AMITY COLLEGE LEPPINGTON CAMPUS

PRELIMINARY CONSTRUCTION WASTE MANAGEMENT PLAN

16/05/19

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1. SUMMARY

This Preliminary Construction Waste Management Plan has been prepared by Gran Associates to accompany a State Significant Development Application for the Amity College Leppington Campus to be located at 85 Byron Road and No 63 Ingleburn Road at Leppington, comprising Lots 1 & 2 DP 525996 respectively. The proposal seeks to establish a new school (the project) on that part of the above property zoned SP2 Infrastructure (Educational Establishment), including roadworks on designated roads. The proposed new school will have a kindergarten, a 3-stream primary school and a 3-stream secondary school with a maximum capacity of 1,000 students ie. serving K-12 students.

The New South Wales State Environmental Planning Policy designates Leppington as part of the South West Priority Growth Area and land has been released for development, including low and medium density housing.

This preliminary construction waste management plan provides a preliminary outline of waste management strategies for the construction of the various stages of the school campus. A more detailed list of measures will be provided by the Head Contractor, once engaged.

A total of approximately 1,445 tonnes of waste has been estimated to be produced from construction activities.

During construction, wastes generated on the site would typically be managed and minimised by a combination of waste planning and on site controls. Waste planning would include designing buildings to minimise on site cutting of components, and maximising on site assembly tasks, careful ordering of materials such as sand and building products to match quantities with amounts required, and on time ordering rather than having materials stored on site for months before being used and segregating materials and providing weather protection for stored materials on site, to maximise their fitness for use.

On site controls will include developing and implementing a Construction Waste Management Plan, segregating wastes generated on site, using different skip bins for recycling and waste, with separate bins for different recyclable materials, ensuring all waste disposal bins are clearly marked, keeping records of quantities of waste and recycled materials disposed of, and the destinations of these materials and ensuring that wastes are only disposed of to licenced facilities.

The cut and fill assessment of the preliminary civil design for the site indicates that there will be approximately 300m3 of spoil to be disposed of. All soils excavated from site and surplus to requirements would be assessed, and deeper soils kept segregated from other material, to maximise the possibility that they can be disposed of as VENM. All contaminated waste will be disposed of in accordance with the Remediation Action Plan prepared by GeoEnviro and submitted as part of the EIS.

This waste management plan will consider the estimated waste volumes (based on student and staff numbers), waste collection and removal strategies, waste collection facilities and waste minimisation initiatives in order to develop an effective waste management system.

2. PROJECT DESCRIPTION

2.1 Description of the Works

The proposed development includes:

- Central administration, library, canteen and community facilities wing with Primary and secondary school wings
- Primary and Secondary multi-purpose halls
- Carparking
- Play field
- Primary play equipment area
- Primary and Secondary sports playgrounds
- Vegetable garden
- Landscaped areas
- Paved areas

Refer Appendix 1 – Site Plan

2.2 Project Construction Stages

The project is intended to be carried out in 8 stages to suit the school's growth over a projected ten year period. Refer Appendix 2 – Staging Plans.

Each stage will include aspects of the following:

2.2.1 Earthworks and site preparation
- Clearing of vegetation from site and disposal to licensed green waste facilities
- Establishing stormwater drainage systems to divert clean stormwater around cleared areas and construction zones
- Erosion and sediment controls to prevent sediments from leaving site
- Construction/adjustment of temporary berms to prevent excess stormwater run off to adjacent residential sites
- Establishing/adjusting internal site construction access roads, laydown areas and a dedicated construction management compound with temporary offices and site facilities
- Connecting temporary site services to the construction compound (Stage 1 only)
- Bulk earthworks to create the general levels for buildings and outdoor areas
- Stockpiling and conditioning of existing topsoils
- Site re-profiling including construction of retaining walls and batters to create building pads

2.2.2 Services
- Provision of services to the site including sewerage connection, water, gas, telecommunications

2.2.3 Buildings
- Excavations associated with building foundations and slabs
- Provision of below ground building services including plumbing and drainage
- Building slab construction
- Building framing

- Walls, windows and roofing
- Internal services (power, lighting)
- Internal fit out of buildings

2.2.4 Roadways – Stages 1,2, 3 & 5 only
- Laying stormwater drainage pipes and placing pits
- Constructing kerbs and gutters for roads
- Paving of carparks

2.2.5 Landscaping and external works
- Utilisation of stored topsoil for garden beds
- Planting
- Paving of pedestrian areas
- Play field construction
- Sports court construction
- Vegetable garden area construction

3. REQUIREMENTS

3.1 SEARs

The SEARs requirements for the EIS for waste management are addressed as follows:

Table 1 SEARs requirements

SEARs Requirements	Where addressed
19. Waste • *Identify, quantify and classify the likely waste streams to be generated during construction and operation and describe the measures to be implemented to manage, reuse, recycle and safely dispose of this waste.* • *Identify appropriate servicing arrangements (including but not limited to, waste management, loading zones, mechanical plant) for the site.*	Refer *** Refer also separate Contamination Assessment and Remedial Action Plan (RAP) prepared by GeoEnviro and submitted as part of this EIS. Refer Operational Waste Management Plan included in EIS

3.2 Requirements of Construction Waste Management Plan

Table 2 Construction Waste Management Plan

	Requirement	How/Where addressed
Demolition and construction	To ensure sufficient storage and collection of wastes and recyclables during demolition and construction stages of development	Demolition wastes – refer Section 4.1 Construction wastes – refer Section 4
Recycling	To minimise waste generation and disposal to landfill via use of the waste hierarchy and careful source separation, reuse and recycling	Refer Section 4
Storage areas	To ensure the provision of adequate and appropriate storage areas for waste and recyclables	Refer Section 4
Waste Management Plan	Best practice recycling and reuse of construction and demolition materials	Refer Section 4

	How recycled material, garbage and other waste generated by clearing, excavation and construction are to be stored and controlled	Refer Section 4.1 and 4
	The type and volume of waste expected to be generated during construction	Types of waste are addressed in Section 4

4. CONSTRUCTION AND DEMOLITION WASTES

4.1 Demolition Wastes

The site is to be cleared and made ready for earthworks and the site buildings and other items that existed on site prior to this project will be removed from the site by contractors in accordance Construction Certificate requirements. All asbestos containing materials (ACM) to be removed and disposed of in accordance with the RAP.

4.2 Construction Waste Generation

Waste that would typically be produced by construction works is as follows:

- Brick
- Waste mortar
- Concrete
- Asbestos sheeting (discussed above)
- Metals
- Timber
- Soil
- Paper and cardboard

The estimated weight of each construction component is based on tables produced by various councils in NSW. It is noted that Camden Council does not publish a comparative table. There is no accurate data for the estimation of waste for a school. However the Hills Shire (Hills Shire Council DCP 2012 Appendix A) publishes a table for the estimation of waste. We have used the Office block category as a basis for estimation of construction waste for a school.

Table 4 Construction Waste Estimate

Building Type	Waste Type							
	Green waste - trees (tonne)	Soil (tonne)	Timber (tonne)	Concrete (tonne)	Bricks (tonne)	Gyprock (tonne)	Metal (tonne)	Other (tonne)
Office Block per 1000m2	Not estimated	8.8	5.10	18.8	8.5	8.6	2.75	5.0

The development will involve the removal of approximately 400 trees and existing site vegetation. Although most of these trees will be mulched on site, it is envisaged that the mulch will be in excess of what is required for the development at each stage and so the green waste is estimated at approximately 25% of the weight of the mulched trees (360tonne x 0.25 = 90tonne)

Table 5 Estimated Construction Waste by Stage

Stage	Building Area	Waste Type							
		Green waste - trees (tonne)	Soil (tonne)	Timber (tonne)	Concrete (tonne)	Bricks (tonne)	Gyprock (tonne)	Metal (tonne)	Other (tonne)
Stage 1	650m2	22.5	50	0.3	1.2	-	-	1.5	0.3
Stage 2	1676m2	22.5	50	8.7	31.4	128.6	143.8	4.8	8.8
Stage 3	-	-	-	-	10.0	-	-	-	10.0
Stage 4	2420m2	22.5	-	12.3	45	20.6	20.8	12.2	12.1
Stage 5	3055m2	22.5	-	15.6	57.3	25.9	26.2	8.4	15.3
Stage 6	3840m2	-	150	19.6	72.2	32.6	33.0	10.6	19.2
Stage 7	2937m2	-	100	15.0	55.3	25.0	25.3	7.9	14.7
Stage 8	1027m2	-	-	5.3	19.4	11.1	8.9	2.8	5.2

This adds up to a total of 1,444.2 tonnes of waste estimated to be produced from construction activities.

4.3 Waste Handling Procedures and Site Responsibilities

During construction, wastes generated on the site would typically be managed and minimised by a combination of waste planning and on site controls.

4.3.1 Waste Planning

Waste planning activities would include:

- Designing buildings to minimise on site cutting of components, and maximising on-site assembly tasks
- Careful ordering of materials such as sand and building products to match quantities with amounts required, and on time ordering rather than having materials stored on site for months before being used
- Segregating materials and providing weather protection for stored materials on site, to maximise their fitness for use
- Bringing in material such as sand in large bags rather than as bulk loads, to enable excess materials to be easily picked up and used at other sites
- Encouraging bulk handling and use of reusable and returnable containers
- At the time of tendering, advise contractors and sub-contractors and suppliers of the
- requirements to minimise waste on site
- Include provision in the tender documentation for the client to monitor the use of waste and recycling bins on site

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- Development of a Construction Waste Management Plan by the main contractor, which includes all of the above elements

4.3.2 On-Site Controls

On site controls would include:

- Implementation by the main site contractor of a Construction Waste Management Plan
- Segregating wastes generated on site, using different skip bins for recycling and waste, with separate bins for different recyclable materials
- Discussion about the site's waste management and recycling policies and practices with employees and subcontractors during site inductions and tool box talks
- Ensuring all waste disposal bins are clearly marked
- Keeping records of quantities of waste and recycled materials disposed of, and the destinations of these materials
- Ensuring that wastes are only disposed of to licenced facilities

4.4 Soil

Spoil refers to fill and soil from surface clearing, excavation and site re-profiling. Bulk earthworks will be required at the site to create level platforms for construction. The preliminary civil design indicates that there will be a net fill requirement and therefore no waste spoils to dispose of.
However if soil is required to be removed from a site, it can possibly be used on other projects, if it is classified as Virgin Excavated Natural Material (VENM). However it needs to be certified to confirm that it is VENM. As this site was used for agricultural purposes, it is uncertain whether spoil from the site can be classified as VENM.
Where an excavated material cannot be classified as VENM, it may still be eligible for reuse under the NSW EPA excavated natural material order and exemption. However, excavated natural material (ENM) does not include material located in a contamination hotspot, material that has been processed; or that contains asbestos, Acid Sulfate Soils (ASS), Potential Acid Sulfate soils (PASS) or sulfidic ores. Refer also separate Contamination Assessment and Remedial Action Plan (RAP) prepared by GeoEnviro and submitted as part of this EIS.
Soils excavated from deeper areas that may not have been exposed to agricultural chemicals and surplus to requirements would be assessed for classification as VENM, and kept segregated from other shallow spoil, to maximise the possibility that they can be disposed of as VENM.

4.5 Metals

Small quantities of metals are expected to be generated during construction from trimming of roof sheets and other activities resulting from construction of items that cannot be prefabricated. A dedicated bin would be used for these offcuts, which would be collected by a metals recycler.

4.6 Concrete

Concrete waste would be generated during construction, in the form of excess concrete from site pours, and washout from concrete pumps and other equipment. Concrete waste would be scraped up from the ground and collected in a dedicated bin for transport to a licensed construction waste processing facility.

4.7 Wiring

Wiring offcuts would be generated during building fit out. This would either be disposed of with metal wastes, or separately. Small pieces may be disposed of with mixed wastes, if the quantities are not great enough to justify a separate bin, or they may be collected by the electrical contractor, for co-disposal with their other wastes (assuming they generate this type of waste frequently and can demonstrate that they have suitable recycling arrangements in place).

4.8 Timber

Timber pallets would be stacked on site and returned to the pallet suppliers for re-use. Where pallets are damaged and not suitable for re-use, or non-standard, they would be placed in a dedicated wood waste bin, and sent to a recycling facility for chipping or fuel production. If they are made of treated timer, and not suitable for re-use or fuel, they would be disposed of to a licenced waste facility.

4.9 Plastic

Various plastic wastes would be generated during construction. They would range from shrink wrap, to plastic ties and miscellaneous items. Plastics would be collected in a dedicated bin and transported to a licensed plastic waste reprocessing facility.

4.10 Plasterboard

Plasterboard offcuts and damaged sheets or part sheets would be generated during building fit out. Plasterboard will be collected by a licenced waste contractor and transported to a recycling facility or licenced disposal facility depending on its suitability for recycling.

4.11 Carpet/Underlay

Carpet and underlay offcuts would be generated during building fit out. Plasterboard will be collected by a licenced waste contractor and transported to a recycling facility or licenced disposal facility depending on its suitability for recycling.

4.12 Residual/Mixed

Residual and mixed wastes would be generated during construction works. This material is expected to consist of:

- Small quantities of food and drink
- Non recyclable packaging in which food and drink is sold or stored
- Packaging in which building material is delivered or stored
- Composite materials not able to be separated and
- Small quantities of miscellaneous waste generated during the construction process.

General waste would be collected by a licenced waste contractor and disposed of at a licensed waste disposal facility.