APPENDIX 10: CONSTRUCTION WASTE MANAGEMENT SUB PLAN

CONSTRUCTION WASTE MANAGEMENT SUB PLAN (CWMSP)

*CEMP APPENDIX **10** SUB PLAN*

Kyeemagh Public School

Jacobson Avenue & Beehag Street,
Kyeemagh NSW 2216

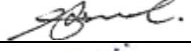
E-PLAN-01 (Rev. September 2020) | Approved by Andrew Andreou
Uncontrolled copy once printed

TAYLOR

Contents

1. INTRODUCTION

1.1 PROJECT INFORMATION TABLE

PROJECT INFORMATION TABLE			
PROJECT NAME	Kyeemagh Public School		
LOCATION	Jacobson & Beehag Streets, Kyeemagh NSW 2216		
CLIENT	NSW Department of Education		
DURATION OF CONTRACT	80 Weeks		
TAYLOR CONTACT INFORMATION			
COMPANY NAME	Taylor Construction Group Pty Ltd		
ABN	25 067 428 344		
ADDRESS	Level 13, 157 Walker Street, North Sydney 2060		
TELEPHONE & FAX	Ph.: 02 8736 9000 Fax: 02 8736 9090		
POSITION	**CONTACT NAME**		**PHONE NUMBERS**
CHIEF OPERATING OFFICER	Clive Wickham		02 8736 9000
GENERAL MANAGER	Tim Christie		02 8736 9000
CONSTRUCTION MANAGER	Doug Wood		0414 939 854
SR PROJECT MANAGER	Steve Ziaziaris		0413 182 641
SITE MANAGER	David Pereira		0415 241 170
HSE MANAGER	Andrew Andreou		0404 492 614
SAFETY ADVISOR	TBC		TBC
QUALITY MANAGER	Stephen Player		02 8736 9000
CONTRACT ADMINISTRATOR	Scott Dobson		0414 984 567
SITE ENGINEER	Shanil Prasad		0432 870 855
CADET	Daniel Taylor		0458 476 555
CADET	Kurt Dessmann		0431 205 832
DOCUMENT CONTROL	**NAME & POSITION**		**SIGNATURE & DATE**
PREPARED BY:	Shanil Prasad – Site Engineer		 17.09.2020
REVIEWED BY:	Steve Ziaziaris – Senior Project Manager		 17.09.2020
REVIEWED BY:			
REVISED BY	**REV. No.**	**DATE**	**CHANGES MADE**
Shanil Prasad	Draft	17.07.20	Initial draft
Shanil Prasad	1	29.07.20	Revised as per comments.
Shanil Prasad	2	30.07.20	Revised as per additional comments.
Shanil Prasad	3	31.07.20	Updated condition table
Shanil Prasad	4	17.09.20	Revised as per Wolfpeak comments

1.2 PURPOSE OF THE CONSTRUCTION WASTE MANAGEMENT SUB PLAN

Taylor Construction Group Pty Ltd has a documented Quality, Health, Safety and Environmental (QSE) Management System. The management systems are integrated, and this management plan forms part of the Construction Environmental Management Plan (CEMP) and should be read in conjunction with the CEMP.

One of the Environmental Factors Objectives identified in the CEMP is to:

Ensure that wastes are contained and isolated from land, ground and surface water surrounds and treatment or collection does not result in long-term impacts on the natural environment.

With a requirement to:

Identify sources of solid and liquid waste and estimate the proposed amount generated. Propose measures to manage and/ or mitigate impacts.

Further to this, the CEMP details the following Objective and Target relating to Waste Management:

Objectives	Targets
Increase amount of waste being recycled, reduce waste cost.	Eighty-five per cent (85%) of waste to be recycled.

This plan will provide further details regarding satisfying these items for this project.

1.3 DEVELOPMENT CONDITIONS CONSENT

Condition	Description	Page Number
B16 (a)	The Construction Waste Management Sub-Plan (CWMSP) must address, but not be limited to, the following: (a) detail the quantities of each waste type generated during construction and the proposed reuse, recycling and disposal locations; and	Section 2.3 Page 7
B16 (b)	The Construction Waste Management Sub-Plan (CWMSP) must address, but not be limited to, the following: (b) removal of hazardous materials, particularly the method of containment and control of emission of fibres to the air, and disposal at an approved waste disposal facility in accordance with the requirements of the relevant legislation, codes, standards and guidelines, prior to the commencement of construction.	Section 3 Appendix 1 p9 and p11

2. GENERAL WASTE MANAGEMENT PLAN

2.1 INTRODUCTION

TCG and Subcontractors shall adopt the hierarchy of waste – avoid, reduce, recycle/reprocess and dispose to maximise resource recovery and minimise disposal wherever possible and practical. TCG is responsible for creating and managing the waste management education process, including correct separation of garbage and recycling items. The importance of appropriate waste management practices is to be included in the site induction.

The site will be provided with suitable bins and skips for appropriate collection and separation of waste and recyclables, and these are to be collected with appropriately qualified and licensed waste contractors.

When selecting and using waste recycling and disposal centres, the following factors will be considered:

- Quantity and type of material (including its re-use and recyclability)
- Cost to dispose material
- Geographical location of waste centre
- Legal issues such as if the waste centre is able to lawfully accept the waste material

Recycling and disposal of bulk waste materials will be by excavators, forklifts & cranes to load trucks and transport to the appropriate waste or recycling facility. Excavated materials would be removed off site each day, except where removal is impeded on that day. Stockpiling of materials would involve the provision of a bund and plastic covering over the stockpile, which is secured against wind.

Prior to disposal, wastes must be classified in accordance with the DECCW's Waste Classification Guidelines (April 2008) prior to transporting waste off site. Waste receipts must be kept for legal requirements and details of waste separated and disposed of is to be documented in the Waste and Recycling Register.

TCG will ensure that all waste service providers submit monthly reports on all equipment movements and weights of any waste and recycling products removed from the development.

References:

- SE-F-23 KPI Monthly Report Form
- E-F-03 Waste and Recycling Register

2.2 COMPANY WASTER PROFILE

TCG receives monthly waste statistics reports from its waste management contractor and is able to forecast waste generation estimates for other similar projects from this historical data. The table below summarises waste statistics from five current school works projects being undertaken by TCG in Sydney, having a project value between $5-30m.

Project	Pendle Hill High School	Willoughby Girls High School	Greenwich Public School	Knox Grammar	Yagoona Public School	All Project Average
Status	Completed	Completed	Completed	Complete	Completed	
Waste Record Period (Mths)	12	11	12	7	6	
Total Waste Collected (T)	302.49	281.84	294.6	495.62	21.26	**279.16**
Total Waste Recycled (T)	298.54	278.12	291.84	486.59	20.54	**275.13**
Total Waste Recycled (%)	98.70%	98.68%	99.07%	98.18%	96.65%	**98.25%**

Project	Pendle Hill High School	Willoughby Girls High School	Greenwich Public School	Knox Grammar	Yagoona Public School	All Project Average
Total Waste Landfill (T)	3.94	3.71	2.75	9.0261	0.7162	**4.03**
Total Waste Landfill (%)	1.30%	1.32%	0.93%	1.82%	3.37%	**1.75%**

Project	Pendle Hill High School	Willoughby Girls High School	Greenwich Public School	Knox Grammar	Yagoona Public School	All Project Average
Vegetation waste	9.14%	6.78%	5.5%	0.11%	13.33%	**6.97%**
Concrete, Brick, Tiles	30.99%	36.91%	41.41%	20.87%	23.33%	**30.70%**
Fill/VENM	9.76%	0.92%	3.76%	0.00%	0.00%	**2.89%**
Asphalt	2.17%	1.37%	1.69%	0.00%	0.00%	**1.05%**
Timber	18.03%	19.13%	19.40%	37.22%	20.00%	**22.76%**
Glass	0.00%	0.00%	0.00%	0.00%	0.00%	**0.00%**
Paper & Cupboard	5.95%	10.79%	1.70%	15.32%	23.33%	**13.22%**
Plastic	3.7%	2.39%	2.49%	0.00%	0.00%	**1.72%**
Plasterboard	11.03%	6.36%	4.28%	15.23%	0.00%	**7.38%**
Steel / Iron	6.51%	11.24%	8.93%	7.82%	13.33%	**9.57%**
Non -Ferrous Metal	0.73%	0.00%	0.00%	0.00%	0.00%	**0.15%**
Food – Organics	0.07%	0.15%	0.18%	0.00%	0.00%	**0.08%**
Other	0.29%	0.33%	0.27%	0.00%	0.00%	**.0.18%**
Other-Mixed	1.63%	3.63%	1.38%	3.44%	6.67%	**3.35%**

This data indicates that the Kyeemagh Public School project could generate a greater than 85% recyclable waste by volume of total construction waste generated, and less than 15% landfill waste. This estimated amount of recyclable waste is above TCG's corporate target of 85%.

2.3 ESTIMATED PROJECT WASTE SCHEDULE

The following schedule provides a breakdown of the expected waste for the project based on a comparable project with actual waste records.

Project	Comparable Project Pendle Hill High School (%)	Comparable Project Pendle Hill High School (T)	Recycle or Disposal Destination & EPA Licence	Recycle or Disposal Address
Total Waste Recycled (%)	98.70%	298.55		
Total Waste Landfill (%)	1.30%	3.94		
Vegetation Waste	9.14%	27.64	Cleanaway 20937	35-37 Frank St, Wetherill Park
Concrete, Brick, Tiles	30.99%	93.75	Boral 11815	38a Wildermere Rd, Wetherill Park
Fill/VENM	9.76%	29.51	Cleanaway 20937	35-37 Frank St, Wetherill Park
Asphalt	2.17%	6.58	Boral 11815	38a Wildermere Rd, Wetherill Park
Timber	18.03%	54.55	Cleanaway 20937	35-37 Frank St, Wetherill Park
Glass	0.00%	0	Dump It Centre	13 Long Street, Smithfield NSW 2164
Paper & Cupboard	5.95%	18	Grima 20648	88 Redfern St, Wetherill Park
Plastic	3.70%	11.19	Grima 20648	88 Redfern St, Wetherill Park
Plasterboard	11.03%	33.35	Grima 20648	88 Redfern St, Wetherill Park
Steel / Iron	6.51%	19.69	Sell & Parker 11556	45 Tattersall Rd, Kings Park
Non-Ferrous Metal	0.73%	2.20	Sell & Parker 11556	45 Tattersall Rd, Kings Park
Food - Organics	0.07%	0.21	Dump It Centre	13 Long Street, Smithfield NSW 2164
Other	0.29%	0.87	Dump It Centre	13 Long Street, Smithfield NSW 2164
Other - Mixed	1.63%	4.94	Dump It Centre	13 Long Street, Smithfield NSW 2164

2.4 WASTE & RECYCLING REGISTER

This below register was used to collate the information above. Taylor have ceased using dump it. Bing industries are now the preferred supplier for bins.

DUMPIT BINS | DUMPIT RECYCLING CENTRE

Client	Taylor Construction Group				
Site	2908 - Pendle Hill				
Site Address	Pendle Way				
Month - Start	1/03/20	Finish	31/03/20		
Construction & Demolition Waste Material	**Total Waste Generated (Tonnes)**	**Total Recycled (Tonnes)**	**Destination**	**Total To Landfill (Tonnes)**	**Destination**
Vegetation Waste	0.05	0.05	Cleanaway [illegible]	0.00	
Concrete, Bricks, Tiles	15.01	15.01	Boral 11815	0.00	
[illegible]	13.55	13.55	Cleanaway [illegible]	0.00	
Asphalt	0.00	0.00	Boral 11815	0.00	
Timber	1.56	1.56	Cleanaway [illegible]	0.00	
Glass	0.00	0.00	Cleanaway [illegible]	0.00	
Paper & Cardboard	0.41	0.41	Visy 4100	0.00	
Plastic	0.69	0.69	Cleanaway [illegible]	0.00	
Plasterboard	2.38	2.38	Cleanaway [illegible]	0.00	
Steel / Iron	0.94	0.94	Sell & Parker [illegible]	0.00	
Non ferrous metal	0.00	0.00	Sell & Parker [illegible]	0.00	
Food - Organics	0.00	0.00	Suez - 5065	0.00	Suez - 5065
Other - mixed	0.38	0.00	Suez - 12889	0.38	Suez - 12889
TOTALS	34.97	34.50		0.38	
Percentage	100.00%	98.91%		1.09%	
Office/Crib Waste Material	**Total Waste Generated (Tonnes)**	**Total Recycled (Tonnes)**		**Total To Landfill (Tonnes)**	
General Waste	0.00	0.00		0.00	
Paper & Cardboard	0.00	0.00		0.00	
Comingled	0.00	0.00		0.00	
Plastic	0.00	0.00		0.00	
Dry Waste	0.00	0.00		0.00	
Organics	0.00	0.00		0.00	
TOTALS	0.00	0.00		0.00	

Destination & EPA Licence No	Site Address	Waste Stream
[illegible]	[illegible]	Concrete, Brick, Tiles
Cleanaway [illegible]	[illegible]	Vegetation, [illegible]
[illegible]	[illegible]	Organics / Landfill
[illegible]	[illegible]	Concrete
Visy Paper Pty Ltd - 4100	[illegible]	Cardboard, Paper
Sell and Parker Pty Ltd - 11555	[illegible]	Metals
[illegible]	[illegible]	[illegible]

The below register will be utilised through the project in order to track the waste produced on the project and provide a progressive benchmark score in order to track against overall goal of 85% recycled waste.

BINGO INDUSTRIES CLEANING UP

Monthly Waste Report
Ironmark/Taylor Construction Group
Site: Sydney Opera House, SYDNEY

Waste Type (tonnes)	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	Apr-21	Totals
Recyclable Bricks/ Tiles	0.000	2.400	1.512											3.912
Recyclable Concrete	1.380	1.500	0.945											3.825
Recyclable Soil / Sand / Rubble Fines	1.288	1.400	0.882											3.570
Recyclable Metals (ferrous)	2.300	5.000	3.150											10.450
Recyclable Metals (non-ferrous)	0.000	0.750	0.945											1.695
Recyclable Timber	3.450	5.700	2.835											11.985
Recyclable Green Waste	0.000	0.300	0.945											1.245
Recyclable Cardboard / Paper	0.782	2.200	1.260											4.242
Recyclable Plastic	0.874	2.100	0.945											3.919
Recyclable Plasterboard	0.460	0.000	0.630											1.090
General Waste (landfill)	0.920	2.000	1.260											4.180
Total Recycled Waste (tonnes)	10.534	21.350	14.049	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	45.933
Total Landfill Waste (tonnes)	0.920	2.000	1.260	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.180
Total Waste (tonnes)	11.454	23.350	15.309	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	50.113
Total Waste (cubic metres)	46	100	63											209.000
Total Recycled Waste (percentage) By Month	91.97%	91.43%	91.77%	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	
Total Recycled Waste (percentage) To Date														91.66%

3. CONTAMINATION WASTE MANAGEMENT PLAN

3.1 CONTAMINATION WASTER MANAGEMENT PLAN

The project has a Remediation Action Plan (RAP) and Asbestos Management Plan (AMP) completed for the Earthworks required for the project. A Validation Plan and Environmental Management Plan are intended to be completed when required and all form part of the Construction Environmental Management Plan for the Project.

3.2 ASBESTOS REMOVAL AND UNEXPECTED FINDINGS

All Asbestos removal will fall under the Project RAP & AMP. Any procedures, requirements and reporting will be stipulated within these documents or the Validation Report completed for the remediation works. Below is an extract from the AMP regarding procedures around unexpected finding of asbestos containing material out of asbestos removal working area:

In the event that asbestos containing material is identified outside of the asbestos removal work area, the following procedure is to be followed:

1. Upon discovery of a fragment(s) of asbestos cement or other asbestos containing material (or suspected asbestos containing material) all work in the immediate area is to cease.

2. The worker discovering the material is to inform his supervisor who in turn will advise the LAA.

3. The LAA will arrange for the area to be secured to prevent disturbance of the material. Where necessary, temporary fencing and warning signs are to be placed around the area.

4. The LAA will arrange, if necessary, for a sample of the material to be analysed to confirm the presence / absence of asbestos fibres.

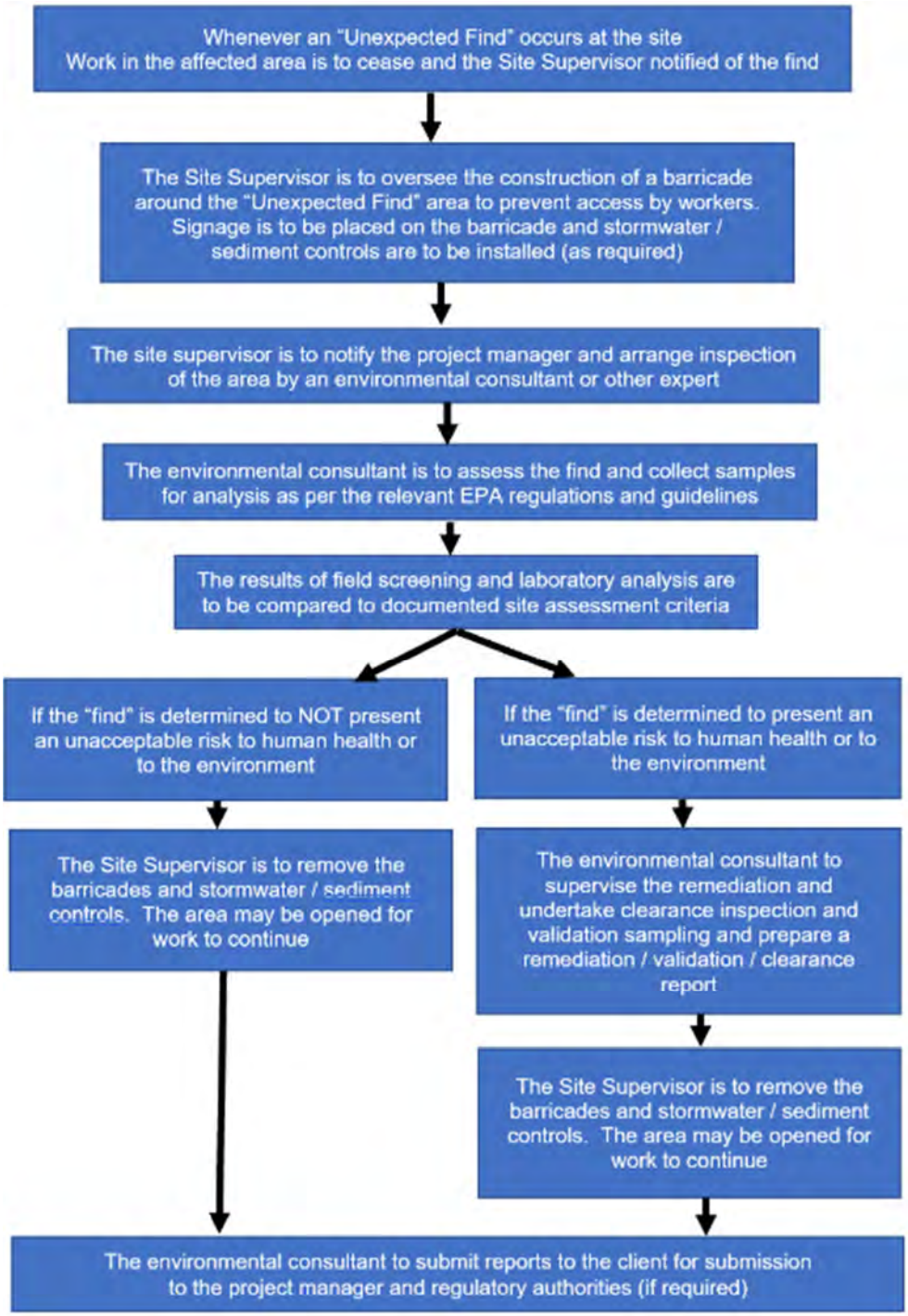
5. Where the material is confirmed as containing asbestos, the asbestos removal contractor is to remove the material for disposal asbestos contaminated waste.

6. Where the material consists of a small number of fragments of asbestos cement sheet, asbestos PPE including disposable gloves is to be worn during the collection of the material. The fragment(s) will be picked up and the glove turned inside out to 'bag' the fragment(s). The disposable glove containing the fragment(s) of asbestos cement sheet will then be placed directly into an asbestos waste bag for disposal.

7. The area is to be visually inspected by the LAA to verify that all of the asbestos containing material has been removed. A clearance report is to be compiled following the inspection.

8. Where a larger quantity of asbestos containing material is identified, the soil containing the asbestos containing material is to be excavated in accordance with the procedure detailed in Section 5 above. A visual inspection and validation sampling is to be undertaken and the details of this work are to be recorded in the validation report.

The above procedure is summarised in the following flowchart:



3.3 AIRBORNE ASBESTOS FIRBRE MONITORING

Below is an extract from the AMP regarding airborne asbestos fibre monitoring.

Monitoring for airborne asbestos fibres should be carried out at all times throughout the duration of the asbestos contaminated soil removal work by a licenced asbestos assessor (LAA) engaged by PF Civil.

Monitoring is to be carried out in accordance with the requirements of the National Occupational Health and Safety Commission (NOHSC) Code of Practice for the Safe Removal of Asbestos, particularly the 'Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres' 2nd edition [NOHSC:3003(2005)]. Analysis of the air monitoring filters is to be carried out by a NATA accredited laboratory.

Air monitors are to be placed in the decontamination / change area and on the temporary fencing or barricade surrounding the asbestos removal work area. Up to four monitors are to be placed on the perimeter of the asbestos removal work area.

The daily reports of the results of the air monitoring will be forwarded to PF Civil.

The NOHSC recommended maximum exposure level for airborne asbestos fibres, measured as a time weighted average over an 8 hour work shift, is 0.1 fibres per millilitre of air (0.1 fibres/ml).

The NOHSC Code of Practice for the Safe Removal of Asbestos details control levels for airborne asbestos fibre concentrations that are to be observed during the work. These control levels are as follows:

Airborne fibre concentration (fibres/ml)	*Control Measure*
<0.01	*Continue work using existing asbestos dust control measures*
>0.01	*Continue work and review asbestos dust control measures*
>0.02	*Stop work, identify cause of dust emissions and revise dust control measures.*

(Refer to appendix 2)

2019

Job Numb	Site Name	January T	January R	January L	February T	February R	February L	March T	March R	March L	April T	April R	April L1	May T1	May R1	May L1	June T1	June R1	June L1
1620	Canopy Apartments Putney													1.57	1.52	0.05	1.47	1.47	
1627	Chatswood Place	6.35	6.01	0.34	5.06	4.84	0.22	4.16	4.01	0.15				0.86	0.84	0.02			
1632	342 King St, Mascot																		
1704	John Morony				1.33	1.27	0.06												
1708	Haven Development	6.77	6.6	0.17	10.8	10.6	0.2	5.21	4.98	0.23				3.05	2.88	0.17			
1709	Cardinal Freeman Stage 3	57.9	55.9	2.02	116	114	1.64	95.8	93.4	2.36	93.08	91.73	1.35	69.3	68.3	0.99	31.6	31.4	0.2
1720	Knox Grammar	101	100	0.94	101	99.1	1.73	123	121	2.02	38.47	37.45	1.02	1.29	1.25	0.04			
1728	BMW	265	261	3.46	194	191	2.74	142	139	3.03	106.1	103.6	2.45	49.9	49.1	0.79	0.71	0.71	
1735	Boomerang	157	155	2.43	251	247	4.25	208	202	6.07	187	184	2.7	290	285	4.74	208	206	2
1737	Hammondcare Darlinghurst	36	35.3	0.67	31.4	31.1	0.34	33.8	33.4	0.34	33.6	32.9	0.68	42	41.1	0.88	55.5	54.8	0.68
1738	Hammondcare Cardiff																		
1802	Taronga Zoo Wildlife Retreat	94.2	91.9	2.36	107	105	2.37	142	138	3.71									
1804	Ingleburn 41-47 Stennett Rd				41.1	40.6	0.44	11.2	11	0.25	10.5	10.2	0.3						
1805	Homebush West Public School	67.6	66.3	1.29	33.1	32.4	0.7	1.91	1.84	0.07									
1806	Opal Aged Care Facility Winston Hills	86.2	83.4	2.78	96.9	94.6	2.24	109	107	2.5	54	52.7	1.27	2.18	2.1	0.08			
1810	SACL IBIS	73	72	1.02	75.2	74.2	1.01	53.6	53.2	0.34	40.9	40.3	0.67	31.4	31.1	0.34	5.14	5.14	
1812	Chullora Australia Post	17.3	16.3	1.01				8.6	8.27	0.33	9.74	9.4	0.34	21.4	21.3	0.13			
1816 (1825)	Uniting Mayflower	48.7	48	0.68	40.6	39.6	1.01	68.8	67.1	1.69	46.7	45.4	1.35	80.7	78.7	2.03	76.7	76	0.67
1818	GPT LOT21 Eastern Creek	67.6	65.8	1.78	19.9	19.6	0.29							2.2	2.1	0.1			
1819	King St													10.4	10	0.33	12.4	12.2	0.17
1820	Irvine Place, Bella Vista	2.36	2.19	0.17				8.27	7.93	0.34				6.44	6.1	0.34			
1821	Norwest Data Centre Modernisation																		
1823	SYD051 Stage 5 Eastern Creek	20.1	19.7	0.34	25.2	24.5	0.68	31.2	30.5	0.68	15.7	15	0.67	34	33.3	0.68			
1824	Lindfield	429	422	7.43	122	121	1.08	93	89.5	3.47				28.1	27.1	0.97			
1833	Bluett Dr - Smeaton Grange				6.42	6.26	0.16	33	31.9	1.14	27	26	1.01	23.7	23.2	0.5			
1834	NorthConnex	14.8	14.1	0.68	19.8	19.5	0.33	40.4	39.8	0.67	37.6	36.8	0.84	45.6	44.6	1.01	67.2	66.5	0.68
1902/1918	Picton High School	134	128	5.23	36.5	35.5	0.94	61.9	61.3	0.64	46.1	45.5	0.57	41.2	40.6	0.64	13.8	13.5	0.34
1903	Polair Bankstown																		
1904	Willoughby Girls High School	125	123	1.9	56.6	55.9	0.68	35.5	34.8	0.68	38.8	38	0.81				81.4	81.1	0.34
1906	Greenwich Public School	4.49	4.32	0.17	10.7	10.5	0.17	58.6	57.4	1.16	41.5	41.1	0.34	55.5	54.8	0.68	21.2	21.1	0.17
1908	Pendle Hill High School	3.67	3.56	0.11	24.9	24.8	0.11	53.5	53.1	0.38	42.3	41.9	0.45	25.7	25.3	0.4	18.2	18	0.23
1909	Yagoona Public School	3.24	3.08	0.16	10.6	10.2	0.34	9.26	8.92	0.34				16.4	16.1	0.33	30.2	30.1	0.17
1910	MPL Aldi																6.08	5.91	0.17
1913	Eastern Creek																25	24.5	0.51
1914	Smeaton Grange																9.68	9.68	
1915	Chullora Hard Stand										22.1	21.9	0.21	19.4	19.3	0.15	9.52	9.18	0.34
1916	Dee Why										3.28	3.16	0.12	8.62	8.36	0.26	37.7	37.4	0.34
1917	Chippendale																		
1920	50 Norwest Blvd																		
1922	Bowden Brae, Normanhurst																		
1923	Gowrie Village																		
2004	Stockland Yennora Resessed docks																		
		1822	1785	37.1	1437	1414	23.7	1432	1399	32.6	894	877	17.2	911	892	16.6	712	703	7.01

Job Numb	Site Name	July T1	July R1	July L1	August T2	August R2	August L2	September T2	September R2	September L2	October T2	October R2	October L2	November T2	November R2	November L2	December T3	December R3	December L3
1620	Canopy Apartments Putney	7.16	7.01	0.15	0.62	0.62													
1627	Chatswood Place													1.8	1.8				
1632	342 King St, Mascot				0.95	0.87	0.6												
1704	John Morony																		
1708	Haven Development										2.23	2.19	0.04						
1709	Cardinal Freeman Stage 3	4.12	3.95	0.17															
1720	Knox Grammar																		
1728	BMW																		
1735	Boomerang	286	282	3.34	265	263	2.38	317	315	2.18	241	238	2.75	72.3	69.7	2.61	22.1	20.3	1.78
1737	Hammondcare Darlinghurst	88.9	87.7	1.18	119	118	0.76	105	104	0.68	67.5	67.2	0.25	129	128	0.95	41.4	41.4	0.08
1738	Hammondcare Cardiff																		
1802	Taronga Zoo Wildlife Retreat										1.21	1.19	0.02						
1804	Ingleburn 41-47 Stennett Rd																		
1805	Homebush West Public School																		
1806	Opal Aged Care Facility Winston Hills				6.45	6.39	0.06												
1810	SACL IBIS																		
1812	Chullora Australia Post																		
1816 (1825)	Uniting Mayflower	112	110	1.52	119	118	0.68	143	142	0.68	62.3	61.3	1.01	113	112	1.18	58.6	57.6	1.01
1818	GPT LOT21 Eastern Creek																		
1819	King St	36.2	35.8	0.34	45.4	45.1	0.34	61.7	61.4	0.34	77.8	76.9	0.87	104	103	1.16	61.2	60.8	0.44
1820	Irvine Place, Bella Vista																		
1821	Norwest Data Centre Modernisation																		
1823	SYD051 Stage 5 Eastern Creek																		
1824	Lindfield	27.3	27.2	0.19															
1833	Bluett Dr - Smeaton Grange				25.9	24.5	0.4												
1834	NorthConnex				19.7	19.6	0.17												
1902/1918	Picton High School	17.9	17.7	0.17	6.41	6.41		3.18	2.84	0.34	25.2	25.1	0.17	26.3	26.3		63.9	62.7	1.2
1903	Polair Bankstown							19.4	18.9	0.44	15.2	15.1	0.17	2.21	2.21		9.81	9.17	0.65
1904	Willoughby Girls High School	65.4	65.1	0.34							86.8	85.6	1.13						
1906	Greenwich Public School	61.4	61	0.33				76	75.5	0.51	72.2	71	1.18	57.2	56.6	0.58	27.1	27.1	
1908	Pendle Hill High School	35.5	35.2	0.3	84.8	84.3	0.53	48.3	48	0.34	34.4	33.6	0.79	27.9	27.2	0.68	34	33.3	0.68
1909	Yagoona Public School										68.4	67.6	0.84						
1910	MPL Aldi																		
1913	Eastern Creek																		
1914	Smeaton Grange	19.3	19	0.23				9.15	8.85	0.3									
1915	Chullora Hard Stand	15.6	15.5	0.14	13.4	13.1	0.24	1.74	1.74		8.06	7.98	0.08						
1916	Dee Why	28.4	27.9	0.57	15.6	15.4	0.16	23.2	23	0.15	48	46.9	1.06	60.7	59.4	1.28	76.6	75.2	1.43
1917	Chippendale				4.86	4.69	0.17												
1920	50 Norwest Blvd				112	112	0.34	72.7	72.1	0.68	39.2	38.8	0.34	66.2	65	1.25	57.4	56.5	0.84
1922	Bowden Brae, Normanhurst													10.3	10.1	0.17	12.1	11.4	0.73
1923	Gowrie Village													0.35	0.35				
2004	Stockland Yennora Resessed docks													18.6	18.4	0.17			
		804	788	8.82	840	832	7.03	880	874	6.64	849	839	10.7	690	680	10	464	455	8.84

4. APPENDIX 1 WASTE MANAGEMENT PLAN:

PO Box 7, Enfield NSW 2136
PO Box 5351, Clayton South VIC 3168
T: 1300 424 646 F: 02 9737 0351
enquiries@bingoindustries.com.au
www.bingoindustries.com.au

CONFIDENTIAL

Waste Management & Recycling Plan (NSW)

Bingo Industries offers a complete, comprehensive solution to the management and recycling of wastes to assure compliance with clients' waste management policy.

Bingo Recycling Centre's combine bin storage, waste collection, waste recycling and waste transfer to service the building and construction industry and domestic waste management needs in New South Wales. Wastes collected by Bingo Bins are taken directly to one of these facilities where approximately 90% of wastes are converted to recovered resources.

Bingo Recycling Centre Alexandria	EPL No. 4679
Bingo Recycling Centre Artarmon	EPL No. 20763
Bingo Recycling Centre Auburn	EPL No. 10935
Bingo Recycling Centre Eastern Creek (Genesis)	EPL No. 20121
Bingo Recycling Centre Greenacre	EPL No. 20847
Bingo Recycling Centre Kembla Grange	EPL No. 20601
Bingo Recycling Centre Mortdale	EPL No. 20622
Bingo Recycling Centre Revesby	EPL No. 20607
Bingo Recycling Centre Tomago	EPL No. 20585

As can be expected waste materials inwards vary considerably and are delivered to the Recycling Centres in tipping and non-tipping vehicles or in skip bins. Of the wastes inwards approximately 90% is recovered and recycled as materials outwards and the balance 10% to landfill. Waste materials inwards are processed to achieve the maximum recovery of resources and the minimum of un-recoverable material for offsite disposal.

Typical Composition of Bingo's Wastes Inwards

Wastes Inwards	Percentage (approx.)
Heavy Recyclable Materials	45%
Light Recyclable Materials	35%
Metals	10%
Non-Recyclable Materials	10%
Total	100%

Heavy Recyclable Materials:

- Soil
- Dirt
- Sand
- Rubble
- Brick
- Concrete
- Tiles
- Stone
- Asphalt

Light Recyclable Materials:

- Timber
- Green Waste
- Cardboard/ Paper
- Plastic
- Plasterboard

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Metals:

- Ferrous (steel, black iron)
- Non-Ferrous (copper, wire, aluminium, stainless)

At the Resource Recovery Facility a simple and effective waste processing procedure is applied. See Materials Flow Diagram (below). Wastes inwards unloaded onto the sorting area where the waste is raked with a hydraulic excavator to expose the contents and where recyclable materials are hand and machine sorted. The raking process separates the waste into four streams for further processing.

Stream #1 Non-recyclable materials. These wastes pass to a holding area for off-site disposal.

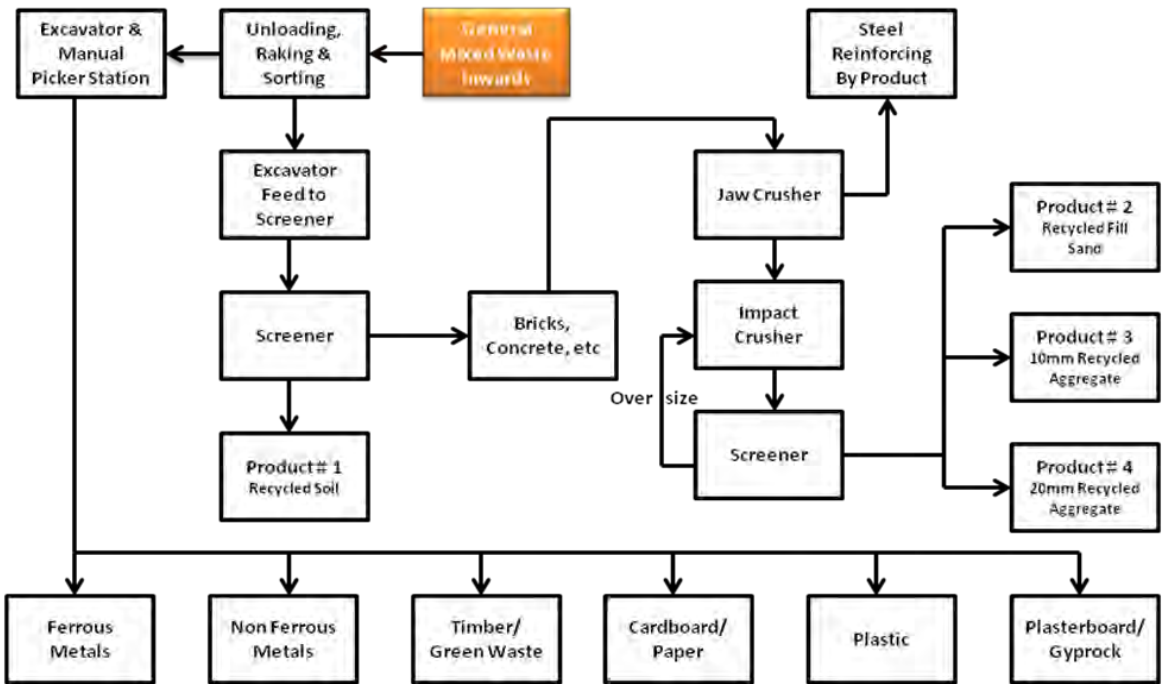
Stream #2 Metals and light recyclable materials are removed and stored for off-site recycling.

Stream #3 Large sized heavy weight brick, concrete and rubble pieces. These wastes pass to the crushers where they are crushed and re-enforcing fabric removed. The output from the crushers passes to the screener where products of different size are separated and stored in stockpiles. Re-enforcing fabric is collected and stored in the general steel bin for off-site recycling.

Stream #4 Small sized heavy weight soil, sand, brick, concrete and rubble. These wastes pass to the screener where the soil is separated form the brick, concrete and rubble. The brick, concrete and rubble then pass through Stream #3.

Stream #1 wastes are currently not recyclable and are removed from the land for off-site disposal. Stream #2 wastes, recovered metals and light recyclable materials are recycled off-site. Stream #3 and Stream #4 wastes are processed on site by crushing and screening to form saleable products such as soil, sand, and aggregates. These products are retained on site until sold.

Bingo Recycling Centre
Waste Transfer & Materials Recovery Facility
Flow Diagram



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In summary, Bingo Bins take all their mixed waste skip bins directly to EPA Licensed Recycling Centres. From there the waste is sorted and separated into the following material classes for processing and recycling.

Type of Material	Where Processed/ Recycled	How Processed/ Recycled
Heavy Recyclable Materials (soil, dirt, sand, rubble, concrete, brick, tiles, asphalt, stone)	Bingo Recycling Centres	Re-processed into recycled products (such as recycled soil, fill sand, aggregates, roadbase) by crushing and screening.
Timber/ Green Waste	Clean & Green Organics/ Genesis	Re-processed into woodchip and mulch by shredding.
Metal/ Steel	Sell & Parker/ CMI/ SIMS/ Sydney Copper Scraps	Re-processed into new metal and steel products by shearing, baling and re-smeltering.
Brick/ Concrete	Boral/ Genesis	Re-processed into recycled products (such as fill sand, aggregates, roadbase) by crushing and screening.
Cardboard/ Paper/ Plastic	Polytrade Recycling/ J.J. Richards/ Orora	Re-processed into new cardboard, paper and plastic products by breaking down the material into a form for re-use.
Plasterboard	ReGyp	Re-processed into gypsum products by shredding and screening.
General Waste	SUEZ Landfill/ Horsley Park Landfill/ Genesis Landfill	n/a

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- Bingo Recycling Centres
  76-82 Burrows Road, Alexandria NSW 2015
  10 Mclachlan Ave, Artarmon NSW 2064
  3-5 Duck Street, Auburn NSW 2144
  Honeycomb Drive, Eastern Creek NSW 2766
  35 Wentworth St, Greenacre NSW 2190
  50 Wyllie Road, Kembla Grange NSW 2526
  20 Hearne Street, Mortdale NSW 2223
  37-51 Violet Street, Revesby NSW 2212
  29 Laverick Avenue, Tomago NSW 2322
- Clean & Green Organics
  769 The Northern Rd, Bringelly NSW 2566
- Sell & Parker
  45 Tattersall Road, Blacktown NSW 2148
- CMI
  38 York Road, Ingleburn NSW 2565
- SIMS
  43 Ashford Ave, Milperra NSW 2214
  76 Christie St, St Marys NSW 2760
- Sydney Copper Scraps
  130 Adderley St, Auburn NSW 2760
- Boral
  6-10 Burrows Road South, St Peters NSW 2044
- Polytrade Recycling
  32 South St, Rydalmere NSW 2116
  40 Madeline St, South Strathfield NSW 2136
- J.J. Richards
  12 Heald Rd, Ingleburn NSW 1890
  8 Kommer Pl, St Marys NSW 2760
- Orora
  1891 Botany Rd, Matraville NSW 2036
- ReGyp
  330 Captain Cook Drive, Kurnell NSW 2231
- SUEZ Landfill
  Elizabeth Drive, Kemps Creek NSW 2178
- Horsley Park Landfill
  Wallgrove Road, Horsley Park NSW 2164
- Genesis Landfill
  Honeycomb Drive, Eastern Creek NSW 2766

5. APPENDIX 2 RECYCLING RESULTS:

2019

Job Number	Site Name	January			February			March			April			May			June			July			August			September			October			November			December		
		T	R	L	T2	R3	L4	T5	R6	L7	T8	R9	L10	T11	R12	L13	T14	R15	L16	T17	R18	L19	T20	R21	L22	T23	R24	L25	T26	R27	L28	T29	R30	L31	T32	R33	L34
1620	Canopy Apartments Putney													1.57	1.52	0.05	1.47	1.47		7.16	7.01	0.15	0.62	0.62													
1627	Chatswood Place	6.35	6.01	0.34	5.06	4.84	0.22	4.16	4.01	0.15				0.86	0.84	0.02																1.8	1.8				
1632	342 King St, Mascot																						0.95	0.87	0.8												
1704	John Morony				1.33	1.27	0.06																														
1708	Haven Development	6.77	6.6	0.17	10.75	10.55	0.2	5.21	4.98	0.23				3.05	2.88	0.17													2.23	2.19	0.04						
1709	Cardinal Freeman Stage 3	57.89	55.87	2.02	115.6	113.9	1.64	95.77	93.41	2.36	93.08	91.73	1.35	69.32	68.33	0.99	31.63	31.43	0.2	4.12	3.95	0.17															
1720	Knox Grammar	101.2	100.2	0.94	100.9	99.12	1.73	123.4	121	2.02	38.47	37.45	1.02	1.29	1.25	0.04																					
1728	BMW	264.9	261.2	3.46	194	191.3	2.74	142.4	139.4	3.03	106.1	103.6	2.45	49.93	49.14	0.79	0.71	0.71																			
1735	Boomerang	157.4	155	2.43	251.4	247.4	4.25	207.8	201.8	6.07	187.1	184.4	2.7	289.7	284.9	4.74	208.2	206.2	2	285.7	282.4	3.34	265.4	263	2.38	316.8	314.6	2.18	241	238.3	2.75	72.29	69.68	2.61	22.1	20.32	1.78
1737	Hammondcare Darlinghurst	35.98	35.31	0.67	31.39	31.05	0.34	33.75	33.41	0.34	33.6	32.92	0.68	41.95	41.07	0.88	55.46	54.78	0.68	88.89	87.71	1.18	119.1	118.4	0.76	105	104.3	0.68	67.46	67.21	0.25	128.9	127.9	0.95	41.43	41.36	0.08
1738	Hammondcare Cardiff																																				
1802	Taronga Zoo Wildlife Retreat	94.23	91.87	2.36	107.2	104.8	2.37	141.6	137.9	3.71																			1.21	1.19	0.02						
1804	Ingleburn 41-47 Stennett Rd				41.08	40.64	0.44	11.2	10.95	0.25	10.46	10.16	0.3																								
1805	Homebush West Public School	67.55	66.26	1.29	33.14	32.44	0.7	1.91	1.84	0.07																											
1806	Opal Aged Care Facility Winston Hills	86.16	83.38	2.78	96.86	94.62	2.24	109.2	106.7	2.5	53.98	52.71	1.27	2.18	2.1	0.08							6.45	6.39	0.06												
1810	SACL IBIS	72.99	71.97	1.02	75.24	74.23	1.01	53.56	53.22	0.34	40.93	40.26	0.67	31.41	31.07	0.34	5.14	5.14																			
1812	Chullora Australia Post	17.31	16.3	1.01				8.6	8.27	0.33	9.74	9.4	0.34	21.43	21.3	0.13																					
1816 (1825)	Uniting Mayflower	48.65	47.97	0.68	40.6	39.59	1.01	68.8	67.11	1.69	46.72	45.37	1.35	80.74	78.71	2.03	76.66	75.99	0.67	111.5	110	1.52	119.1	118.4	0.68	143	142.3	0.68	62.3	61.29	1.01	113.1	111.9	1.18	58.61	57.6	1.01
1818	GPT LOT21 Eastern Creek	67.57	65.79	1.78	19.88	19.59	0.29							2.2	2.1	0.1																					
1819	King St													10.37	10.04	0.33	12.37	12.2	0.17	36.16	35.82	0.34	45.43	45.09	0.34	61.73	61.39	0.34	77.8	76.93	0.87	104	102.9	1.16	61.2	60.76	0.44
1820	Irvine Place, Bella Vista	2.36	2.19	0.17				8.27	7.93	0.34				6.44	6.1	0.34																					
1821	Norwest Data Centre Modernisation																																				
1823	SYD051 Stage 5 Eastern Creek	20.08	19.74	0.34	25.18	24.5	0.68	31.18	30.5	0.68	15.71	15.04	0.67	34.01	33.33	0.68																					
1824	Lindfield	429.5	422	7.43	122.2	121.1	1.08	93.01	89.54	3.47				28.08	27.11	0.97				27.34	27.15	0.19															
1833	Bluett Dr - Smeaton Grange				6.42	6.26	0.16	33.01	31.87	1.14	26.98	25.97	1.01	23.66	23.16	0.5							25.87	24.47	0.4												
1834	NorthConnex	14.77	14.09	0.68	19.83	19.5	0.33	40.42	39.75	0.67	37.62	36.78	0.84	45.56	44.55	1.01	67.16	66.48	0.68				19.74	19.57	0.17												
1902/1918	Picton High School	133.8	128.4	5.23	36.48	35.54	0.94	61.9	61.26	0.64	46.08	45.51	0.57	41.2	40.56	0.64	13.83	13.49	0.34	17.88	17.71	0.17	6.41	6.41		3.18	2.84	0.34	25.24	25.07	0.17	26.34	26.34		63.87	62.67	1.2
1903	Polair Bankstown																									19.38	18.93	0.44	15.23	15.06	0.17	2.21	2.21		9.81	9.17	0.65
1904	Willoughby Girls High School	125.4	123.5	1.9	56.61	55.93	0.68	35.49	34.81	0.68	38.79	37.98	0.81				81.41	81.07	0.34	65.42	65.08	0.34							86.76	85.62	1.13						
1906	Greenwich Public School	4.49	4.32	0.17	10.69	10.52	0.17	58.58	57.42	1.16	41.47	41.13	0.34	55.45	54.77	0.68	21.24	21.07	0.17	61.37	61.04	0.33				75.98	75.47	0.51	72.19	71.01	1.18	57.18	56.61	0.58	27.13	27.13	
1908	Pendle Hill High School	3.67	3.56	0.11	24.88	24.77	0.11	53.48	53.1	0.38	42.32	41.87	0.45	25.71	25.31	0.4	18.18	17.95	0.23	35.53	35.23	0.3	84.82	84.29	0.53	48.31	47.97	0.34	34.43	33.64	0.79	27.91	27.24	0.68	34	33.32	0.68
1909	Yagoona Public School	3.24	3.08	0.16	10.56	10.22	0.34	9.26	8.92	0.34				16.43	16.1	0.33	30.22	30.05	0.17										68.4	67.56	0.84						
1910	MPL Aldi																6.08	5.91	0.17																	
1913	Eastern Creek																25.03	24.52	0.51																	
1914	Smeaton Grange																9.68	9.68		19.26	19.03	0.23				9.15	8.85	0.3									
1915	Chullora Hard Stand										22.07	21.86	0.21	19.41	19.26	0.15	9.52	9.18	0.34	15.63	15.49	0.14	13.35	13.11	0.24	1.74	1.74		8.06	7.98	0.08						
1916	Dee Why										3.28	3.16	0.12	8.62	8.36	0.26	37.74	37.4	0.34	28.43	27.86	0.57	15.57	15.41	0.16	23.17	23.02	0.15	47.99	46.93	1.06	60.67	59.39	1.28	76.64	75.2	1.43
1917	Chippendale																						4.86	4.69	0.17												
1920	50 Norwest Blvd																						112.4	112	0.34	72.73	72.05	0.68	39.15	38.81	0.34	66.2	64.95	1.25	57.39	56.54	0.84
1922	Bowden Brae, Normanhurst																															10.31	10.14	0.17	12.1	11.37	0.73
1923	Gowrie Village																															0.35	0.35				
2004	Stockland Yennora Resessed docks																															18.59	18.43	0.17			
		1822	1785	37.14	1437	1414	23.73	1432	1399	32.59	894.5	877.3	17.15	910.5	892.4	16.6	711.7	703.2	7.01	804.4	788.4	8.82	840	832.1	7.03	880.2	873.6	6.64	849.5	838.8	10.7	689.8	679.8	10.03	464.3	455.4	8.84

6. APPENDIX 3 ASBESTOS MANAGEMENT PLAN:

Asbestos Management Plan for the Removal of Asbestos Contaminated Fill Soil

Kyeemagh Public School
Jacobson Avenue & Beehag Street, Kyeemagh NSW

Prepared for:
PF Civil
PO Box 4088
Winmalee NSW 2777

Prepared by:
P Clifton & Associates Pty Ltd
ABN: 69 041 751 671
PO Box 457, Turramurra NSW 2074
Mob: 0437 251 358

Ref: PCA6721-2020_AMP01_28Jul20

CONTENTS

DISTRIBUTION

Asbestos Management Plan for the
Removal of Asbestos Contaminated Fill Soil
Kyeemagh Public School
Jacobson Avenue & Beehag Street, Kyeemagh NSW

28 July 2020

Copies	Recipient
1	**PF Civil** PO Box 4088 Winmalee NSW 2777 Att: Mr Brendan Roots

This document was prepared for the sole use of PF Civil and the regulatory agencies that are directly involved in this project, the only intended beneficiaries of our work. No other party should rely on the information contained herein without the prior written consent of P. Clifton & Associates Pty Ltd and PF Civil.

By

P Clifton & Associates Pty Ltd
ABN: 69 041 751 671
PO Box 457
Turramurra NSW 2074

Philip Clifton
Principal
BOHS IP402 Certified
SafeWork NSW Licenced Asbestos Assessor: LAA000119

1 INTRODUCTION

This Asbestos Removal Management Plan (AMP) provides details of the scope of work, work procedure and occupational health and safety precautions to be observed for the removal of asbestos contaminated fill soil that is present in the eastern area of the Kyeemagh Public School located at Jacobson Avenue and Beehag Street, Kyeemagh NSW.

A recent detailed site investigation has identified fill soil containing asbestos cement sheet materials and debris to be present in the eastern area of the site near the boundary along Tancred Avenue.

The location of this fill soil is shown on the site plan in Appendix 1 at the rear of this report.

In order to safely remove the fill soil containing asbestos cement sheet debris and other building debris from the eastern area within the site, P. Clifton & Associates (PCA) have compiled this AMP which contains the scope of work, technical specification and information regarding the safe work procedures and regulatory requirements to be observed during the excavation and removal from site of the fill soil containing pieces and fragments of asbestos containing material.

2 RESPONSIBILITIES

2.1 Principal

Taylor Constructions as the head contractor on the site is the principal overseeing the removal and disposal of the asbestos contaminated fill soils.

The Principal will liaise with the client and other stakeholders as necessary for the removal of the asbestos contaminated fill soils that have been identified within the site.

2.2 Licenced Asbestos Assessor (LAA)

An experienced licenced asbestos assessor (LAA) will be engaged by the principal or the civil contractor to oversee the asbestos removal work and ensure that all OH&S requirements are fully complied with.

The LAA will be responsible for the following activities:

- Verifying that all persons working on the site (fill soil removal and disposal work) have current training certificates for the work that will be carrying out.
- Ensure that the safe work method statement (SWMS) for the asbestos removal contractor is completed and signed off.
- Undertake daily airborne asbestos fibre monitoring, as required.
- Undertake visual clearance inspections at the completion of asbestos removal work in each area, collect validation soil samples and compile validation report.

- Manage unexpected finds of asbestos containing materials identified on the site but outside of the asbestos removal work areas.

2.3 Asbestos Removal Contractor

The remediation contractor will be an experienced non- friable Class B licenced asbestos removal contractor (minimum licence requirement), who will undertake the asbestos removal and decontamination work at the site. The remediation contractor will be responsible for the following activities:

- The asbestos removal contractor's removal supervisor must oversee the work and must have completed an approved non-friable asbestos removal supervisor's course recognised by SafeWork NSW and Safe Work Australia.
- The asbestos removal contractor's personnel must have completed an approved non-friable asbestos removal workers course recognised by NSW WorkCover and Safe Work Australia.
- Undertaking removal of all asbestos contaminated soil and disposing of this contaminated waste at a suitably licenced landfill facility.
- Compliance with all safety requirements as detailed in this AMP and their site specific SWMS.

3 REGULATORY REQUIREMENTS

3.1 Statutory Regulations and Code of Practice

The removal and disposal of asbestos containing construction materials in NSW is overseen by various authorities including SafeWork NSW (SafeWork), the NSW Environment Protection Authority (NSW EPA), local government (council) by administering various legislation, regulations and codes of practice. Statutory documents that are applicable to the work include (but are not limited to) the following:

- NSW Work Health & Safety Act 2011.
- NSW Work Health & Safety Regulation 2017.
- How To Safely Remove Asbestos Code of Practice issued by Safe Work Australia, October 2018.
- How To Manage and Control Asbestos in the Workplace issued by Safe Work Australia October 2018.
- NSW Protection of the Environment Operations (General) Regulation 2009: Reg 92.
- NSW Protection of the Environment Operations (Waste) Regulation 2014: 'Sections 77 - 81.
- National Environment Protection (Assessment of Site Contamination) Measure. Schedule B (1) - Guideline on Investigation Levels for Soil and Groundwater (May 2013).
- enHEALTH Management of Asbestos in the Non-Occupational Environment (2005).

- NSW Environment Protection Authority (EPA) Waste Classification Guidelines – Part 1: Classification of waste (November 2014).

The proposed asbestos removal work at the site involves the excavation and stockpiling of the identified asbestos contaminated fill soil following which this soil is to be disposed of at a suitably licenced landfill facility.

3.2 Risk Assessment and Asbestos Classification

Health risk from asbestos containing materials only occurs from airborne asbestos fibres. Whilst asbestos containing materials remain undisturbed and there are no fibres being released from these materials then there is no actual risk posed. Materials which contain loose fibres have a high potential to generate airborne when disturbed.

In accordance with the NSW Work Health and Safety Regulation 2017, asbestos containing materials are classified as either 'friable' or 'non-friable' materials.

'Friable' asbestos containing materials are any material that contains asbestos and is in the form of a powder or can be crumbled, pulverised or reduced to powder by hand pressure when dry.

'Non-friable' asbestos containing material means any material (other than friable asbestos material) that contains asbestos. Typically, asbestos cement materials are classified as 'non-friable' asbestos containing materials. Surface fill soils within the eastern area in the site, in which fragments of asbestos cement sheet are present and which is not degraded from their original form is also classified as 'non-friable' asbestos containing material.

The removal of fragments of non-friable asbestos containing material and soil containing pieces and fragments of non-friable asbestos containing material from the nominated areas at the site is only to be carried out by a contractor holding a Class A licence for friable asbestos removal work or a contractor holding a Class B licence for non-friable asbestos removal work.

3.3 Asbestos Removal Permit and Licence for Non - Friable Asbestos Removal

The removal of the asbestos cement sheet materials, debris and soil containing fragments of non-friable asbestos containing material from the nominated areas at the site may only be carried out by an experienced asbestos removal contractor holding a contractor holding a Class A licence for friable asbestos removal work or a contractor holding a Class B licence for non-friable asbestos removal work. Prior to the commencement of the proposed work a notification of non-friable asbestos removal work is to be submitted from SafeWork NSW.

The work on site is not to commence until the notification for non-friable asbestos removal is approved by SafeWork NSW. There is usually a five day wait between the submission of the application for non-friable asbestos removal and the allowable commencement of the work.

A copy of the asbestos removal notification and asbestos removal licence is to be held on site at all times during the work.

3.4 Working Area

The Kyeemagh Public School is an operating school site and the asbestos removal contractor must ensure that all work is contained within the nominated asbestos removal areas at all times. Excavation, stockpiling and loading out of the asbestos contaminated fill soil is to only be undertaken during the nominated work hours. The storage of materials and equipment is available on site. All materials and equipment that are left on site should be secured to prevent access by members of the public and the responsibility for the security of these materials and the working areas is the sole responsibility of the contractor.

During the asbestos removal work at the site, the construction area in which asbestos removal work is on-going is to be secured using temporary fencing or other secure barricade to prevent access by unauthorised persons.

Where the work is not completed and disturbed asbestos containing and contaminated material remains in the work area, this area is to be secured to prevent unauthorised access. All exposed asbestos contaminated fill soil remaining at the end of each work day is to be covered with geo-fabric or plastic sheeting to prevent dust generation.

4 SCOPE OF WORK

The work that is to be completed at the site includes the excavation, stockpiling and loading out of asbestos contaminated soil located from the eastern area within the site.

In order to remove the in-situ asbestos contaminated fill soil from the nominated area within the site, the following scope of work is to be completed:

1. Establish fencing or barricades around the asbestos contaminated fill soil area. Asbestos warning signs are to be placed on the fence or barricades and are to remain in place until the asbestos contaminated soil removal work in the area is complete.
2. A decontamination and change area is to be established at the entry to the asbestos removal work area at the site.
3. Water is to be available at the site for use to suppress dust during the soil excavation and loading out.
4. The fill soil in the eastern area within the site is to be excavated and stockpiled following which the soil is to be loaded into covered leakproof bins and / or trucks (or plastic lined bins / trucks) for transport for a landfill facility licenced to accept the waste (based on the waste classification report).

5. The fill soil containing asbestos cement sheet debris extends to an approximate depth of 400 mm. At the completion of the excavation and loading out of the in-situ asbestos contaminated fill soil, the remaining soil to a depth of approximately 50 mm is to be ripped for visual inspection to confirm that all of the asbestos contaminated fill soil has been removed. Where further asbestos cement sheet debris in fill is found to be present, the soil containing these fragments is to be excavated and loaded out for off-site disposal as asbestos contaminated waste. The excavation and stockpile footprint areas are to be scrapped to ensure that all fill soil that was excavated and stockpiled has been fully removed.
6. A final visual asbestos material clearance inspection is to be carried out across the excavation and stockpile areas at the completion of the removal of all of the asbestos contaminated fill soil. The visual clearance inspection is to be carried out in accordance with the requirements of Section 3.10 of the How to Safely Remove Asbestos Code of Practice issued by Safe Work Australia.
7. In conjunction with the final visual inspection of the asbestos removal work area, validation soil sampling is to be carried out by the environmental consultant. Soil sampling is to be carried out in accordance with the methodology detailed in the "National Environment Protection (Assessment of site contamination) Measure, Schedule B1 issued in 2013 and "The Guidelines from the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia - May 2009".
8. A clearance / validation report detailing the scope of the remediation work, findings of the visual inspections and results of the validation sample analysis is to be compiled for asbestos contaminated work area(s) within the site. The clearance / validation report is to contain copies of all waste disposal documentation, airborne asbestos fibre monitoring reports and soil sample analysis reports.

5 ASBESTOS REMOVAL PROCEDURE

The asbestos work procedure detailed below is designed to minimise and control the potential exposure of persons undertaking the work and also to prevent the exposure of persons in adjacent areas to airborne asbestos fibres.

A safe work method statement for the asbestos removal work is to be compiled by the remediation contractor prior to undertaking the work.

The following procedure details the requirements for the removal of the asbestos contaminated fill soil containing fragments of asbestos cement sheet (non-friable asbestos containing material).

1. A barricade with asbestos removal warning signs is to be placed around the asbestos removal work area at the site.
2. A decontamination and change area is to be located at the entry to the non-friable asbestos removal work area.

3. All persons entering the asbestos removal work area are to wear disposable coveralls and Class P2 or P3 respiratory equipment. Prior to leaving the work area, persons are to remove their PPE in the decontamination area.
4. The transport of the asbestos contaminated waste is to be undertaken in covered leak proof vehicles and is to be disposed of at a landfill site that can lawfully receive this waste as detailed in the 'Special Requirements Relating to Asbestos Waste' in the Protection of the Environment Operations (Waste) Regulation 2005. Truck access and egress to the site is to be carried out as per the traffic management plan prepared for truck movements to the site.
5. A machine / truck parking area is to be located adjacent to the decontamination and change area. Operators are only to enter / exit the machine / trucks in this area. Wheels are to be washed to remove asbestos contaminated soil prior to the machines / trucks entering this area.
6. At the completion of the asbestos removal work each day, the remaining exposed in -situ soil and stockpiled soil is to be covered with geo-fabric or plastic sheeting.
7. A final visual inspection is to be carried out across the asbestos contaminated soil removal area at the completion of the removal of asbestos contaminated fill soil. In conjunction with the final visual inspection, validation soil sampling is to be carried out by the environmental consultant. Validation soil samples are to be collected with sampling to be undertaken in accordance with the sample design guidelines issued by the NSW EPA for soil sampling as part of site assessment investigations.
8. Upon receipt of the results of the soil sample analysis showing the sampled soil to be free of asbestos fibre contamination (below the site acceptance criteria of 0.01% weight / weight for asbestos containing material (ACM) and each of the soil samples was found to be below the acceptance level of 0.001% weight / weight for fibrous asbestos (FA) and asbestos fines (AF), the barricades surrounding the asbestos removal areas may be removed and the area opened for unrestricted access.

6 REQUIREMENTS FOR ASBESTOS REMOVAL WORK

The asbestos removal work at the site is to be carried out in accordance with the requirements for the removal of non-friable asbestos containing material as detailed in the NSW Work Health and Safety Regulation 2017 and the Safe Work Australia How to Safely Remove Asbestos Code of Practice issued in October 2018.

A summary of the main requirements to be implemented for the work is as follows:

The asbestos removal work areas shall be contained within the nominated area at the site.

Warning signs are to be placed at the entry to the asbestos removal work area and should read "Asbestos Work Area, No Unauthorised Entry". These signs are to comply with Australian Standard 1319-1983: Safety signs for the occupational environment.

A change and decontamination area (designated area for changing into and out of asbestos PPE, no wet shower facilities required) is to be located at the entry to the 'non-friable' asbestos removal work area. All persons entering these asbestos removal work areas are to change into asbestos protective equipment in the change area and undergo decontamination prior to leaving the work area. All asbestos PPE is to be removed in the decontamination area when exiting the work area(s).

6.1 Asbestos Removal Training and Health Assessment

The asbestos removal contractor shall provide instruction to all persons involved in the asbestos removal work that may be exposed to asbestos in the course of the work regarding the danger to health and the statutory requirements that are required to provide safe working conditions.

The asbestos contractor's staff, including all machine operators, involved with the removal of the asbestos containing materials must also be formally trained in safe non-friable asbestos removal working procedures and in the wearing and maintenance of protective clothing and equipment. The supervisor on the site is to have completed formal training in the supervision of non-friable asbestos removal. Evidence of this training is to be held on site.

All persons involved in the licenced asbestos removal work are to have completed current health assessments in accordance with Clauses 435 and 436 of the NSW WHS Regulation 2017.

6.2 Personal Protective Equipment

All persons entering the work areas (to undertake asbestos removal work) are to wear disposable coveralls, disposable or re-usable Class P2 or P3 respirator and washable boots.

Operators of machines and trucks involved in the work are not required to wear asbestos PPE provided that the cabins of their machine / truck are air conditioned and that the air conditioning remains in operation at all times.

A machinery parking area is to be located adjacent to the decontamination and change area. Operators are only to enter / exit the machines in this area. Operators not wearing asbestos PPE are not permitted to exit the machines within the asbestos work area.

Re-usable respirators are to be issued to each person entering the work area and are to be cleaned prior to leaving the asbestos work area.

Persons entering the work areas for supervision or inspection of the work are to wear disposable coveralls, Class P2 half face respirator and washable boots. Disposable Class P2 half face dust masks may be used.

All persons entering the work area are to be instructed on the correct fit and wearing of the respirator. No person with a beard shall be permitted to enter an asbestos removal work area. Disposable items of PPE are not to be taken outside of the asbestos removal work area. When leaving the work area, disposable items of PPE are to be placed into asbestos waste bags for disposal as asbestos contaminated waste.

Reusable items such as boots are to be thoroughly cleaned in the decontamination unit prior to leaving the work area.

The laundering of approved non-disposable protective clothing shall be carried out in accordance with the procedures approved by SafeWork NSW. Waste water from washing of contaminated clothing is to be filtered prior to disposal to the sewer and clothes dryers used for drying clothes or towels are to be filtered through a HEPA filter.

6.3 Decontamination Facilities

For the removal of non-friable asbestos containing materials, a designated decontamination area is to be established at the entry to the asbestos removal area. All persons entering the asbestos removal area are to change into / out of their PPE in the designated decontamination area. Wet shower facilities are not a mandatory requirement for non-friable asbestos removal, however they may be provided by the contractor if they wish to do so.

When leaving the work area, the following decontamination procedure is to be followed:

- Remove any visible asbestos dust/residue from protective clothing using an asbestos vacuum cleaner or wiping down with damp cloths. Warning: do not reuse or resoak damp cloths.
- Carefully remove disposable protective clothing and place into bags, (RPE must still be worn).
- Place cloths into asbestos waste disposal plastic bag (200 µm thick).
- Take disposable coveralls off and place into asbestos waste disposal bag (RPE must still be worn).
- Use damp cloths to wipe down footwear and place cloths into asbestos waste disposal bag.
- Seal all asbestos waste plastic bags with duct tape and place each into a second plastic bag.
- Seal this second plastic bag and label/mark as ‘Asbestos Waste’.

- Use damp rags to wipe external surfaces of the asbestos waste disposal bags to remove any dust before it is removed from the asbestos removal work area.
- Remove PPE and double bag, seal with duct tape and mark as 'Asbestos Waste'.
- Remove non-disposable PPE and place in container labelled as containing asbestos.
- Remove disposable RPE and double bag, seal with duct tape and mark as 'Asbestos Waste'.
- Reusable RPE is to be wiped with damp cloth and bag for reuse. Place the damp cloth into a disposable asbestos waste bag.
- Ensure the outside of the bags are decontaminated by using a damp cloth.
- Place the damp cloth into disposable asbestos waste bags.
- Dispose of asbestos waste at the appropriate waste facility.

6.4 Disposal of Asbestos Contaminated Waste

The asbestos contaminated soil is to be loaded into skip bins or trucks with loading to be undertaken as close as possible to the stockpile excavation area to minimise the likelihood of asbestos contamination occurring in adjacent areas where no asbestos contamination has been identified.

As far as practically possible vehicles are not to drive on soil on / in fill soil areas in which there is asbestos cement sheet debris. Where this is unavoidable, a wheel wash is to be located at the entry / exit to the asbestos removal work area. Wheels are to be washed to remove asbestos contaminated soil prior to the trucks exiting the asbestos removal work area. Water from the wheel wash is to be directed into the asbestos removal work area. Asbestos contamination within this water is to be captured in the soil which is to be excavated for disposal as asbestos contaminated waste.

The asbestos waste is to be transported to the landfill site in covered leak-proof vehicles with the soil to be wetted sufficient to prevent water leakage and dust emissions during transport to the landfill site.

Documentary evidence of the correct disposal of the waste shall be provided. This documentation will include name of authorised tip, weigh bridge docket and registration number of vehicle for every disposal.

All small items of asbestos contaminated waste from the work such as used disposable PPE is to be double bagged in 0.2 mm asbestos waste bags for disposal at a landfill facility licenced by the NSW Environment Protection Authority (NSW EPA).

This waste material is to be placed into the first asbestos waste bag at the work face and sealed. This bag is to then be placed into a second waste bag away from the work face (but within the work area). Each bag is to separately 'goose necked' and sealed with tape. The waste material is to be wetted prior to placement in the bag.

7 AIRBORNE ASBESTOS FIBRE MONITORING

Monitoring for airborne asbestos fibres should be carried out at all times throughout the duration of the asbestos contaminated soil removal work by a licenced asbestos assessor (LAA) engaged by PF Civil.

Monitoring is to be carried out in accordance with the requirements of the National Occupational Health and Safety Commission (NOHSC) Code of Practice for the Safe Removal of Asbestos, particularly the 'Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres' 2nd edition [NOHSC:3003(2005)]. Analysis of the air monitoring filters is to be carried out by a NATA accredited laboratory.

Air monitors are to be placed in the decontamination / change area and on the temporary fencing or barricade surrounding the asbestos removal work area. Up to four monitors are to be placed on the perimeter of the asbestos removal work area.

The daily reports of the results of the air monitoring will be forwarded to PF Civil.

The NOHSC recommended maximum exposure level for airborne asbestos fibres, measured as a time weighted average over an 8 hour work shift, is 0.1 fibres per millilitre of air (0.1 fibres/ml).

The NOHSC Code of Practice for the Safe Removal of Asbestos details control levels for airborne asbestos fibre concentrations that are to be observed during the work. These control levels are as follows:

Airborne fibre concentration (fibres/ml)	***Control Measure***
<0.01	Continue work using existing asbestos dust control measures
≥0.01	Continue work and review asbestos dust control measures
≥0.02	Stop work, identify cause of dust emissions and revise dust control measures.

8 VALIDATION INSPECTION AND SAMPLING

At the completion of the asbestos removal work across the nominated eastern area within the site, a visual inspection is to be undertaken to verify that the exposed soil surface across the area in work was completed is free of visible asbestos containing material. This inspection is to be carried out in accordance with the requirements of Section 3.10 of the How to Safely Remove Asbestos Code of Practice issued by Safe Work Australia.

This inspection is to be undertaken by walking over the nominated area of the site in a systematic manner at 2 metre intervals in a north / south direction. A second walkover inspection at 2 metre intervals is then to be undertaken in an east / west direction.

Validation soil samples are to be collected by the environmental consultant with sampling to be undertaken in accordance with the sample design guidelines issued by the NSW EPA. The number of soil samples is to be in accordance with the validation sampling requirement in the remediation action plan prepared for the site.

Soil sampling is to be carried out in accordance with the methodology detailed in the "National Environment Protection (Assessment of site contamination) Measure, Schedule B1 issued in 2013 and "The Guidelines from the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia - May 2009".

A validation report detailing the scope of the remediation work, findings of the visual inspections is to be compiled. The validation report is to contain copies of all waste disposal documentation, airborne asbestos fibre monitoring reports and soil sample analysis reports. The validation report is to be prepared in accordance with the NSW EPA contaminated site guidelines.

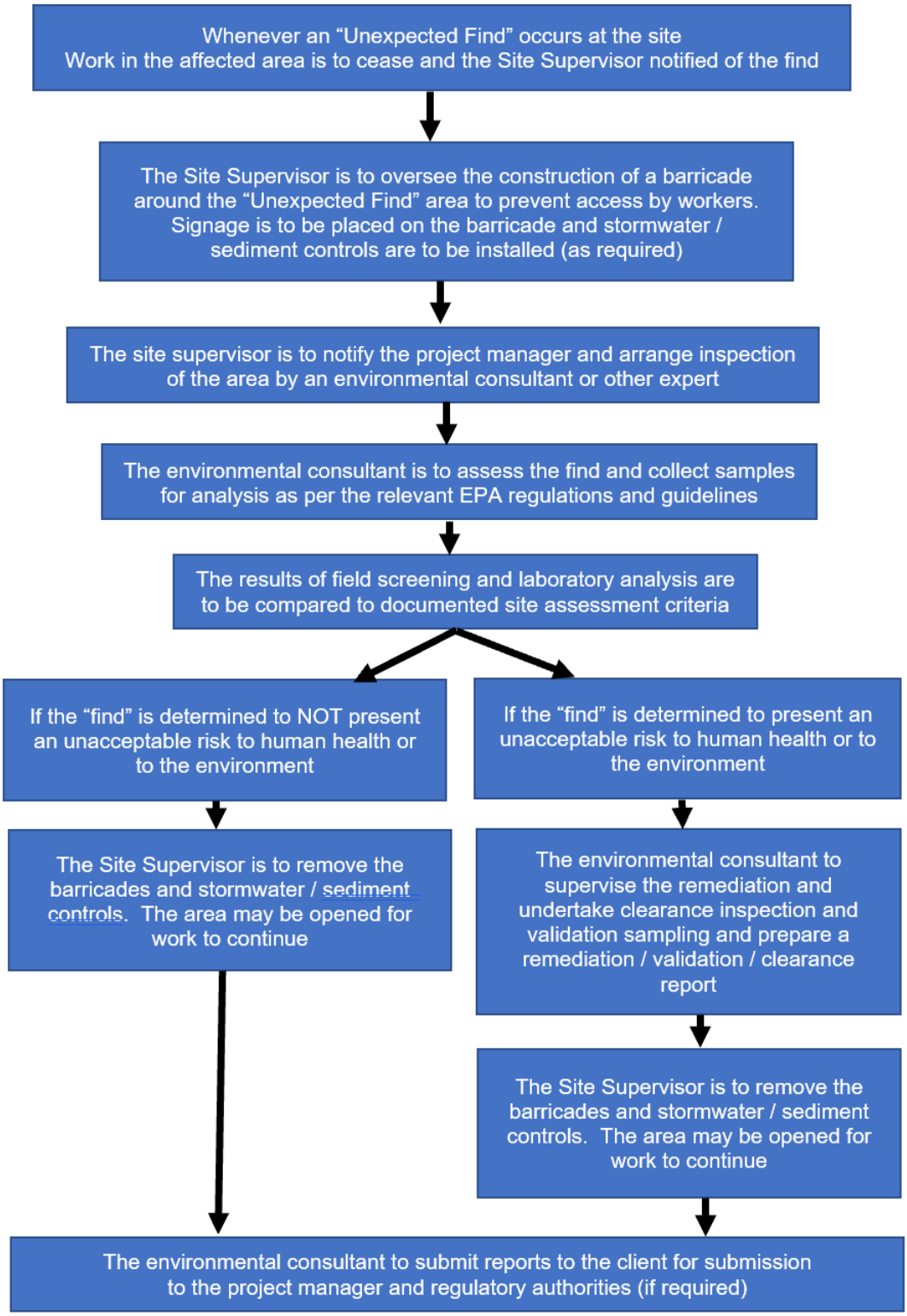
9 PROCEDURE FOR DEALING WITH UNEXPECTED FIND OF ASBESTOS CONTAINING MATERIAL OUTSIDE OF ASBESTOS REMOVAL WORKING AREA

Whilst undertaking the asbestos contaminated soil removal work at the site, and during the remaining in-ground work, there is a possibility that previously unidentified asbestos containing material may be encountered outside of the asbestos removal area at the site.

In the event that asbestos containing material is identified outside of the asbestos removal work area, the following procedure is to be followed:

1. Upon discovery of a fragment(s) of asbestos cement or other asbestos containing material (or suspected asbestos containing material) all work in the immediate area is to cease.
2. The worker discovering the material is to inform his supervisor who in turn will advise the LAA.
3. The LAA will arrange for the area to be secured to prevent disturbance of the material. Where necessary, temporary fencing and warning signs are to be placed around the area.
4. The LAA will arrange, if necessary, for a sample of the material to be analysed to confirm the presence / absence of asbestos fibres.
5. Where the material is confirmed as containing asbestos, the asbestos removal contractor is to remove the material for disposal asbestos contaminated waste.
6. Where the material consists of a small number of fragments of asbestos cement sheet, asbestos PPE including disposable gloves is to be worn during the collection of the material. The fragment(s) will be picked up and the glove turned inside out to 'bag' the fragment(s). The disposable glove containing the fragment(s) of asbestos cement sheet will then be placed directly into an asbestos waste bag for disposal.
7. The area is to be visually inspected by the LAA to verify that all of the asbestos containing material has been removed. A clearance report is to be compiled following the inspection.
8. Where a larger quantity of asbestos containing material is identified, the soil containing the asbestos containing material is to be excavated in accordance with the procedure detailed in Section 5 above. A visual inspection and validation sampling is to be undertaken and the details of this work are to be recorded in the validation report.

The above procedure is summarised in the following flowchart:

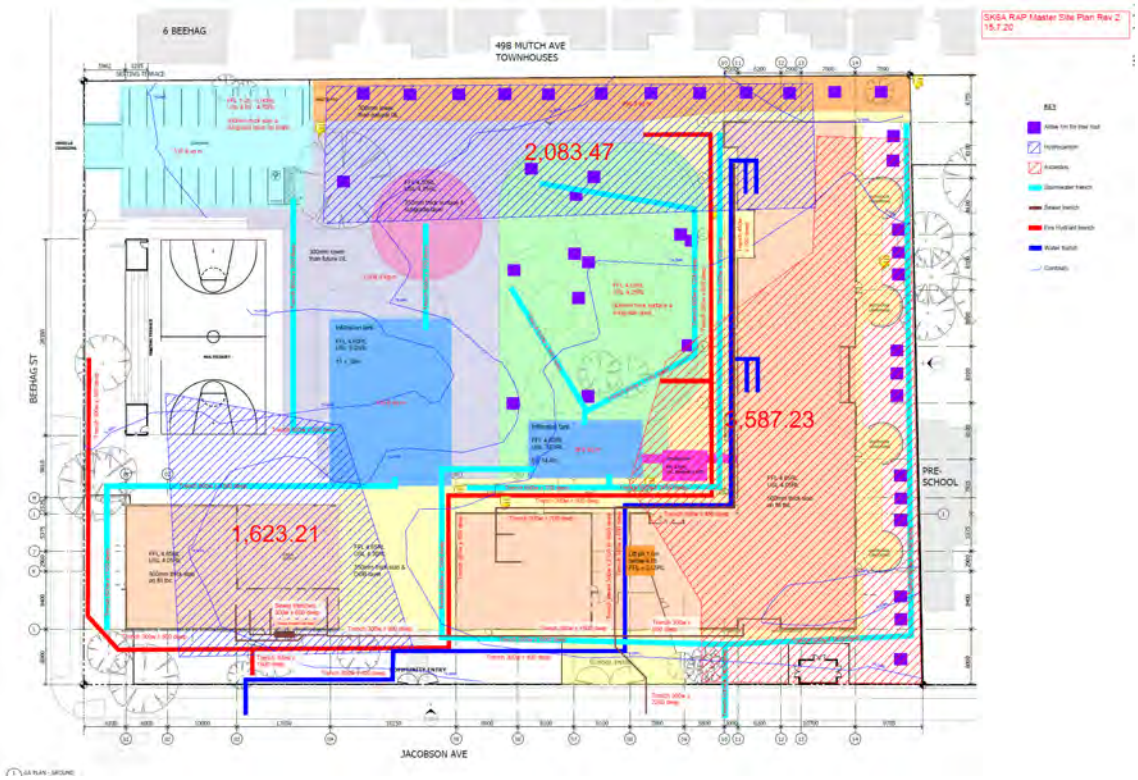

Whenever an "Unexpected Find" occurs at the site
Work in the affected area is to cease and the Site Supervisor notified of the find
The Site Supervisor is to oversee the construction of a barricade around the "Unexpected Find" area to prevent access by workers. Signage is to be placed on the barricade and stormwater / sediment controls are to be installed (as required)
The site supervisor is to notify the project manager and arrange inspection of the area by an environmental consultant or other expert
The environmental consultant is to assess the find and collect samples for analysis as per the relevant EPA regulations and guidelines
The results of field screening and laboratory analysis are to be compared to documented site assessment criteria
If the "find" is determined to NOT present an unacceptable risk to human health or to the environment
If the "find" is determined to present an unacceptable risk to human health or to the environment
The Site Supervisor is to remove the barricades and stormwater / sediment controls. The area may be opened for work to continue
The environmental consultant to supervise the remediation and undertake clearance inspection and validation sampling and prepare a remediation / validation / clearance report
The Site Supervisor is to remove the barricades and stormwater / sediment controls. The area may be opened for work to continue
The environmental consultant to submit reports to the client for submission to the project manager and regulatory authorities (if required)

10 REFERENCES

- NSW Work Health & Safety Act 2011.
- NSW Work Health & Safety Regulation 2017.
- How To Safely Remove Asbestos Code of Practice issued by Safe Work Australia, October 2018.
- How To Manage and Control Asbestos in the Workplace issued by Safe Work Australia October 2018.
- NSW Protection of the Environment Operations (General) Regulation 2009: Reg 92.
- NSW Protection of the Environment Operations (Waste) Regulation 2014: 'Sections 77 - 81.
- National Environment Protection (Assessment of Site Contamination) Measure. Schedule B (1) - Guideline on Investigation Levels for Soil and Groundwater (May 2013).
- enHEALTH Management of Asbestos in the Non-Occupational Environment (2005).
- NSW Environment Protection Authority (EPA) Waste Classification Guidelines – Part 1: Classification of waste (November 2014).

APPENDIX 1

SITE PLAN



Site plan with the red shaded area showing the approximate location of the asbestos contaminated fill soils

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