Sierra Sun Pty Limited, formally identified as Lot 22 in DP 627724 and currently exists on the Contaminated Land Register (regulated under the Contaminated Land Management Act) as a remediation site. A review of ERA Environmental Services Pty. Ltd. *Plan of Management for the Toll Bulk Services Site Sandgate, prepared for North Mining Ltd.* (October 1994) report identifies this portion of land to be contaminated with oils and grease, and some base metals. Given the age and content of this report, it is not considered reliable as only limited information was presented;

- the former Astra Street Landfill, Shortland is located immediately to the west of site beyond The Great Northern Railway and currently exists on the Contaminated Land Register (regulated under the Contaminated Land Management Act) and has identified impacts related to non-metallic inorganics (ammonia, total nitrogen and total phosphorous), metals and metalloids (cobalt, copper, nickel and zinc) and total petroleum hydrocarbons. While potentially located down hydraulic gradient of site, migration of impacts onto the subject site cannot be completely discounted;

- the presence of The Great Northern Railway immediately to the west of site. Rail sidings are traditionally associated with contamination resulting from ash ballast material (metals, phenols, sulphates, and polycyclic aromatic hydrocarbons), localised oil, fuel and grease deposits where locomotives may have stood for significant periods of time, accumulation of herbicides and spillage of cargoes. While potentially located down hydraulic gradient of site, migration of impacts onto the subject site cannot be completely discounted; and

- the Caltex service station located on the Pacific Highway, Sandgate approximately 320 metres northeast of site and currently exists on the list of contaminated Sites in NSW that have been notified to OEH under the duty to report obligations (CLM Act 1997). This represents a potential source of contamination related to leaks, releases and/or seepage from above and below ground storage tanks. Potentially located up hydraulic gradient of site therefore migration of impacts onto the subject site is possible, but given the distance from the site it is unlikely.

6.3 CONCLUSION – SOIL AND GROUNDWATER CONDITIONS

From the assessment of information available for review, the following conclusions can be drawn with respect to key environmental issues and potential liabilities resulting from current and historic on and off-site operations:

- the subject site is located in an area of historical industrial land use with a number of current and historical potentially contaminating processes identified both on and off-site;

- the overall environmental sensitivity of the site setting is considered to be low to moderate; and

- contamination sources are generally associated with the storage of ammonium nitrate, historic storage and handling of hydrocarbon based fuels, historic storage and handling of general fertiliser as a result of Impact Fertiliser's operations, and possible impacts related to historic filling processes.

Annex A

References

REFERENCES

Environmental Resources Management Australia (2012) *Hazardous Materials Assessment, Lot 12 Old Maitland Road, Sandgate, NSW*

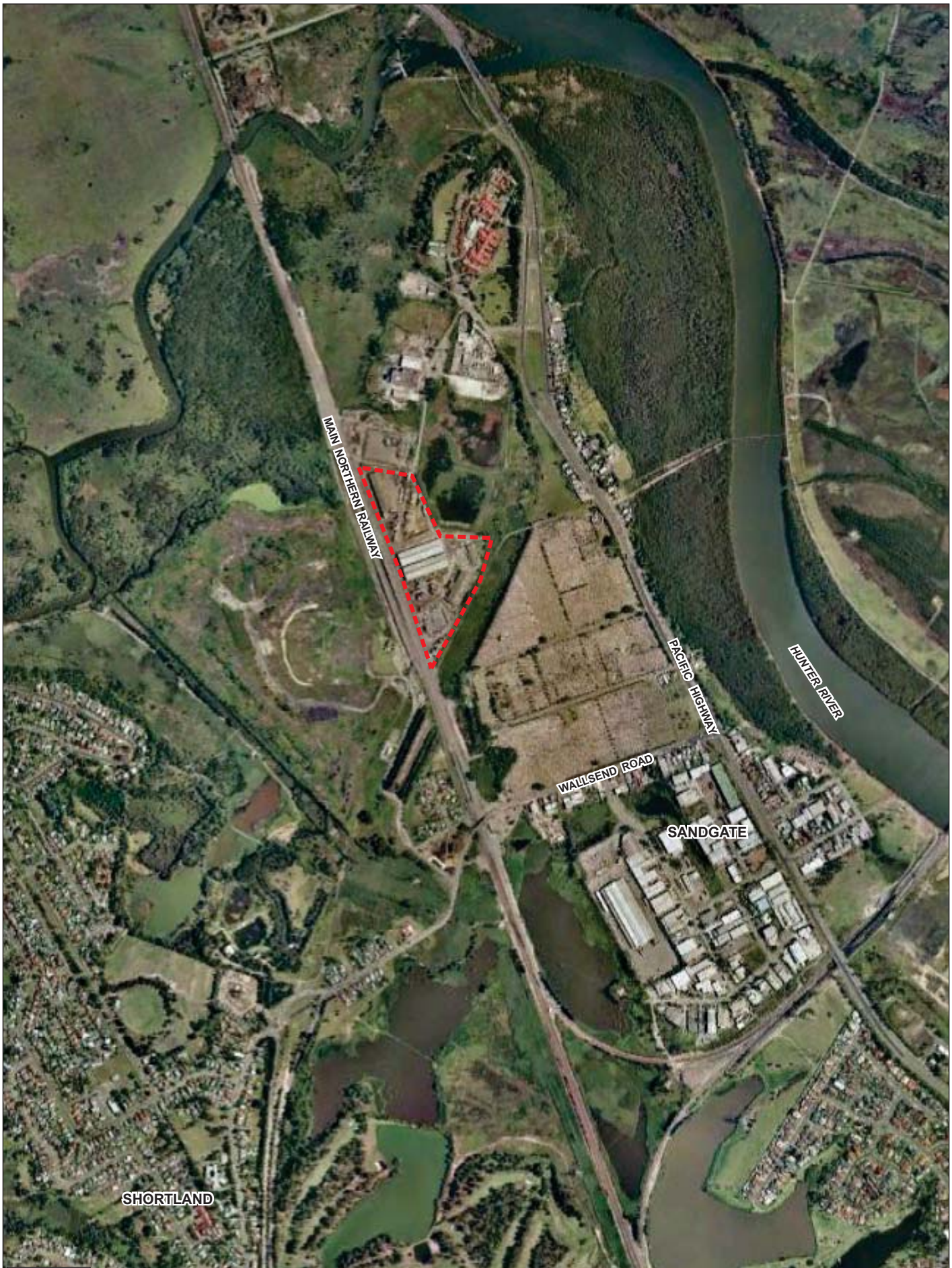
Google (2010). *Google Earth Pro*. Image 2009 Digital Globe.

Nearmap Pty Limited (2011). *Nearmap.com*. Image 23 October 2011

Department of Land and Water Conservation (1995) *Soil Landscapes of the Newcastle 1:100 000 Sheet*

Annex B

Figures



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Drawing No:	0143175h_PHI_C001_R0.cdr		
Date:	29/03/2012	Drawing size:	A4
Drawn by:	JD	Reviewed by:	DW

Figure 1 - Site Locality Plan

Crawfords Freightlines Pty Ltd - Phase I
Environmental Site Assessment

Environmental Resources Management Australia Pty Ltd

Auckland, Adelaide, Brisbane, Canberra, Hunter Valley, Melbourne, Perth, Port Macquarie, Sydney

ERM

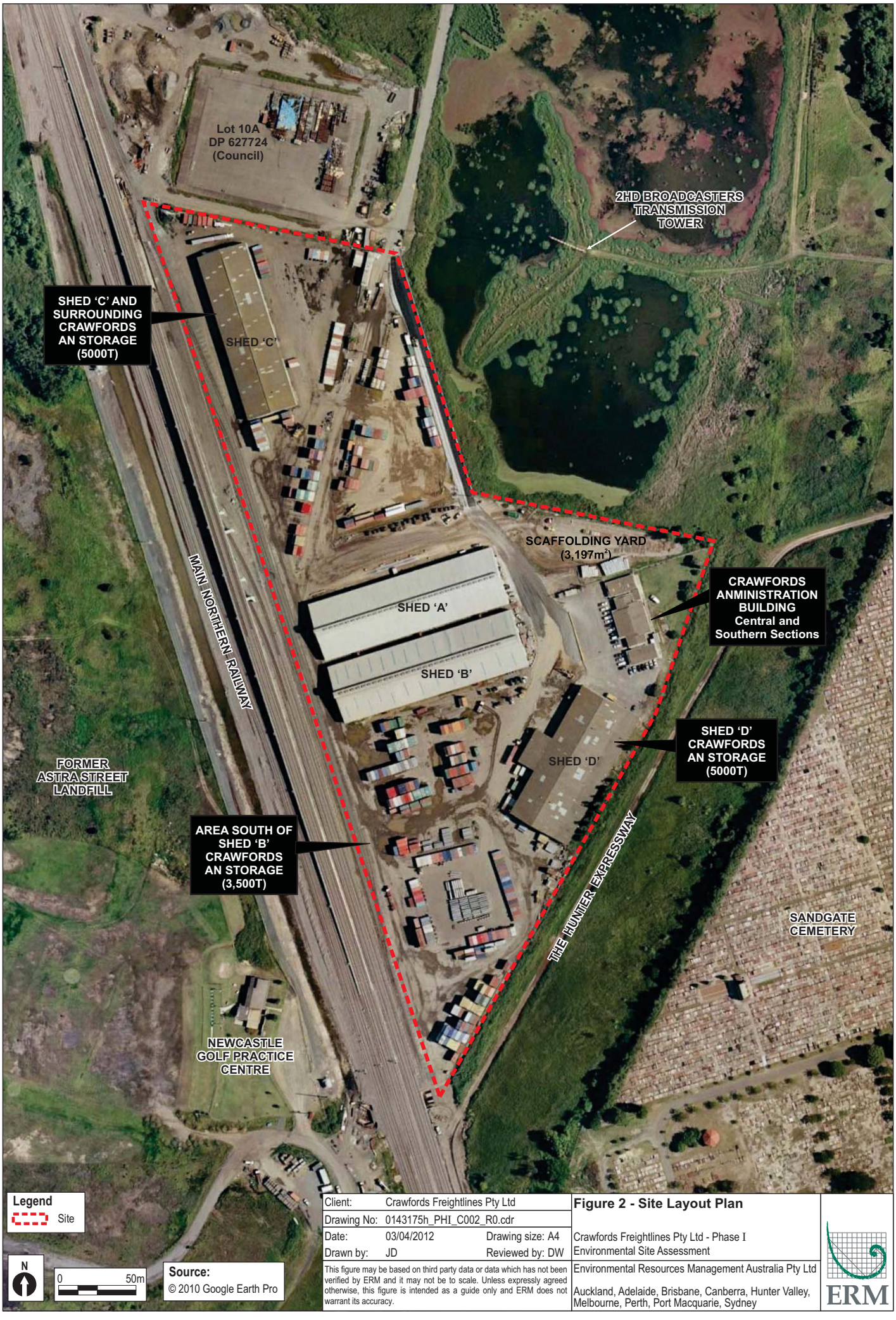

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Figure 2 - Site Layout Plan

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ERM

Annex C

Photolog

Photograph 1

View south east towards Hunter Expressway development

Photograph 2

View west towards Newcastle Golf Practice Centre (former Astra Street Landfill) beyond Great Northern Railway

Photograph 3

View east towards Hunter Expressway development

Photograph 4

View north west towards Great Northern Railway

Photograph 5

View north towards vacant lot owned by Sierra Sun Pty Limited, currently storing stockpiled magnetite

Photograph 6

View east towards 2HD Broadcasters transmission tower

Photograph 7

View south east towards area leased by Scafflink Australia

Photograph 8

View west within unoccupied Shed “A”, previously leased by Impact Fertiliser Pty Ltd

Photograph 9

View west within unoccupied Shed “B”, previously leased by Impact Fertiliser Pty Ltd

Photograph 10

View east towards site administration building

Photograph 11

View south towards former diesel Aboveground Storage Tank (AST) bunded area

Photograph 12

View south west towards potential location of former Underground Storage Tanks (USTs)

Photograph 13

View south towards wash bay

Photograph 14

View east towards sump containing recycled wash bay wastewater

Photograph 15

View south east towards chlorine storage utilised for treatment of recycled wash bay wastewater

Photograph 16

View north east towards water treatment system with wash bay

Photograph 17

View south east towards chemical storage utilised for wash bay

Photograph 18

View west within Shed “D” utilised for ammonium nitrate storage

Photograph 19

View south within Shed “D” utilised for ammonium nitrate storage

Photograph 20

View south within Shed “D” utilised for ammonium nitrate storage

Photograph 21

View south towards stormwater drainage along eastern side of Shed “D”

Photograph 22

View west towards ammonium nitrate storage area

Photograph 23

View south east towards unsealed storage area

Photograph 24

View south towards sealed storage area

Photograph 25

View east towards workshop

Photograph 26

View east towards workshop

Photograph 27

View south east towards workshop

Photograph 28

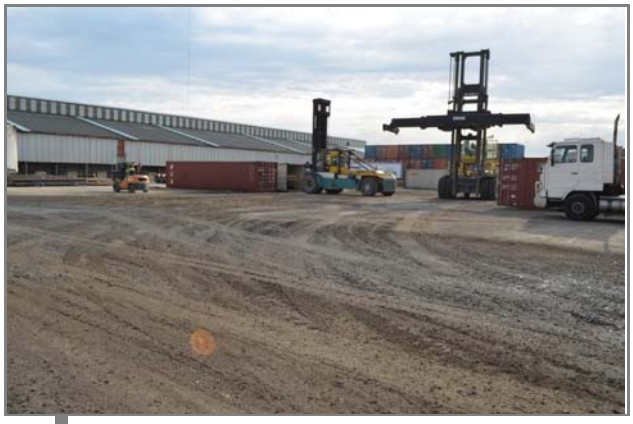
View north towards rail siding and Great Northern Railway

Photograph 29

View north towards stormwater drainage system

Photograph 30

View east towards storage area



Photograph 31

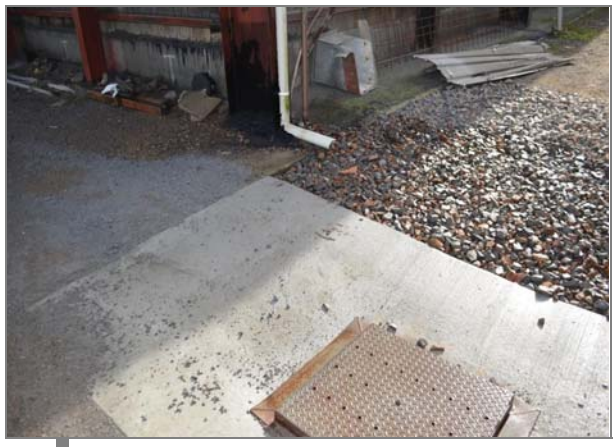
View north east towards storage area

Photograph 32

View east towards stormwater drainage along southern boundary of Shed “B”

Photograph 33

View east towards stormwater drainage between Sheds “A” and “B”



Photograph 34

View south east towards stormwater drainage system between Sheds “A” and “B”

Photograph 35

View north west towards unsealed access road

Photograph 36

View west towards stormwater egress point

Photograph 37

View west towards standing water body on western boundary of site

Photograph 38

View north west towards standing water body on western boundary of site

Photograph 39

View north towards disused diesel AST from bunded area adjacent to Shed “D”

Photograph 40

View south east towards Shed “C”

Photograph 41

View south towards Shed “C” and spent Ammonium Nitrate bulka bags

Photograph 42

View south towards unsealed area and access road

Photograph 43

View north within Shed “C” utilised for ammonium nitrate storage

Photograph 44

View south towards operations within Shed “C” utilised for ammonium nitrate storage

Photograph 45

View south towards storage yard utilised for timber storage

Photograph 46

View south east towards storage yard utilised for timber storage

Photograph 47

View east towards weighbridge

Photograph 48

View south east towards ammonium nitrate storage adjacent to Shed “D”