BARKER RYAN STEWART

Deicorp Projects (Showground) Pty Ltd

Construction Waste Management Plan

Approved Mixed Use Development – Early Works Stage (SSD 15882721)

2 Mandala Parade, Castle Hill

September 2022

ENGINEERING
PLANNING
SURVEYING
CERTIFICATION

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Checked	LW
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4	CC Final v2	08/09/2022	WMP revised for Construction Certificate

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This report is for development application purposes only and is not to be relied upon for construction purposes. The waste calculations included in the report are an estimate only, based on the plans and documents supplied by the client and waste generation guidelines from Council, the EPA and other third parties. This report is a guideline only and should not be used as a basis for feasibility studies, safety procedures, operational costs, demolition / construction estimates or bills of quantities. Should waste generation be higher than expected, the site manager shall make appropriate adjustments to accommodate additional waste. Any equipment recommended in this report shall be assessed by the supplier and site manager to determine it is fit for the intended purpose.

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Appendix A – Waste Plan

1 Author and Contact Details

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DEVELOPMENT DETAILS	
Project Details	Approved Doran Drive Mixed Use Precinct (SSD 15882721)
Address of Development	Lot 55 DP 1253217 located at 2 Mandala Parade, Castle Hill.
Existing Buildings and other structures currently on the site	The site is vacant.
Description of development	Approved mixed use development known as the Doran Drive Precinct incorporating 431 residential units, retail and commercial space and Doran Drive Plaza. Basement car parking will be provided to service proposed uses.

This development achieves the waste objectives set out in the DCP. The details on this form are the provisions and intentions for minimising waste relating to this project. All records demonstrating lawful disposal of waste will be retained and kept readily accessible for inspection by regulatory authorities such as council, OEH or WorkCover NSW.

Contact Name	Ben Miller
Signature	
Date	08/09/2021

2 Introduction and Legislative Requirements

Barker Ryan Stewart have been engaged by Deicorp Projects (Showground) Pty Ltd to prepare a Construction Waste Management Plan (CWMP) to address the State Significant Development Application approval of the Doran Drive mixed use precinct (SSD 15882721).

In collaboration with Landcom and Sydney Metro, Deicorp have made a commitment to divert ≥95% of construction waste away from landfill. As discussed in Section 3.1, this Construction Waste Management Plan has been prepared to enable contractors and site management to meet specific waste objectives, including those required to achieve Green Star Design As Built accreditation.

This CWMP has been prepared having regard for the specific waste management controls and objectives of The Hills Development Control Plan 2012 (DCP), where development applications are required to demonstrate consideration of the following:

a) *To maximise opportunities for re-use through source separation and on-site storage.*
b) *To minimise waste generation and maximise re-use and recycling*
c) *To minimise waste generation through design, material selection and building practices.*
d) *To ensure efficient storage and collection of waste and quality design of facilities.*

3 DA Approvals Conditions of Consent

Specific waste management requirements of Condition C28 (SSD 15882721) are addressed in Table 1 below.

Table 1: Condition Review (C28)

Condition Requirement	Comment
C28 – Construction Waste Management Sub-Plan *Prior to the commencement of any earthwork or construction, the Applicant must submit to the satisfaction of the Certifier a Construction Waste Management Sub-Plan for the development. The sub-plan must include, as a minimum, the following elements:*	
(a) require that all waste generated during the project is assessed, classified and managed in accordance with the EPA's "Waste Classification Guidelines Part 1: Classifying Waste";	Refer to Section 4.6 for waste classification guidelines.
(b) demonstrate that an appropriate area will be provided for the storage of bins and recycling containers and all waste and recyclable material generated by the works;	Location of waste bins is shown on the Plan provided in Appendix A.
(c) procedures for minimising the movement of waste material around the site and double handling;	Refer to Section 4.2 – Waste Strategy which identifies appropriate methods to prevent double handling.
(d) waste (including litter, debris or other matter) is not caused or permitted to enter any waterways;	The site is not located in proximity to any waterways. Notwithstanding, measures will be implemented to ensure waste is contained within designated waste bin enclosures throughout construction. Refer to Site Management Plan in Appendix A which identifies site fencing and waste storage areas.

Condition Requirement	Comment
(e) any vehicle used to transport waste or excavation spoil from the site is covered before leaving the premises;	Refer to Section 4.6 - Waste Avoidance and Reduction, which details waste vehicle measures.
(f) the wheels of any vehicle, trailer or mobilised plant leaving the site and cleaned of debris prior to leaving the premises;	Refer to Section 4.6 - Waste Avoidance and Reduction, for details of vehicle cleaning prior to exiting the site.
(g) details in relation to the transport of waste material around the site (on-site) and from the site, including (at a minimum):	
(i) a traffic plan showing transport routes within the site;	A Site Management Plan is provided in Appendix A detailing transport routes within the site.
(ii) a commitment to retain waste transport details for the life of the project to demonstrate compliance with the Protection of the Environment Operations Act 1997; and	Refer to Section 4.3 – Construction Waste Monitoring and Reporting. Management will be required to retain all waste transport details, including receipts and contract details, for the life of the project.
(iii) the name and address of each licensed facility that will receive waste from the site (if appropriate).	Refer to Section 4.7 – End Destination for Waste Streams.

4 Waste Avoidance and Reduction

4.1 Waste Strategy

DA approval requirements for construction waste have been reviewed and Barker Ryan Stewart confirm the construction of the proposed Doran Drive Precinct can meet the required objectives.

Contractors will be provided with a waste management module which outlines primary actions to manage waste and divert excess construction materials from landfill. To ensure the project will divert more than 95% of waste from landfill, the construction waste strategy will include:

- Utilise all suitable topsoil on site for landscaping purposes.
- All inert fill excavated from the site will be transported to approved development sites to be reused where additional inert fill is required.
- All waste identified with contaminants to be disposed at approved waste facilities.
- Information on the importance of early waste separation and in- situ characterisation of waste;
- Methods to enable identification of waste and construction materials;
- Appropriate instructions for documenting volumes of waste and methods of disposal;
- Site Manager field observations and audits designed to ensure that contractors are adhering to the construction waste strategy;
- Reduce stockpiling of waste where possible as it becomes difficult to characterise specific materials for recycling when certain materials cannot be visually identified;
- Specific waste characterisation areas should allow waste to be sorted in a safe environment away from immediate construction danger;
- Procedures to be prepared prior to construction for Site Managers or persons responsibility for site waste to undertake a final inspection of landfill waste to ensure the materials have been characterised correctly; and
- Procedure to be prepared for potential reuse of construction materials on site.

4.2 Green Star Design As Built

The proposed development will be undertaken in accordance with the Green Star - Design As Built rating tool to ensure the sustainable management of demolition and construction waste. Refer to discussion below in Table 2.

Table 2: Green Star Credit 22

Green Star Requirement	Comment
All waste contractors and waste processing facilities that provide waste management and reporting services to Green Star projects must either provide:	
22.0A Compliance Verification Summary A. Hold a 'Compliance Verification Summary' issued by a 'Suitably Qualified Auditor', confirming compliance with the Green Star Construction and Demolition Waste Reporting Criteria; or **22.0B Disclosure Statement** B. Where a 'Compliance Verification Summary' has not been obtained, complete a 'Disclosure Statement' outlining how much of the Green Star	Deicorp are responsible for ensuring that all waste contractors hold a 'Compliance Verification Summary' which confirms that waste reporting has been undertaken in accordance with Green Star requirements. If Compliance Verification Summaries are not obtained, Deicorp are responsible for ensuring that waste contractors complete a Disclosure Statement in accordance with Green Star As Built objectives.

Green Star Requirement	Comment
Construction and Demolition Waste Reporting Criteria has been implemented.	
22.1 A Percentage Benchmark 1 point is awarded where 90% of the waste generated during construction and demolition waste has been diverted from landfill. Waste shall be reported in kg/m^2 GFA	This Construction Waste Management Plan confirms that opportunities are available to achieve the benchmark waste diversion percentage of 90%.

4.3 Construction Waste Monitoring and Reporting

Documentation of construction waste generation totals, methods of removal and on site reuse, off site reuse, off site recycling and off-site disposal should be maintained by contractors to ensure waste targets are achieved and documented in accordance with Green Star sustainability rating system. Where possible, Site Managers should be responsible for the preparation of monthly reporting to ensure waste objectives are being met.

A Waste Register is to be kept by all contractors documenting the following:

- Type of waste;
- Total tonnage and volume of waste;
- Category of waste (recycling, reuse, landfill);
- Destination for reuse, recycling or landfill; and
- Landfill and waste contractor receipts.

Any non-conformances throughout construction should be identified immediately and Site Managers should undertake any actions required to prevent the issue reoccurring.

4.4 Excavation Waste Reuse

The proposal will require the excavation of approximately159,380m^3 of material to facilitate construction. To ensure that more than 95% of excavation material is diverted from landfill, all inert material excavated from the site will be transported to local development sites requiring extra fill.

Any topsoil will remain on site for use in landscaping with remaining topsoil transported to nearby development sites. Details of nearby development sites will be provided prior to excavation of the material.

4.5 Roles and Responsibilities

Table 3 identifies typical roles and responsibilities associated with contractor waste disposal in large construction sites. Note roles and responsibilities will be assigned by the contractor and the following information is provided as a guide only.

Table 3: Typical Waste Roles and Responsibilities

Role	Typical Responsibility
Site Management or Waste Managers	Responsible for the meeting of all waste objectives within the site area including monitoring, reporting and delegating of tasks where required to ensure at least 95% of waste is to be diverted from landfill.
Construction personnel	Responsible for daily waste characterisation and maintenance to ensure waste objectives are being met. Construction personnel should be

Role	Typical Responsibility
	educated on the requirement of the waste strategy and any impacts associated with
WHS Managers	Typically responsible for management of site safety and induction of all workers prior to construction. This may include discussion of the waste management strategy and hierarchy associated with waste disposal on and off the site.
External Waste Contractors	Responsible for the collection and disposal of waste to recycling facilities or landfill. External waste contractors should report to the Site Managers or Waste Managers to ensure the waste strategy is being adopted and documentation of waste leaving the site is prepared.

4.6 Waste Avoidance and Reduction Methods

- All fixtures and fittings will be made to measure wherever possible;
- All materials will be ordered in accordance with a bill of quantities;
- Recycled materials will be utilised on site or on nearby sites where ever possible to reduce transport costs and impacts to the environment;
- Measures will be taken to ensure the construction contractor is aware of the waste management procedures and adheres to appropriate guidelines;
- Salvage materials for recycling and reuse during the construction process;
- The remaining waste to be transported to a recognised builders recycling yard or waste facility;
- All waste vehicles must ensure that loads, including dirt and general, recycling or metal waste, will be covered prior to leaving the site. Site Management is tasked with the responsibility of ensuring all waste loads are covered.
- The wheels of all vehicles must be hosed down or cleaned of debris prior to exiting the site. This should occur in locations identified for vehicle entry/ exit on the approved Site Management Plans.

4.7 End Destination for Waste Streams

Per requirements of the green star credit system, see below details of the Construction Waste Management contractor that is to be engaged to undertake construction waste removal from the site.

Cheap and Quick Waste Bins Pty Ltd.
25 - 27 Governor Macquarie Drive
Chipping Norton NSW 2170

The waste contractor will utilise the below end destination for all recyclable materials.

KLF Holdings Pty Ltd
16 Grande Avenue
Camelia NSW 2142

Landfill products will be transported to SUEZ at Kemps Creek.

4.8 Waste Classification Measures

The NSW EPA Waste Classification Guidelines provided in Figure 1 should be adhered to during the entire construction life cycle. It is the responsibility of Site Management to initiate waste classification with contractors in accordance with the EPA Guidelines.

Given demolition is not required and construction waste will generally fall within the general waste or recycling categories, suitable areas have been designated for waste storage to eliminate double handling of waste. Stockpiles should be avoided, and Site Management are to be tasked with undertaking initial waste classification to determine the immediate location for all construction waste. All waste areas should have general and recycling waste bins available to ensure that waste will not be transported unnecessarily around the site.

Refer to waste locations in Appendix A for further information.

4.9 Waste Recovery Rate

The Green Star Construction & Demolition Waste Reporting Criteria maintains that a waste processing facility's diversion of waste for recovery is limited to 50% of the facility's total input as follows:

> *This 50 percent cap is based on the GBCA's position that energy recovery from construction and demolition waste streams is not an acceptable substitution for recycling in its own right, but rather a complementary management solution for wastes that would otherwise go to landfill. As a consequence, waste processing facilities that divert waste streams for the production of nonstandard fuels for waste-to-energy purposes should not rely on this waste diversion pathway for the majority of their recycling output.*

It is therefore considered that the maximum waste recovery rate achievable for the proposed development is 50% of recycled waste generation calculations provided in Table 4.

Step 1

Establish if the waste is classified as special waste.

Step 2

If the waste is not classified as special waste, establish whether the waste is classified as liquid waste.

Step 3

If the waste is not classified as special waste or liquid waste, establish whether the waste is of a type that is 'pre-classified'.

To simplify the classification process, a number of commonly generated wastes have been pre-classified as either hazardous, restricted solid, general solid waste (putrescible) or general solid waste (non-putrescible) in the waste classification definition section of Schedule 1 of the ***Protection of the Environment Operations Act 1997*** (POEO Act).

Step 4

If the waste is not classified as special waste, liquid waste or pre-classified (as set out in Step 3), establish if the waste has certain hazardous characteristics and therefore is classified as hazardous waste.

These hazardous characteristics are set out in the definition of 'hazardous waste' in Schedule 1 of the POEO Act, and in Step 4 of Part 1 of the Guidelines.

Step 5

If the waste has not been classified after Steps 1 to 4, it should be chemically assessed to determine whether it is hazardous, restricted solid or general solid waste (putrescible or non-putrescible). If the waste has not been classified after Steps 1 to 4 and is not chemically assessed under Step 5, it must be classified as hazardous waste.

Step 6

If the waste is chemically assessed under Step 5 as general solid waste, a further assessment is available to determine whether the waste is general solid waste putrescible or non-putrescible. The assessment determines whether the waste is capable of significant biological transformation. If the waste is classified as general solid waste under Step 5 and this assessment is not undertaken, it must be classified as general solid waste (putrescible).

Figure 1: Extract from NSW EPA Waste Classification Guidelines

5 Demolition

The site is vacant and demolition is not required.

6 Construction

6.1 Waste Generation

Table 4 identifies expected waste generation during construction. Note volume to mass calculations for construction waste have been guided by the Green Star Reduction of Construction and Demolition Waste document which provides a conversion factors table used to convert measurement of waste types from volume to weight.

Note excavation waste has been excluded from green start diversion percentages in accordance with *Green Star Design & As Built v1.3*.

Table 4: Expected Construction Waste Generation

TYPE OF WASTE GENERATED	REUSE	RECYCLE	DISPOSAL	MASS	COMMENT
	Estimate Volume (m^3)	**Estimate Volume (m^3)**	**Estimate Volume (m^3)**	**Estimate Mass (Tonnes)**	**Specify method of on-site reuse, contractor and recycling outlet and/or waste depot to be used**
Excavation material	159,380m^3	-	-	-	Excavated materials will be reused as fill on this site or other developments.
Timber (Side façade / dressed)	31m^3	35.7m^3	-	20.01 tonnes	Reused on site or transferred to waste recycling facility.
Gyprock / Cladding	29m^3	33.7m^3	-	13.74 tonnes	Reused on site or transferred to waste recycling facility.
Concrete	11.1m^3	6.4m^3	-	26.25 tonnes	Any excess concrete will be retained in the truck and used elsewhere or if required will be transferred to a waste recycling facility.
Masonry (Hebel Block/ cement sheeting/ Pavers)	19m^3	23.5m^3	-	51 tonnes	Reused on site or transferred to waste recycling facility.
Tiles (roof)	N/A	N/A	N/A	N/A	No roof tiles will be used in the development.
Metal (roofing / framing / façade)	14m^3	16m^3	-	27 tonnes	Reused on site or transferred to waste recycling facility.
Glass	N/A	N/A	N/A	N/A	All glass will be made to order.
Furniture	N/A	N/A	N/A	N/A	Not furniture waste at construction stage.

TYPE OF WASTE GENERATED	REUSE	RECYCLE	DISPOSAL	MASS	COMMENT
	Estimate Volume (m^3)	Estimate Volume (m^3)	Estimate Volume (m^3)	Estimate Mass (Tonnes)	Specify method of on-site reuse, contractor and recycling outlet and/or waste depot to be used
Fixtures / fittings	11.2m^3	8.5m^3	-	5.91 tonnes	Fixtures will generally be made to order. Any excess will be reused or transferred to waste recycling facility.
Floor coverings	14m^3	28.3m^3	-	12.69 tonnes	Reused on site or transferred to waste recycling facility.
Packaging (used pallets / pallet wrap)	49m^3	27.4m^3	4.5m^3	24.27 tonnes	Pallets will be reused by delivery contractors or transferred to a Material Recovery Facility. Wrap and packaging will be a transferred to waste recycling or waste management facility.
Garden organics	12.6m^3	13m^3	-	3.84 tonnes	Organics will be ordered to size in accordance with the quantity survey. Any excess will be returned to provider, reused on site or another development site or transferred to a waste recycling facility.
Containers (cans / plastic / glass)	-	24.5m^3	-	0.24 tonnes	Containers will be a transferred to a waste recycling facility.
Paper / cardboard	-	39.1m^3	-	3.91 tonnes	Transferred to waste recycling facility.
Residual waste		107.5m^3	26m^3	94.5 tonnes	Residual waste will be sorted and transferred to a waste recycling facility or waste management facility as required.
Hazardous / special waste (specify)	N/A	N/A	N/A	N/A	No hazardous materials will be utilised in the construction.
TOTAL	**190.9m^3 (excluding excavation amount)**	**363.6m^3**	**30.5m^3**	**283.36 tonnes (excluding excavation amount)**	

6.2 Meeting Waste Targets

Based on the above figures and without taking into account significant reuse of excavation materials, our estimates conclude that approximately 95.4% of construction waste can be recycled or reused and diverted from land fill.

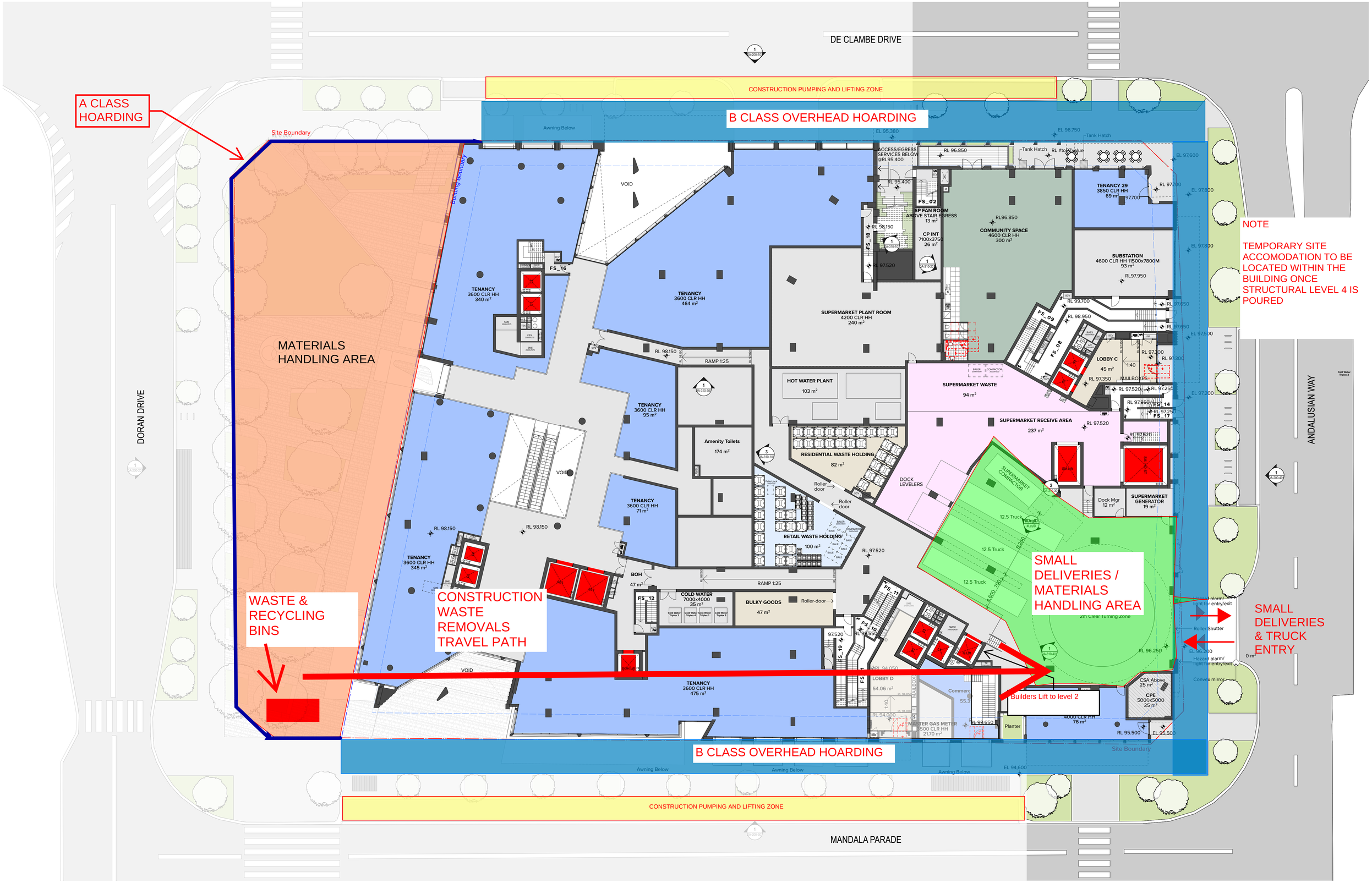
7 Conclusion

This Construction Waste Management Plan (CWMP) has been prepared to guide waste management processes associated with the proposed mixed use development. The revised CWMP has been prepared to address Condition C28 of SSD 15882721.

The quantity of waste materials to be generated onsite are estimates based on the information provided. It is estimated that approximately 95.4% of construction waste can be reused or recycled and diverted from landfill in accordance with Green Star As Built objectives.

Site management are responsible for proactive waste protocols during the construction phase to ensure that > 95% waste is diverted from landfill.

Appendix A – Waste Plan



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MATERIALS HANDLING PLAN
STAGE 1&2 WORKS

Rev	Date	Approved by	Revision Notes
01	07.06.21	JMC	Draft DA for Review
02	25.06.21	JMC	Retail Update
03	06.07.21	JMC	DA Submission

Project Title
Doran Drive
Doran Drive, Castle Hill Castle Hill NSW 2154 Australia

Drawing Title
GA PLANS
Level 01

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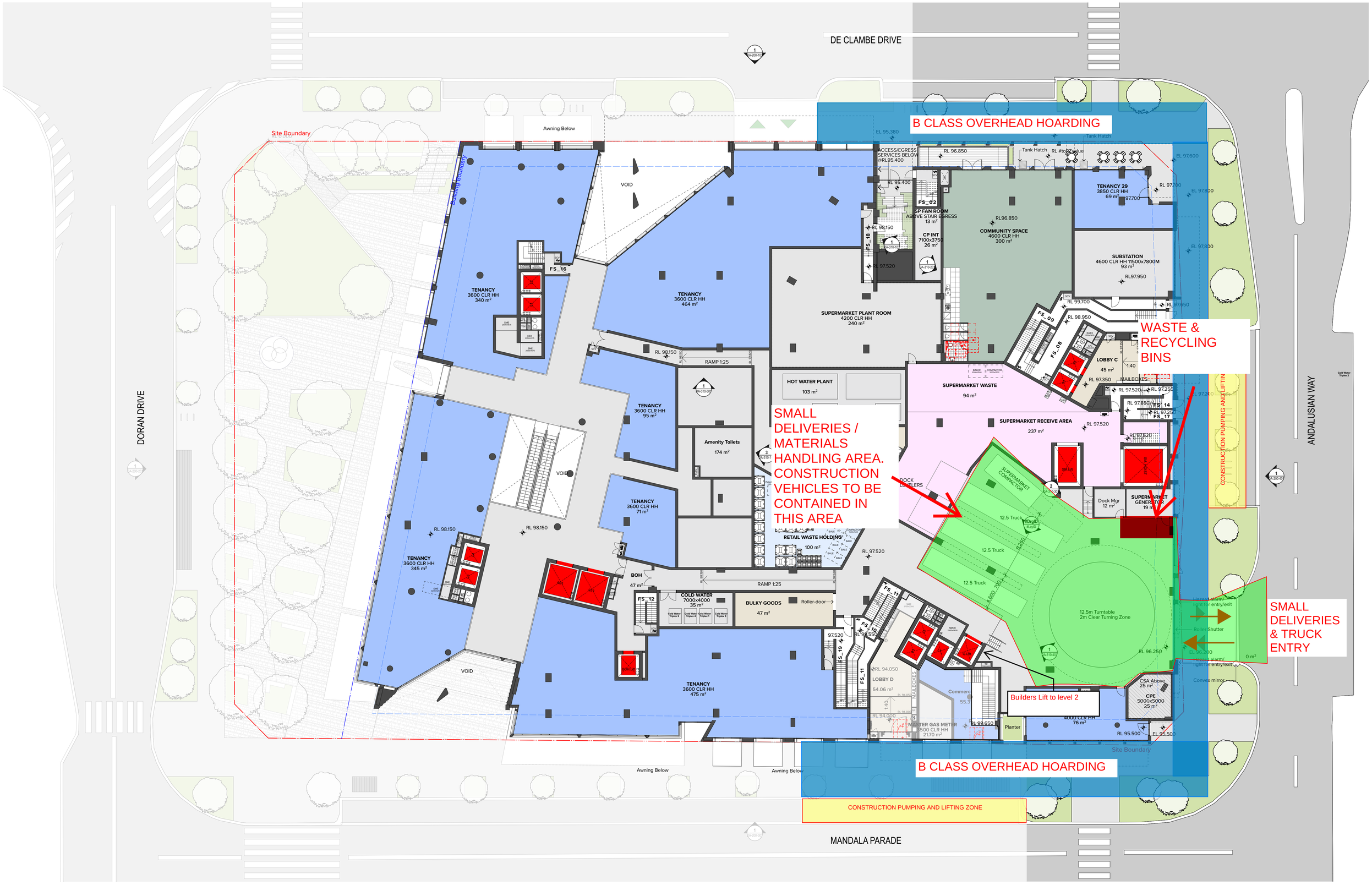

NOTES

DLCS Quality Endorsed Company ISO 9001:2015, Registration Number 20476
Nominated Architect: Nicholas Turner 6695, ABN 86 064 084 911

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MATERIALS HANDLING PLAN
STAGE 3 WORKS

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01	07.06.21	JMC	Draft DA for Review
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