

THE INNOVATION HUB + SCHOOL OF CREATIVE INDUSTRIES

The University of Newcastle, Honeysuckle

SERVICING AND WASTE REPORT

15th July 2019 (Rev.B)



SERVICING AND WASTE

Identify, quantify and classify the likely waste streams to be generated during construction and operation.

The measures implemented to manage, reuse, recycle and safely dispose of this waste.

Identify appropriate servicing arrangements for the site.

Introduction

Existing Environment

The proposal includes a new tertiary education teaching and workspace facility. Waste creation and management will be associated with future use of the building.

The University's Environmental Sustainability Plan 2015-2017 and associated targets seek to reduce waste to landfill 40% per capita by 2020 from a 2007 baseline (University of Newcastle, 2015).

Potential Impact

Demolition Waste

The existing site is brownfield site and is clear of any structures. As a result, there is no demolition waste.

Construction Waste

Construction waste will include the following:

- General waste (food scraps, wrappings etc.)
- Concrete slurry
- Steel
- Packaging
- Pipe offcuts
- Timber
- General construction materials.

When the relevant building contractor is appointed, they will be required to prepare a Construction Management Plan which will include various operational components of construction, including Waste Minimisation and Management. Throughout construction, waste will be carefully managed to minimise potential impacts on adjoining areas. The exact location of the construction waste management area will be determined through the construction phase.

The University utilises an ecologically sustainable development tool for projects which was completed and provided to the design team. The ecologically sustainable development commitments include waste diversion and photovoltaic solar to be utilised on the project.

The building design has been developed to minimise on site waste. The CLT structure will be prefabricated and assembled on site. Similarly, the curtain wall glazed façade and precast concrete panel elements will be prefabricated off site. The roof has been specified as metal sheet which will also arrive on site pre-cut to fit in place.

Operational Waste

An Operational Management Plan, including waste management, will be developed prior to occupation of the building. The building will accommodate up to 400 persons at varying times through the day. Occupants range from students through to staff, who will generate a range of waste from paper.

The University of Newcastle has developed an ESD Tool with minimum requirements and potential innovations, which will be complied with as part of the Bioresources Facility design. The ESD commitments include waste diversion from landfill and recovery of waste streams.

An Operational Management Plan, including waste management, will be developed prior to occupation of the building. The strategy adopted through the spatial briefing of the project is a series of multi sort bins located strategically throughout the buildings based on *Waste and Recycling Demand Analysis* including floor populations which can be emptied when required

into a series of larger bins located in a dedicated central waste store located on ground floor. The central store has been located to allow ease of removal by service vehicles.

Waste and Recycling Demand Analysis

This following provides an analysis of planned waste management and recycling practices for the University of Newcastle's HCCD Site 1A project. The Report shows projected waste and recycling generation, based on functional area sizes and expected usage and follows with an operational waste management plan, detailing recycling/waste management procedures, bin requirements, and collection/storage arrangements. The last section of the Report details the project's compliance with the relevant components of the City of Newcastle's Waste Management Technical Manual 2012. Site plans are attached showing the location of the waste and recycling area, the positions of storage containers within this area, and movement pathways for waste materials.

Terminology

For the purpose of this report, the following terminology has been used:

- Cardboard: Non-waxed cardboard packaging
- Commingled Recycling: Mixed glass, metal, and plastic containers, soft plastics, polystyrene
- Food Organics: Compostable food waste from the Ground Floor food retailer, and office areas

Waste and Recycling Generation

Calculations of waste and recycling generation are based on the following area schedule for the area bounded by the Green Star project only:

Projected

Area/Activity	GFA m2	Expected Waste/Recycling Streams
Office Accommodation	540	Paper, cardboard, commingled recyclables, food organics, landfill
Informal Learning	440	Paper, cardboard, commingled recyclables, landfill
Formal Teaching Spaces	542	Paper, cardboard, commingled recyclables, food organics, landfill
Public/Shared	300	Paper, cardboard, commingled recyclables, food organics, landfill
Ancillary	325	Paper, cardboard, landfill

Projected waste quantities are based on the above floor areas and the functional areas shown in the tables below, using standard waste generation rates recorded at similar facilities. Each area will produce landfill waste and recycling at varying rates based on the activities carried out. Where projected daily volumes are <10 litres, no allowance has been made for separate collection of that particular stream (e.g. food organics from informal learning and formal teaching spaces).

Office Accommodation	Total Floor Area m2	400
Waste/Recycling Stream	Daily Litres/m2	Daily Litres Total
Paper & Cardboard Recycling	0.1	40
Commingled Recycling	0.05	20
Organic Recycling	0.025	10
Non-Recyclable/Landfill	0.1	54
Informal Learning	Total Floor Area m2	440
Waste/Recycling Stream	Daily Litres/m2	Daily Litres Total
Paper & Cardboard Recycling	0.08	35.2
Commingled Recycling	0.018	7.92
Non-Recyclable/Landfill	0.3	132
Formal Learning	Total Floor Area m2	542
Waste/Recycling Stream	Daily Litres/m2	Daily Litres Total
Paper & Cardboard Recycling	0.05	27.1
Commingled Recycling	0.009	4.878

Non-Recyclable/Landfill	0.04	21.68
Public Spaces	Total Floor Area m2	300
Waste/Recycling Stream	Daily Litres/m2	Daily Litres Total
Paper & Cardboard Recycling	0.1	30
Commingled Recycling	0.15	45
Organic Recycling	0.2	60
Non-Recyclable/Landfill	0.3	90
Ancillary	Total Floor Area m2	325
Waste/Recycling Stream	Daily Litres/m2	Daily Litres Total
Paper & Cardboard Recycling	0.0375	12.1875
Commingled Recycling	0.013	4.225
Organic Recycling	0.01	3.25
Non-Recyclable/Landfill	0.033	10.725
Summary – Total Waste and Recycling		
Waste/Recycling Stream	Daily Volume (Litres)	% Total Waste
Paper & Cardboard Recycling	144.485	27%
Commingled Recycling	82.023	15%
Organic Recycling	73.25	14%
Non-Recyclable/Landfill	232.725	44%
Total	532.483	

These volumes are based on the floor areas and expected usage profiles provided; any changes to these would result in variations to the projected waste and recycling volumes.

Storage Requirements

The following table shows expected container and storage space requirements for the facility's waste and recycling streams. Recommended bin numbers and floor area requirements include additional bins to handle waste and recyclables from special events and functions. Calculations of bin dimensions are based on the specifications in the Department of Environment and Climate Change NSW's Better Practice Guide for Waste Management in Multi-Unit Dwellings 2008, Appendix B. In calculating the required floor area, allowance has been made for maintaining space between bins to facilitate safe handling and storage.

Waste/Recycling Stream	Litres/Day	Bin Size Litres	Footprint m2 /Bin	No. Bins	Collection Frequency	Floor Area m2
Paper & Cardboard Recycling	144.485	720	1.0	1	All 1 x weekly	1
Commingled Recycling	82.023	720	1.0	1	All 1 x weekly	1
Organic Recycling	73.25	720	1.0	1	All 1 x weekly	1
Non-Recyclable/Landfill	232.725	720	1.0	2	All 1 x weekly	2
Total Storage Space Required for Recycled Waste					3.0m2	
Total Storage Space Required for Landfill Waste					2.0m2	
Total Storage Space Required for All Waste Streams					5.0m2	
Total Available Space in Storage Area (including circulation)					15.0m2	

Based on the current building plans, we conclude that there is adequate space within the designated waste and recycling room for storage of the facility's waste and recyclables.

Waste and recycling will be collected by cleaners on each floor and brought down, via the lifts, to the waste and recycling storage room. This area is directly accessible from the lift, with no steps or gradient changes. The route to the waste and recycling storage room for transportation of materials from within the building is a clearly marked, signposted, convenient and guaranteed access pathway.

Attached marked up floor plans show bin configurations within the waste and recycling storage area, and movement pathways from this area to the collection point on the building's south side where the waste contractor(s) will load general waste and recyclables onto their vehicles.

The following section of this report provides a detailed operational management plan for all waste and recycling streams.

Waste Management Plan

Waste and Recycling Systems

For office areas, it is recommended a single paper recycling bin per desk, with commingled recycling and landfill bins located in designated central areas per floor. This system leads to higher recycling rates than having separate landfill and paper recycling bins at each desk.

Materials such as printer cartridges, batteries, and e-waste (computers, printers, electrical items etc.) will be managed by the University's standard procedures.

The mobile café cart on Ground Level will generate compostable food waste, in addition to commingled recyclables and landfill waste. More detailed planning should be done closer to the time of occupancy once exact staffing levels and usage requirements are known.

Recycling Containers

The 60 litre bins shown below are from Source Separation Systems and are suitable for use within the facility to facilitate effective separation and recycling.

A four-bin configuration is shown in figure 1, with the lid colours corresponding to the following waste/recycling streams, and can be located strategically throughout the building to maximise their usage:

- Red – Landfill
- Yellow – Commingled Recycling
- Blue – Paper/Cardboard
- Green – Organics



Figure 1.

Collection and Storage

Recommended practices are as follows. Movement pathways, and locations of landfill and recycling bins within the building, are shown on the attached building plans.

Stream	Procedures
General	Cleaners empty internal bins, bring separated materials to storage room, and transfer waste and recyclables to designated bins

Landfill Waste	Cleaners bring landfill waste from public, offices, library, learning, and teaching areas to storage room Café staff bring materials to storage area (unless this is done by cleaners)
Paper & Cardboard Recycling	Large cardboard boxes will be flattened Recyclable materials are placed loose in bins (i.e. emptied from bags)
Commingled Recycling	Cafe staff bring material to storage room and transfer to bins Recyclable materials are placed loose in bins (i.e. emptied from bags)
Food Organics Recycling	Cafe staff bring material to storage room and transfer to bins Recyclable materials are placed loose in bins (i.e. emptied from bags)

All waste and recyclables will be collected from the storage room on ground level. Loading into collection vehicles will take place externally in the area outside the storage room's roller door in the area shown on the attached building plan.

Program Implementation

To ensure the coordinated implementation of an effective waste management and recycling program across the entire facility, the following measures are critical:

- Provide all permanent facility users with written recycling instructions, as well as posters, signage, and other educational materials
- Train cleaning staff in maintaining effective separation of recycling and landfill streams
- Place clear signage with large scale print and graphics above bin clusters (at eye level) in office and public areas
- Fix metal or plastic signs to the wall of the waste and recycling storage area
- Conduct frequent spot checks and audits during the first month of program implementation
- Perform ongoing waste audits and visual assessments, and report results to all stakeholders

Compliance with Council Requirements

The table below details the facility's compliance with the relevant requirements of the City of Newcastle's Waste Management Technical Manual (June 2012), Appendix C, Part C Points 5-12.

Ref.	Requirement	Comment/Compliance Statement
5.	Will the development generate any waste as a result of its proposed use?	Yes
6.	Detail the types of operating waste expected to be generated by the development. Provide details of onsite storage/treatment facilities and destination of waste	Expected waste and recycling types and quantities are detailed in Section 2 of this report. Onsite storage facilities are marked on the attached building plans All waste and recycling streams will be collected by commercial contractors.
7.	N/A	N/A
8.	Provide details of how estimated waste quantities have been calculated	As stated in this Report, these have been calculated with reference to similar projects.
9.	Have the locations of waste management facilities been indicated on development plans?	A floor plan of the development's waste management facility has been provided showing its location on the ground floor.
10.	Where necessary, have administrative arrangements for ongoing waste management been made?	As stated above, all waste and recycling streams will be collected by commercial contractors.
11.	Is easy access to the recycling area provided for occupants and collection services?	Yes
12.	Is a sufficiently sized waste collection area provided?	Yes

Based on the above, the development meets Council's ongoing waste management requirements as detailed in the relevant document.

CONCLUSION

The proposed design for the Innovation HUB/SOCI project is a contemporary highly flexible building for creation and innovation that is grounded in the Indigenous and European culture of the City of Newcastle. A building that respects its place and creates a better environment within the context of the Honeysuckle Precinct. The design will create a gateway and landmark for the new City Campus of the University of Newcastle.

The Schematic Design is the development of a series of ideas developed in isolation during the Design Competition and it has been the iterative process to date with the client and GA Panel that has generated and refined enhanced the translation of those ideas into a Schematic Design.

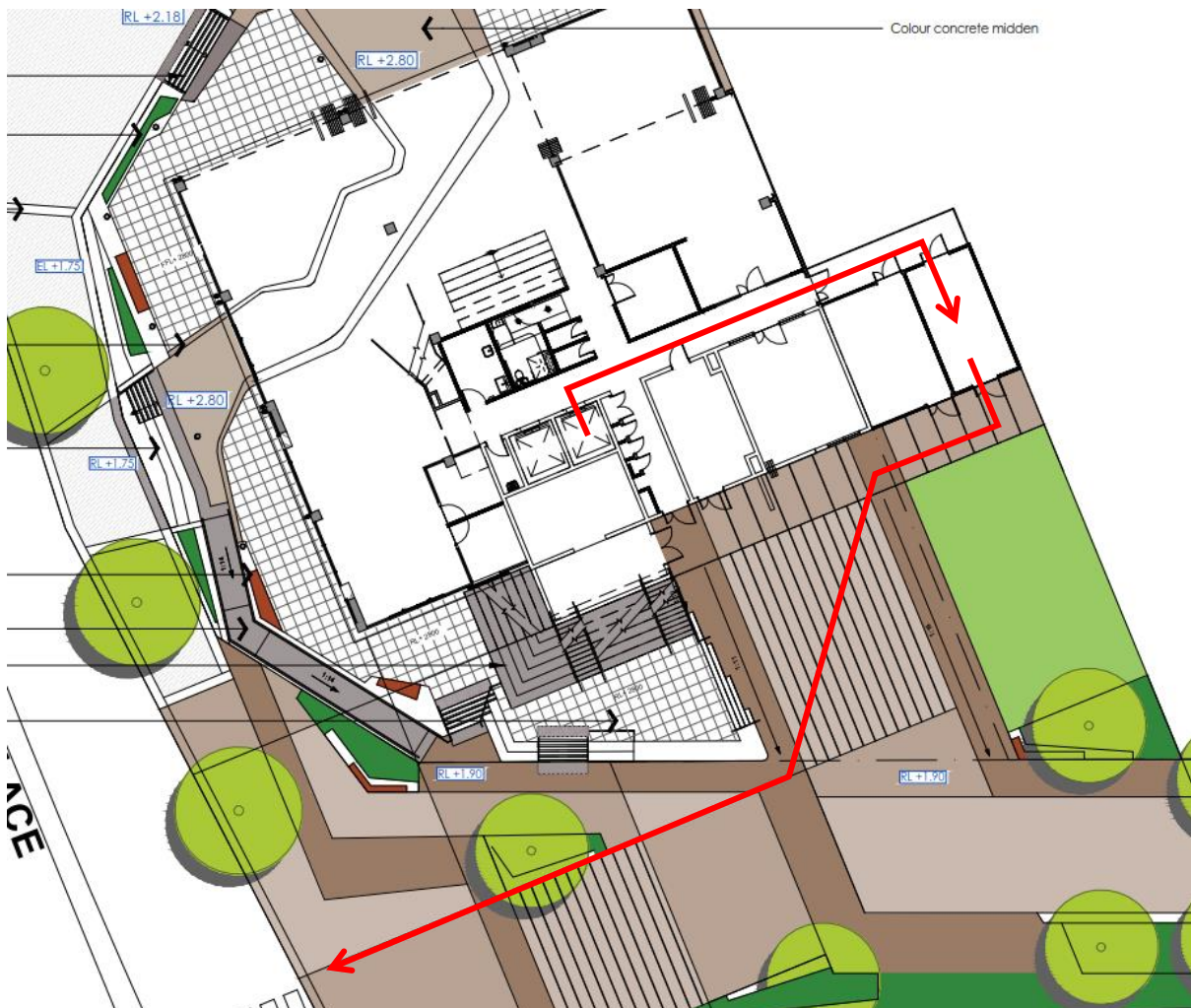
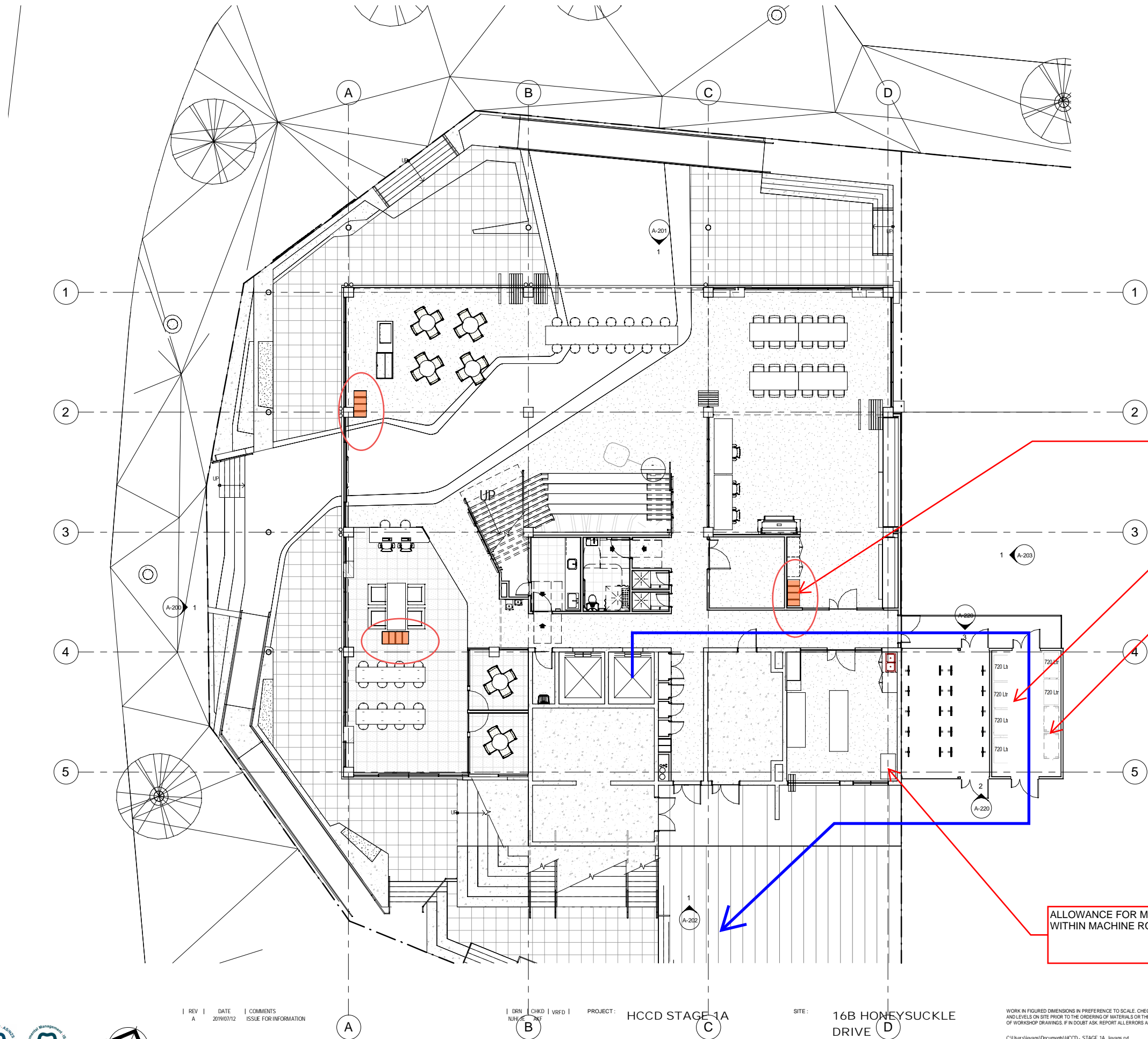


Fig.2 Waste removal pathway from lifts via central waste room

Appendix A

Servicing and Waste **Allocations**



3X SET OF 4X 60Ltr SOURCE SEPERATION PER FLOOR

1x 720Ltr FULLY COMINGLED RE-CYCLING
2x 720Ltr GENERAL WASTE
1X 720Ltr GREEN WASTE
1X 720Ltr PAPER AND CARDBOARD

ROOM ALLOWANCE FOR AN ADDITIONAL
2X 720Ltr BINS IF DESIRED

ALLOWANCE FOR MAKERSPACE WASTE
WITHIN MACHINE ROOM

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REV	DATE	COMMENTS
A	20/07/12	ISSUE FOR INFORMATION

DRN	CHKD	VRFD
NHJ	AK	

PROJECT: HCCD STAGE 1A

CLIENT: UNIVERSITY OF NEWCASTLE

SITE: 16B HONEYSUCKLE DRIVE
NEWCASTLE, NSW, 2300

DRAWING: GROUND FLOOR SETOUT PLAN

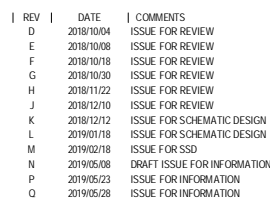
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		1: 200 @ A3

PROJECT No:	PHASE:	DRAWING No:	REV:
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CLIENT: UNIVERSITY OF
NEWCASTLE

DRAWING: LEVEL 1 PLAN

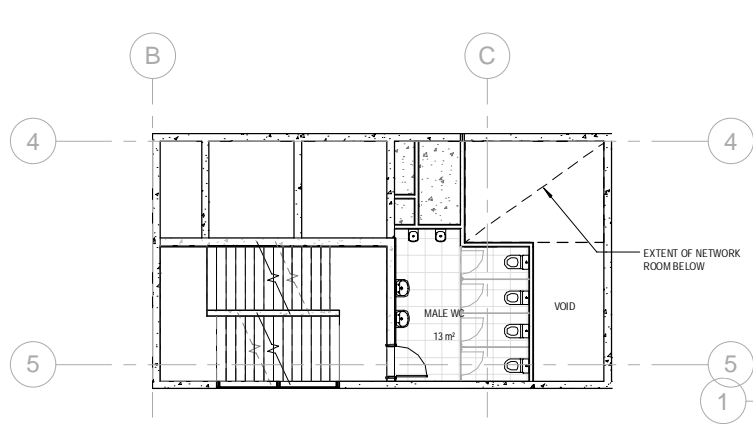
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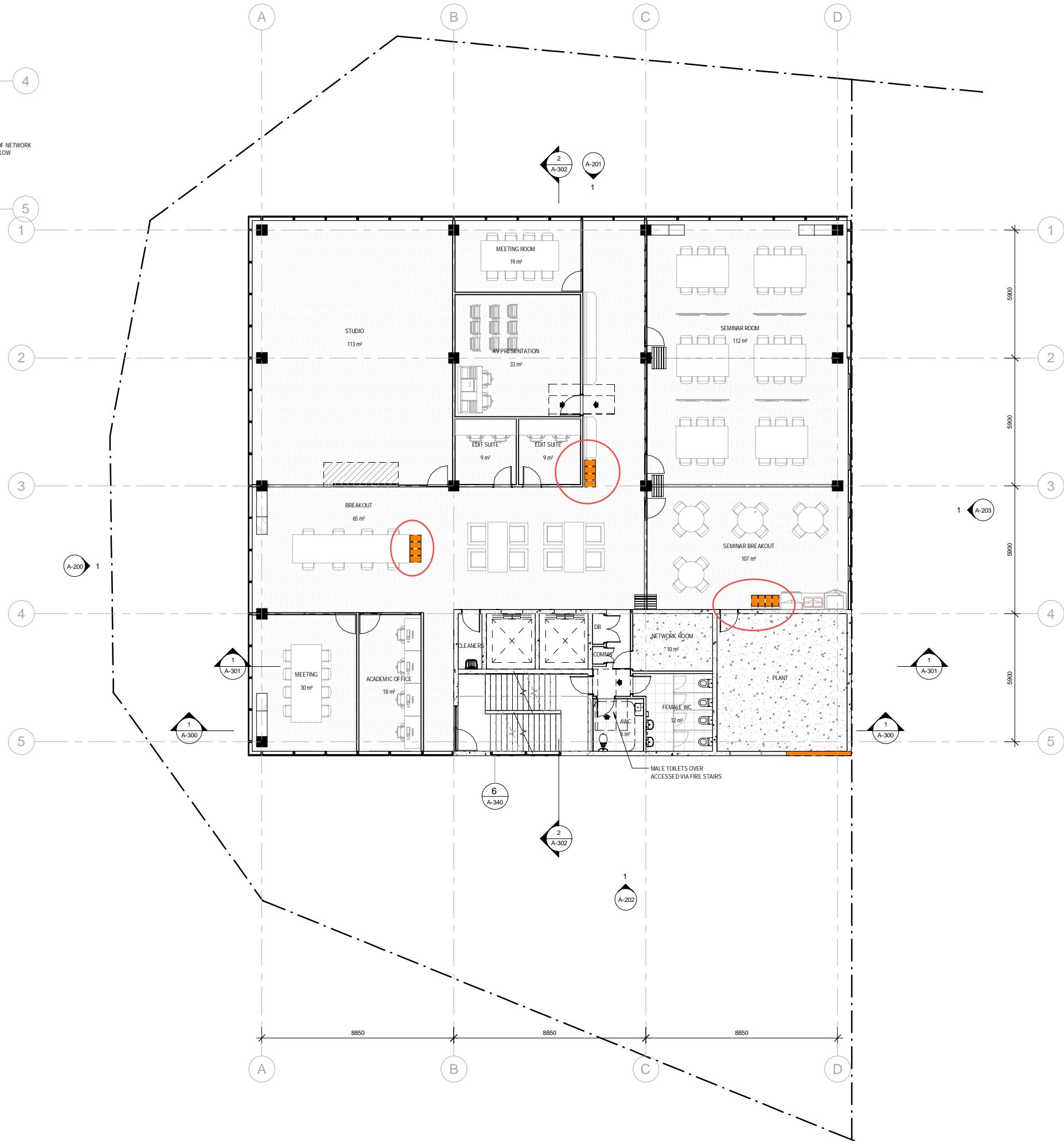
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11749	SD	A-101	Q





2 LEVEL 2 MEZZANINE - MALE W/C
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E	2018/10/08	ISSUE FOR REVIEW
F	2018/10/18	ISSUE FOR REVIEW
G	2018/10/30	ISSUE FOR REVIEW
H	2018/11/22	ISSUE FOR REVIEW
J	2018/12/10	ISSUE FOR REVIEW
K	2018/12/12	ISSUE FOR SCHEMATIC DESIGN
L	2019/01/18	ISSUE FOR SCHEMATIC DESIGN
M	2019/02/18	ISSUE FOR SSD
N	2019/05/08	DRAFT ISSUE FOR INFORMATION
P	2019/05/23	ISSUE FOR INFORMATION
Q	2019/05/28	ISSUE FOR INFORMATION

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JE	AKF	
JE	AKF	
JE	AKF	
JE	AKF	
JE	AKF	
NJH	AKF	
JE	AKF	
JE	AKF	
JE	AKF	
JE	AKF	

PROJECT: HCCD STAGE 1A

CLIENT: UNIVERSITY OF
NEWCASTLE

SITE: 16B HONEYSUCKLE
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NEWCASTLE, NSW, 2300

DRAWING: LEVEL 2 PLAN

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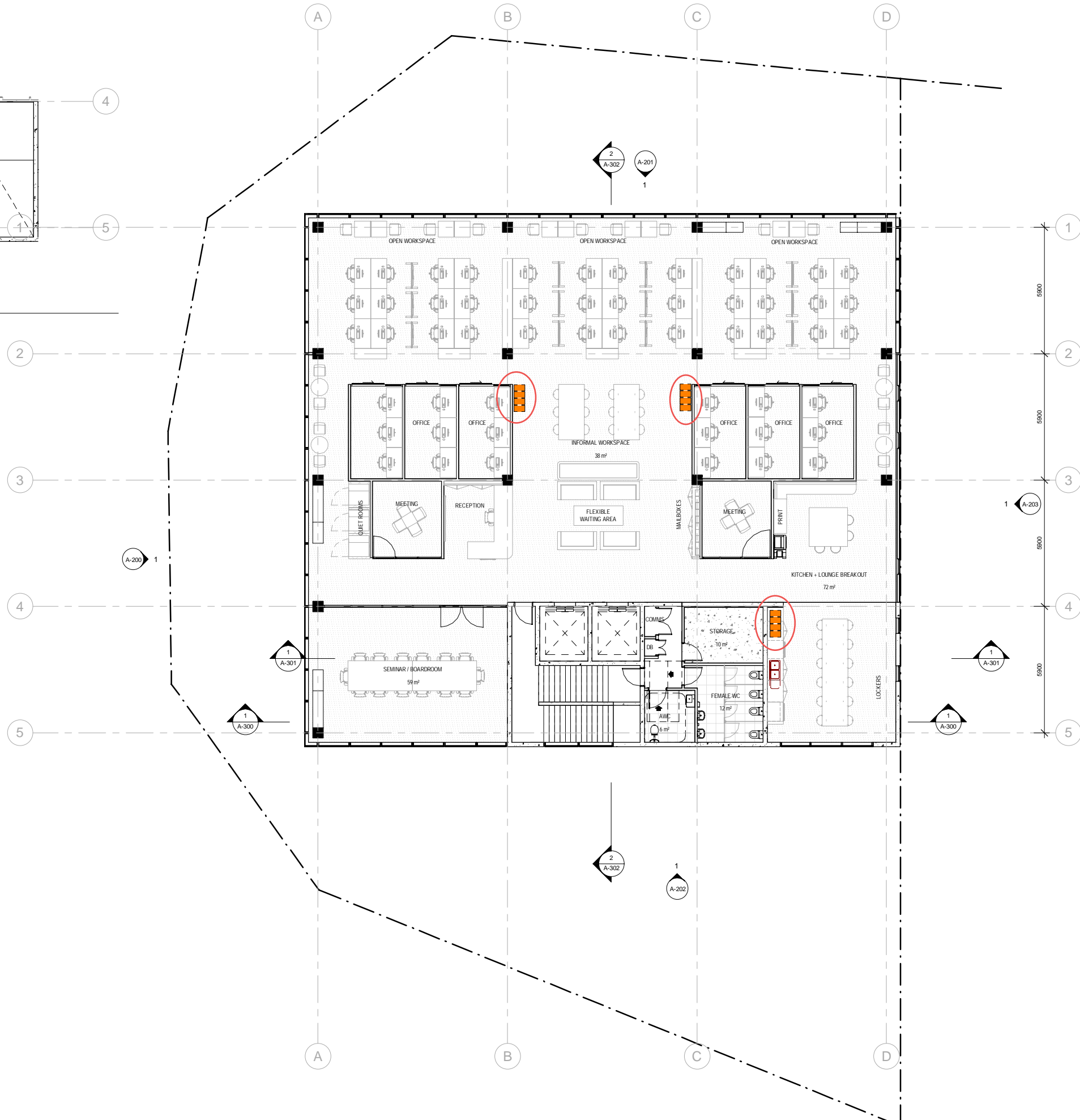
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1 : 200 @ A3

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DRAWING No: A-102
REV: Q



2 LEVEL 3 MEZZANINE - MALE W/C
1 : 100



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P	2019/05/23	ISSUE FOR INFORMATION
Q	2019/05/28	ISSUE FOR INFORMATION

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PROJECT: HCCD STAGE 1A
CLIENT: UNIVERSITY OF NEWCASTLE

SITE: 16B HONEYSUCKLE DRIVE
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