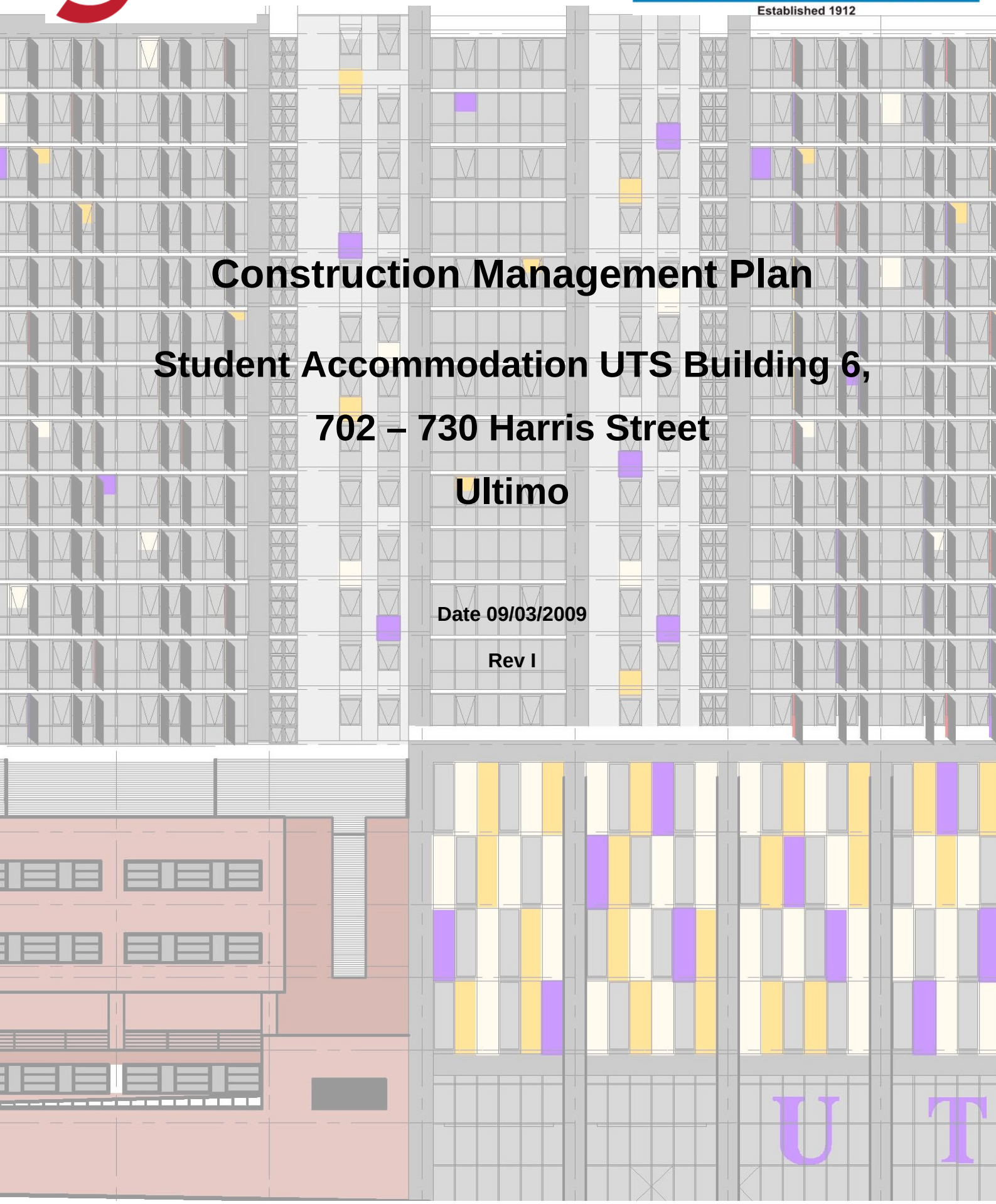


Construction Management Plan

Student Accommodation UTS Building 6,

702 – 730 Harris Street

Ultimo

Date 09/03/2009

Rev I

Table of Contents

1. Introduction

This plan outlines the proposed strategies to construct a new student accommodation building above the existing UTS Building 6 and services upgrade to the existing UTS Building 6.

The plan shall highlight the extent of the work site, access, cranage, proposed concrete pumping zones, material unloading zones, rubbish removal, pedestrian overhead protection, site accommodation and finally the methodology for vertical access during the construction programme.

The plan will also outline the sequencing of demolition, new construction activities and existing Building 6 BCA upgrade works.

The plan addresses responsibilities of Hutchinson Builders to not adversely affect the operation of existing operating facilities and strategies to maintain frequent and clear consultation and communication with the UTS at all times. A section of the plan addresses noise, vibration & disruption management including a report from consultants Acoustic Logic.

A Construction Safety Plan will be formulated and signed off by Senior Site Management prior to any construction works commencing on site. An outline of the Construction Safety Plan contents is included.

A traffic management plan during the demolition & construction period of the project has been prepared by Halcrow MWT Transport Consultants and is included within this submission.

Finally a waste management plan for the project is included

This plan should be read in conjunction with the sketches included herein.

2. Consultation & Communication Strategy

Consultation and communication will be the key strategy in successfully delivering the Student Accommodation UTS Building 6 project. Hutchinson Builders will use the following forums, meetings and tools to assist in achieving this goal.

1. Daily site induction of all new personnel involved with the project including issuing of photo ID swipe card for future site access
2. Daily toolbox meetings of Hutchinson Builders Employees
3. Site notice boards
4. Weekly toolbox meetings of Contractors Employees
5. Weekly site safety inspections
6. Weekly Operational meetings with UTS representatives
7. Weekly OH&S Consultative Committee meetings
8. Weekly Design meetings
9. Weekly Contractor meetings
10. 24 hour 7 day Hutchinson Builders contact numbers available
11. Meetings with Ultimo Pedestrian Network stakeholders
12. Liaison meetings with adjacent car park owners Mirvac re: Thomas Street activities
13. Complaints Register
14. Evacuation Procedures
15. Hot Works Permit
16. Interruption to Existing Services Permits
17. Excavation Permits

3. The Site

3.1 Extent of Work

The extent of the work site shall essentially be the area bounded by Harris Street to the west, the Ultimo pedestrian network to the east and the ABC Building on the north.

3.1.1 New Student Accommodation Works

The new Student Accommodation UTS Building 6 works commences from Level 7 (grids Y1 – T10 and X6 – X8) with a new concrete structure from Level 7 to Level 20 & roof top terrace. The façade consists of precast concrete and glazed elements.

A new lobby to access the Student Accommodation will be constructed on Level 2.

Infill slabs for future UTS use will be located on L3, L4, L5, L6 and L7 in the area where the current basketball court is located.

A structural steel, glazed wall and metal roof encases the future Level 20 function room and terrace level.

3.1.2 Existing Building Upgrade Works

The construction approval of the new Student Accommodation works requires that the existing Building 6 be upgraded to satisfy current BCA requirements. These upgrade works include a new fire control room, additional fire sprinklers, new smoke alarm, new fire hydrant and new evacuation systems. Many of the existing ceilings will need to be removed and then re-instated to complete these works.

There will also be some structural upgrade works to the existing structure required to be undertaken.

3.2 Project Duration

The project is expected to be completed within 18 months with a nominated commencement date of the end of July 2009.

3.3 Hours of Work

The Department of Planning Project Approval is likely to nominate the following hours of work –

Mon – Fri	7am – 7pm
Sat	7am – 5pm

UTS have identified a period between 9am – 6pm Monday to Friday in which excessive noise and vibration activities should be planned to occur outside of.

Internal works to existing building is planned to be undertaken after hours and between UTS semesters.

4. Site Establishment

4.1 Dilapidation Report

Prior to any works commencing on site dilapidation reports will be undertaken to the following areas –

- Mirvac Car park
- Ultimo Pedestrian Network
- Thomas Street
- UTS Building 6
- Adjoining Buildings

4.2 Hoardings

Upon possession of the site, an A Class hoarding will be erected on level 2 between the existing Peter Johnson building car park and current basketball court area which will become part of the site.
A Class hoardings will also be erected along the Ultimo Pedestrian Network to segregate construction traffic entering the Truck Access Compound at Thomas Street from pedestrians using the Ultimo Pedestrian Network.

A structural steel 10kpa overhead pedestrian B Class hoarding will be erected between the Truck Access Compound and the Site Accommodation Compound to allow pedestrians to pass safely under materials lifted overhead by crane.

The B Class hoarding will be erected high enough to allow exhibition trains to pass under when required. An additional structural steel 10kpa overhead pedestrian B Class hoarding will be erected above the existing escalators and access to the UTS Peter Johnson building. A Class hoardings will also be erected in sections of the existing car park and Level 7 of the Peter Johnson building to secure construction zone areas from the public.

White sandwich panel acoustic hoardings will also be used when separating existing UTS activities to construction works activities. Examples of when these hoardings will be required to be used include:

- Existing Building 6 BCA upgrade works
- Piling upgrade works to L1 car park
- Segregation of site compound to UTS on L2
- Existing window infill

4.3 Works Zones

The works zone for the project will be in the Ultimo Pedestrian Network via Thomas Street. Approval for the use of this area will need to be granted from the Land Owner Sydney Harbour Foreshore Authority City of Sydney Council. The owner of the adjacent car park Mirvac will also be contacted in relation to the temporary removal of the structure across Thomas Street to allow access to the works zone in the Ultimo Pedestrian Network.

4.4 Site Access, Site Accommodation and Amenities

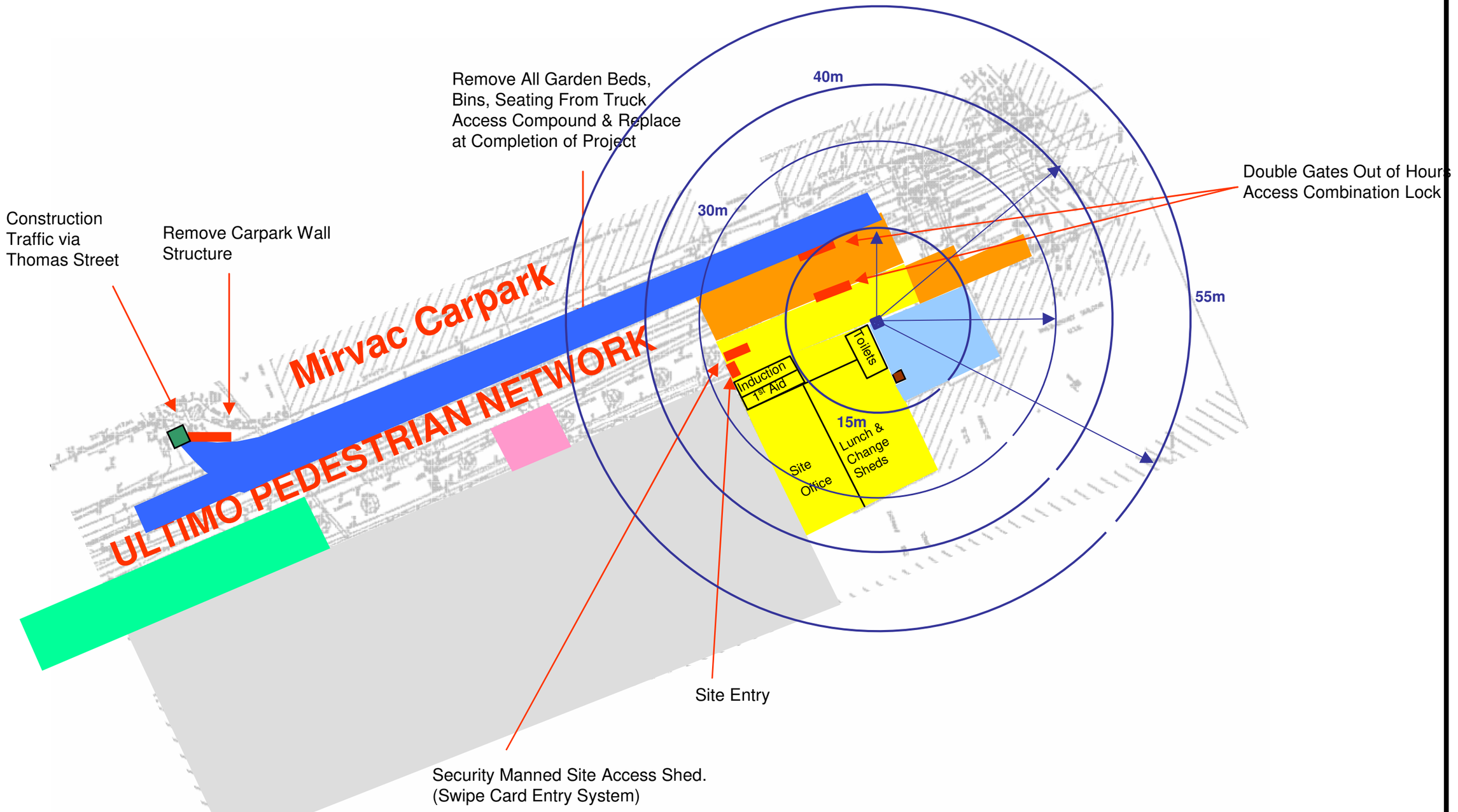
It is planned that all access of both materials and construction workers will be via Ultimo Pedestrian Network.

Consultation has occurred with the Sydney Harbour Foreshore Authority who own the land on the east of the project called the Ultimo Pedestrian Network.
Sydney Harbour Foreshore Authority agreed in principle to construction traffic entering the Ultimo Pedestrian Network via Thomas Street then progressing up the east side of the Ultimo Pedestrian Network behind A Class hoardings to an area directly in front of the project. This construction traffic zone would be approximately 6m wide to allow construction vehicles to pass one another within this vehicles access zone.

All construction traffic for the UTS Student Housing project would enter and leave within this zone, Isolated from any pedestrian activity.

Construction Worker access will also be via the Ultimo Pedestrian Network which links to Central Railway Station. Construction workers will access the site using a single point of entry gate which will be established to access the Site Accommodation Compound. This site access will be separate from any UTS user access to the UTS facilities, and will be attended to ensure no unauthorised personnel access the construction area.

The Site Accommodation Compound will house the site office, lunch and change facilities, First Aid, toilet facilities and subcontractor offices and compounds. Site accommodation will remain in the same location until the completion of the project.



LEGEND

- TRAFFIC CONTROL / GUARD HOUSE – THOMAS STREET
- 6000mm WIDE TRUCK ACCESS COMPOUND
- 10 kPa OVERHEAD PEDESTRIAN PROTECTION GANTRY
- SITE ACCOMMODATION COMPOUND
- EMERGENCY EVACUATION ASSEMBLY AREA
- MATERIAL STORAGE AREA
- INSTALL NEW SEATING & BINS TO REPLACE TRUCK ACCESS AFFECTED
- HOISTS
- TOWER CRANE

LOAD CHART M230DSX.F 55m BOOM

Radius (metres)	5.2	10.0	13.5	20.0	22.5	25.0	30.0	35.0	40.0	45.0	50.0	55.0
Load (tonnes)	16.0	16.0	16.0	13.0	12.0	11.0	9.5	8.0	7.0	5.5	4.7	3.7

Living EDUCATION

HUTCHINSON BUILDERS Established 1912

CLIENT: HUTCHINSON BUILDERS

PROJECT: UTS STUDENT ACCOMMODATION

DATE: 15 Feb 09

DESIGN: CBP

APP'D: CBP

JOB No.: Y

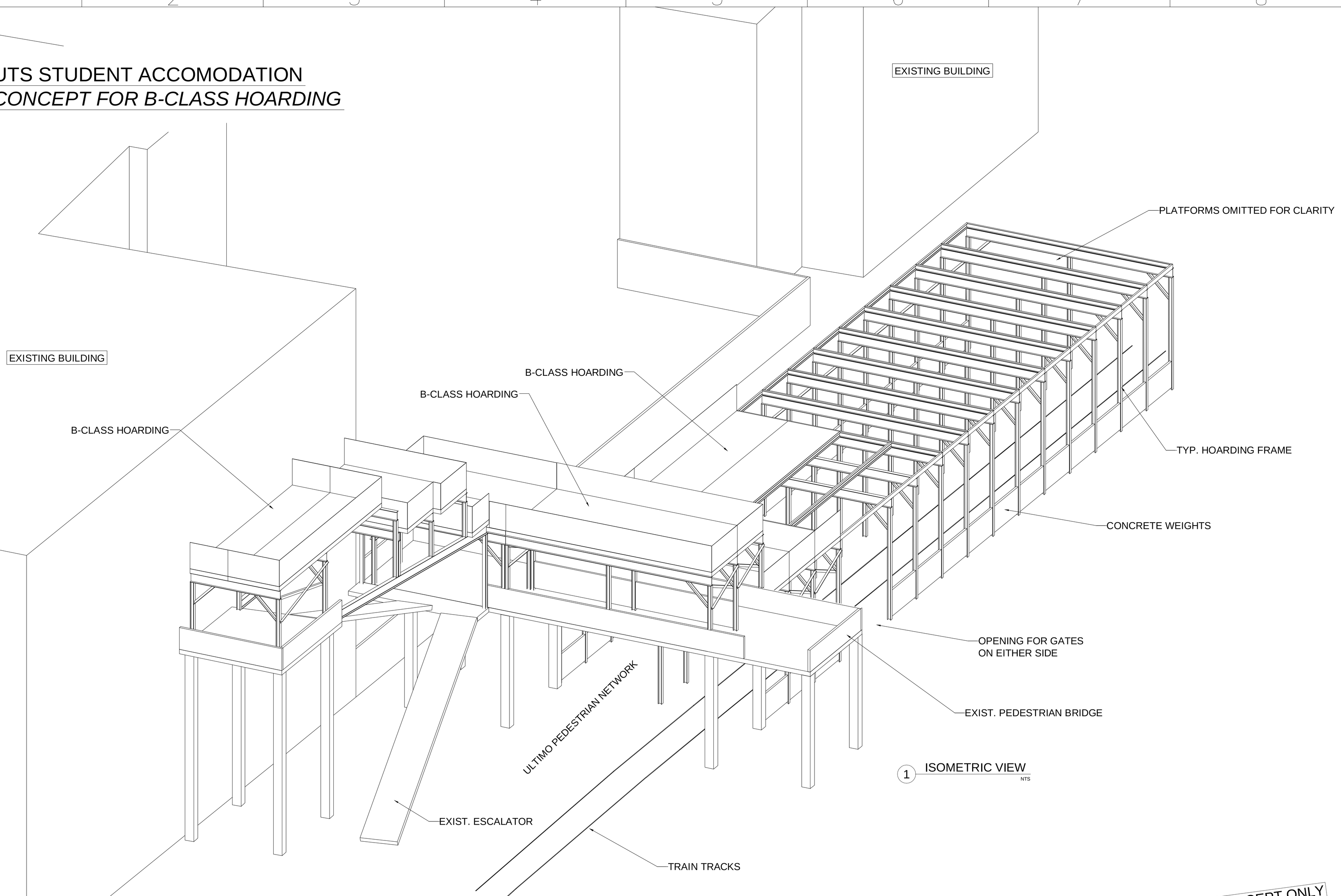
TITLE: MATERIALS HANDLING SITE LAYOUT

DWG No.: 01 of 01

SIZE: A3

REV: I

UTS STUDENT ACCOMODATION
CONCEPT FOR B-CLASS HOARDING



1 ISOMETRIC VIEW
NTS

CONCEPT ONLY

REV NO.	REVISION NOTE:	DATE:	SIGNED:	CHECKED:
-	ORIGINAL	04-03-09		

X INDICATES ASSEMBLY GROUP
X INDICATES FREE PART
X INDICATES BOLTS
N/S/E/W INDICATES ASSEMBLY GROUP ERECTION DIRECTION ON SITE
UP INDICATES UPPER SIDE OF ASSEMBLY GROUP

GENERAL NOTES

1. All bolts, nuts and washers to be galvanised grade 8.8 in accordance with AS1252
2. All workmanship and materials shall be in accordance with AS4100
3. Unless shown as a bolted connection, all plates and sections indicated in contact with each other shall be welded all round UNO
4. All welds to be in accordance with AS1554 UNO
5. All welds to be 6mm continuous fillet welds UNO
6. All butt welds to be full penetration butt welds in accordance with AS1554 Part 1

GENERAL NOTES

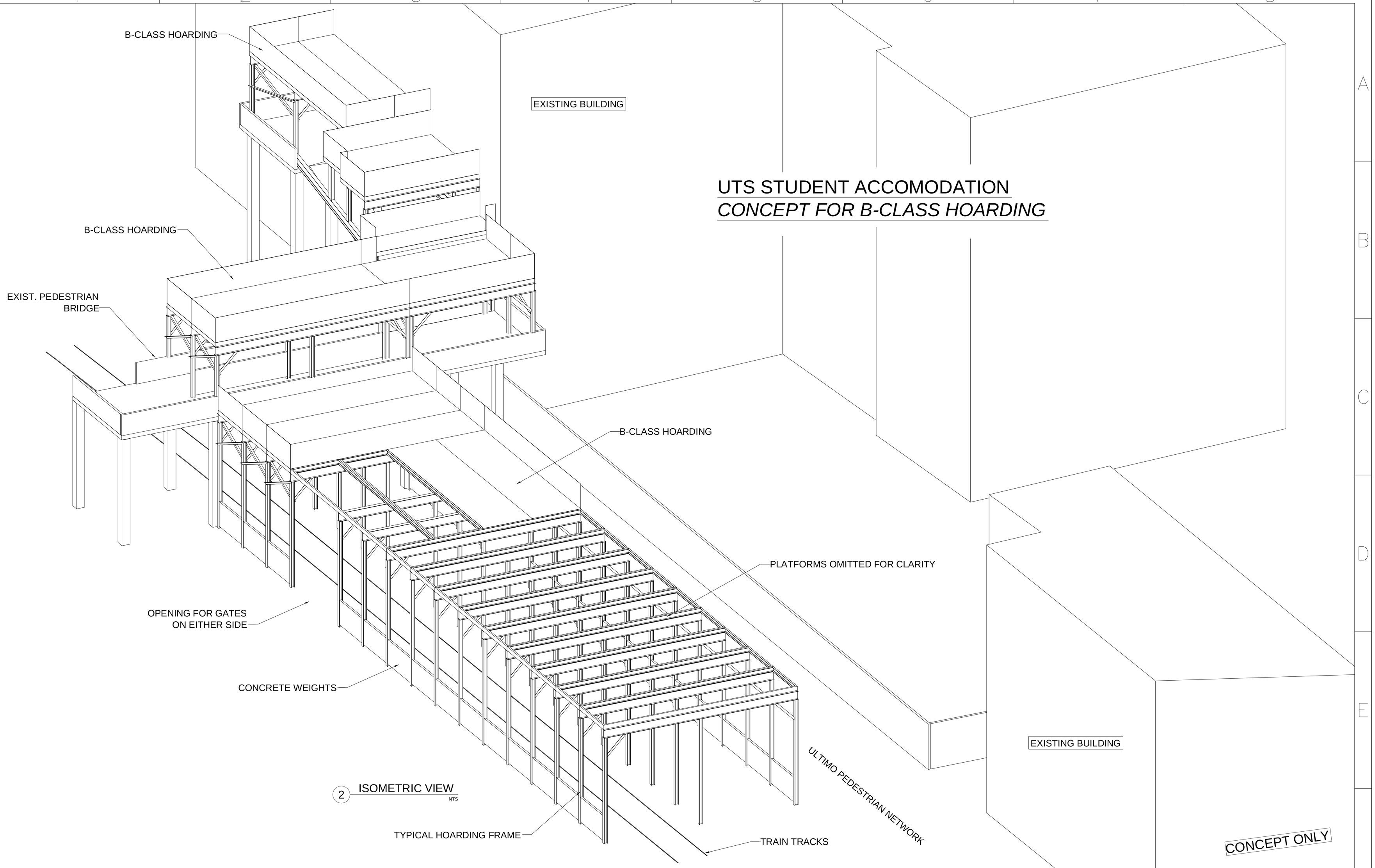
7. Butt weld all flanges at all mitre cuts
8. Surface treatment: Refer to specifications
9. All member and connection holes include 2mm workloose, all base plate holes inlcude 6mm workloose
10. No paint within 50mm of a site weld, TB or TF bolted connections
11. No allowance has been made for weld gaps
12. All notches and copes to have min 11mm radius to all internal corners
13. "DO NOT SCALE - IF IN DOUBT ASK"

Greenwich Contractors

DETAIL DRAWINGS PRODUCED BY
DeMCoX
Ph. (02) 8213 0299
Fax.(02) 9939 0977
info@demcox.com.au

CLIENT: GREENWICH CONTRACTORS
PROJECT: UTS STUDENT ACOMODATION
DWG NO: DC09-368-PRE1
DRAWN BY: RD
SCALE @ A1: NTS
TOLERANCES – U.N.O.
TOLERANCES TO ONE DECIMAL ±0.5
ANGULAR TOLERANCE ±0.5 DEG.
B-CLASS HOARDING CONCEPT
ISOMETRIC VIEW 1

UTS STUDENT ACCOMODATION
CONCEPT FOR B-CLASS HOARDING



2 ISOMETRIC VIEW
NTS

CONCEPT ONLY

REV NO.	REVISION NOTE:	DATE:	SIGNED:	CHECKED:
-	ORIGINAL	04-03-09		

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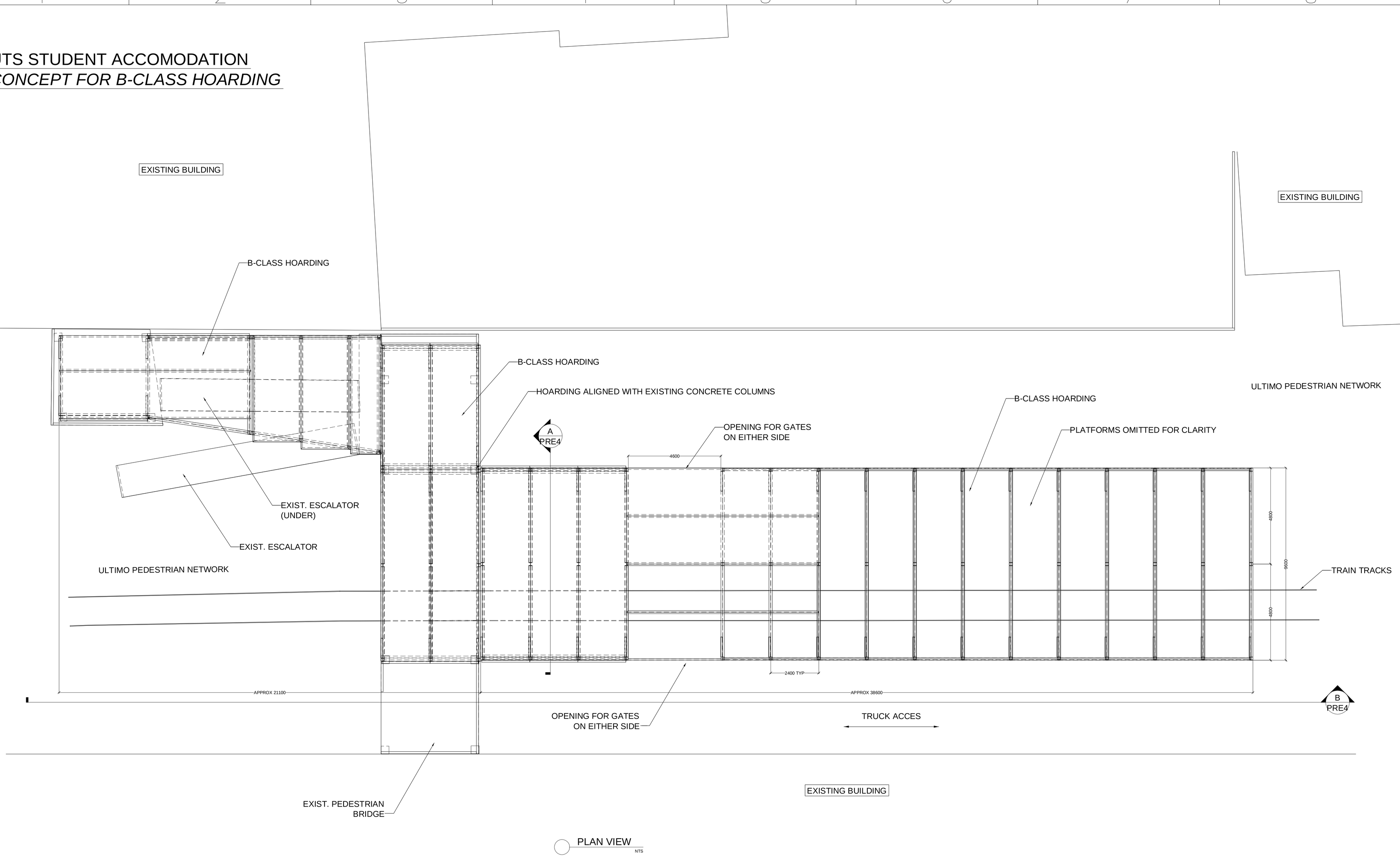
info@demcox.com.au

CLIENT: GREENWICH CONTRACTORS
PROJECT: UTS STUDENT ACOMODATION
DWG NO: DC09-368-PRE2
DRAWN BY: RD
SCALE @ A1: NTS
TOLERANCES – U.N.O.
TOLERANCES TO ONE DECIMAL ±0.5
ANGULAR TOLERANCE ±0.5 DEG.
B-CLASS HOARDING CONCEPT
ISOMETRIC VIEW 2

UTS STUDENT ACCOMODATION
CONCEPT FOR B-CLASS HOARDING



PLAN VIEW
NTS

CONCEPT ONLY

REV NO.	REVISION NOTE:	DATE:	SIGNED:	CHECKED:
-	ORIGINAL	04-03-09		

X INDICATES ASSEMBLY GROUP
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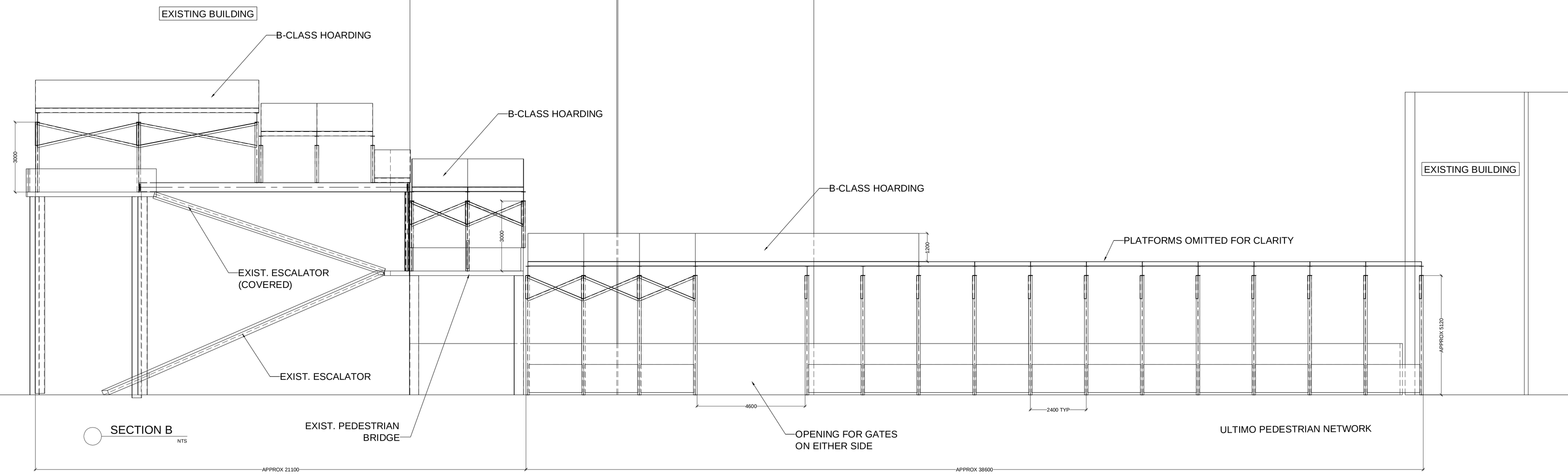
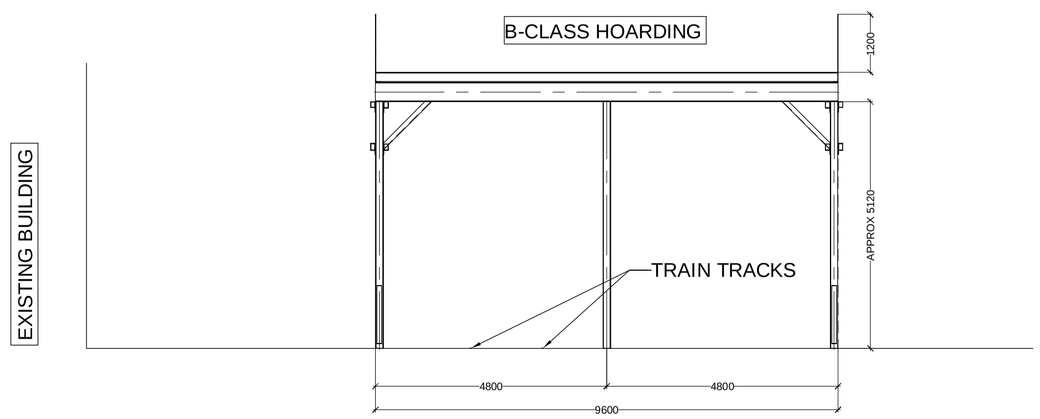
info@demcox.com.au

CLIENT: GREENWICH CONTRACTORS
PROJECT: UTS STUDENT ACOMODATION
DWG NO: DC09-368-PRE3
DRAWN BY: RD
SCALE @ A1: NTS
TOLERANCES – U.N.O.
TOLERANCES TO ONE DECIMAL ±0.5
ANGULAR TOLERANCE ±0.5 DEG.
B-CLASS HOARDING CONCEPT
PLAN VIEW

UTS STUDENT ACCOMODATION
CONCEPT FOR B-CLASS HOARDING



SECTION B
NTS



SECTION A
NTS

CONCEPT ONLY

REV NO.	REVISION NOTE:	DATE:	SIGNED:	CHECKED:
-	ORIGINAL	04-03-09		

X	INDICATES ASSEMBLY GROUP
X	INDICATES FREE PART
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CLIENT:	GREENWICH CONTRACTORS
PROJECT:	UTS STUDENT ACOMODATION
DWG NO:	DC09-368-PRE4
DRAWN BY:	RD
SCALE @ A1:	NTS
TOLERANCES – U.N.O.	TOLERANCES TO ONE DECIMAL ±0.5 ANGULAR TOLERANCE ±0.5 DEG.
	B-CLASS HOARDING CONCEPT SECTIONS A & B

Living EDUCATION

HUTCHINSON BUILDERS
Established 1912

CLIENT: HUTCHINSON BUILDERS	DATE: 18 FEB 09	TITLE: LEVEL 2 SITE SETUP		
PROJECT: UTS STUDENT ACCOMMODATION	DESIGN: CP			
	APP'D: CBP			
	JOB No.: Y	DWG No.: 01	SIZE: A3	REV: B

4.5 Materials Handling/Construction Personnel Movement

- Tower Crane

One (1) tower crane will be set up on site. The tower crane will be set up on piles and grillage to Level 1 on the eastern side of the building. The crane will be set up in the first month of the project and is a vital piece of plant to link materials deliveries at the Truck Access Compound with construction activities on the UTS Student Housing project.
The crane will remain on the project until all façade elements have been completed.

- Concrete Pumping

Concrete pumping for the project will be conducted from the Truck Access Compound on the eastern side of the Ultimo Pedestrian Network. A static pump will be established at the southern end of the Truck Access Compound and concrete pump lines will be fixed with brackets to the existing concrete bridge structure over the pedestrian protection gantry.

- Man & Material Hoists / Builders' Lifts

Construction personnel will be initially via one single hoist located on the north-east side of the building at Level 1 (which will act as an overrun pit) servicing Level 2 to Level 8 then all floors to Level 22.
A second single hoist will be established when the structure is at Level 9. The second hoist will be south of the first hoist on the eastern side of the building. This hoist will sit on the existing Level 7, servicing Level 8 then all floors to Level 22.
Infill bridges will be installed to allow access through building voids directly into the corridors of each level.
Once builders' lifts are available, the hoists will be removed and two (2) of the new lifts will be protected and used as builders' lifts until project completion.

- Formwork Hoists

Two formwork hoists will be used to assist structure materials handling on the project. The hoists will be located on the eastern side of the project. The hoists will allow structure trades to continue in times of high winds when the crane is unable to be used.

- Deliveries

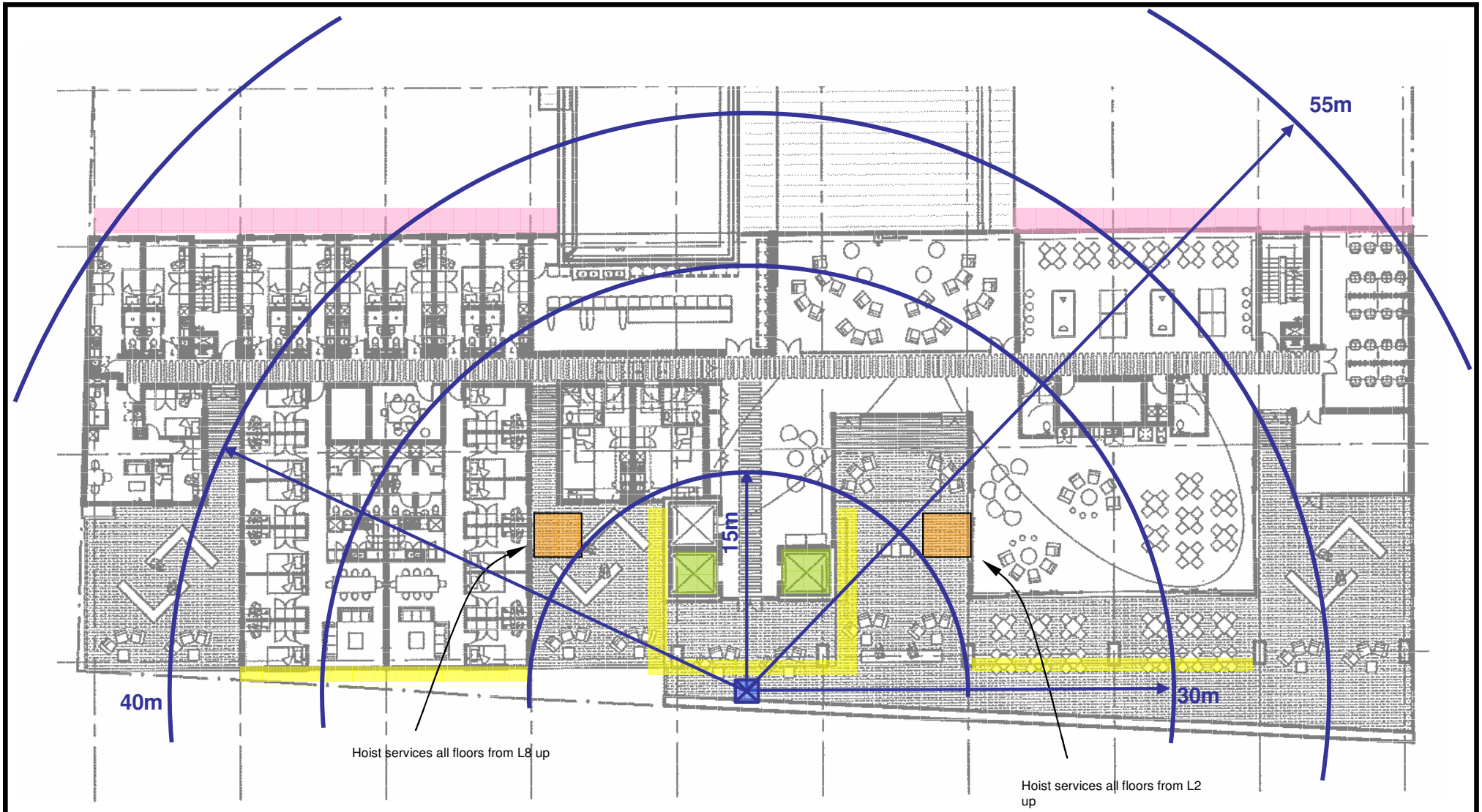
A truck set down zone away from the project will be established for all site deliveries. All deliveries for the project will be instructed to initially go to this nominated set down zone. This will prevent traffic congestion or unplanned deliveries
A Hutchinson Builders' materials handling foreman will then coordinate the timing of these deliveries to the Truck Access Compound from the set down zone. This procedure will assist in managing construction congestion around the site.

- Loading Platforms

It is planned to have ten (10) Material roll-in/roll-out loading platforms located on floors for loading/formwork/façade/services/finishes and fit-off materials on the floors via the tower crane.

- Rubbish removal

All demolition and construction rubbish will be taken away to various waste disposal depots and sorted. It is Hutchinson Builders' goal to recycle 90% of all demolition and construction rubbish material from the UTS Student Housing project.
Rubbish will be removed via 17m3 bins located in the truck access zone and site accommodation zone.
Tower crane liftable 7m3 bins will also be located on Level 8 podium areas. The 17m3 bin in the site accommodation zone will be emptied via access gates in the pedestrian protection gantry at a convenient time, likely very early morning.



LEGEND

- HOISTS
- BUILDERS LIFTS
- TOWER CRANE
- HOARDING & FAN IN COURTYARD
- PERIMETER SCAFFOLD

LOAD CHART M230DSX.F 55m BOOM												
Radius (metres)	5.2	10.0	13.5	20.0	22.5	25.0	30.0	35.0	40.0	45.0	50.0	55.0
Load (tonnes)	16.0	16.0	16.0	13.0	12.0	11.0	9.5	8.0	7.0	5.5	4.7	3.7

HUTCHINSON BUILDERS
Established 1912

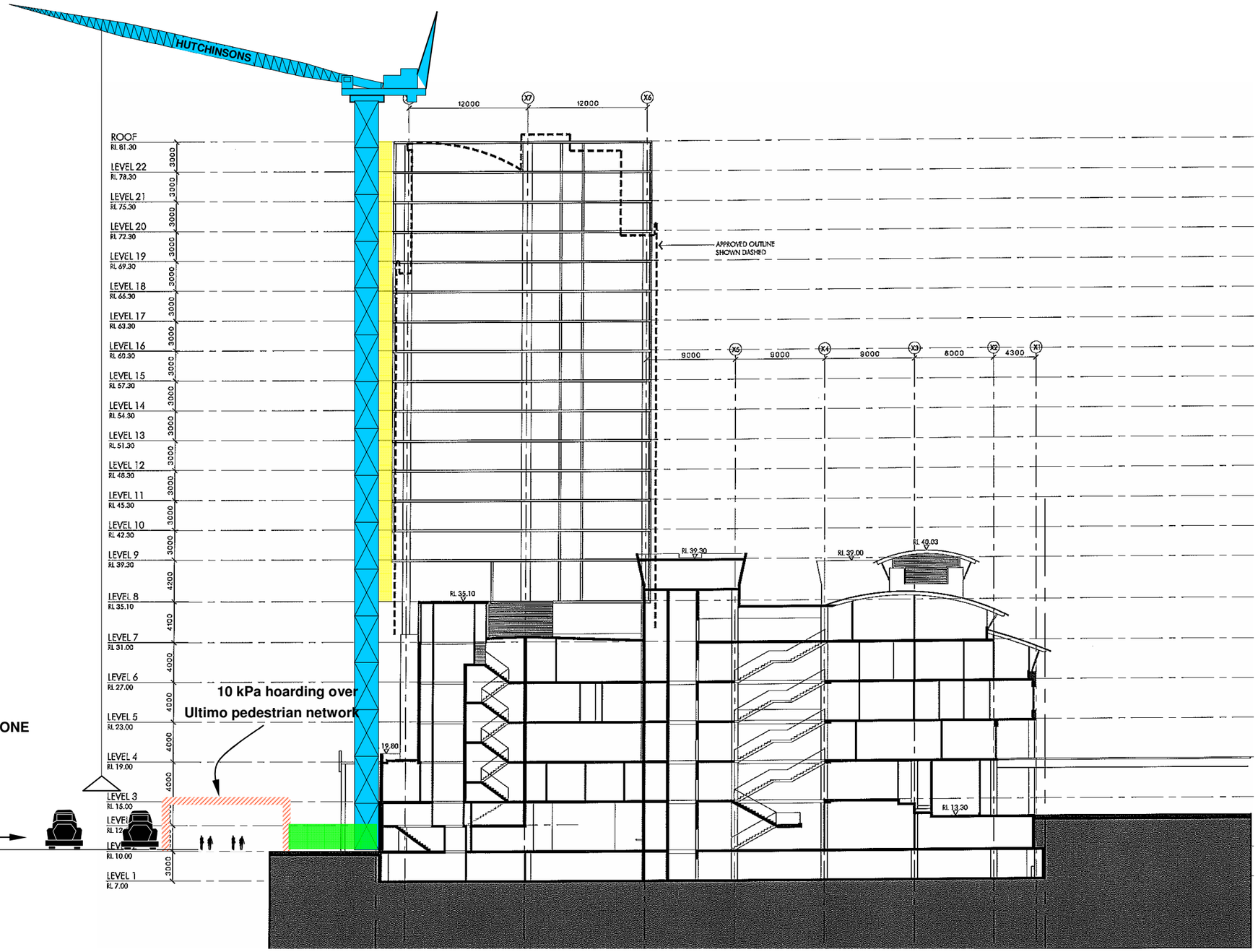
CLIENT: HUTCHINSON BUILDERS

PROJECT: UTS STUDENT ACCOMMODATION

DATE: 29 JAN 09
DESIGN: SB
APP'D: CBP
JOB No.: Y

TITLE: MATERIALS HANDLING SITE LAYOUT LEVEL 8

DWG No.: 01 of 01
SIZE: A3
REV: H



LEGEND

PERIMETER SCAFFOLD FROM L8 TO L22

SITE ACCOMMODATION

HUTCHINSON BUILDERS Established 1912

UTS University of Technology, Sydney

citta property group

UniLodge

MACQUARIE

CLIENT: HUTCHINSON BUILDERS	DATE: 10 JUN 08	TITLE: MATERIALS HANDLING SITE LAYOUT SECTION	
	DESIGN: MD		
PROJECT: UTS STUDENT ACCOMMODATION	APP'D: CBP		
	JOB No.: Y	DWG No.: 04 of 05	SIZE: A3 / REV: H

4.6 Construction Site Services

The construction site will require the use of power, water and sewer during the period of construction.

Power will be via a metered temporary main switchboard, installed and commissioned by the site electrical contractor. All temporary power required for site accommodation, amenities, plant and new construction activities will be fed from this temporary board.

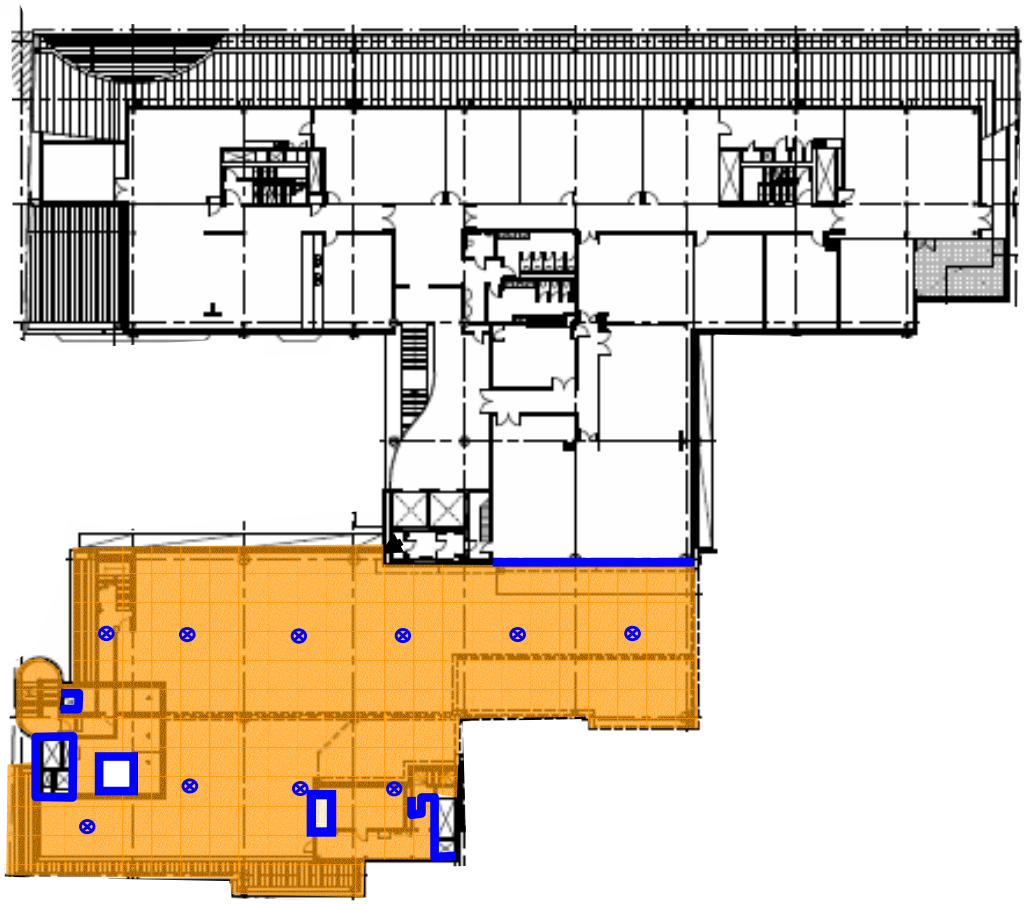
Power for existing Building 6 BCA upgrade works will be sourced from existing permanent power supply with all contractors engaged in BCA upgrade works required to use earth leakage ELCB units at GPO power source.

Temporary water and sewer will be sourced by tapping into existing UTS supply and infrastructure.

4.7 Temporary Waterproofing

Once the existing building fabric at Level 7 is disturbed temporary waterproofing measures will be required to be undertaken. These measures will include:

- The casting of temporary hobs around services penetrations
- Metal flashings to existing services penetrating folding over temporary concrete hobs
- Caulking to expansion joints
- Application of heavy duty trafficable membrane similar to Enviro HP 1200 to entire slab surface turning up precast, blockwork, concrete wall & hob edges



LEGEND

- MEMBRANE
- HOB & FLASHING
- INDICATIVE TEMPORARY DRAIN LOCATIONS

Living EDUCATION

HUTCHINSON BUILDERS
Established 1912

CLIENT: HUTCHINSON BUILDERS

PROJECT: UTS STUDENT ACCOMMODATION

DATE: 28 FEB 09

TITLE: LEVEL 7 WATERPROOFING

DWG No. 01 of 01 | SIZE A3 | REV B

enviro

HP 1200

Date: July 08
Issue: 2

HIGH PERFORMANCE, SOLVENT FREE, SPRAYED ELASTOMER WATERPROOFING MEMBRANE

Product Description

Enviro HP 1200 is a solvent free, 2 component spray applied polyurethane waterproof membrane. It is uniquely formulated to provide high elasticity, tensile strength, tear strength and also possesses excellent abrasion resistance.

Characteristics

- 100% Waterproof
- Fast System Application
- Fast Curing
- Solvent free
- Excellent substrate adhesion (using suitable primers)
- Very Low VOC Content – 21 grams per litre
- Convenient 1:1 (volume) mix ratio
- Spray Applied
- Excellent Abrasion Resistance
- Excellent Durability

Uses

To provide a 100% effective waterproof membrane for the following areas:

- Podiums
- Flat Roofs
- Planter Boxes
- Retaining Walls
- Green Roofs
- Balconies
- Car Parks

Contact Waterproofing Technologies for recommendation on specific applications outside the above areas.

Substrates

Enviro HP1200 is suitable over the following substrates:

- Concrete (cured for min. 28 days)
- Renders (cured for min. 7 days)
- Plywood (marine grade only)
- Steel

NOTE: Do not apply membrane to any concrete that has received artificial curing compounds.

Physical Properties

Enviro HP1200 is supplied as a 2 component spray applied waterproof membrane

- Colour Part A-Clear/Pale Yellow Part B-Green
- Supply Part A-60kg : Part B-60kg
- Mix Ratio 1:1 by volume
- Mix Ratio 100:92 by weight
- Pot Life 12 seconds @ 25°C
- Water Vapour Permeability – 2 ASTM E 96-95 WVT (mg/cm³/day) @ 25°C – RH : Water Method Fisher/Payne Permeability C
- Shore A Hardness 80±3
- Tensile Strength 15.7 MPa (AS1683.11 2001)
- Elongation 400% (AS1683.11 2001)
- Specific Gravity Part A-1.1:Part B-1.02

Application Directions

Substrate Preparation

The surface must be clean and sound. Free from all loose particles, including dust, all laitance, greases and coatings or curing compounds, or any other foreign matter. The substrate must be prepared by way of degreasing, grinding or captive shot blasting adequately enough to provide a surface profile. Apply suitable and approved joint caulking material such as Enviro Seal PUR polyurethane (allow to cure) prior to application of Enviro HP1200, to all joints and connecting building parts.

Priming

Apply 1 coat of Enviro Prime P2 to prepared substrate at a rate of 5-8m² per litre, by brush or roller. Allow primer to fully cure before proceeding with application of Enviro HP1200.

Mixing

Mixing by way of1:1 mix ration (by volume) in heated plural component spray equipment. Both low and high pressure equipment can be used.

Estimating Data

The Consumption of Enviro HP1200 will depend upon substrate condition and type. As a guide: One 120kg kit of Enviro HP 1200 will cover approximately 60-80m² based pm achieving a waterproof coating of a minimum 1:50MM Dry Film (DFT).

Cure and Recoat Details

Curing rate of this product is dependant on the ambient and surface temperatures. As the temperatures increase, the curing rate decreases.

	10-15°c	**20-30°c**	**30-40°C**
Hard Coating (mins)	20	10	6
Full Cure (days)	7	6.5	6.5
Recoat– minimum (mins)	<8	<4	<2
Recoat– maximum (hrs)	5	3	2

Safety Advice

Enviro HP1200 contents are considered non-flammable. Always provide adequate ventilation and wear appropriate Personal Protection Equipment (PPE) during use. Avoid contact with skin. Avoid breathing vapours. Wear protective eyewear. If swallowed, DO NOT induce vomiting, have plenty of water and milk. Seek immediate medical advice. Wash off splashes of material with clean water and soap. If irritation occurs seek medical advice. Refer to MSDS.

KEEP OUT OF REACH OF CHILDREN.

Waterproofing Technologies

Waterproofing Technologies Pty Ltd
295 Princes Hwy, St Peters NSW 2044
T 02 8595 8699 F 02 8595 8660
www.waterproofingtech.com.au

enviro

4.8 General Erosion & Sedimentation Control

General Erosion and Sedimentation Control – UTS Building 6

All work shall be carried out to the complete satisfaction of the authority having jurisdiction over the works.

Staging of the works will be required to be such that the agents of erosion are minimised at any one time. Necessary measures will be adopted as may be required for erosion control, including the following where applicable:

- Staging: Staging of operations (eg. clearing, stripping);
- Restoration: Progressive restoration of disturbed areas;
- Drains: Temporary drains and catch drains;
- Dispersal: Diversion and dispersal of concentrated flows to points where the water can pass through the site without damage;
- Spreader Banks: Or other structures to disperse concentrated silt traps;
- Construction and maintenance of silt traps to prevent discharge of scoured material to downstream areas;
- Temporary grassing: Or other treatment to disturbed areas (eg. contour ploughing);
- Temporary fencing.
- Stockpiles to be located away from concentrated water flows. Stockpiles may require to be covered to reduce erosion.
- Contractor to provide stabilised construction exit to remove excess sediment from vehicles prior to exiting the site.
- Contractor to provide geotextile fabric and/or sandbags around all existing stormwater pits.

The Contractor will be required to liaise and comply with the requirements of the Department of Conservation and Land Management (Soil Conservation Service) and the local Council.

All erosion and sediment control measures shall be maintained and not removed until the contributing catchment has been stabilised to the written satisfaction of Council.

5. Demolition & Construction Sequencing

5.1 Demolition

The UTS Student Housing Project requires numerous areas to have demolition and reinstatement activities. These include:

	Site Location	Program Duration	Proposed Shift
◆ Demolition and reinstatement of existing ground slabs for piling upgrade works	Level 1	July 09-Sept 09	Night
◆ Demolition and reinstatement of existing Level 2 slab for tower crane location on new piles and steel grillage	Level 2	July 09 1 week	Morning AM
◆ Demolition and reinstatement of existing Level 2 slab for hoist overrun	Level 2	July 09 1 week	Morning AM
◆ Demolition and rediversion of existing services from existing Level 7 plant rooms	Level 7	July 09 1 month	Day
◆ Demolition and reinstatement within existing Peter Johnson building for column strengthening works	Level 1 – Level 6	July 09 – Sept09 3months	Night
◆ Demolition of existing northern stair from Level 2	Level 2	July 09 2 weeks	Day
◆ Demolition and re-instatement of existing ceilings for services upgrade within	Level 2 – Level 6	18 Months	Night
◆ Demolition of existing metal deck roof to allow new construction	Level 7	July 09 2months	Day
◆ Demolition of pockets only to existing façade at slab infill zone and level at L2, L3, L4, L5 and L6	Level 2 – Level 6	July 09 – Sept09 3months	Morning AM
◆ Demolition of Mirvac wall at the end of Thomas St	Ground Level	July 09 1 Week	Day

Prior to any demolition works being undertaken a demolition handover certificate will be completed with the demolition contractor. This inspection will highlight any temporary post demolition waterproofing which will be required to be applied immediately after demolition works

has been completed. The membrane will be heavy duty trafficable membrane to allow construction activities on without damage.

A demolition handback certificate will check that temporary waterproofing has been completed satisfactorily.

DEMOLITION HANDOVER NOTICE					
Project:					
Demolition area:					
Demolition Contractor:					
Licensed demolition supervisor(s):					
Date:		**Time:**		**am / pm**	

Services disconnected / made safe by:	**Demolition Contractor**		**Hutchinson Builders** (Certificate(s) attached for each service)		**N/a**
Gas	☐	YES	☐	YES	☐
Water	☐	YES	☐	YES	☐
Electricity	☐	YES	☐	YES	☐
Fire Protection	☐	YES	☐	YES	☐
Radio / Tele Communications	☐	YES	☐	YES	☐
Hazardous Substance survey provided by LORAC:			☐	YES	N/a☐

Demolition area perimeter components identified below, have been inspected and accepted by the demolition contractor as being safe and without risk to persons:				
Gantries:	☐	YES	☐	N/a
Hoardings:	☐	YES	☐	N/a
Footpaths (lighting, gate crossings etc):	☐	YES	☐	N/a
Entry Permit System in place:	☐	YES	☐	N/a
Other (specify below)	☐	YES	☐	N/a
ENGINEER REQUIREMENTS (All relevant drawings, sketches, instructions to be attached)				
Demolition Sequence	☐	YES	☐	N/a
Propping/ Shoring Required	☐	YES	☐	N/a
Certification of Plant on Suspended Slabs	☐	YES	☐	N/a
TEMPORARY WATERPROOFING REQUIREMENTS				
Temporary waterproofing required after demolition	☐	Yes	☐	N/a
Scope of works identified including date for waterproofing to be completed	☐	Yes	☐	N/a
Contractor engaged and advised when works required to be complete	☐	Yes	☐	N/a

As a supervisor licensed to supervise demolition work on this project in accordance with the relevant legislation, I certify for and on behalf of the contractor named below, that the information above is correct, and that the contractor named below is in control of the demolition area (including all perimeter components) noted above, until the area is handed back to Hutchinson Builders.

Contractor Name:		
Signed:		**Date:**
Print Name & Position:		

DEMOLITION HANDBACK NOTICE				
Project:				
Demolition area:				
Demolition Contractor:				
Licensed demolition supervisor(s):				
Date:		**Time:**		**am / pm**

Services disconnected / made safe by demolition contractor;			**N/a**
Gas	☐	YES	☐
Water	☐	YES	☐
Electricity	☐	YES	☐
Fire Protection	☐	YES	☐
Radio / Tele Communications	☐	YES	☐

Perimeter components identified below, have been inspected and accepted by the demolition contractor as being safe and without risk to persons:				
Gantries:	☐	YES	☐	N/a
Hoardings:	☐	YES	☐	N/a
Footpaths (lighting, gate crossings etc):	☐	YES	☐	N/a
Entry Permit System in place:	☐	YES	☐	N/a
Other (specify below)	☐	YES	☐	N/a

ENGINEER REQUIREMENTS (All relevant drawings, sketches, instructions to be attached.)				
Propping and Shoring Required	☐	YES	☐	N/a
All hazardous substances identified in the hazardous substance survey have been removed and disposed of correctly. **(attach clearance and disposal certificate)**	☐	YES	☐	N/a

TEMPORARY WATERPROOFING REQUIREMENTS				
Temporary waterproofing complete as per scope of works	☐	YES	☐	N/a

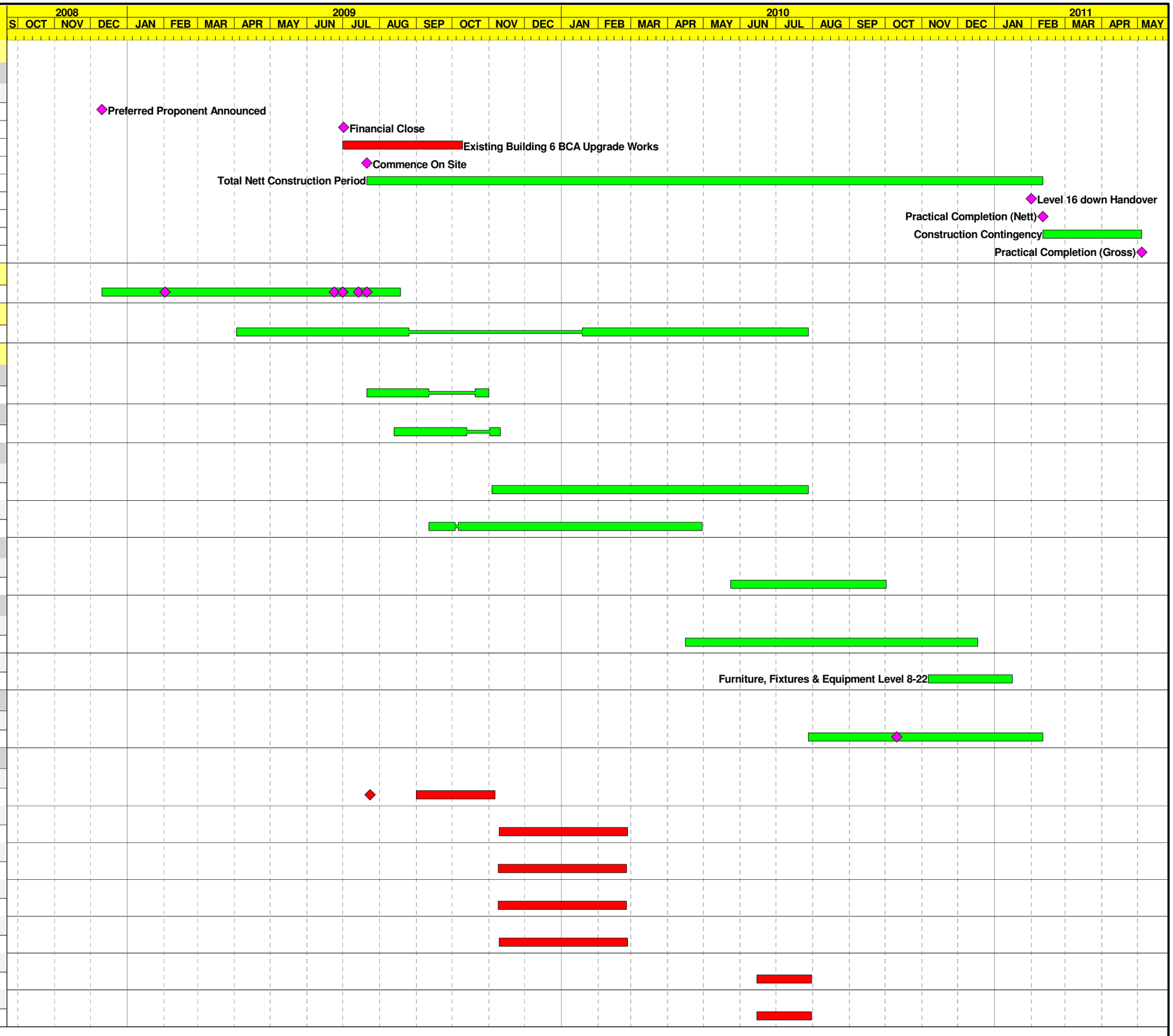
As a supervisor licensed to supervise demolition work on this project in accordance with the relevant legislation, I certify for and on behalf of the contractor named below, that the information above is correct, and that the contractor named below is **no longer in** control of the demolition area (including all perimeter components) noted above, and the area is to be now handed back to Hutchinson Builders.

Contractor Name:		
Signed:		**Date:**
Print Name and Position:		
Signed by HB Representative:		**Date:**
Print Name & Position:		

5.2 New Student Housing Construction Sequencing

A summary program proceeds sketches showing a month by month sequencing snapshot of construction activities for the new student Accommodation UTS Building 6 Project.

Activity ID	Activity Description	Orig Dur	Early Start	Early Finish
Milestones				
110	Preferred Proponent Announced	0	11DEC08*	
100	Financial Close	0		01JUL09*
190	Existing Building 6 BCA Upgrade Works	72	01JUL09	09OCT09
130	Commence On Site	0	22JUL09	
170	Total Nett Construction Period	431*	22JUL09	10FEB11
180	Level 16 down Handover	0		31JAN11*
140	Practical Completion (Nett)	0		10FEB11
150	Construction Contingency	65	11FEB11	04MAY11
160	Practical Completion (Gross)	0		04MAY11
+ Design				
		168	11DEC08	18AUG09
+ Procurement				
		322	03APR09	27JUL10
Construction				
+ Site Establishment				
		84	22JUL09	31OCT09
+ Early Works				
		72	14AUG09	10NOV09
Structure				
+ Slab Structure				
		197	04NOV09	27JUL10
+ Core Area				
		168	12SEP09	29APR10
Facade				
+ Facade Works				
		108	24MAY10	01OCT10
Apartment Services & Fitout				
+ Services Rough In / Fitout Works				
		198	16APR10	17DEC10
Furniture, Fixtures & Equipment				
4140	Furniture, Fixtures & Equipment Level 8-22	45	06NOV10	15JAN11
Services & Fitout Trades				
+ Lift & Common Areas				
		131	28JUL10	10FEB11
Existing Building 6 BCA Upgrade Works				
+ Level 1				
		75	24JUL09	06NOV09
+ Level 2				
		65	10NOV09	25FEB10
+ Level 3				
		65	09NOV09	24FEB10
+ Level 4				
		65	09NOV09	24FEB10
+ Level 5				
		65	10NOV09	25FEB10
+ Level 6				
		34	15JUN10	30JUL10
+ Level 7				
		34	15JUN10	30JUL10



Start Date	01MAY08
Finish Date	04MAY11
Data Date	01MAY08
Run Date	18FEB09 10:40

Living EDUCATION

PJ6A

Sheet 1 of 1

UTS - PETER JOHNSON BUILDING 6
BID PROGRAMME
October 2008

UTS

University of Technology, Sydney

Date	Revision	Checked	Approved

SITE ESTABLISHMENT

LEVEL 1 BASEMENT WORKS

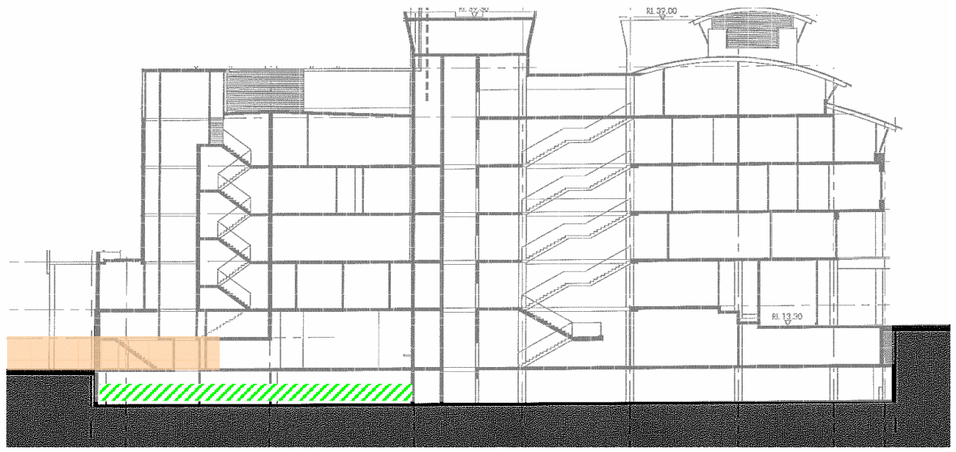
NEW CORE STRUCTURE

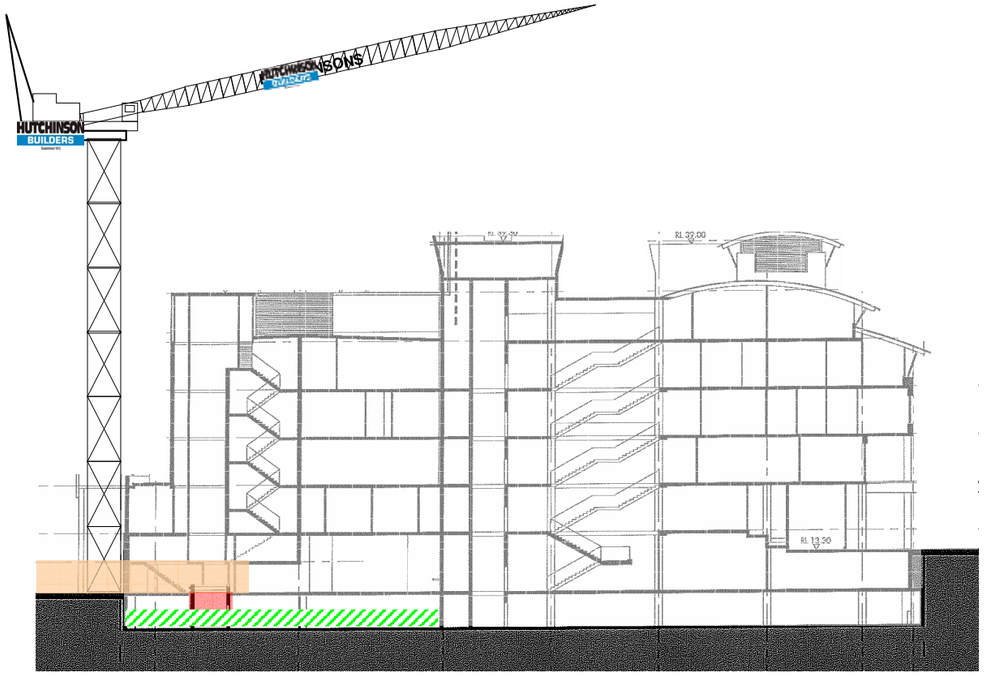
NEW SLAB STRUCTURE

FITOUT WORKS

FITOUT WORKS COMPLETE

LEVEL 2 FITOUT WORKS





August 2009

- Site Establishment complete
- Tower Crane Erection in progress
- Early Works commenced

September 2009

- Tower Crane erected
- Jumpform Setup & Core to Level 1

Living EDUCATION

HUTCHINSON BUILDERS Established 1912

CLIENT: HUTCHINSON BUILDERS

PROJECT: UTS STUDENT ACCOMMODATION

DATE: 10 FEB 09

DESIGN: SB

APP'D: CBP

JOB No.: Y

TITLE: MONTHLY PROGRESS SNAPSHOTS

DWG No.: 01 of 09

SIZE: A3

REV: -

SITE ESTABLISHMENT

LEVEL 1 BASEMENT WORKS

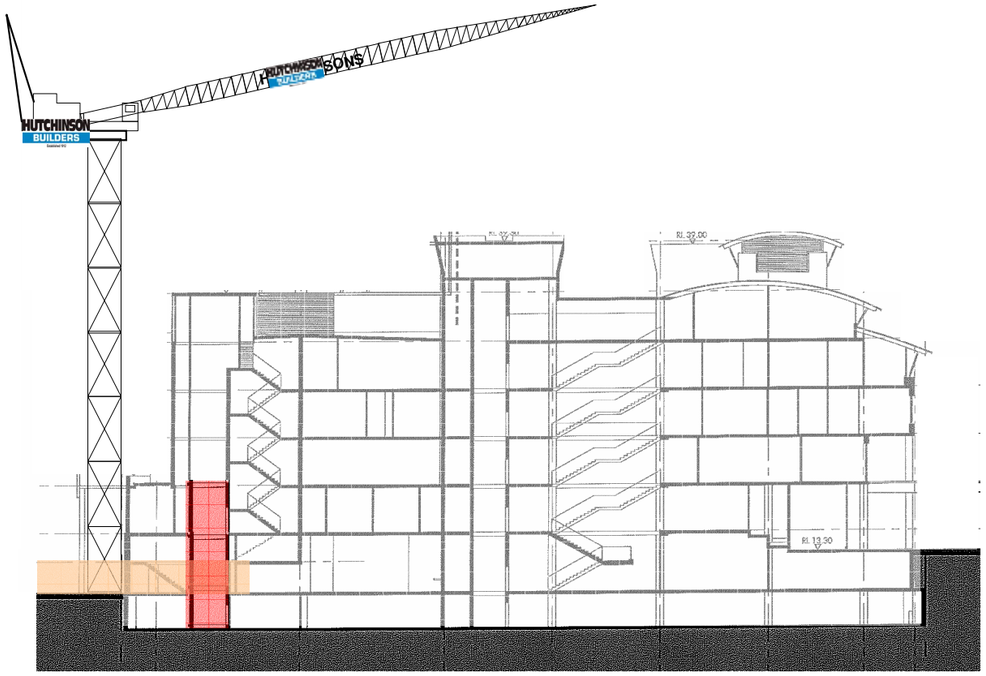
NEW CORE STRUCTURE

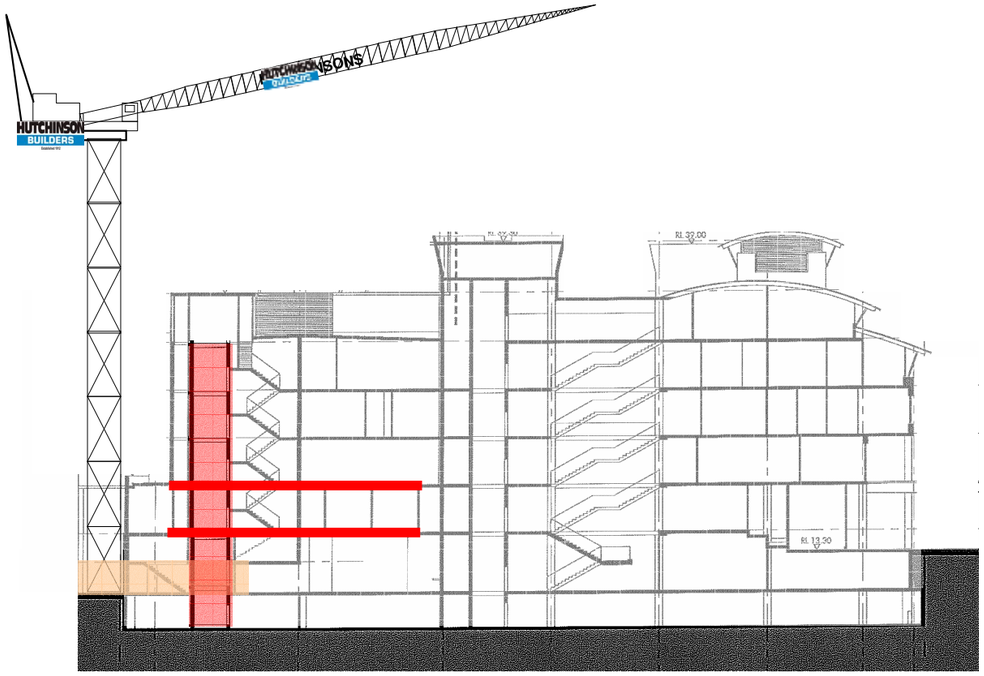
NEW SLAB STRUCTURE

FITOUT WORKS

FITOUT WORKS COMPLETE

LEVEL 2 FITOUT WORKS





October 2009

•New Core to Level 3
•Hoist & Scaffolding Erected

November 2009

•New Core to Level 6
•FRP New Structure to Level 4 – Basketball Court Infill

Living EDUCATION

HUTCHINSON BUILDERS Established 1912

CLIENT: HUTCHINSON BUILDERS

PROJECT: UTS STUDENT ACCOMMODATION

DATE: 10 FEB 09

DESIGN: SB

APP'D: CBP

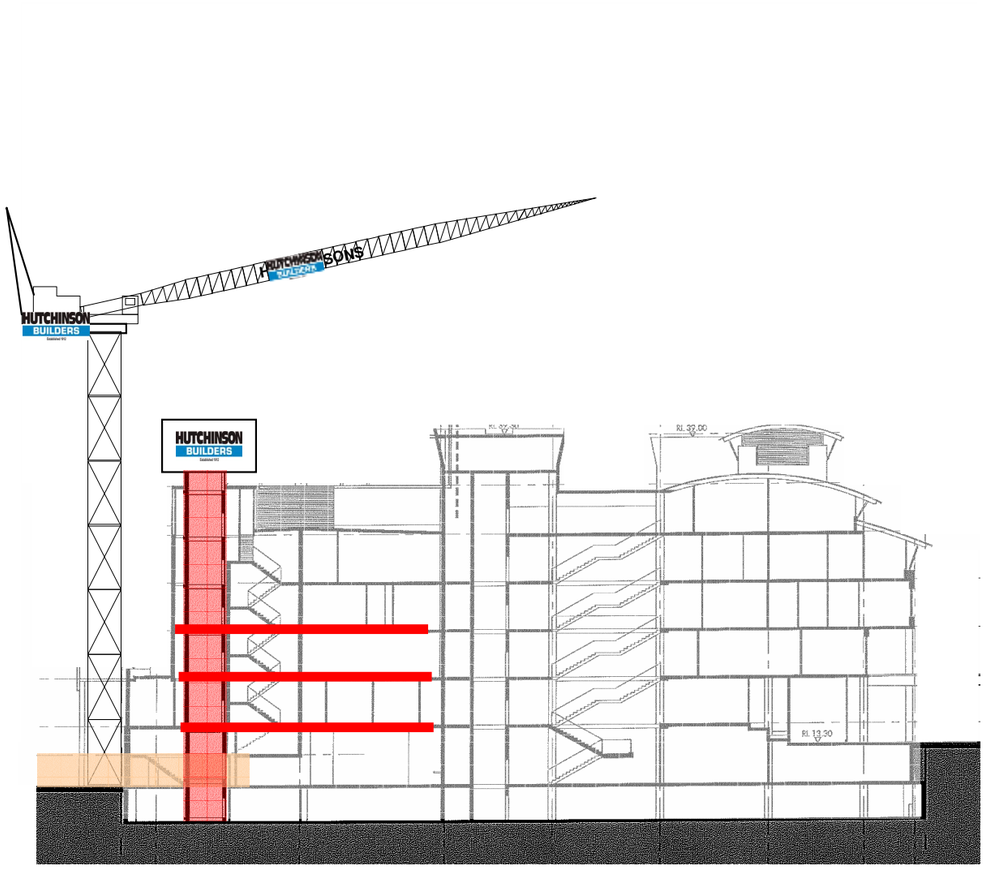
JOB No.: Y

TITLE: MONTHLY PROGRESS SNAPSHOTS

DWG No.: 02 of 09

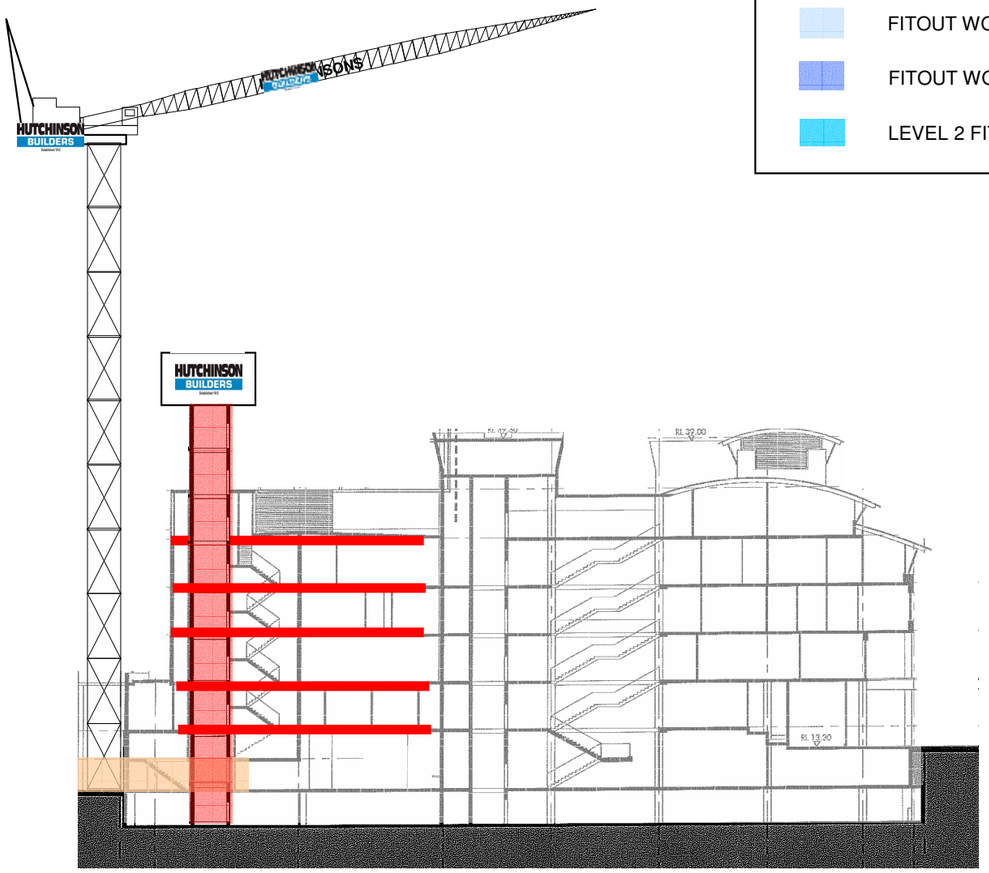
SIZE: A3

REV: -



December 2009

•New Core to Level 8
•FRP New Structure to Level 5 – Basketball Court Infill



January 2010

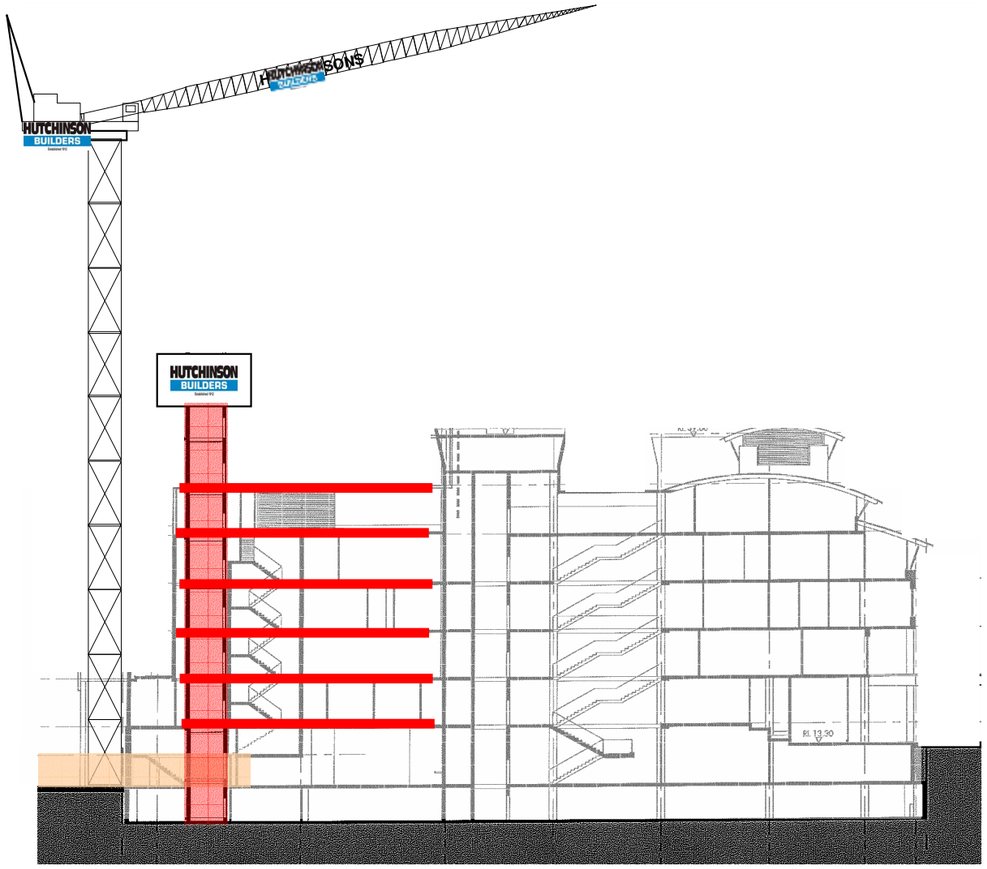
•New Core to Level 9
•FRP New Structure to Level 7 – Basketball Court Infill

SITE ESTABLISHMENT
LEVEL 1 BASEMENT WORKS
NEW CORE STRUCTURE
NEW SLAB STRUCTURE
FITOUT WORKS
FITOUT WORKS COMPLETE
LEVEL 2 FITOUT WORKS

Living EDUCATION

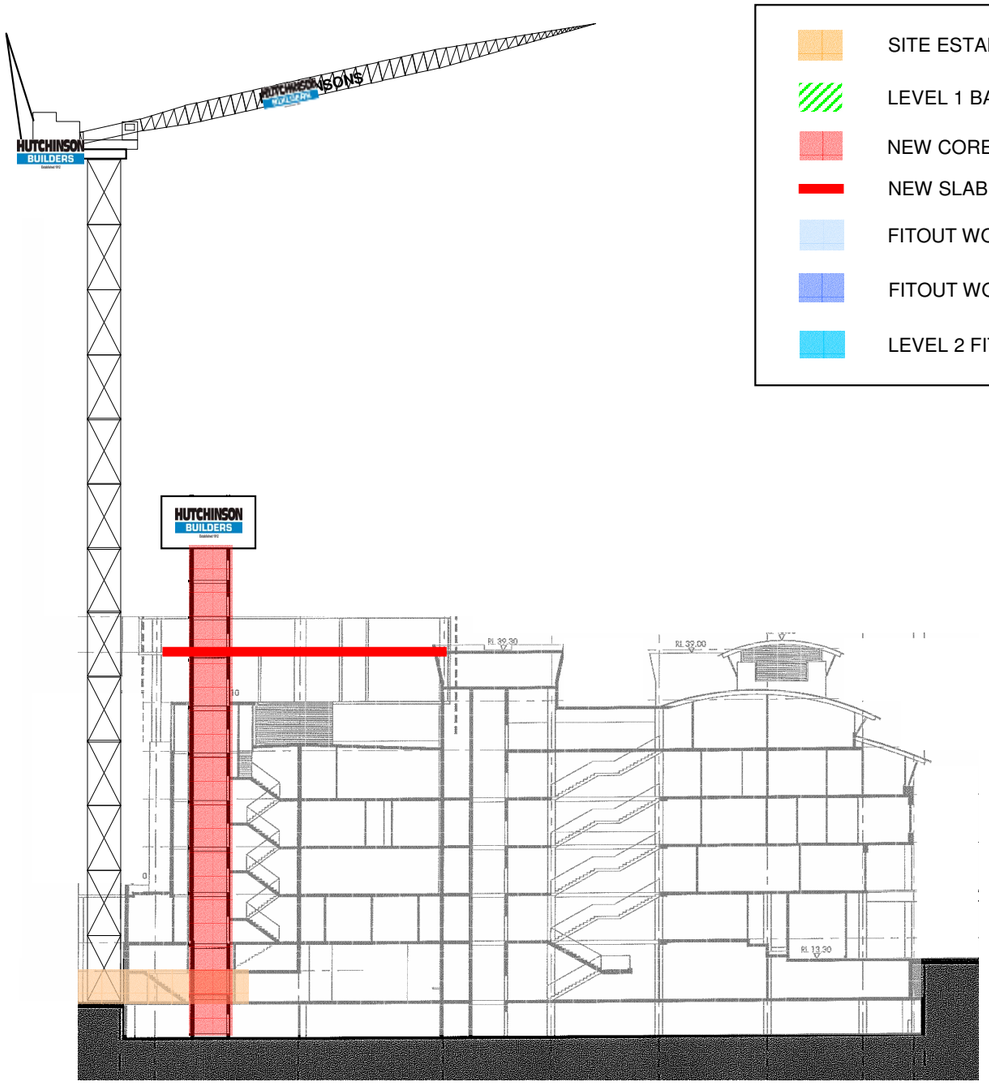
HUTCHINSON BUILDERS Established 1912

CLIENT: HUTCHINSON BUILDERS
PROJECT: UTS STUDENT ACCOMMODATION
DATE: 10 FEB 09
DESIGN: SB
APP'D: CBP
JOB No.: Y
TITLE: MONTHLY PROGRESS SNAPSHOTS
DWG No.: 03 of 09
SIZE: A3
REV: -



February 2010

- New Core to Level 10
- FRP New Structure to Level 8 – Court Infill complete



March 2010

- New Core to Level 11
- FRP New Structure to Level 9

SITE ESTABLISHMENT
LEVEL 1 BASEMENT WORKS
NEW CORE STRUCTURE
NEW SLAB STRUCTURE
FITOUT WORKS
FITOUT WORKS COMPLETE
LEVEL 2 FITOUT WORKS

Living EDUCATION

HUTCHINSON BUILDERS Established 1912

CLIENT: HUTCHINSON BUILDERS
PROJECT: UTS STUDENT ACCOMMODATION
DATE: 10 FEB 09
DESIGN: SB
APP'D: CBP
JOB No.: Y
TITLE: MONTHLY PROGRESS SNAPSHOTS
DWG No.: 04 of 09
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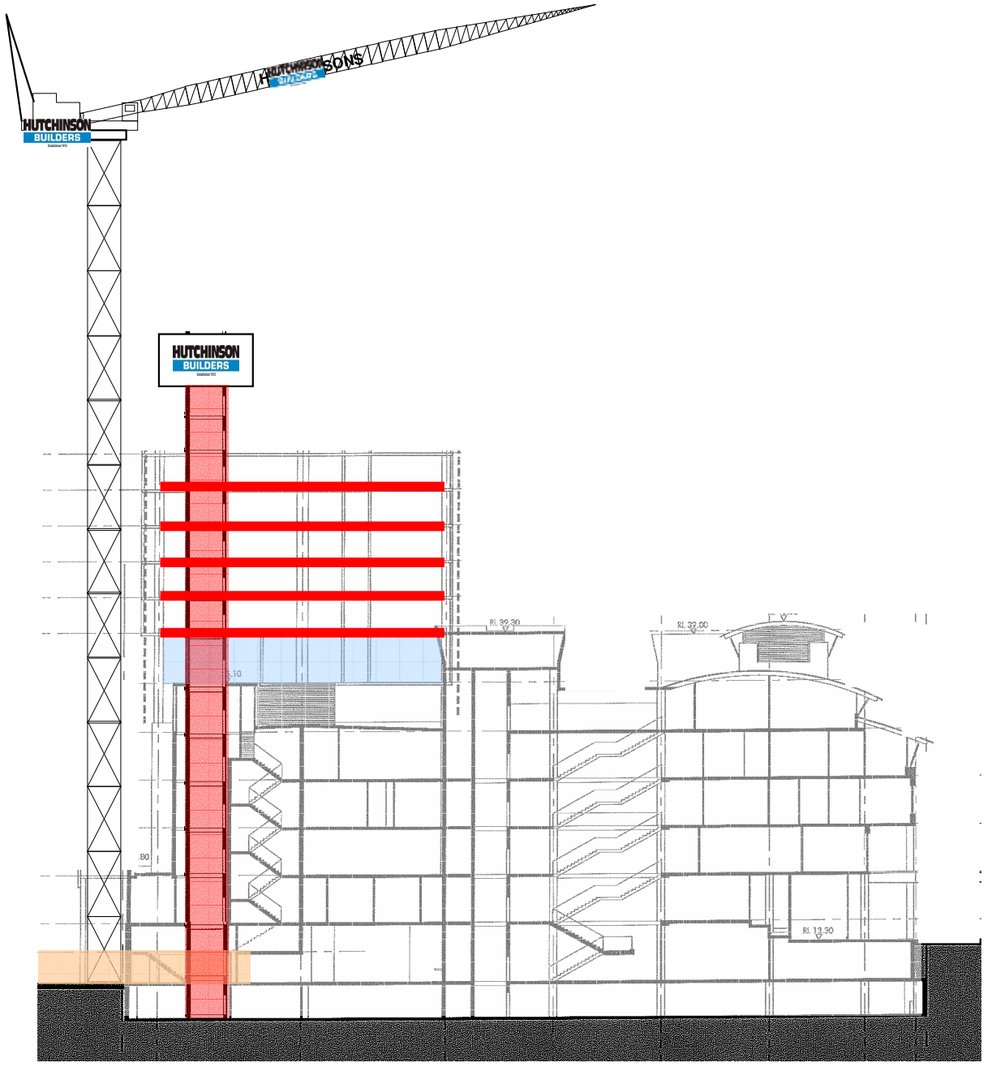
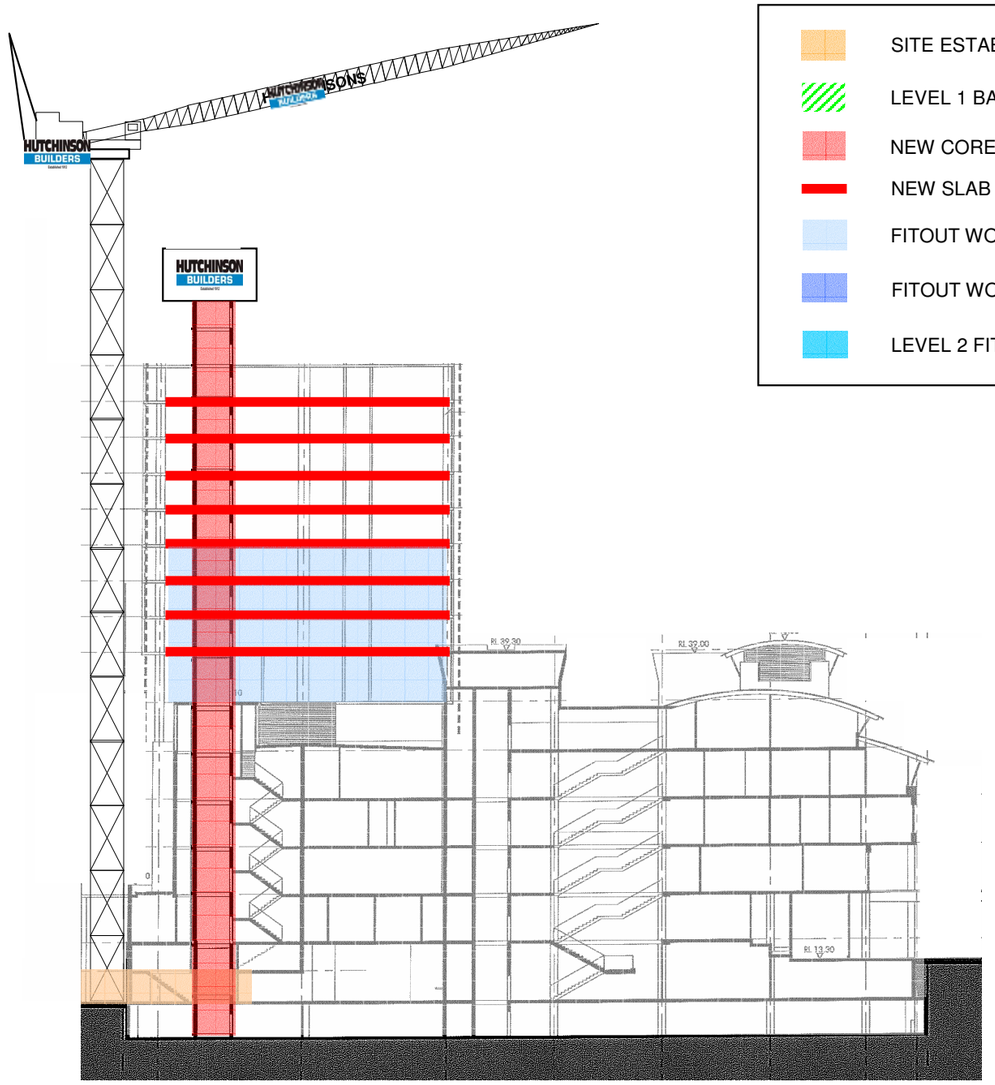




SITE ESTABLISHMENT
LEVEL 1 BASEMENT WORKS
NEW CORE STRUCTURE
NEW SLAB STRUCTURE
FITOUT WORKS
FITOUT WORKS COMPLETE
LEVEL 2 FITOUT WORKS

April 2010

- New Core to Level 15
- FRP New Structure to Level 13
- Tower Fitout commenced to Level 8

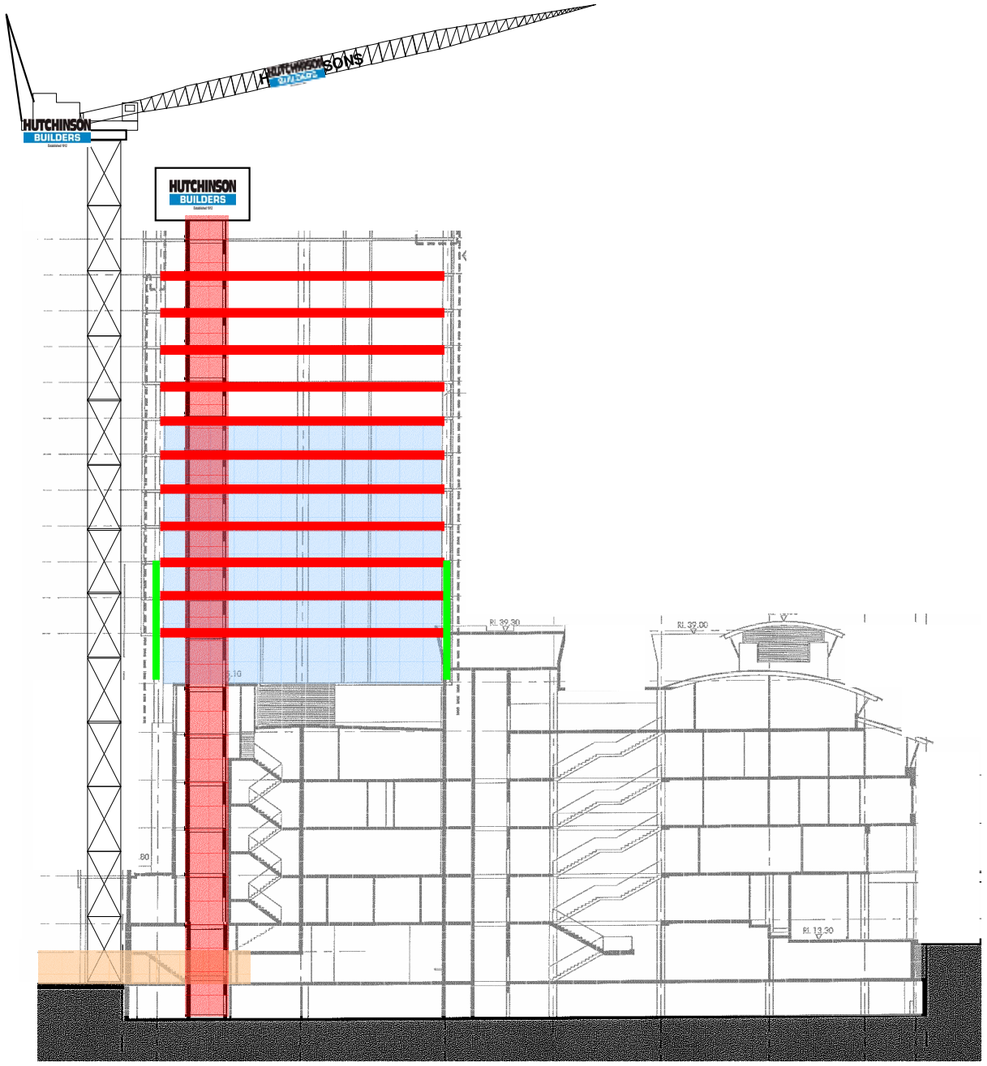
May 2010

- New Core to Level 18
- FRP New Structure to Level 16
- Tower Fitout commenced to Level 11

Living EDUCATION

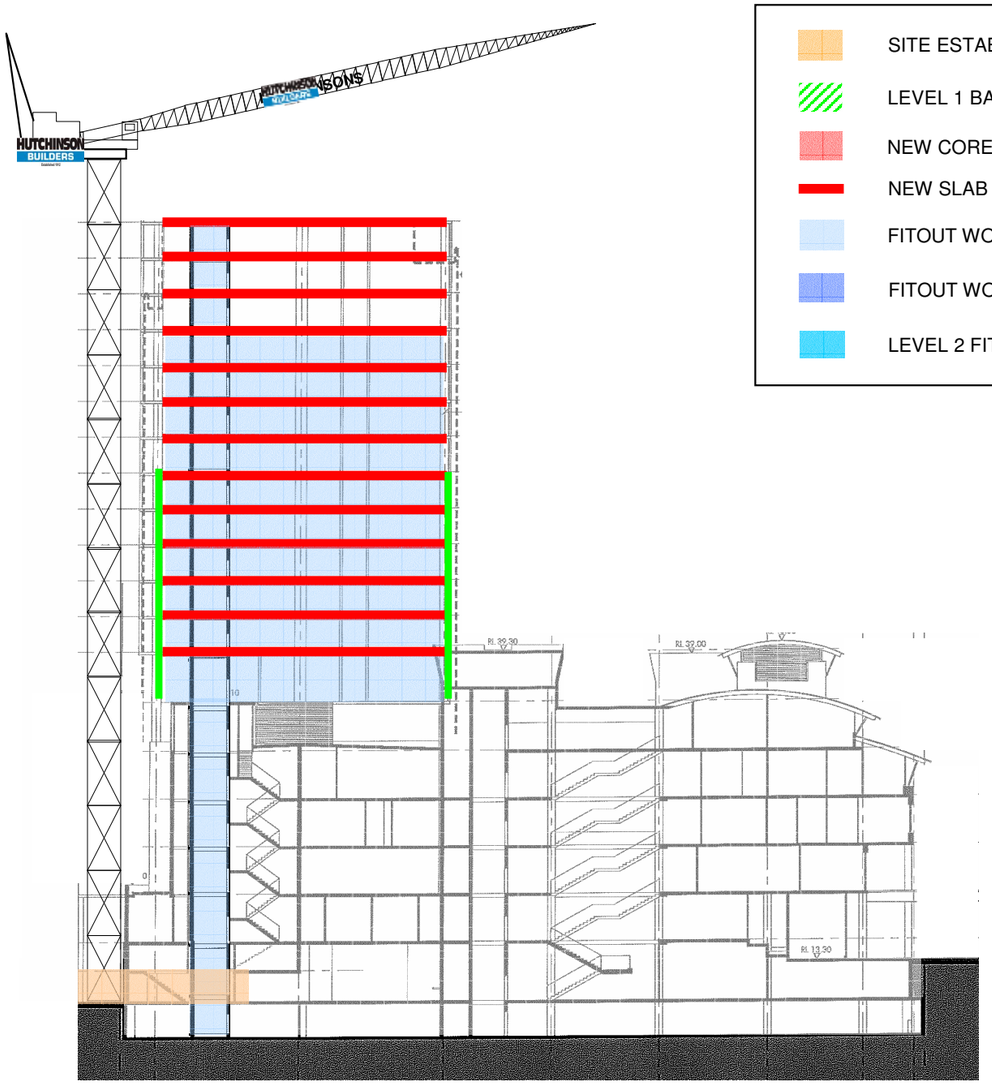
HUTCHINSON BUILDERS Established 1912

CLIENT: HUTCHINSON BUILDERS	DATE: 10 FEB 09	TITLE: MONTHLY PROGRESS SNAPSHOTS	
PROJECT: UTS STUDENT ACCOMMODATION	DESIGN: SB		
	APP'D: CBP		
	JOB No.: Y	DWG No.: 05 of 09	SIZE: A3 / REV: -



June 2010

- FRP New Structure to Level 19
- Façade Installed to Levels 8-10
- Tower Fitout commenced to Level 14



July 2010

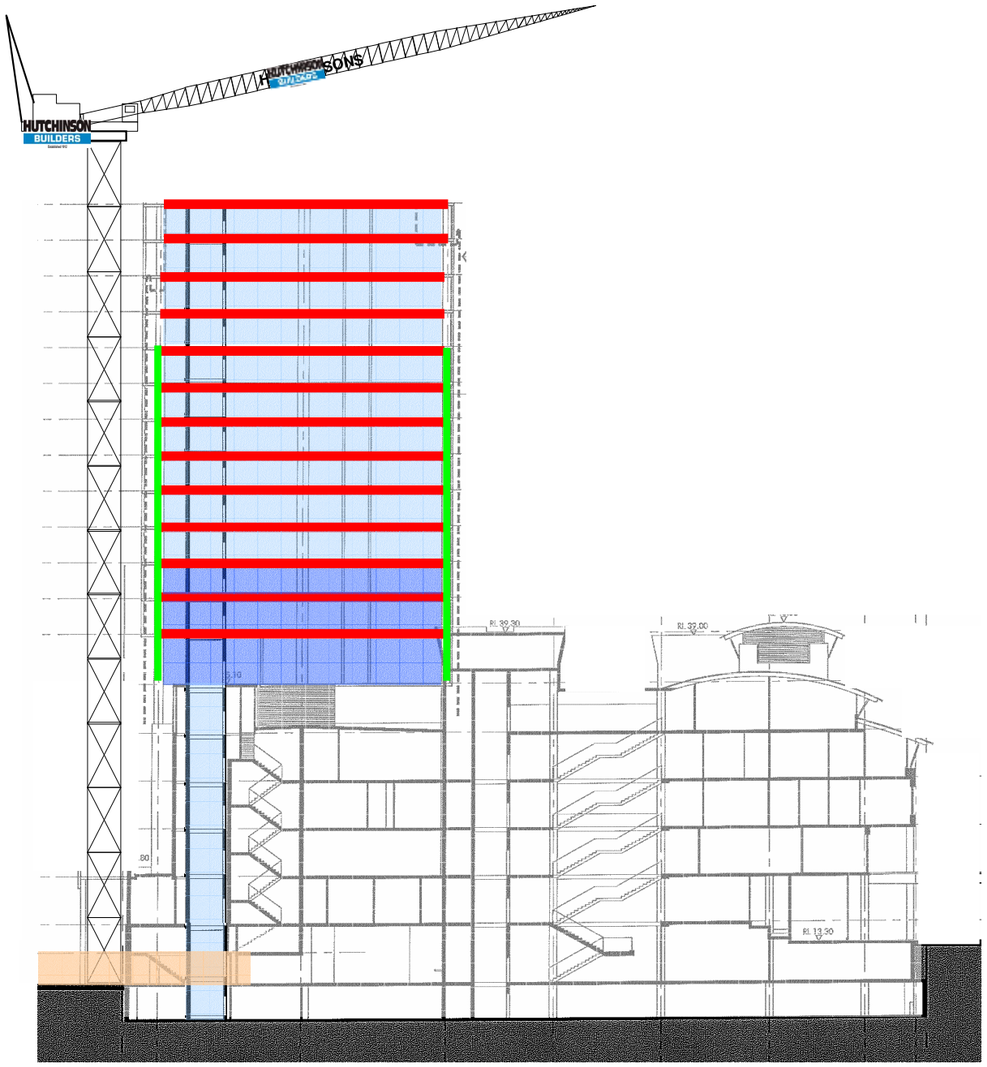
- FRP New Structure complete
- Façade Installed to Level 13
- Tower Fitout commenced to Level 17
- Lift installation commenced

SITE ESTABLISHMENT
LEVEL 1 BASEMENT WORKS
NEW CORE STRUCTURE
NEW SLAB STRUCTURE
FITOUT WORKS
FITOUT WORKS COMPLETE
LEVEL 2 FITOUT WORKS

Living EDUCATION

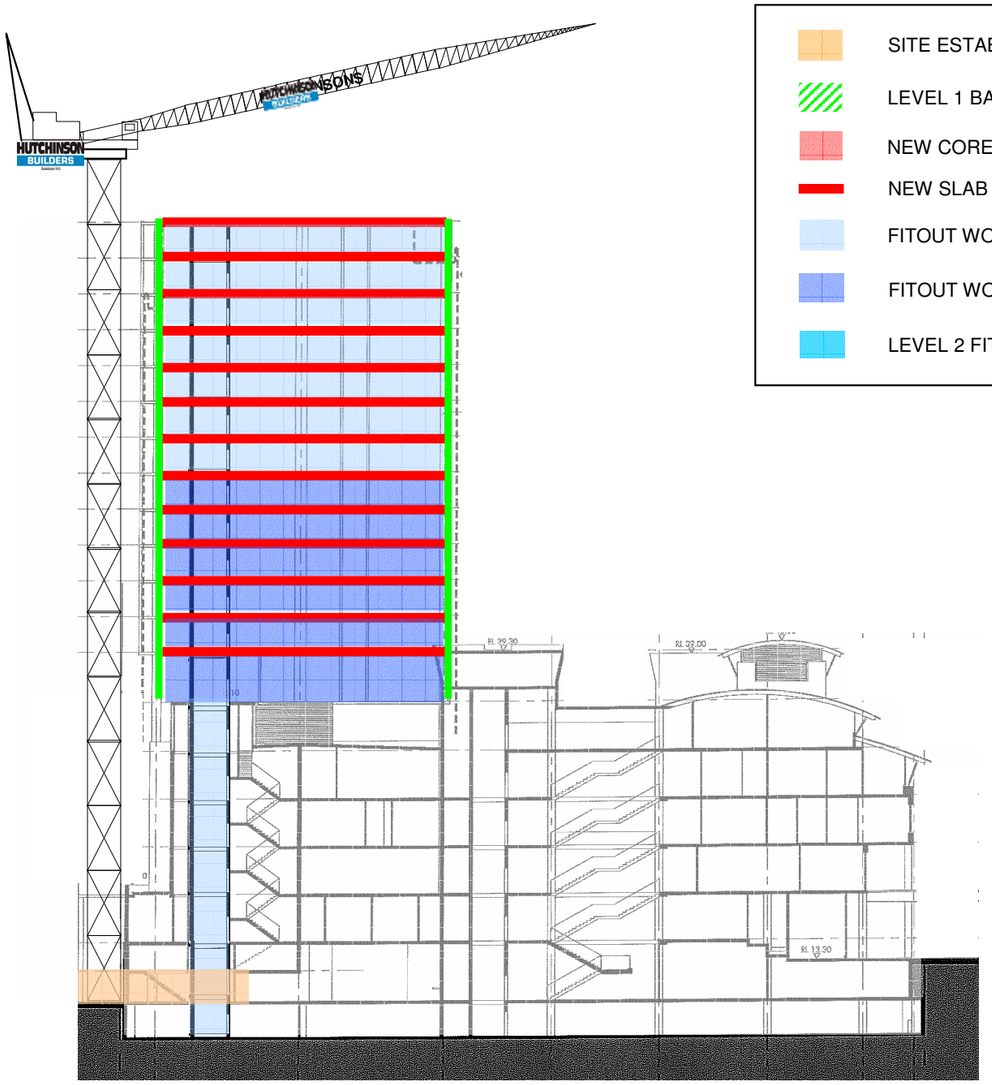
HUTCHINSON BUILDERS
Established 1912

CLIENT: HUTCHINSON BUILDERS
PROJECT: UTS STUDENT ACCOMMODATION
DATE: 10 FEB 09
DESIGN: SB
APP'D: CBP
JOB No.: Y
TITLE: MONTHLY PROGRESS SNAPSHOTS
DWG No.: 06 of 09
SIZE: A3
REV: -



August 2010

- Façade installed to Level 16
- Tower Fitout complete to Level 10



September 2010

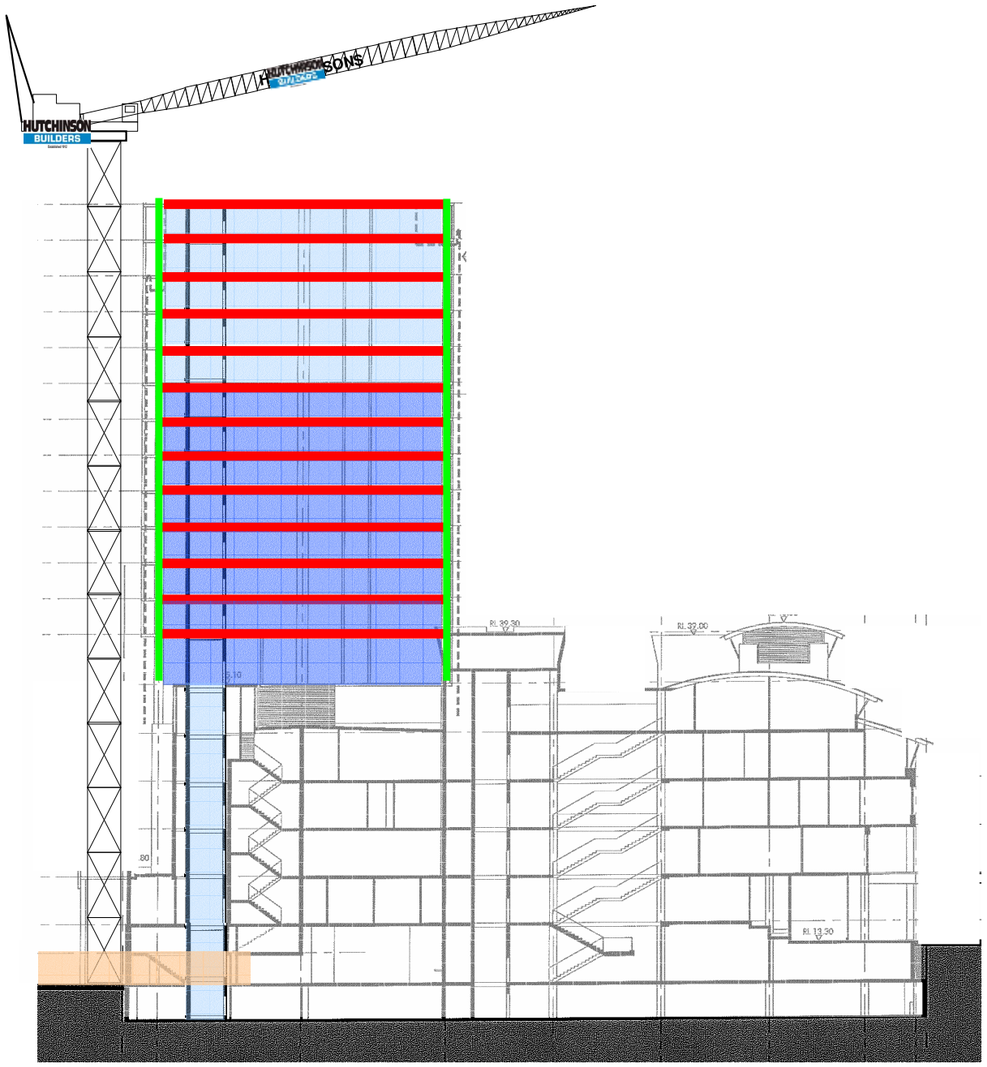
- Façade complete
- Tower Fitout complete to Level 13
- Plant installation commenced

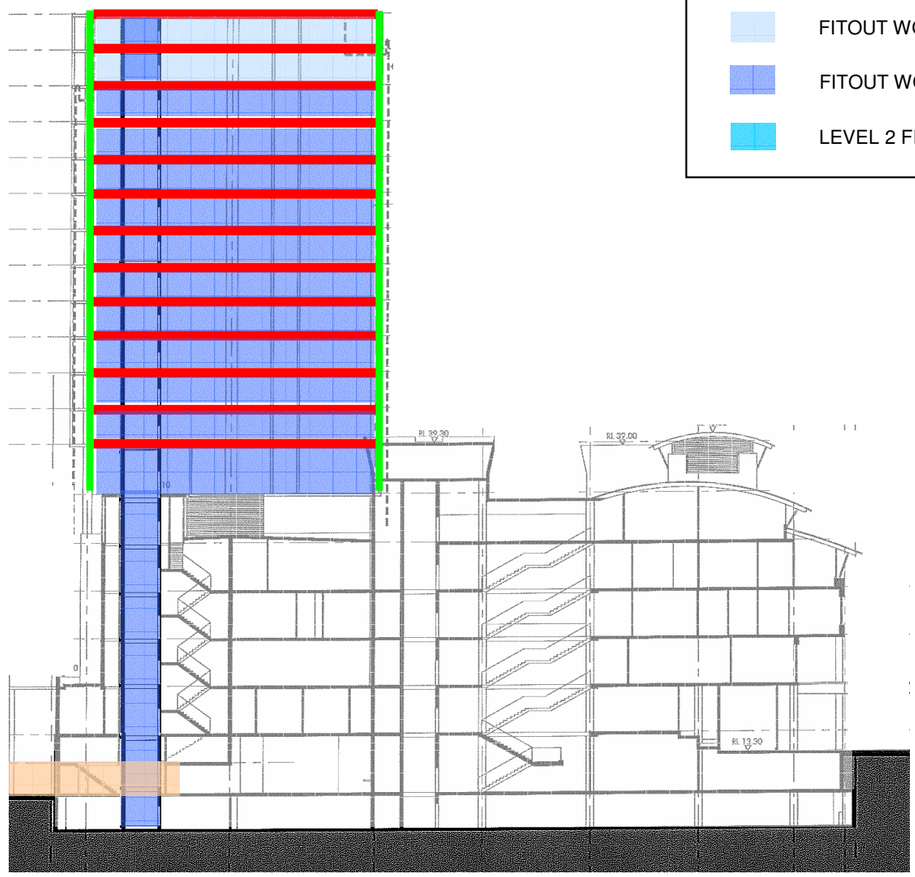
SITE ESTABLISHMENT
LEVEL 1 BASEMENT WORKS
NEW CORE STRUCTURE
NEW SLAB STRUCTURE
FITOUT WORKS
FITOUT WORKS COMPLETE
LEVEL 2 FITOUT WORKS

Living EDUCATION

HUTCHINSON BUILDERS Established 1912

CLIENT: HUTCHINSON BUILDERS
PROJECT: UTS STUDENT ACCOMMODATION
DATE: 10 FEB 09
DESIGN: SB
APP'D: CBP
JOB No.: Y
TITLE: MONTHLY PROGRESS SNAPSHOTS
DWG No.: 07 of 09
SIZE: A3
REV: -





SITE ESTABLISHMENT
LEVEL 1 BASEMENT WORKS
NEW CORE STRUCTURE
NEW SLAB STRUCTURE
FITOUT WORKS
FITOUT WORKS COMPLETE
LEVEL 2 FITOUT WORKS

October 2010

- Tower Fitout complete to Level 15
- Hoist removed

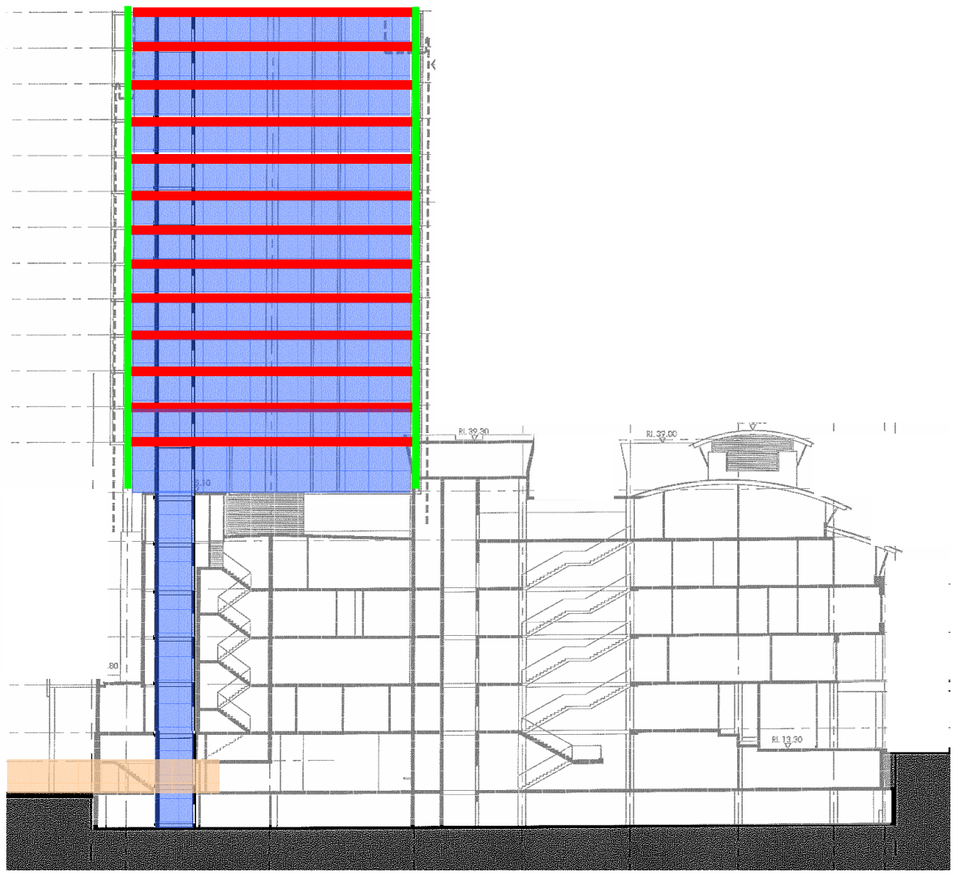
November 2010

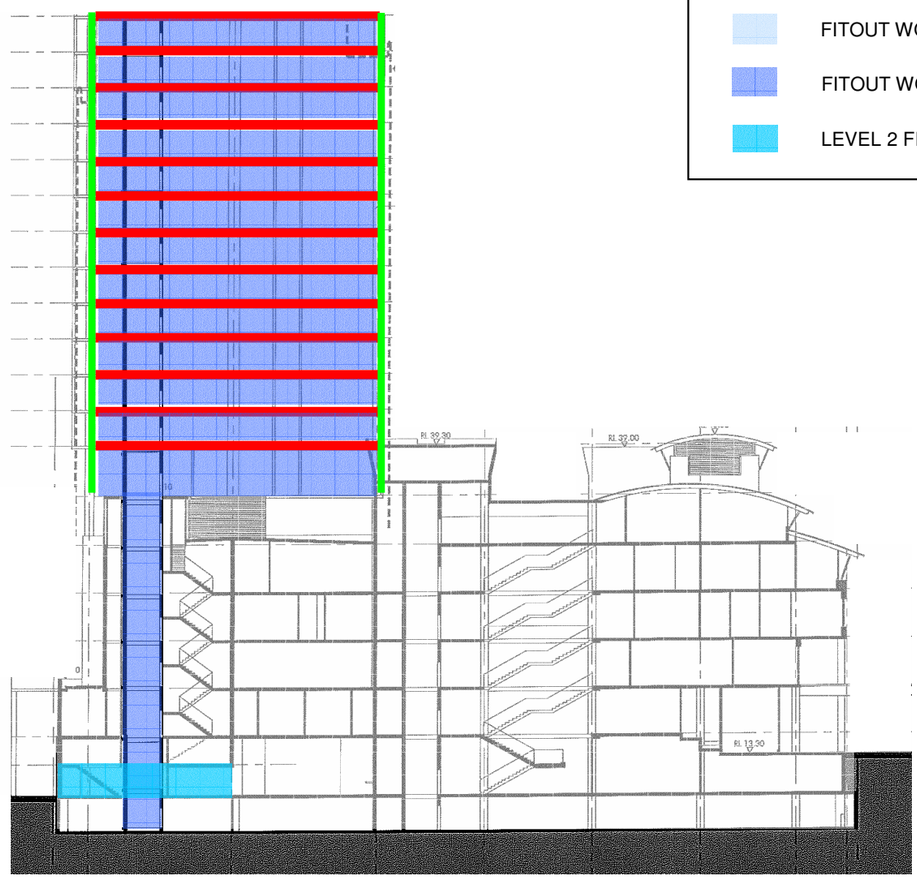
- Tower Fitout complete to Level 18
- Lift installation complete
- Plant installation complete
- Tower Crane removed

Living EDUCATION

HUTCHINSON BUILDERS
Established 1912

CLIENT: HUTCHINSON BUILDERS	DATE: 10 FEB 09	TITLE: MONTHLY PROGRESS SNAPSHOTS	
PROJECT: UTS STUDENT ACCOMMODATION	DESIGN: SB		
	APP'D: CBP		
	JOB No.: Y	DWG No.: 08 of 09	SIZE: A3 / REV: -





SITE ESTABLISHMENT

LEVEL 1 BASEMENT WORKS

NEW CORE STRUCTURE

NEW SLAB STRUCTURE

FITOUT WORKS

FITOUT WORKS COMPLETE

LEVEL 2 FITOUT WORKS

December 2010

- Tower Fitout complete
- Hoist Infill Works complete

January 2011

- Testing & Commissioning
- Project Completion

Living EDUCATION

HUTCHINSON BUILDERS Established 1912

CLIENT: HUTCHINSON BUILDERS

PROJECT: UTS STUDENT ACCOMMODATION

DATE: 10 FEB 09

DESIGN: SB

APP'D: CBP

JOB No.: Y

TITLE: MONTHLY PROGRESS SNAPSHOTS

DWG No.: 09 of 09

SIZE: A3

REV: -

5.3 Existing Building 6 BCA Upgrade Works Sequencing

The following program and sketches give works outline and proposed time & duration for BCA upgrade works to the existing Building 6. Hutchinson Builders would engage a company similar to Movers & Shakers to assist in co-ordination, consultation, relocating and / or storage of user groups / tenants.

Sequencing of works for the Building 6 BCA Upgrade works will be as follows:

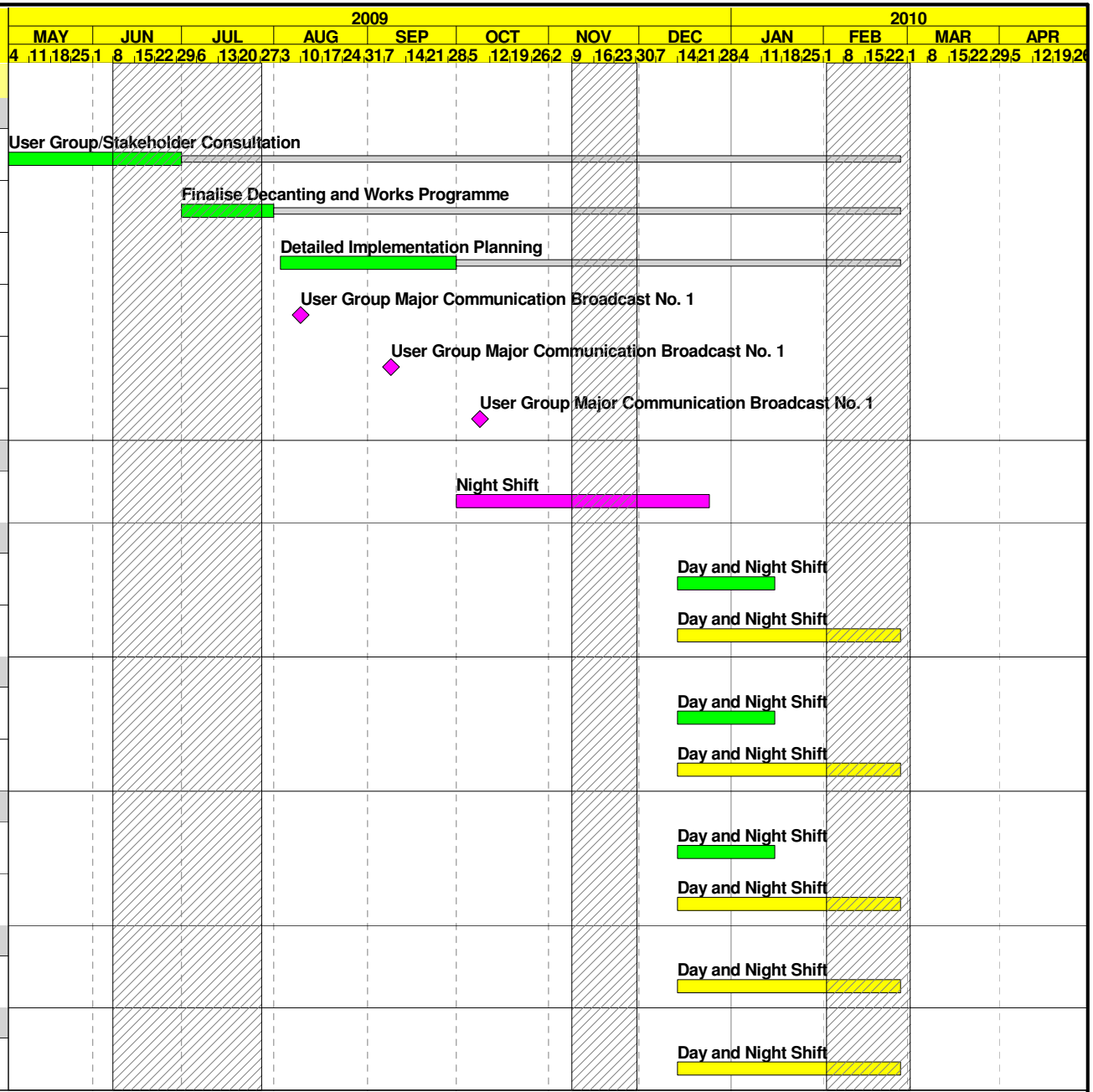
1. User Group consultation
2. Tenants / user groups relocated from agreed area / zone of works
3. Dilapidation report undertaken and agreed with UTS
4. Agreed area / zone of works isolated from operating UTS area by white sandwich panel acoustic A Class Hoardings
5. Services isolation
6. Ceilings removed from works area
7. Services upgrade installation works completed
8. Ceilings re-instated to works area
9. Detail clean undertaken to works area
10. Testing & commission
11. Final inspection of works area undertaken with UTS
12. A Class Hoardings to works area removed
13. Tenants / user groups relocated back to area / zone of works

The new construction zones on each level highlighted on the following sketches as the “Materials & Rubbish Store Areas” will be used for:

- Personnel access via hoist
- Material storage via hoist & crane to loading platforms
- Rubbish storage then removed via hoist & crane to loading platforms
- Temporary water supply & wash out drums

Lockable double doors between BCA upgrade works zones and the “Materials & Rubbish Store Areas” will be located in a mutually convenient location.

Activity ID	Activity Description	Orig Dur	Early Start	Early Finish
Construction				
Pre Upgrade Works				
4440	User Group/Stakeholder Consultation	42	01MAY09	30JUN09
4460	Finalise Decanting and Works Programme	23	01JUL09	31JUL09
4470	Detailed Implementation Planning	43	03AUG09	30SEP09
4490	User Group Major Communication Broadcast No. 1	0	10AUG09*	
4500	User Group Major Communication Broadcast No. 1	0	09SEP09*	
4520	User Group Major Communication Broadcast No. 1	0	09OCT09*	
Level 2				
4420	Night Shift	60	01OCT09*	24DEC09
Level 3				
4450	Day and Night Shift	14	14DEC09*	15JAN10
4530	Day and Night Shift	42	14DEC09	26FEB10
Level 4				
4480	Day and Night Shift	14	14DEC09*	15JAN10
4550	Day and Night Shift	42	14DEC09	26FEB10
Level 5				
4510	Day and Night Shift	14	14DEC09*	15JAN10
4560	Day and Night Shift	42	14DEC09	26FEB10
Level 6				
4540	Day and Night Shift	42	14DEC09*	26FEB10
Level 7				
4570	Day and Night Shift	42	14DEC09*	26FEB10



Start Date 01MAY08
Finish Date 30JUL10
Data Date 01MAY09
Run Date 09MAR09 12:30

University of Technology, Sydney

PJB3 Sheet 1 of 1

UTS - PETER JOHNSON BUILDING 6
BCA UPGRADE WORKS
INDICATIVE PROGRAMME

HUTCHINSON BUILDERS
Established 1912

Date	Revision	Checked	Approved

CARPARKING SPACES (6) UNAVAILABLE FROM NOVEMBER 09

CARPARKING SPACES (17) UNAVAILABLE FROM AUGUST 09 TO OCTOBER 09

CARPARKING SPACES (12) UNAVAILABLE FROM AUGUST 09

COMMENCE WORKS JULY 09

CARPARKING SPACES (6) UNAVAILABLE FROM NOVEMBER 09

CARPARKING SPACES (3) UNAVAILABLE FROM SEPTEMBER 09 TO DECEMBER 10

Living EDUCATION

HUTCHINSON BUILDERS Established 1912

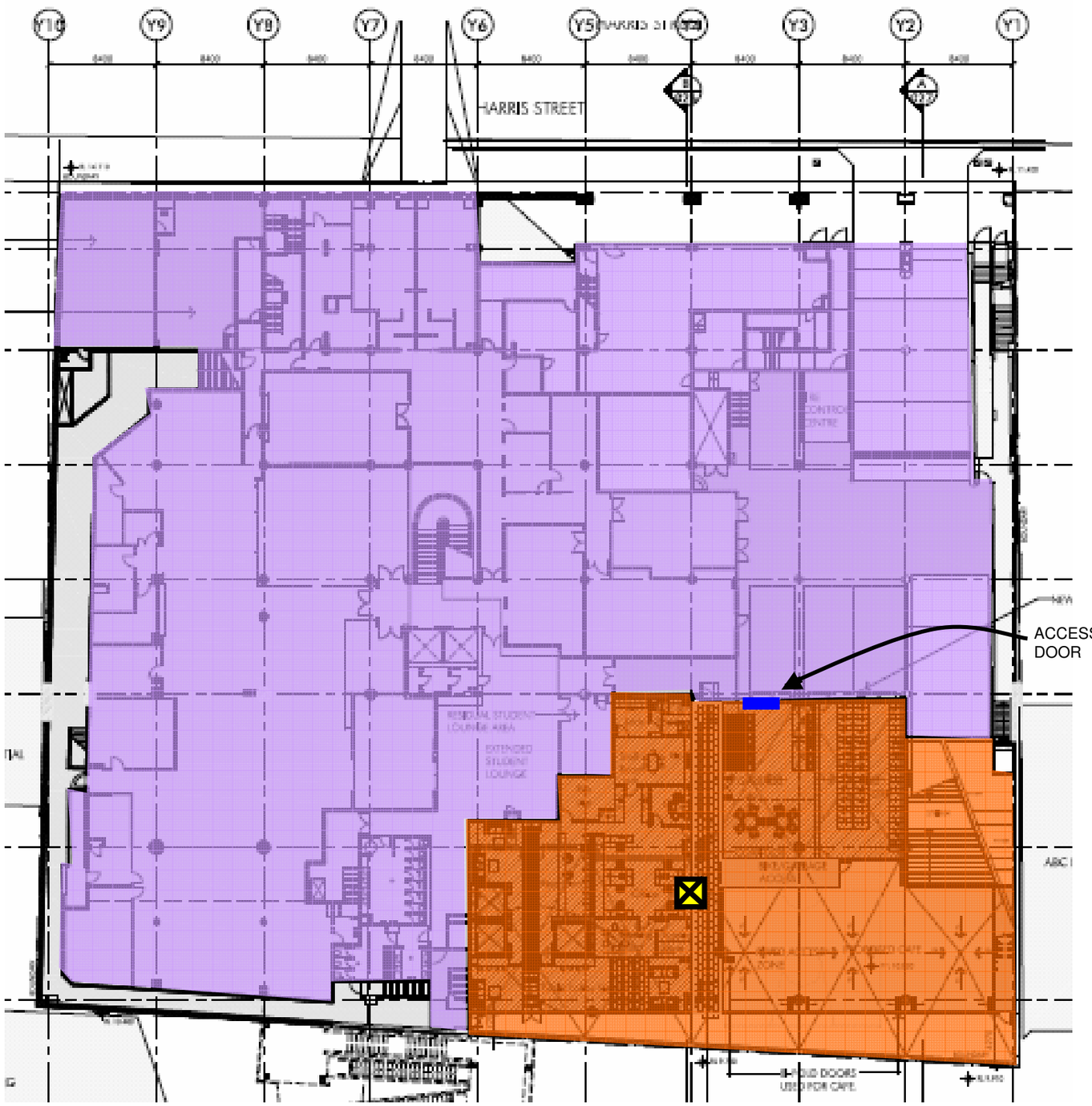
CLIENT: LIVING EDUCATION

PROJECT: UTS STUDENT ACCOMMODATION

DATE: 08 MAR 09

TITLE: LEVEL 1 CARPARKING IMPACT

DWG No. 01 of 07 | SIZE A3 | REV B



- OCTOBER 09 TO DECEMBER 09 (NIGHTSHIFT)
- MID DECEMBER 09 TO MID JANUARY 10 (DAY & NIGHT SHIFT)
- MID DECEMBER 09 TO END FEBRUARY 10 (DAY & NIGHT SHIFT)
- PROPOSED ZONE FOR NEW WORKS

Living EDUCATION

HUTCHINSON BUILDERS Established 1912

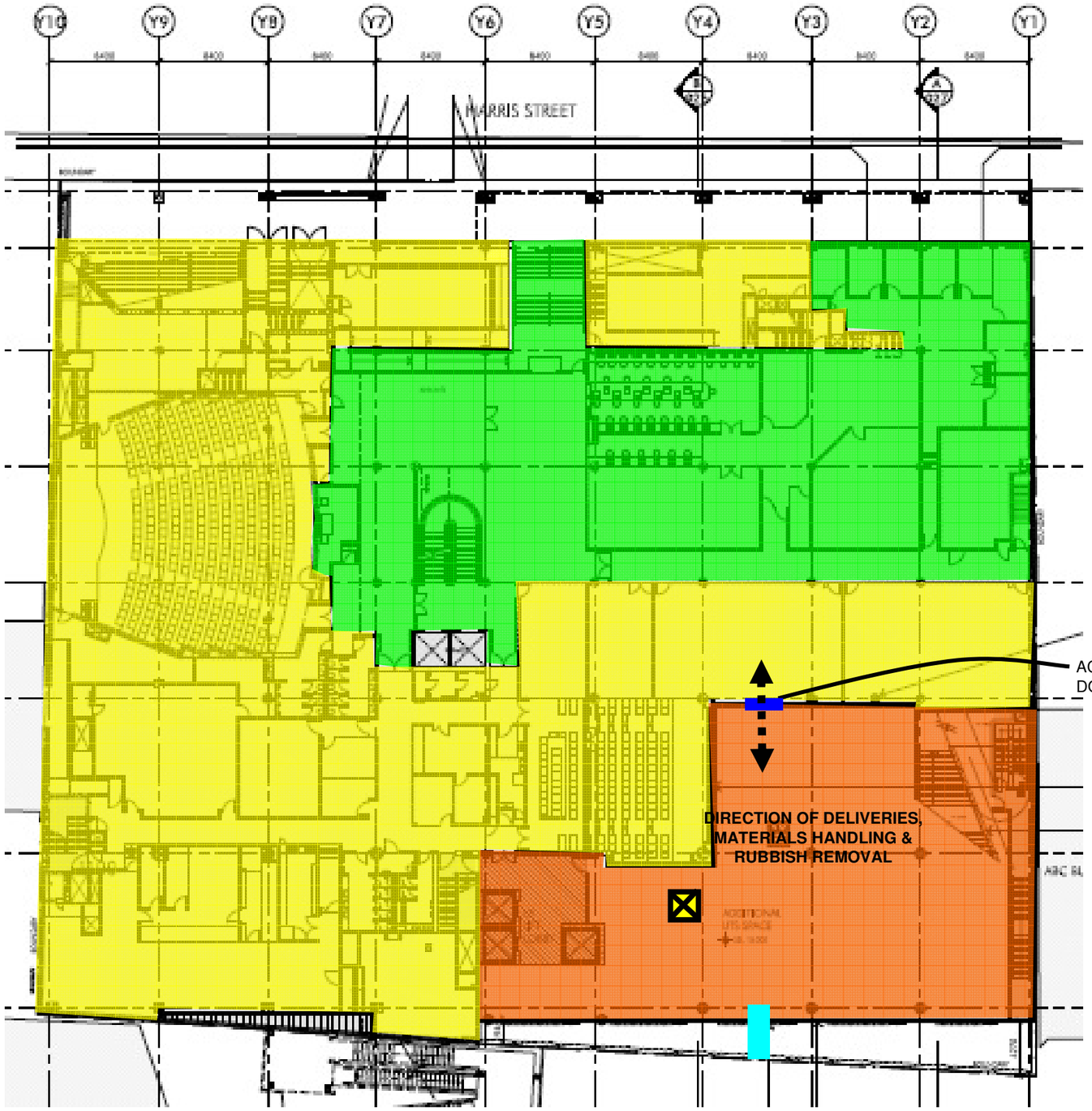
CLIENT: LIVING EDUCATION

PROJECT: UTS STUDENT ACCOMMODATION

DATE: 08 MAR 09

TITLE: LEVEL 2 EXISTING BUILDING IMPACT

DWG No. 02 of 07 | SIZE A3 | REV B



OCTOBER 09 TO DECEMBER 09 (NIGHTSHIFT)

MID DECEMBER 09 TO MID JANUARY 10 (DAY & NIGHT SHIFT)

MID DECEMBER 09 TO END FEBRUARY 10 (DAY & NIGHT SHIFT)

PROPOSED ZONE FOR NEW WORKS

Living EDUCATION

HUTCHINSON BUILDERS
Established 1912

CLIENT
LIVING EDUCATION

PROJECT
UTS STUDENT ACCOMMODATION

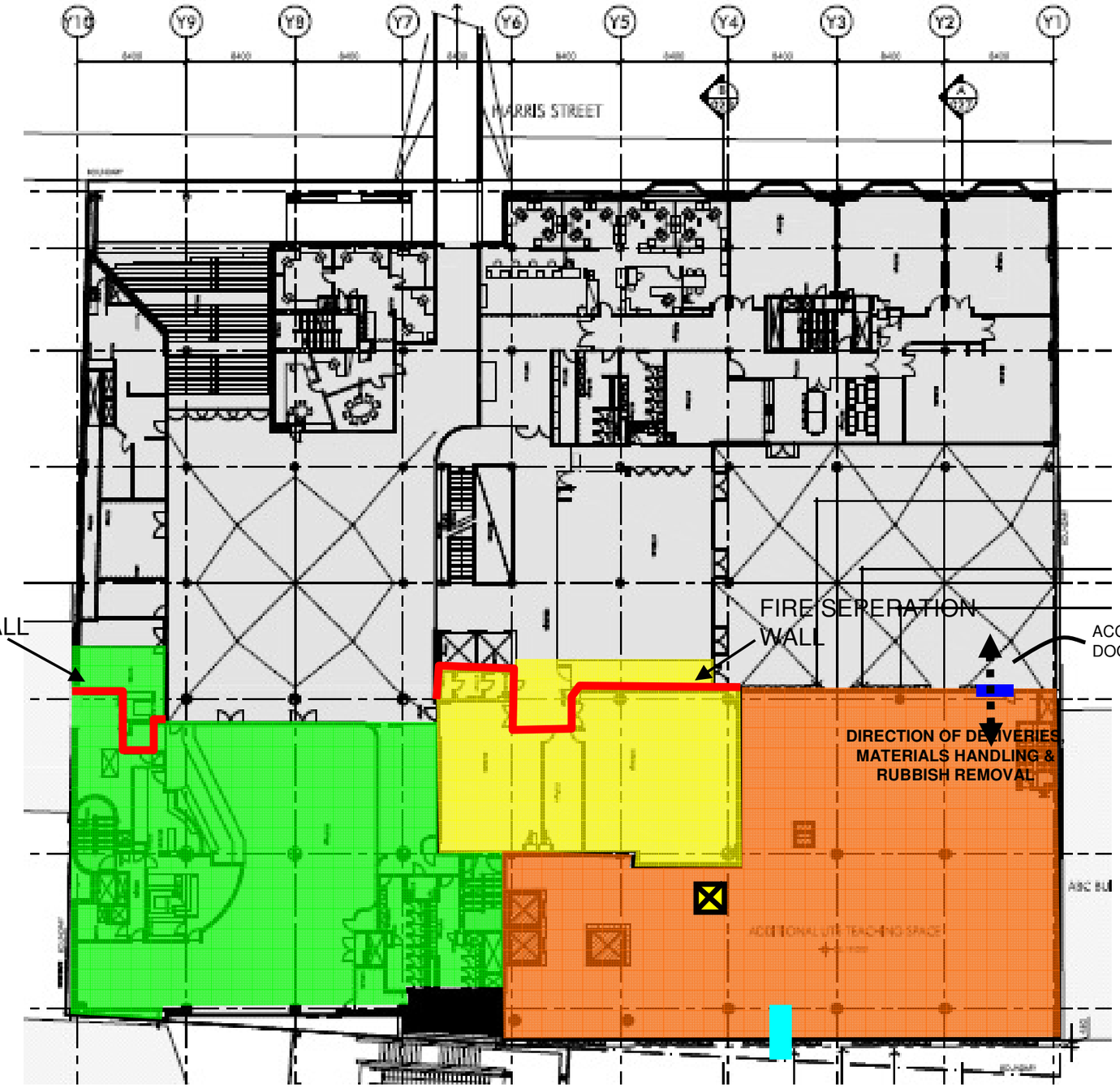
DATE
08 MAR 09

TITLE
LEVEL 3 EXISTING BUILDING IMPACT

DWG No. 03 of 07

SIZE A3

REV B



OCTOBER 09 TO DECEMBER 09 (NIGHTSHIFT)

MID DECEMBER 09 TO MID JANUARY 10 (DAY & NIGHT SHIFT)

MID DECEMBER 09 TO END FEBRUARY 10 (DAY & NIGHT SHIFT)

PROPOSED ZONE FOR NEW WORKS

Living EDUCATION

HUTCHINSON BUILDERS Established 1912

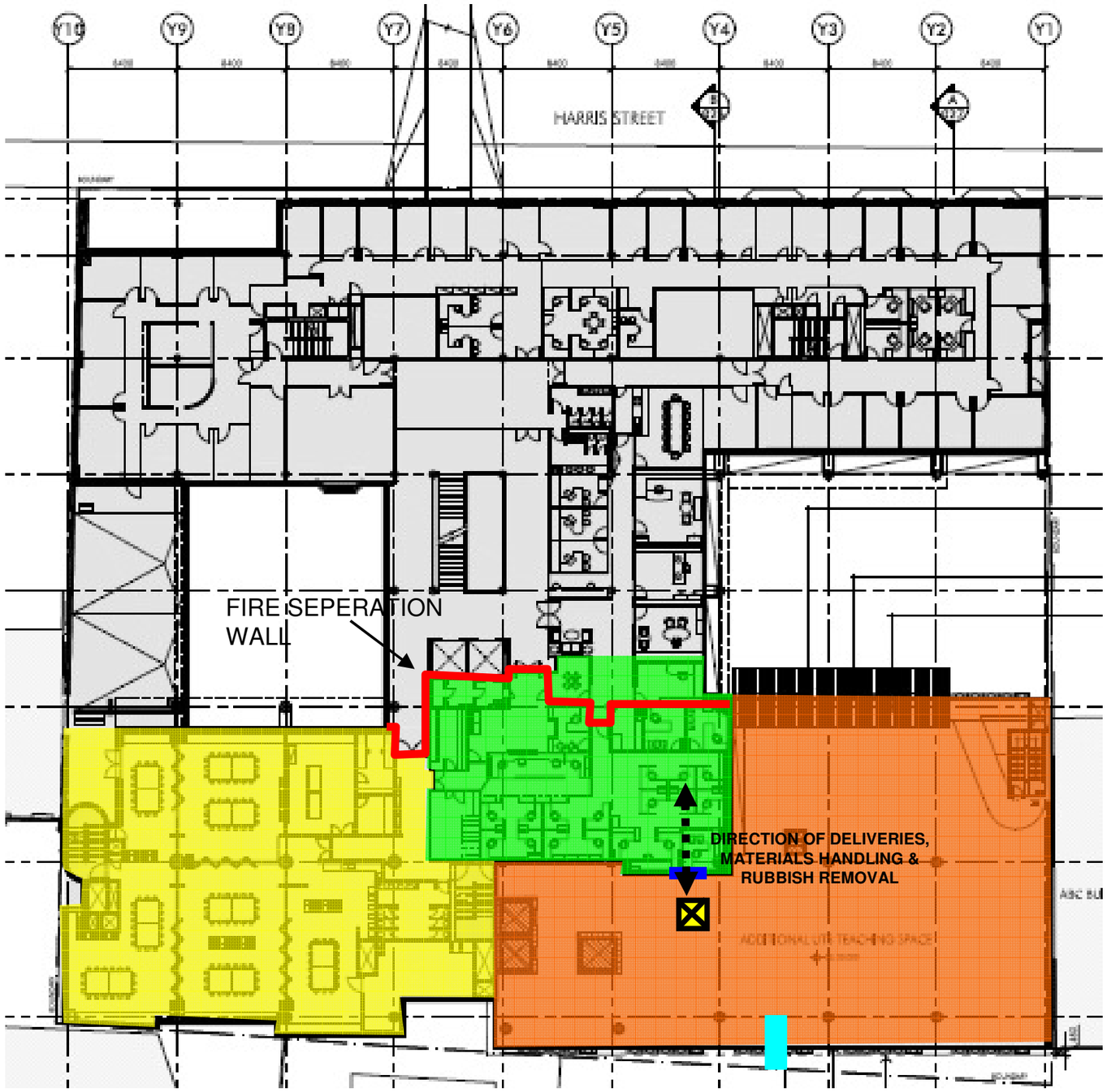
CLIENT: LIVING EDUCATION

PROJECT: UTS STUDENT ACCOMMODATION

DATE: 08 MAR 09

TITLE: LEVEL 4 EXISTING BUILDING IMPACT

DWG No. 04 of 07 | SIZE A3 | REV B



OCTOBER 09 TO DECEMBER 09 (NIGHTSHIFT)

MID DECEMBER 09 TO MID JANUARY 10 (DAY & NIGHT SHIFT)

MID DECEMBER 09 TO END FEBRUARY 10 (DAY & NIGHT SHIFT)

PROPOSED ZONE FOR NEW WORKS

Living EDUCATION

HUTCHINSON BUILDERS
Established 1912

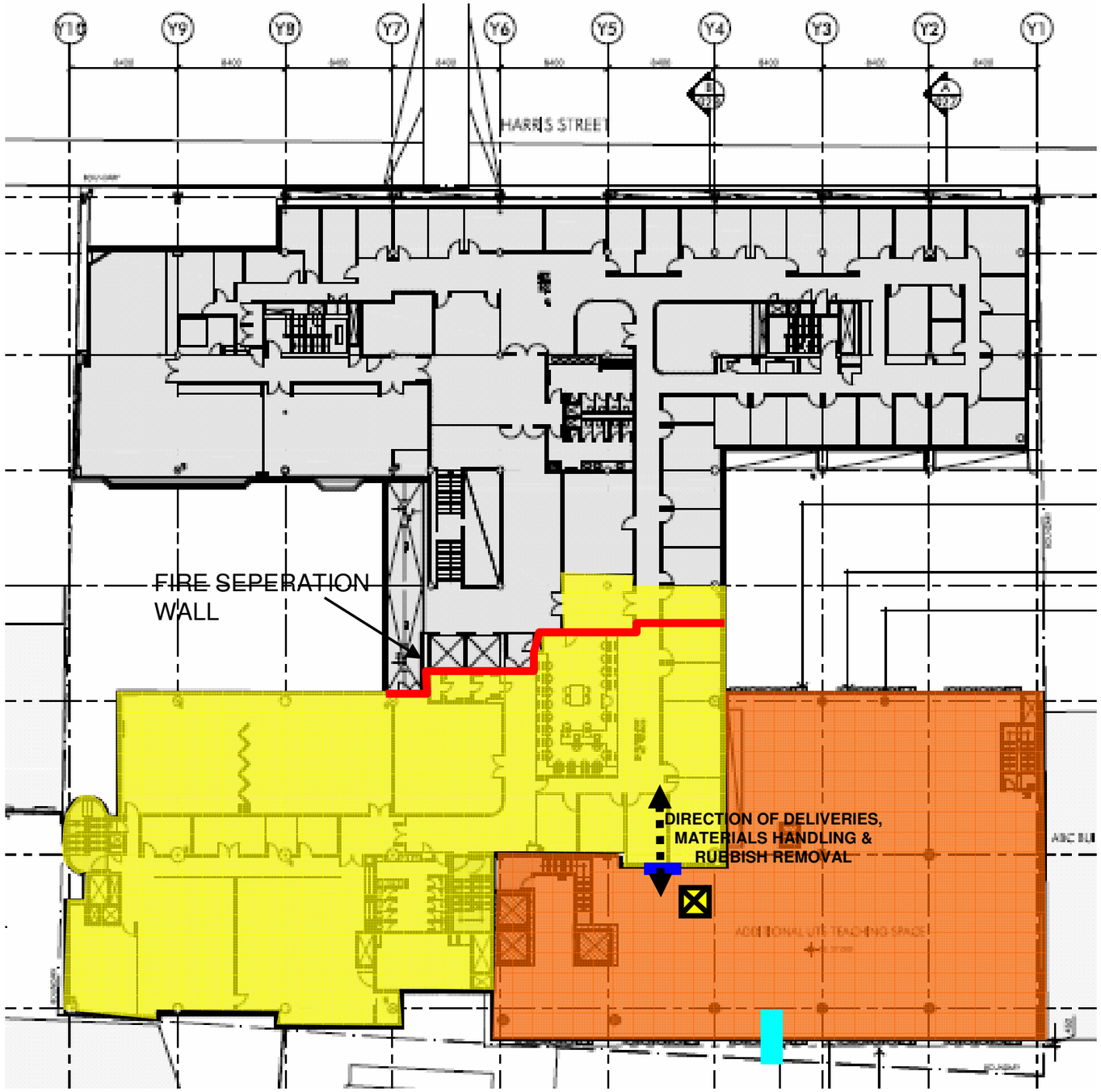
CLIENT: LIVING EDUCATION

PROJECT: UTS STUDENT ACCOMMODATION

DATE: 08 MAR 09

TITLE: LEVEL 5 EXISTING BUILDING IMPACT

DWG No. 05 of 07 | SIZE A3 | REV B



OCTOBER 09 TO DECEMBER 09 (NIGHTSHIFT)

MID DECEMBER 09 TO MID JANUARY 10 (DAY & NIGHT SHIFT)

MID DECEMBER 09 TO END FEBRUARY 10 (DAY & NIGHT SHIFT)

PROPOSED ZONE FOR NEW WORKS

Living EDUCATION

HUTCHINSON BUILDERS Established 1912

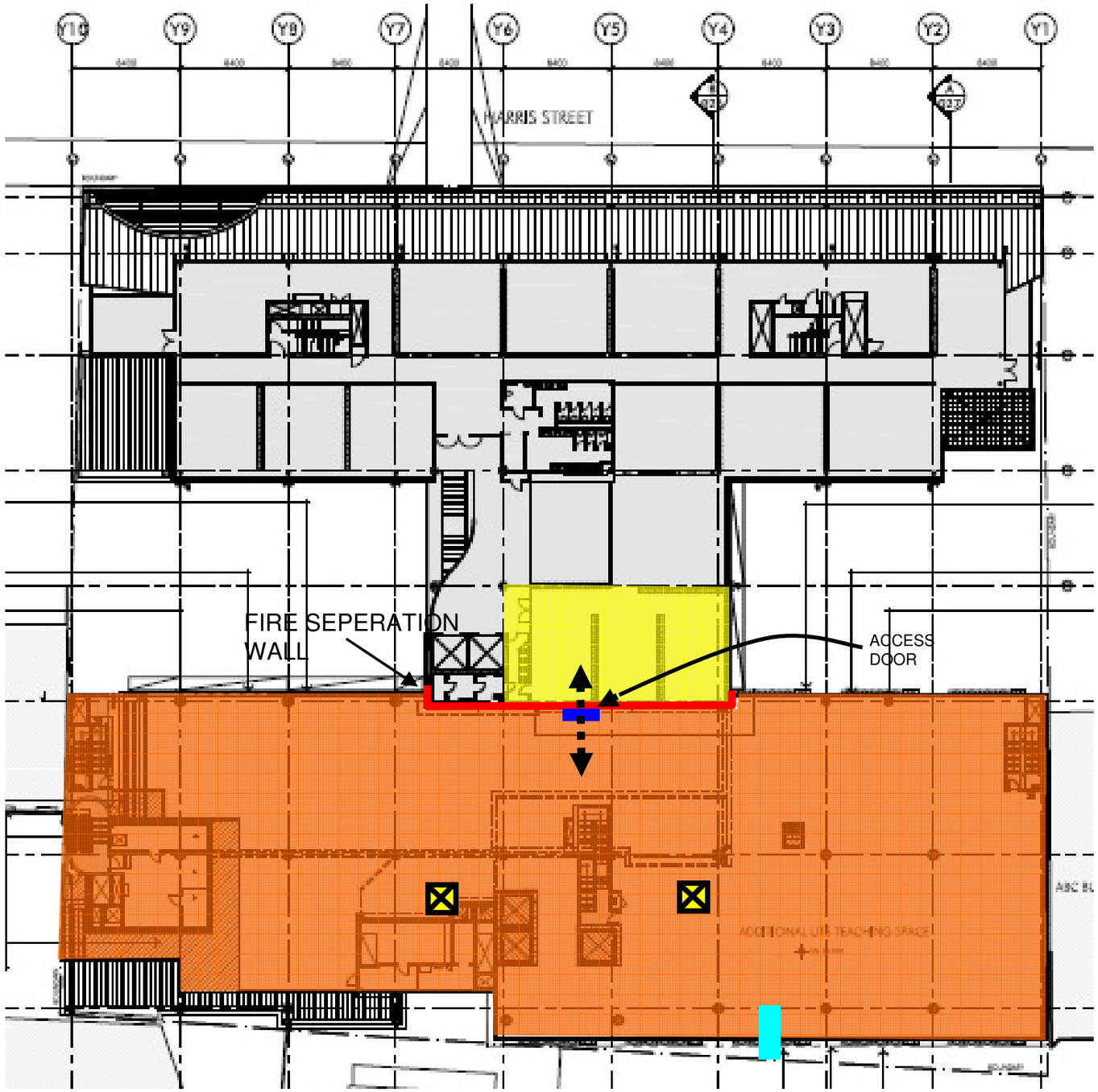
CLIENT: LIVING EDUCATION

PROJECT: UTS STUDENT ACCOMMODATION

DATE: 08 MAR 09

TITLE: LEVEL 6 EXISTING BUILDING IMPACT

DWG No. 06 of 07 | SIZE A3 | REV B



OCTOBER 09 TO DECEMBER 09 (NIGHTSHIFT)

MID DECEMBER 09 TO MID JANUARY 10 (DAY & NIGHT SHIFT)

MID DECEMBER 09 TO END FEBRUARY 10 (DAY & NIGHT SHIFT)

PROPOSED ZONE FOR NEW WORKS

Living EDUCATION

HUTCHINSON BUILDERS Established 1912

CLIENT: LIVING EDUCATION

PROJECT: UTS STUDENT ACCOMMODATION

DATE: 08 MAR 09

TITLE: LEVEL 7 EXISTING BUILDING IMPACT

DWG No. 07 of 07 | SIZE A3 | REV B

6. Noise, Vibration & Disruption Management

Demolition and construction activities which emit excessive noise and vibration which could adversely affect UTS day to day activities will be assessed in conjunction with noise and vibration consultants Acoustic Logic Consultancy Pty Ltd. On completion of this assessment Acoustic Logic Consultancy Pty Ltd will formulate a report which will be issued to the UTS. This report will outline a works criteria to assist Hutchinson Builders in managing these potential excessive noise and vibration activities. This report is to be included within this Construction Management Plan.

Areas and activities which have been identified as causing possible noise, vibration or disruption issues including site location, program date & proposed shift for works to be completed:

Morning AM	7AM – 9AM
Day	7AM – 7PM
Night	7PM – 7AM

	Site Location	Program Duration	Proposed Shift
◆ Geotech investigations	Level 1	March 09 1 week	DAY
◆ Concrete strength testing L1 – L6	Level 1-6	March 09 1 week	NIGHT
◆ As Built Survey of existing structure	Level 1-6	March 09 2 weeks	NIGHT
◆ As Built Survey to identified fire separation walls	Level 2-6	March 09 2 weeks	NIGHT
◆ Existing Building BCA upgrade works	Level 1-7	18 months	NIGHT
◆ Tower crane erection and dismantle	Level 2	1 Day each	DAY
◆ Pedestrian Overhead Protection to Ultimo Pedestrian Network and above escalators erection and dismantle	Level 2-4	July 09 1 month	DAY
◆ All demolition activities as nominated in section 4.1	SEE SECTION 4.1		
◆ Connection to existing lift shaft L2	Level 2	July 09 1 month	DAY
◆ Connection pockets to existing slab L3 – L7	Level 3-7	July 09 – Sept 09 3 Months	Morning AM
◆ Connection to existing columns L2 & L7	Level 2 & 7	July 09 1 month	DAY
◆ Concrete pumping & placement	Level 8 - 20	July 09 – July 10	DAY

◆ Piling / footing upgrade L1	Level 1	12 Months July09 – Sept 09 3 months	NIGHT
◆ Column upgrade L1 – L7	Level 1 -7	July09 – Sept 09 3 months	NIGHT
◆ Hoist operation on Level 7	Level 7		DAY

Temporary waterproofing measures will be undertaken on L7 once the existing structure is demolished to allow construction of the new student accommodation structure.

It is planned to have weekly operational meeting with UTS representatives, where Hutchinson Builders will outline the upcoming activities and the associated tasks in order to identify and plan for any and all impacts to the UTS program.

Hutchinson Builders will prepare and keep up to date a construction activity Program, which will identify those key areas being worked on at any specific time. The specific activities will be discussed in more detail at the regular Operational meetings, and adjusted if necessary.

ACOUSTIC LOGIC CONSULTANCY
noise and vibration consultants
abn 11 068 954 343

25 February 2009

Report: 2009147/0217A/R1/HM

Prepared for: Hutchinson Builders

PETER JOHNSON BUILDING

718 HARRIS STREET, ULTIMO

STUDENT ACCOMMODATION

CONSTRUCTION NOISE AND VIBRATION MANAGEMENT PLAN

Directors Matthew Palavidis | Victor Fattoretto | Matthew Carter | Matthew Shields

Sydney | Ph 02 8338 9888 | fax 02 8338 8399 | 9 Sarah Street Mascot NSW 2020
Melbourne | Ph 03 9614 3199 | fax 03 9614 3755 | Level 7, 31 Queen Street Melbourne VIC 3000
Canberra | Ph 02 6162 9797 | fax 02 6162 9711 | Unit 14/71 Leichhardt Street Kingston ACT 2604

TABLE OF CONTENTS

1. SUMMARY

This report presents an approach to noise management of the construction of the proposed Peter Johnson Building Student Accommodation development at Harris Street, Ultimo. This report was commissioned by Hutchinson Builders and presents an advanced study of noise emanating from the site. The study has been undertaken to determine the levels of noise emissions, which will result at the various premises which either border or are in close proximity to the site.

The report identifies that noise levels will vary from the different construction processes, and that excavation will be the nosiest activity, and external and internal finishing will generate the least noise. Noise levels from all activities are calculated to all potentially worst affected receiver locations. If noise levels are acceptable at these locations they will also be acceptable further a field.

The results of the calculations are presented in a tabulated form for each receiver location. The tables provide the following information;

- The time period,
- The subject construction activity,
- The resultant noise level at the affected premises, the calculated noise levels also take into account any mitigative measures which will be applied to the construction activities, and represent the attenuated level.
- The measured background noise levels,
- The relative magnitude of the activity to the background noise level.
- The resultant internal noise levels at the receiver location from the subject construction activity,
- Internal noise criteria based on Australian Standard 2107-2000 “Acoustics - Recommended Design Sound Levels and Reverberation Times for Building Interiors”
- The relative magnitude of the activity to the nominated internal noise criterion.
- The construction noise criterion,
- The nomination whether noise from the construction activity complies with the nominated criterion.

A critical component of this report is the formulation of noise control strategies for all the different construction processes. These strategies include the formulation of site management procedures, whether they can be operational or time based. The formulation of mitigate treatments including the erection of noise barriers, wrapping of hydraulic hammers and the selection of alternate equipment. The practicable achievable noise reduction from the attenuation measures is determined and included in the calculations of noise impact. The level of attenuation which may be potentially provided is either calculated or based on measurements taken on other construction projects. A detailed noise management plan forms part of this report.

The objective of this study in all cases is to minimise noise emissions from the construction process.

In the report construction noise criteria are formulated based on the following factors;

- The sensitivity of the various receiver locations,
- A consideration of the procedures and requirements set out Australian Standard 2436-1981 *"Guide to Noise Control on Construction, Maintenance and Demolition Sites"*.
- The fact that no construction site in Sydney can strictly comply with a background + 10dB(A) criterion, whether it is a larger scale construction or the construction of a domestic residence. Note, the operation of a power saw in domestic construction may generate levels of noise which are 10 to 40dB(A) above the background noise level.
- The requirements to control noise emissions from the construction site to levels, which does not cause undue disturbance to the identified receiver locations.
- The noise mitigation measures available.

The calculated noise levels presented in this report will be verified by on-site manned measurements, and a noise monitoring programme. In addition, the implementation of noise control measures as detailed in this report will also be monitored, and an appropriate reporting format will be devised so that this information can be presented to Council on a regular basis.

In conclusion, provided all measures outlined in this report are fully implemented, excavation and construction noise from the construction of the proposed Student Accommodation development at Harris Street Ultimo will be strictly controlled, and the impact on the surrounding environs minimised.

2. INTRODUCTION

This report presents an approach to noise management of the construction of the proposed Student Accommodation development at Harris Street, Ultimo. This report was commissioned by Hutchinson Builders and presents an advanced study of noise emanating from the site.

The principal objective of this study was to undertake advanced evaluation of all work to be performed during the excavation and construction phase of the project and forecast potential levels of noise.

The report firstly identifies that noise emissions from different construction activities and processes vary. The resultant noise levels from the construction sites will be dependent on which activity and process is taking place at any given period.

With the identification of which construction process, the noise levels are calculated at all potentially affected receiver locations. The results of this evaluation indicated that the site can comply with the formulated construction noise assessment criteria. This requires that the site comply with the conditions set out in this report.

3. NOISE CONTROL STRATEGY

This report presents the strategy which will be followed to regulate noise emissions from the construction of the proposed Student Accommodation at the 718 Harris Street Site. This section presents the constraints of the current Sydney City Council DCP, EPA Conditions and discusses alternative suitable criteria with justification.

3.1 CONSTRUCTION NOISE CRITERION

The application of the standard criteria EPA environmental criterion to a major construction site represents a non-workable and unrealistic approach. Activity on a building site takes place over a period of time and involves a series of complicated processes and activities, from, demolition/excavation, the delivery of materials to site, to the pumping of concrete, and the erection of building structure. All these processes generally occur in the open, and are required for the erection of a building. It is practically impossible to reduce noise emissions from these activities to a standard such as 5dB(A) above background.

Sydney City Council is currently in the process of reviewing their Code of Practice for Construction Hours/Noise 1992, as they have found the criteria in the Code to be unworkable. Construction sites are not able to comply with the criteria, and this is leading to unnecessary complications and restriction of work.

3.2 SUITABLE NOISE STANDARD FOR HARRIS STREET, ULTIMO STUDENT ACCOMMODATION DEVELOPMENT

3.2.1 Australian Standard AS2436

For the control and regulation of noise from excavation sites the Australian Standard AS2436 nominates the following:

1. That all practicable measures be taken on the building site to regulate noise emissions, including the sitting of noisy static processes on parts of the site where they can be shielded, selecting less noisy processes.

2. The undertaking of noise monitoring to assist in the management and control of noise emission from the building site.

3. Those reasonable suitable noise criteria be established.

3.2.2 City of Sydney Council DCP "Code of Practice for Construction Hours/Noise within the Central Business District"

Criteria for the assessment of potential noise impact to neighbouring premises are those required by the Sydney City Council in the "Code of Practice for Construction Hours/Noise within the Central Business District". The criteria requires that the LA avg max noise emitted from activities on the construction site and measured over 15 minute period must not exceed the background noise levels measured in that time period in the absence of construction noise as detailed below.

Table 1 – City of Sydney Council Construction Noise Criteria

DAY	TIME ZONE	CATEGORY	NOISE CRITERIA
Monday to Friday	07:00 to 08:00	1	Background + 5dB(A)
	08:00 to 19:00	1	Background + 10dB(A)
Saturday	07:00 to 08:00	1	Background + 5dB(A)
	08:00 to 17:00	1	Background + 10dB(A)

3.3 CONSTRUCTION NOISE PROCEDURES

Based on these criteria the following procedure will be used to assess noise emissions:

- Predict noise levels produced by typical excavation activities at the sensitive receivers.
- If noise levels exceed "background + 5 or 10 dB(A)" noise goal at sensitive receiver locations, investigate and implement all practical techniques to limit noise emissions. For commercial receivers, a background + 10 dB(A) criterion has been adopted at all times given that the buildings are expected to predominantly be unoccupied between 7am and 8am and it does not make sense to restrict activity at a time when it would produce minimal impact.
- If the noise goal is still exceeded after applying all practical engineering controls to limit noise emissions, review the management techniques to mitigate noise emissions in accordance with AS2436.

4. STUDY OVERVIEW

This report presents evaluation of potential noise emissions from excavation of the 718 Harris Street, Ultimo development.

The following report presents a number of proposed strategies to be used by Mainland Civil to reduce Environmental Noise Impact.

The aim of this study is to undertake an analysis of noise impact arising from site activities undertaken in normal construction hours, i.e.

1. Between 7:00 am and 7:00 pm, Mondays to Fridays inclusive;

2. Between 7:00 am and 5:00 pm, Saturdays;

3. No work on Sundays and public holidays unless otherwise approved by the City of Sydney Council.

During the above hours it is anticipated that works will fully comply with suitable noise control criteria. These activities will be carefully managed and appropriate noise mitigating measures will be strictly implemented where required. The formulation of noise management plans for the various activities will arise from the assessment carried out in this report and the strict enforcement of all determined control measures.

5. CONSTRUCTION NOISE STUDY

The level of noise generated by a construction site is largely dependent on the activities which are in progress. It can not be categorically stated that all construction sites emit the same level of noise no matter what stage or part of the construction programme they are at.

The generalisation, that all construction work is noisy is fallacious. The levels of noise generated are dependent on the activities occurring. In addition, it is possible to undertake construction work in a controlled manner so that noise is minimised. This requires the formulation of noise control strategies, and stringent supervision.

A study of a typical construction site is presented below to show the varying levels of noise generation from various activities.

5.1 CATEGORISATION OF CONSTRUCTION ACTIVITIES

The construction activities, which occur during the typical process in constructing a building from start to finish, can be separated into five categories, namely;

1. Demolition

2. Excavation

3. Erection of structure

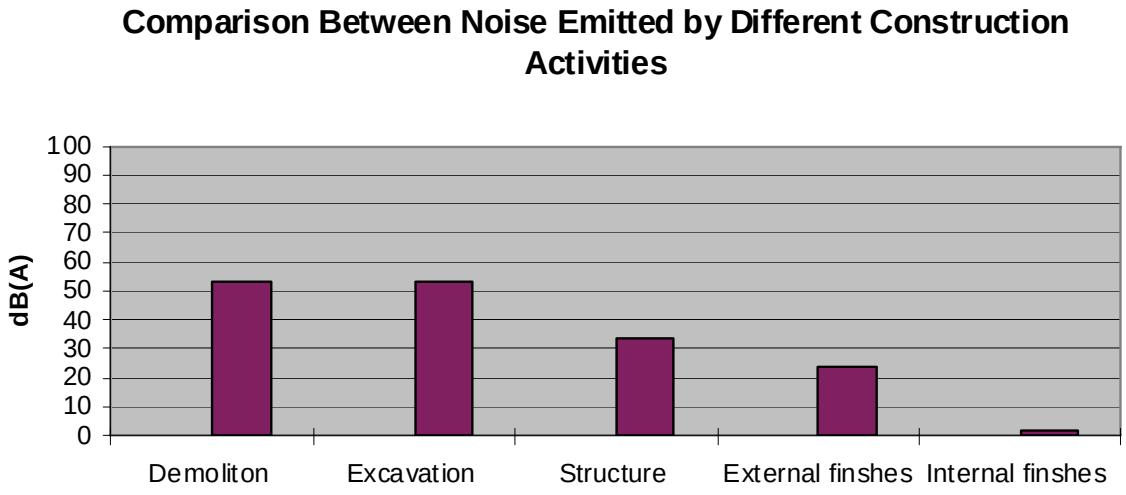
4. Installation of facade/external finishes

5. Internal fit out/internal finishes

The noise levels generated by each of these activities will vary and be largely dependent on the process undertaken. The graph below illustrates typical sound pressure levels resultant at a residential location (approximately 55 metres) from an active construction site. The levels in the table below are derived from

measured field attenuation from the GPO Re-Development, No. 1 Martin Place site to a residential receiver. As such these levels represent a real case scenario and are not theoretical. The objective of presenting these sound levels is to present a relative comparison between the five categories of construction activities described above. The comparative levels presented below indicate the maximum noise, which can be generated by the specific activities.

The histogram below shows that the nosiest construction activities are the demolition and excavation, which generate equivalent noise levels due to the similar activities



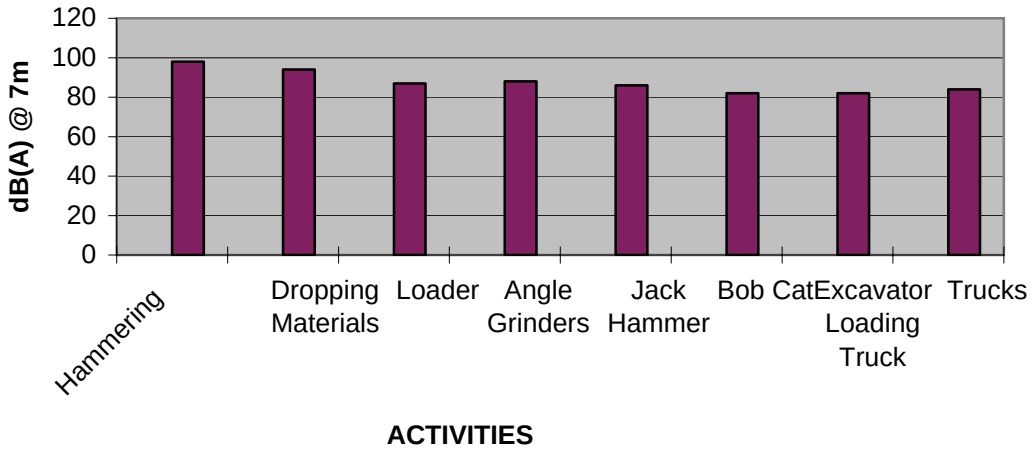
Erection of structure is next, and then external finishes. Internal finishes is the quietest of activities as it occurs internally. The histogram above represents the maximum noise levels emitted by the entire construction activity, but does not take into account, that within each process there are loud and quiet component processes. To further clarify this point each of the five construction activities outlined above will be further broken down into discrete processes. This will permit the determination of which components of a particular process generate the highest noise levels.

The subject site is located on an existing car-park site comprising of a bitumen surface with concrete curbing. The demolition of the existing car-park will involve minimal activity and has been included in the excavation scope.

5.2 DEMOLITION ACTIVITIES

The demolition process of the site involves the removal of existing internal finishes, demolition of external façade and existing concrete structure not required for the future development. Demolition activities include pneumatic activities as well as materials handling and the like.

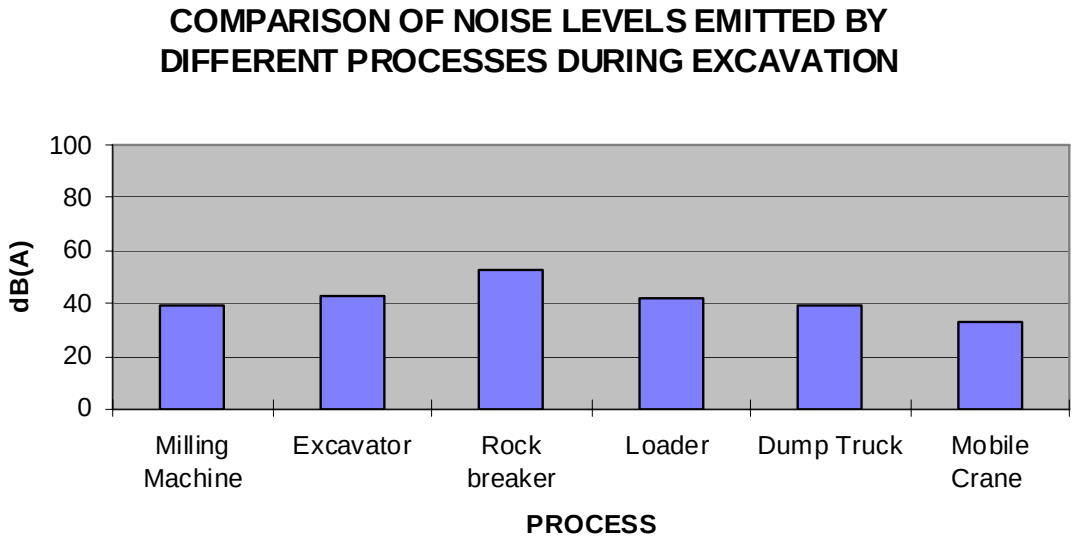
COMPARISON OF NOISE LEVELS EMITTED BY DIFFERENT PROCESSES DURING DEMOLITION



The above histogram illustrates that the potentially nosiest part of the excavation process is the use of hydraulic hammers the other process are generally 10 to 15dB(A) quieter.

5.3 EXCAVATION

The excavation process on the site involves the removal of top soil/clay/fill layers with the remainder of spoil being predominately Shale which is easier to remove than other materials such as sandstone and therefore less noise is generated during excavation The work is generally undertaken by the use of a bulldozer and scraper attached, rock breakers and milling machines.



The above histogram clearly illustrates that the nosiest part of the excavation process is the use of hydraulic hammers the other process are generally 10 to 15dB(A) quieter.

5.4 ERECTION OF STRUCTURE

This activity refers to the erection of the structure of the building, which includes lift cores, and general building structure. Lift cores are generally constructed in advance of the remainder of the building structure using either jump or slip forms.

The general processes involved in this activity include the delivery of materials, erection of formwork, installation of structural steel, pouring of concrete, and stripping of formwork. All materials for form working and structural steel are transported to the work face using the site tower cranes and man/material hoist. Concrete is pumped up the building using concrete pumps.

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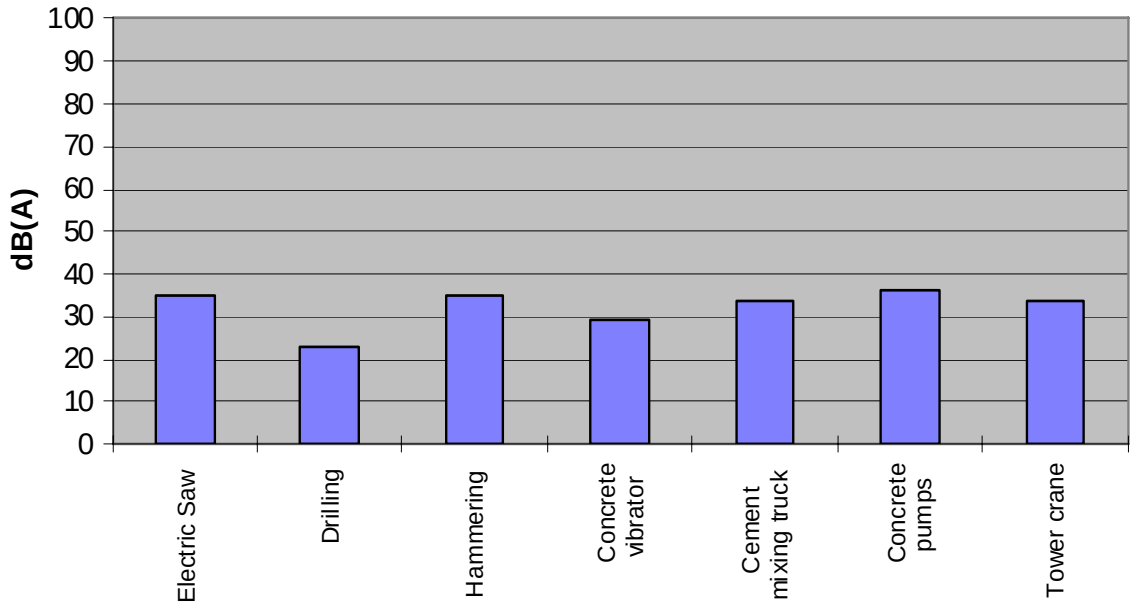
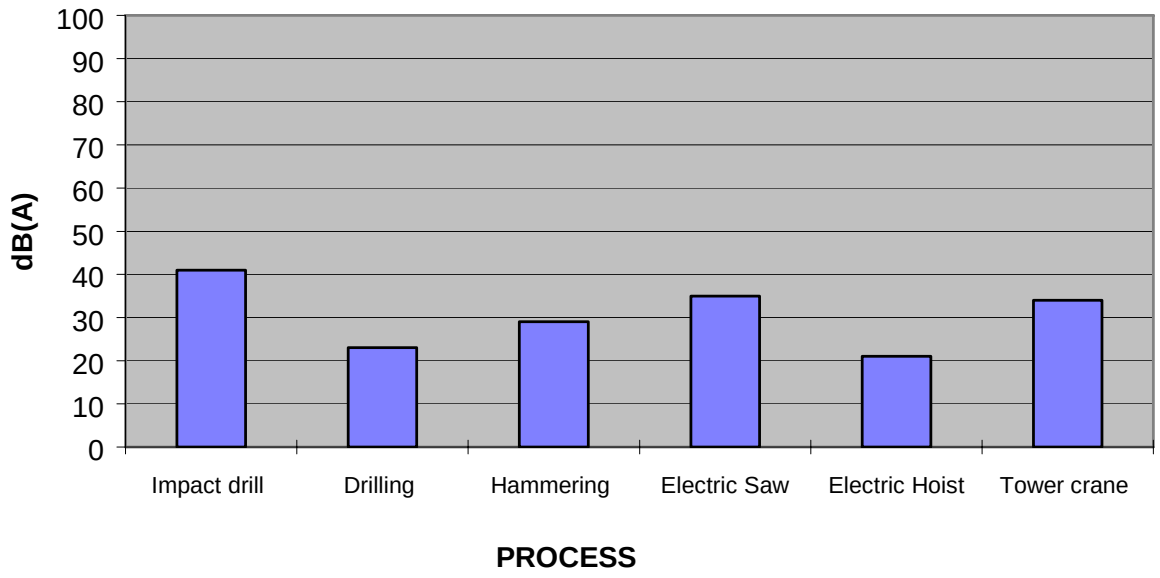
COMPARISON OF NOISE LEVELS EMITTED BY DIFFERENT PROCESSES DURING ERECTION OF STRUCTURE



5.5 EXTERNAL FINISHES

This can involve processes ranging from the erection of facade systems, curtain walls pre-cast etc, to the installation of windows and the fixing of stone. Typical noise levels, which may be generated by this activity, are illustrated in the chart, which follows.

COMPARISON OF NOISE LEVELS EMITTED BY DIFFERENT PROCESSES DURING EXTERNAL FINISHES



5.6 INTERNAL FINISHES

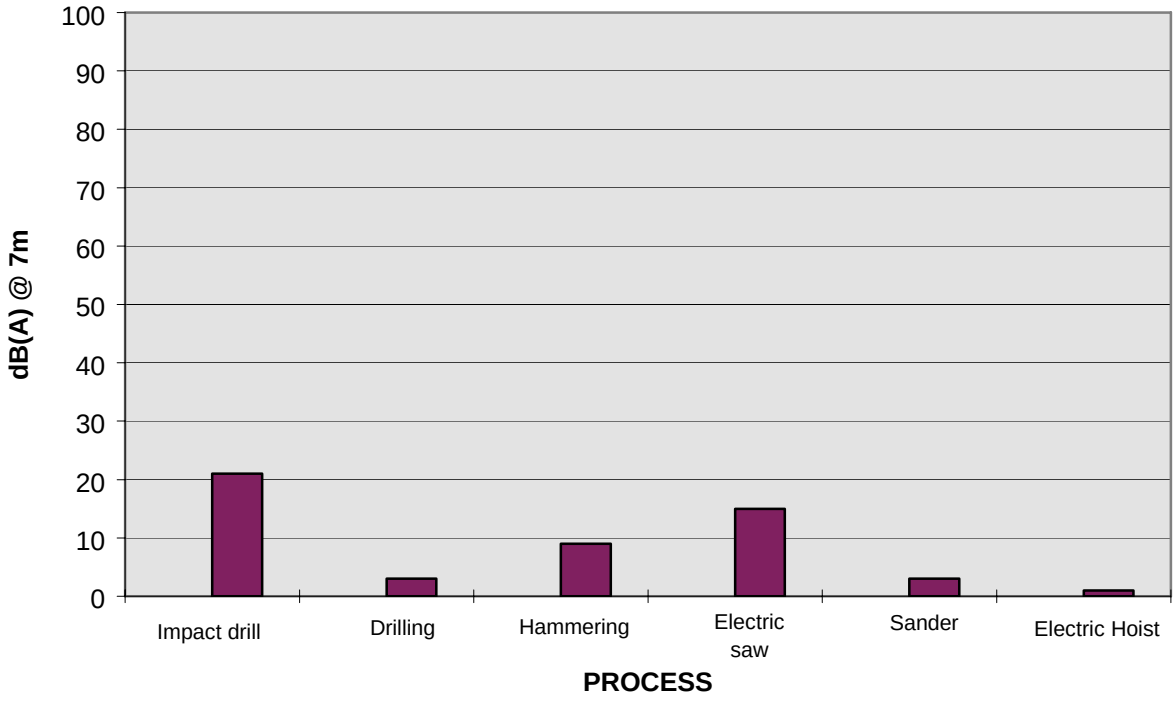
This involves all internal fit out work including painting, partitioning joinery and the laying of carpet and other finishes, as well as the installation of services.

This work is generally carried out once the facades have been erected. All work covered under this section will be contained within the building, with the facade providing a barrier to the direct transmission of noise to the exterior.

The services work includes plumbing mechanical, lifts, fire and electrical.

Typical noise levels, which may be generated by this activity, are illustrated in the chart, which follows.

COMPARISON OF NOISE LEVELS EMITTED BY DIFFERENT PROCESSES DURING INTERNAL FINISHES



The above histogram clearly shows that noise levels emitted from this activity are significantly quieter than the four previously discussed activities

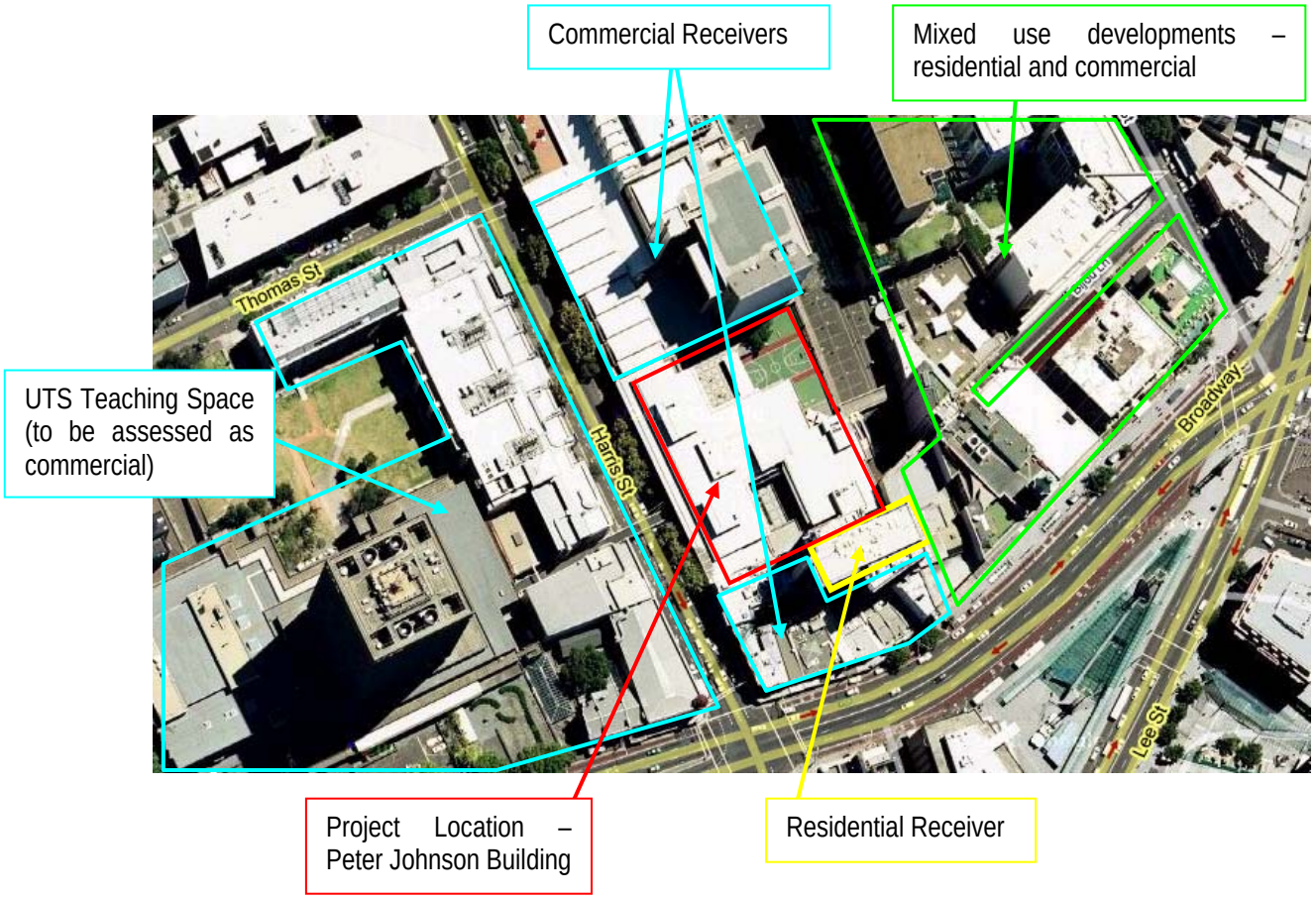
5.7 DISCUSSION

From the information presented in the above section it can be clearly seen that the noise emitted from a construction site will be dependent on which activities are taking place and more specifically, the particular process within those activities. For example there is a difference of 16 dB(A) between using a hydraulic hammer and loading a truck during excavation. A difference of 16dB(A) is substantial. Therefore by limiting the activities which take place on a construction site at particular times noise emissions can also be regulated.

6. SITE DESCRIPTION AND POTENTIALLY AFFECTED LOCATIONS

The site of the subject development is located at Harris Street, Ultimo. It is set amongst adjoining mixed use developments. The following are the residential and other noise sensitive locations in close proximity to the site.

The following site plan shows the nearest noise receivers.



Location 1. The nearest residences are situated along the boundary of the subject site

This property (highlighted above in yellow) is 853 Broadway. In addition, mixed use commercial/residential developments (highlighted above in green) are also situated along the boundary of the site, with 841 Broadway being the closest to the project site.

Location 2. The next nearest residences are near the site, but do not adjoin the boundaries.

These properties (highlighted above in green) have facades on Bijou Lane and/or Thomas Street.

Location 3. The existing teaching areas within the UTS building to the west of the proposed site.

These areas (highlighted above in blue) have facades which will potentially be affected from construction on the proposed site facing Harris Street as well as those within the site which will remain operational during the construction period.

7. NOISE CRITERIA

7.1 EXTERNAL NOISE LEVELS

The criteria, which are proposed for this study, are aimed at maintaining comfort levels within the surrounding residential buildings. The criteria as nominated in Section 3 of this report are the principles of Sydney City Council and AS2436.

7.2 INTERNAL NOISE LEVELS

The criteria, which are proposed for this study, are aimed at maintaining comfort levels within the surrounding areas including teaching areas of UTS. Criteria used as the basis of this report is the Sydney City DCP which indicates a noise goal of Background noise + 10 dB(A) (background noise levels within the sensitive areas of UTS will be based on the Australian Standard AS2107:200) and Australian Standard AS2436.

8. VIBRATION CRITERIA

In the absence of any vibration criteria associated with construction activities within the City of Sydney Council DCP and EPA suitable criteria have been selected based on experience with similar construction sits, Australian Standards and the German Standards. Suitable standards which include criteria for vibration associated with construction sites are detailed below.

Note that these criteria are applicable for all surrounding locations including internal areas within UTS.

- German Standard DIN 4150-3 (1999-02): *"Structural Vibration – Effects of Vibration on Structures"*; and
- Australian Standard AS2187.2:1993 – "Explosives – Storage and Use of Explosives" which is used as the bases for vibration affecting neighbouring properties from construction activities.

The criteria and the application of these Standards are discussed in separate sections below.

8.1 GERMAN STANDARD DIN 4150-3 (1999-02)

German Standard DIN 4150-3 (1999-02) provides vibration velocity guideline levels for use in evaluating the effects of vibration on structures. The criteria presented in DIN 4150-3 (1999-02) are presented in Table 1.

It is noted that the peak velocity is the absolute value of the maximum of any of the three orthogonal component particle velocities as measured at the foundation, and the maximum levels measured in the x- and y-horizontal directions in the plane of the floor of the uppermost storey.

Table 2 – DIN 4150-3 (1999-02) Safe Limits for Building Vibration

	TYPE OF STRUCTURE	PEAK PARTICLE VELOCITY (mms^{-1})			
		At Foundation at a Frequency of			Plane of Floor of Uppermost Storey
		< 10Hz	10Hz to 50Hz	50Hz to 100Hz	All Frequencies
1	Buildings used in commercial purposes, industrial buildings and buildings of similar design	20	20 to 40	40 to 50	40
2	Dwellings and buildings of similar design and/or use	5	5 to 15	15 to 20	15
3	Structures that because of their particular sensitivity to vibration, do not correspond to those listed in Lines 1 or 2 and have intrinsic value (e.g. buildings that are under a preservation order)	3	3 to 8	8 to 10	8

8.2 AUSTRALIAN STANDARD AS AS2187.2:1993

The recommended vibration criteria for works associated with activities on the 718 Harris Street, Ultimo site when measured at neighbouring receivers based on AS2187 are detailed in the table below.

Table 3 – Recommended Maximum Peak Particle Velocity

Type of Building or Structure	Peak Particle Velocity mm/s
Houses and low-rise residential buildings; commercial buildings not included	10
Commercial and industrial buildings or structures of reinforced concrete or steel construction	25

9. NOISE MITIGATION AND MANAGEMENT MEASURES

Noise generated by plant and equipment throughout the duration of the project will be managed to generally comply with the background + 5 or +10dB(A) goal (as applicable), and where this noise goal may be exceeded noise will be managed in strict compliance with AS2436.

Acoustic Logic Consultancy Pty Ltd and Hutchison Builders, each has considerable experience in matters relating to noise emanating from various excavation and construction methodologies. As detailed documentation for the works is addressed and completed in the months ahead, it will be possible then to determine with specialist sub-contractors the better way of managing heavy plant and equipment in a relatively constricted site area. At that time, the plan of management for noise control will be refined and submitted to the authorities with the demolition and excavation safety and methodology statement.

At this stage, the plan of management examines various measures which may be taken by Hutchison Builders to minimise and manage noise emission from the works.

10. RECOMMENDED CONTROLS

Recommendations are made reduce noise emissions to the noise goals, and to implement other measures to minimise noise emissions where practicable:

To minimise noise from hydraulic hammering it is proposed to:

- Acoustically lag the body of hydraulic hammers to minimise noise radiating from this source where possible.
- Acoustic screening to permanent scaffolding using carpet or the like if possible and practical.

10.1 SELECTION OF ALTERNATE APPLIANCE OR PROCESS FOR PILING

It is noted that CFA/Bored piling will be utilised where practical to minimize impact driven piling and thus reduce noise levels at the receivers by up to 15dB(A).

10.2 SELECTION OF ALTERNATE APPLIANCE OR PROCESS FOR EXCAVATION

Where practical alternative quieter process will be utilised in order to limit noise emissions to receivers such has saw cutting in lieu of pneumatic hammering.

10.3 PROVISION OF ACOUSTIC BARRIER

Noise barriers or screens can be an effective means of reducing noise. Noise barriers can be located either at the source or receiver.

The placement of barriers at the source is generally only effective for static plant (tower cranes). Equipment which is on the move or working in rough or undulating terrain cannot be effectively attenuated by placing barriers at the source.

Barriers can also be placed between the source and the receiver.

The degree of noise reduction provided by barriers is dependant on the amount by which line of sight can be blocked by the barrier. If the receiver is totally shielded from the noise source reductions of up to 15 dB(A) can

be effected. Where only partial obstruction of line of sight occurs, noise reductions of 5 to 8 dB(A) may be achieved. Where no line of sight is obstructed by the barrier, generally no noise reduction will occur.

As barriers are used to provide shielding and do not act as an enclosure, the material they are constructed from should have a noise reduction performance which is approximately 10dB(A) greater than the maximum reduction provided by the barrier. Where the barrier obscures the line of sight, noise reduction of approximately 5 to 10 dB(A) will be achieved at the locater site.

10.4 SILENCING DEVICES

Where possible and practical all main appliances used will be fitted with silencing devices. These may take the form of engine shrouding, or special industrial silencers fitted to exhausts. Noise reductions in the order of 10-20 dB(A) will result.

10.5 MATERIAL HANDLING

The material handling areas will be located away from residential receiver areas.

10.6 TREATMENT OF SPECIFIC EQUIPMENT

In certain cases it may be possible to specially modify a piece of equipment to dramatically reduce the sound levels emitted.

10.7 ESTABLISHMENT OF SITE PRACTICES

This involves the formulation of work practices to reduce noise generation. A noise plan will be developed for this project outlining work procedures and methods for minimising noise. This plan will target work practices and worker behaviour.

10.8 DISCUSSION

The above section presented a discussion on the measures which will be implemented to minimise noise emissions on this project. Note these measures are preliminary, as further measures may be devised and implemented during the course of the project once construction is underway.

To determine the requirement for silencing devices on machinery it is proposed to undertake a noise check as necessary. Noise levels will be measured of all machines on site and if they are found to be higher than nominated for that equipment type, items such as mufflers and engine shrouds will be examined to ensure they are in good working order.

A record of these measurements will be kept on a form similar *"Construction Appliance Compliance Certificate"* presented in the Appendix.

This measure is expected to maintain noise at constant levels, and prevent any increases.

11. NOISE AND VIBRATION MONITORING, REPORTING AND RESPONSE PROCEDURES

11.1 EXTERNAL NOISE AND VIBRATION MONITORING

Noise and vibration monitoring will either consist of manned and/or unmanned measurements.

Active monitoring will be conducted by Acoustic Logic during the excavation phase of the project. In the event complaints are received from neighbours the following process will be followed:

1. Determining the offending plant/equipment/process
2. Locating the plant/equipment/process further away from the affected receiver(s) if possible.
3. Review noise management and assess possible alternative noise management techniques.
4. Selecting alternative equipment/processes

Where monitoring is required and indicates exceedences of the noise limits immediate action should be taken to identify any further controls as required to reduce noise emissions so that the noise limits are complied with. Monitoring of the activities following the implementation of these additional controls will be undertaken to confirm compliance.

11.2 INTERNAL NOISE AND VIBRATION MONITORING

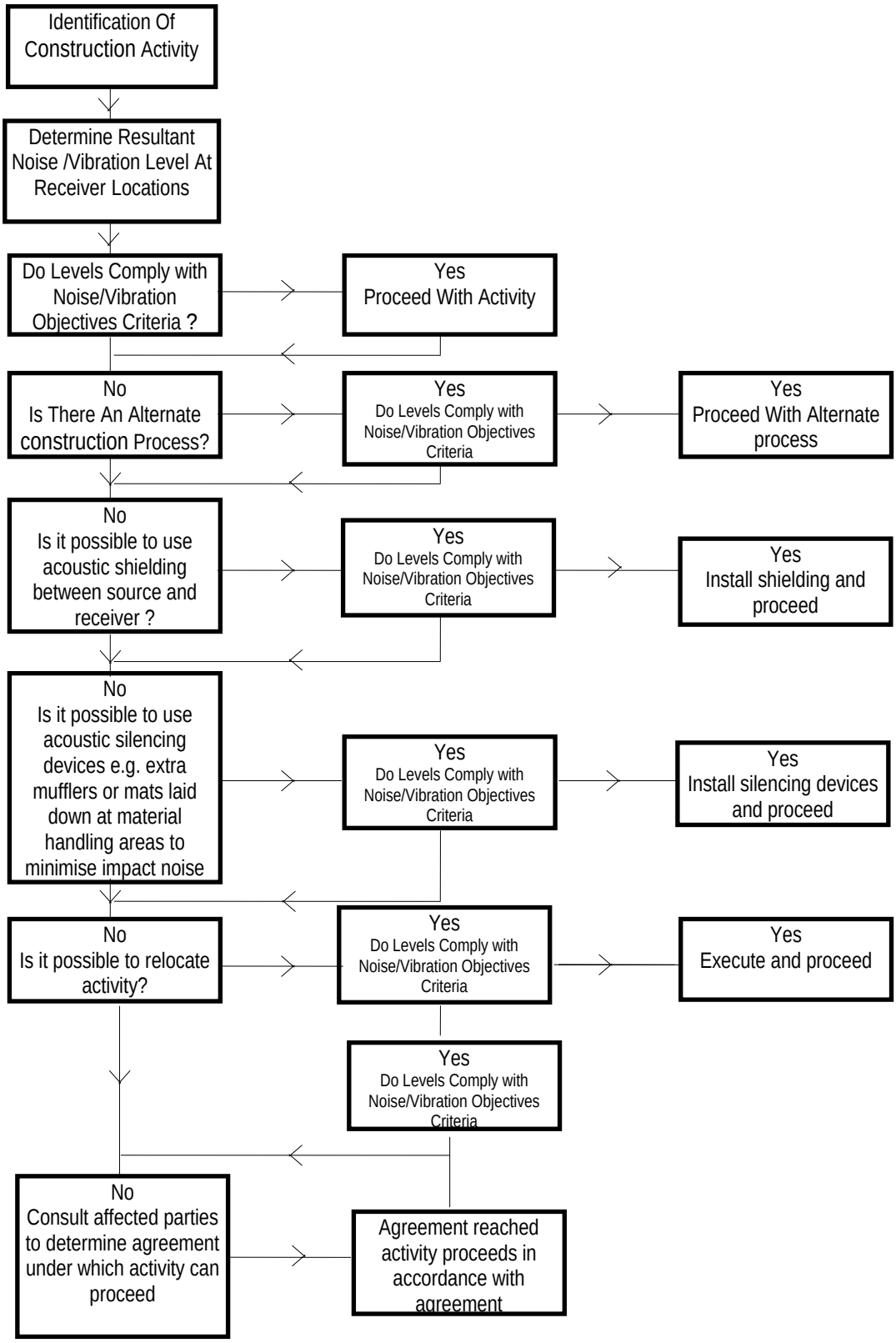
Noise and vibration monitoring will either consist of manned and/or unmanned measurements. Noise and vibration monitoring will be conducted within the existing teaching areas of UTS as required to ensuer suitable internal conditions during the construction period.

11.3 CONTROL OF CONSTRUCTION NOISE

As a part of the noise and vibration management plan a detailed study has been undertaken of each of the proposed activities that will occur as a part of the excavation works on this project. The execution of this work will facilitate the formulation of noise control strategies for this project.

The flow charts that follow illustrate the process followed to assess construction activities prior to the start of work on site and as well the ongoing investigation into noise during the construction period.

CONTROL OF NOISE FLOW CHART



12. VIBRATION - ACCEPTABLE WORK PRACTICES

The only potentially significant source of vibration is that associated with driven piling. As the site consists of soil and clay substrate and the fact that CFA/Bored piling will be undertaken in lieu of impact piles vibration from operation of plant and equipment on the site will be significantly reduced and typically not result in levels that may impact upon the adjoining residents. Where complaints are received associated with vibration the complaints procedure listed in appendix will be followed and where required vibration monitoring will be implemented.

To regulate vibration emanating from excavation processes the excavation contractors will need to operate particular machinery at certain distance from affected buildings to comply within the criteria. The following is an estimate of the distances that may be required for the various items of equipment.

12.1 HYDRAULIC HAMMERS

7m from nearest residence to comply with 10mm/sec PPV or with a saw cut at the boundary during the excavation period.

12.2 PILING

Driven piling to be conducted a minimum of 10m from nearest residence to comply with 10mm/sec PPV. Alterative piling methods will be acoustically acceptable at any distance.

12.3 RIPPING

2m from nearest residence to comply with 10mm/sec PPV or with a saw cut at the boundary during the excavation period.

12.4 MILLING

No limit from nearest residence to comply with 10mm/sec PPV.

13. NOISE AND VIBRATION MONITORING, REPORTING AND RESPONSE PROCEDURES

Noise and vibration monitoring will either consist of manned and/or unmanned measurements. Monitoring will be undertaken

Active monitoring will be conducted by Acoustic Logic during the demolition, excavation and construction phases of the project. In the event complaints are received from neighbours the following process will be followed:

5. Determining the offending plant/equipment/process

6. Locating the plant/equipment/process further away from the affected receiver(s) if possible.

7. Implementing additional acoustic treatment in the form of localised barriers, silencers etc

8. Selecting alternative equipment/processes

Where monitoring is required and indicates exceedences of the noise limits immediate action should be taken to identify any further controls as required to reduce noise emissions so that the noise limits are complied with. Monitoring of the activities following the implementation of these additional controls will be undertaken to confirm compliance.

13.1 REPORTING REQUIREMENTS

The following shall be kept on site by Hutchinson Builders.

1. A register of complaints received/communication with the local community shall be maintained and kept on site.

2. Where noise/vibration complaints require noise/vibration monitoring, results from monitoring shall be retained on site at all times.

3. Any noise exceedences occurring including, the actions taken and results of follow up monitoring.

14. COMMUNITY INTERACTION AND COMPLAINTS HANDLING

14.1 ESTABLISHMENT OF DIRECT COMMUNICATION WITH AFFECTED PARTIES

In order for any construction noise management programme to work effectively, continual communication is required between all parties which may be potentially impacted upon, the builder and the regulatory authority. This establishes a dynamic response process which allows for the adjustment of control methods and criteria for the benefit of all parties.

The objective in undertaking a consultation processes is to:

- Inform and educate the groups about the project and the noise controls being implemented.
- Increase understanding of all acoustic issues related to the project and options available.
- Identify group concerns generated by the project, so that they can be addressed.
- Ensure that concerned individuals or groups are aware of and have access to the Hutchison Builders Complaints Register which will be used to address any construction noise related problems should they arise.

To ensure that this process is effective, regular scheduled meetings will be required for a finite period, until all issues have been addressed and the evidence of successful implementation is embraced by all parties.

An additional step in this process is to produce a newsletter informing nearby residents of upcoming activities that are likely to generate higher noise/vibration levels.

14.2 DEALING WITH COMPLAINTS

Should ongoing complaints of excessive noise or vibration criteria occur immediate measures shall be undertaken to investigate the complaint, the cause of the exceedances and identify the required changes to work practices. In the case of an exceedance of the vibration limits all work potentially producing vibration shall cease until the exceedance is investigated.

The effectiveness of any changes shall be verified before continuing. Documentation and training of site staff shall occur to ensure the practices that produced the exceedances are not repeated.

If a noise complaint is received the complaint should be recorded on a Noise Complaint Form. The complaint form should list:

- The name and address of the complainant (if provided).
- The time and date the complaint was received.
- The nature of the complaint and the time and date the noise was heard.
- The name of the employee who received the complaint.
- Actions taken to investigate the complaint, and a summary of the results of the investigation.
- Required remedial action, if required.
- Validation of the remedial action.
- Summary of feedback to the complainant.

A permanent register of complaints should be held.

All complaints received should be fully investigated and reported to management. The complainant should also be notified of the results and actions arising from the investigation.

The investigation of a complaint shall involve where applicable, noise measurements at the affected receiver, an investigation of the activities occurring at the time of the incident, inspection of the activity to determine whether any undue noise is being emitted by equipment, and whether work practices being carried out either within established guidelines or outside these guidelines.

Where an item of plant is found to be emitting excessive noise, the cause is to be rectified at soon as possible. Where work practices within established guidelines are found to result in excessive noise being generated then the guidelines should be modified so as to reduce noise emissions to acceptable levels. Where guidelines are not being followed the additional training and counselling of employees should be carried out.

The results of any corrective actions arising from a complaint shall be validated by measurement or other method where applicable.

14.3 DEALING WITH EXCEEDENCES

Should exceedances of the noise or vibration criteria occur immediate measures shall be undertaken to investigate the cause of the exceedances and identify the required changes to work practices. In the case of exceedances of the vibration limits all work potentially producing vibration shall immediately cease until the exceedances is investigated.

The effectiveness of any changes shall be verified before continuing. Documentation and training of site staff shall occur to ensure the practices that produced the exceedances are not repeated.

15. FINAL STATEMENT

The finding of this document indicates that noise levels from construction activities taking place on the proposed Student Accommodation development at 718 Harris Street, Ultimo will comply with the criteria nominated in Section 3 of this report at all times, provided times of operation indicated in this document and the recommendations, are observed.

The Noise Control Strategy statement presented in Section 3 of this report demonstrates that *'the site can work during normal construction hours and fully comply with the nominated criteria'.*

Vibration levels from construction activities will fully comply with the vibration criteria nominated in Section 9 provided the recommendations in this document are observed.

Prepared by

ACOUSTIC LOGIC CONSULTANCY PTY LTD
Hilary McClure

APPENDIX 1

HUTCHISON BUILDERS PTY LTD

HARRIS STREET ULTIMO DEVELOPMENT

Construction Appliance Compliance Certificate

Month .....

Year .....

Plant Item .....

Allowable Noise Level .....

Measured Noise Level .....

Complies Yes ☐ No ☐

Issuing Engineer .....

Sub-Contractor .....

Project Manager .....

7. Traffic Management Plan

Halcrow MWT

STUDENT ACCOMMODATION UTS Building 6, Ultimo

Construction Traffic Management Plan

24 February 2009

Living Education

Halcrow MWT

Living Education

STUDENT ACCOMMODATION UTS Building 6, Ultimo
Construction Traffic Management Plan

Contents Amendment Record

This report has been issued and amended as follows:

Rev	Description	Date	Prepared by	Checked	Approved
1	Draft for internal review	17/02/09	KI	BM	KI
1	Draft for Client's review	19/02/09	KI	AG	KI

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Contents

1 Introduction

Halcrow MWT has been commissioned by Hutchinson Builders to prepare a traffic management plan for demolition and construction works associated with the proposed addition and alteration to UTS Building 6, Ultimo.

The proposed works will involve demolition of internal structures, construction of 14 levels of student accommodation on top of the existing 6-storey building and refurbishment and upgrade works on the existing building.

The construction establishment plans that show the site arrangement and the sequencing of demolition and construction works are provided in Appendix A.

The report is based on the description of the construction works provided by Hutchinson Builders and on a site visit to obtain information on the site and existing traffic and pedestrian situations. This report includes an overview of the proposed demolition and construction works with respect to traffic and describes the potential impacts on the surrounding road network.

Traffic control plans for specific requirement of the works are prepared. The general notes pertaining to the standard layouts are contained in Appendix B.

The remaining part of this report is set out as follows:

- Chapter 2 - documents the existing traffic conditions.
- Chapter 3 - describes the works and construction phases.
- Chapter 4 - indicates the vehicular access and pedestrian requirements
- Chapter 5 discusses the traffic control plans for the proposed works
- Chapter 6 - describes impacts of the proposed works, including issues such as hours of operation, pedestrians, public transport and emergency vehicles.

2 Background Situation

An appreciation of the existing traffic conditions can be gained by examining the surrounding road network and public transport services. These aspects are discussed below.

2.1 Site Location

The site is the existing UTS Building 6, known as Peter Johnson Building. It is bounded by Harris Street to the west, ABC Building to the north, the Ultimo Pedestrian Network to the east and a multi-storey building to the south. The location of the site is shown in **Figure 1**. The site is located within easy walking distance of Central Railway Station and bus services in Broadway and Railway Square.

2.2 Surrounding Transport Network

A brief description of the surrounding transport network relevant to the construction works is provided below.

Broadway

Broadway is a state road classified as SH5 and provides a major arterial link between Sydney CBD and the western region. In the vicinity of the proposed development site it accommodates about 70,000 vehicles per day.

Broadway provides a 25 metre divided carriageway with four traffic lanes in either direction. The kerbside lanes in both directions provide a bus lane with clearway restrictions in operation on weekdays between the hours of 6.00am to 10.00am and 3.00pm to 7.00pm.

Harris Street

Harris Street is classified as a state road (MR 170) and carries about 30,000 vehicles per day.

At the site frontage Harris Street provides five traffic lanes which operate as one-way in the southbound direction (slide 1). At its southern end Harris Street connects to Broadway at a traffic signal controlled intersection. Full pedestrian facilities are provided.

Across the site frontage Harris Street provides a wide footpath and provide access to a bus stop providing access to City inbound services.

Ultimo Pedestrian Network

The Ultimo Pedestrian Network (UPN) takes the alignment of the former Ultimo Rail Corridor and provides a dedicated pedestrian link between the Devonshire Street Tunnel (Sydney Central Rail Station) through to Ultimo Road.

Along the site frontage the UPN provides an unobstructed 10 metres central pedestrian corridor. On either side of the path are seats and landscaping which provide supplementary narrower pedestrian paths.

Escalators provide direct access onto the UPN from level 2 of the Peter Johnson building. The entrance to the Devonshire tunnel provides ramps for disabled access.

Thomas Street is a local street running from Hay Street to the Ultimo Pedestrian Network. At its closed end, it provides vehicular access into the Citigate (Mirvac) multi-storey carpark and pedestrian connection to the Ultimo pedestrian Network. A structure (wall and column) has been installed at the closed end separating the cul-de-sac from the Ultimo Pedestrian Network. Electronic information signs for the carpark are displayed on this wall.

Quay Street provides access from George Street at Railway Square to Ultimo Road. Its intersection with Thomas Street is unsignalised. A kerb extension at its intersection with George Street limits access to one-way only from George Street.

2.3 Existing Pedestrian Facilities

As described above the UPN provide direct convenient access between the development site and the Devonshire Street Tunnel, which itself provides access to bus services at Railway Square and rail services at Central Railway Station. Thomas Street, Quay Street, Broadway and George Street provide wide footpaths with pedestrian crossings provided at signalised intersections.

3 Construction Program

3.1 *Timing of Works*

The project is proposed to be completed in 18 months. The time that would be taken to complete each item of work is described in Section 3.2 below.

The approved hours of work are:
Monday – Friday: 7:00am-7:00pm
Saturday: 7:00am-5:00pm
No work and no deliveries will take place on Sundays and public holidays

3.2 *Description of the works*

The works to be carried out are described in the Construction Management Plan prepared by Hutchinson Builders. The site establishment and materials handling layout plans are provided in Appendix A. The sequence of works are listed below:

- Installation of A-Class Hoarding
- Installation of site facilities
- Demolition of Structure across Thomas Street
- Installation of Tower Crane
- Installation of B-Class Hoarding (Overhead pedestrian protection)
- Delivery of materials and equipment
- Demolition of existing structures
- Piling upgrade works
- Erection of new structure
- BCA upgrade works to existing Building 6
- Installation of finishes

A "Works Zone" will be installed on the eastern side of the Ultimo Pedestrian Network, behind A-Class hoardings to allow safe loading and unloading activities for the works. The Works Zone will be the subject of a separate application to Sydney Harbour Foreshore Authority who owns the land.

A brief description of each aspect of the construction works and related truck generation is outlined below:

Item 1- Demolition of Structure across Thomas Street: The wall across Thomas Street will be demolished to provide access for construction vehicles into the site via a section of the UPN. The bollards separating the Thomas Street footpath from the UPN will also be temporarily removed. ATF fencing will be installed in the UPN area to separate the work area from the pedestrian area. ATF Fencing will also be installed on the other side of the structure within the Thomas Street cul-de-sac to separate the work area from the traffic turning into and out of the carpark and traffic u-turning in the cul-de-sac. The work will be carried out by saw-cutting the concrete structure and then lifting the cut structure into a truck by a mobile crane This would avoid piecemeal demolition material falling onto Thomas Street or the work area. The owner of the adjacent carpark, Mirvac, has agreed in principle for the structure to be demolished. The work will be carried out over 2 days and 4 trucks will visit the site to remove demolition materials.

Item 2 - Installation of A-Class Hoardings and Pedestrian Barrier in the UPN area: This involves installation of A-Class hoardings on the eastern side of the UPN area from Thomas Street to the site just before the Devonshire Street tunnel. This would create an approximately 6m wide Works Zone in this section of the UPN area. Prior to the installation of the hoardings, trucks would deliver materials into the proposed "Works Zone" area and a pedestrian barrier would be installed 2m from the boundary of the "Works Zone" to separate pedestrians from the works area. After installation of the hoardings, a traffic controller will be stationed at the entrance to the "Works Zone", outside the site, to guide traffic into and out of the site during the demolition and main construction works. Five trucks will deliver the hoarding and barrier materials and the work will be completed in six days. Hutchinson Builders has already obtained in-principle approval for the "Works Zone" from the Sydney Harbour Foreshore Authority.

Item 3- Installation of Overhead Pedestrian Protection: This involves installation of B-Class hoardings in the UPN area at the entrance to the Devonshire tunnel. This would require installation of pedestrian barriers around the work area. The tower crane will be used to erect overhead protection.A traffic controller would be stationed at the entrance and exit point of the Devonshire tunnel to guide pedestrians away from the work area. Five trucks would deliver the materials and the work would be completed in 14 days.

Item 4 – Plant Deliveries and Pick Up
20 trucks will deliver construction plant during the construction works as needed. The plant will be removed progressively by another 20 trucks as the need for each item ceased. All loading and unloading will take place within the Works Zone area.

Item 5: Tower Crane Installation and dismantling: One tower crane will be erected within the site after demolition and dismantled at the completion of works. 10 trucks will deliver the crane components and 10 trucks will pick up the components at the end of the works. The installation and dismantling will each be carried out in one day each. The mobile plant to erect tower crane would be located in the UPN area and ATF Fencing would be used to barricade works from pedestrians.

Item 6 – Demolition of Existing Structures: Various parts of the Peter Johnson building will be demolished to facilitate construction of the new multi-storey building and installation of a tower crane and services. The demolition will involve a removal of a certain structural elements and internal stripping out of the non-structural walls, ceilings and other fixtures. All demolition activities will be carried out within the site and will not have any impact on traffic or pedestrians.

The demolition will be carried out over 3 months. Around 15 trucks will visit the site to take demolished materials out of the site during the three months period. Trucks will carry out loading and unloading within the proposed "Works Zone" secured with A-Class Hoardings. Therefore there will be no conflict with traffic or pedestrians in the loading area. Trucks used for removal of material will be mainly heavy rigid trucks, including truck and dog trailer combinations.

Item 7 – Installation of Site Facilities: This will involve placement of temporary sheds or containers for the contractors' staff over a period of one week. The sheds and containers will be erected at the commencement of project and removed from site when construction work was completed. It is estimated that 10 trucks will deliver the containers and the sheds and another 10 trucks will remove these at the end of the works.

Item 8 – Piling and Footing Upgrade This involves installation of cast in-situ concrete piles and upgrading of existing footings in the site. The works, including loading and unloading will take place within the site and no road closure will be required. The works will be carried at the same period that demolition works are

being done. Access for these works would be from Harris Street into the Peter Johnson Level 1 Basement carpark.

Piling rigs will be delivered in July 2009 and then picked up in September 2009. Around 30 trucks will visit the site to deliver concrete and other materials associated with the piling works during the 3 months of piling works.

Item 9– Structural Works

This involves major concrete works and reinforcement for the structural elements of the building such as columns, slabs and beams. Around 4,000m^3 of fresh concrete will be delivered by 800 trucks over a period of 12 months. The following numbers of trucks will visit the site during the structural works:

- 800 trucks to deliver fresh concrete
- 30 concrete pumps for concrete pours on different occasions
- 60 trucks to deliver reinforcement bars

Item 10: formwork and scaffolding

Delivery of scaffolding and formwork materials will be carried out within the site. Crane will then lift the materials from trucks onto the storage location. 10 trucks will deliver the materials and 10 trucks will remove the materials after dismantling.

Item 11: Building Services

These works include installation of hydraulic, mechanical, electrical, fire and other services. All installation will be carried out within the site. The installation of services will be carried out over 4 months. The following number of trucks will make deliveries during installation of services:

- Hydraulic – 20 trucks (5 large and 15 small trucks)
- Mechanical – 25 trucks (10 large and 15 small trucks)
- Electrical – 30 trucks (10 large and 20 small trucks)
- Other services – 10 trucks

Item 12: Fit-outs and Finishes

Fit-outs and finishing works will be carried out over 6 months. These will be carried out within the site and delivery of materials will be carried out in the "Works Zone". Materials would include ceiling and tiles, blockwork, linings and wall finishes, and floor finishes. Around 150 trucks will deliver materials over 8 months.

4 Vehicle and Pedestrian Access

4.1 *Vehicle Types*

Construction vehicles likely to be generated by the proposed construction activities include:

- Articulated vehicles for delivery of machinery and tower cranes
- Heavy and medium rigid trucks for construction material delivery,
- Truck and trailer combination for removal of demolition and excavated material
- Mobile cranes and concrete pumps
- Staff cars and delivery vans

Construction vehicles will be able to park in the proposed "Works Zone" in the Ultimo Pedestrian Network while carrying out loading and unloading.

There will be no parking of staff cars in the site. Some staff will come by public transport as the site is located within walking distance of major public transport facilities, including train stations, tram stations and STA bus stops. The workers who require parking for their cars will be able to park in the public pay parking stations available in the vicinity of the site.

4.2 *Construction Vehicle Routes*

The proposed arrival and departure routes aim to provide the shortest distances to the arterial roads and minimise the use of local roads by trucks. The routes also ensure that trucks will be able to make right turns safely onto arterials roads at signalised intersections. The proposed truck entry and exit routes are shown in Figure 2.

The routes of construction trucks will be as follows:

Entry

- From West – Parramatta Road, then Broadway, then George Street, left into Quay Street, left into Thomas Street and then straight onto site via Ultimo Pedestrian Network.

- From North – via Harbour Bridge, Western Distributor to Harbour Street, right into Pier Street, left into Harris Street, left into George Street, left into Quay Street, left into Thomas Street, and straight into site via Ultimo Pedestrian Network
- From South – Regent Street, straight into George Street, left into Ultimo Road, left into Thomas Street, and into site via Ultimo Pedestrian Network

Exit

- To West – From site to Thomas Street, left into Ultimo Road, left into Harris Street, and right into Broadway.
- To North- From site to Thomas Street, left into Quay Street, left into Ultimo Road, right into Harris Street, right into Pier Street, left into Harbour Street and then Harbour Bridge via Western Distributor.
- To South –From site, turn into Thomas Street, left into Quay Street, left into Ultimo Road, left into Harris Street, then Regent Street.

4.3 Construction Traffic Volumes

The peak numbers of trucks per day from different sources during different stages of the construction works are expected to be as follows:

- Demolition of structure across Thomas Street – 2 trucks per day
- Installation of A-Class hoardings and pedestrian barrier - 3 trucks per day
- Installation of overhead pedestrian protection – 1 truck per day
- Plant Deliveries and pick up – 3 trucks per day
- Tower crane installation – 3 trucks per day
- Demolition of existing structures – 5 trucks per day
- Installation of site facilities – 2 trucks per day
- Piling and footing upgrade works – 4 trucks per day
- Structural works – 8 heavy rigid trucks on concrete pour days and 2 semi-trailers per day for reinforcement
- Formworks and scaffolding – 2 trucks per day
- Services installation – 3 trucks and vans per day
- Fit-outs and finishes – 3 trucks and vans per day

It should be noted that not all of the different types of trucks would visit the site on the same day. At the peak of activities, it is estimated that there would be a maximum of 15 trucks per day visiting the site. This is equivalent to around 3 trucks per hour during the peak of activities.

The estimated maximum truck generation of 15 trucks per day (3 trucks per hour maximum) is considered low when compared to the existing volume of traffic in the area. Therefore the traffic impact of the construction activities will be low.

4.4 Site Access

Vehicular access will be provided to the site from the western end of Thomas Street, via the Ultimo Pedestrian Network into the segregated "Works Zone". Vehicles will enter the Works Zone in forward direction from Thomas Street and reverse into the section of the Works Zone, north of Thomas Street and drive out in forward direction.

A traffic controller will be stationed at the entrance to the "Works Zone" to provide direction to truck drivers and ensure that unauthorised vehicles did not enter the "Works Zone" area.

4.5 Pedestrian Access

Access to the site for construction workers will be via the Ultimo Pedestrian Network area. Construction workers will walk into the site via a gate in the UPN area. Workers will be provided with security access ID card to enter the site. An attendant will also be stationed at the gate to ensure that no unauthorised person entered the site.

Pedestrian access for the public would continue to be available between the UPN and the Central Station via the Devonshire tunnel. As mentioned in Section 3.2, pedestrian overhead protection will be installed in the area between the Works Zone and the site to protect pedestrians in the area when loads were being lifted by crane from the Works Zone onto site.

Therefore the impact of the construction works on pedestrians would be safe and acceptable.

5 Traffic Control Plans

It is necessary to provide traffic control around, past or through work sites to ensure the safety of all persons at work sites. The RTA Traffic Control and Worksites Manual (2006) contains standard traffic control plans (TCP) for a range of common construction activities. Where a standard TCP does not exist for the work planned then a new TCP is to be developed. General notes pertaining to traffic control plan are provided in Appendix B.

The Traffic Control Plans prepared for the relevant items of the construction works are discussed below.

As mentioned in Section 4.1, the main parts of the works would be carried out within the site, except during the demolition of the structure across Thomas Street and installation of hoardings in the UPN area. Activities that require traffic control, pedestrian control or advanced warning signs are:

- Demolition of structure across Thomas Street.
- Installation of Pedestrian Overhead Protection Zone
- Installation of hoardings for Works Zone at the UPN area
- Truck movements to and from the site.

The traffic control plans for these works are described in Sections 5.1, 5.2 5.3 and 5.4 below.

5.1 Applicability of Standard Traffic Management Treatments

The applicability of different traffic management plans depends on whether they relate to long or short term works. The relevant TCP should be used with reference to the type of work as defined below:

• Long-term work – work requiring traffic control and taking longer than one work shift and where some form of traffic control must remain when the site is left unattended and may need to operate both day and night;

• Short-term work – work requiring traffic control during work taking less than or equal to one work shift and where traffic control is not required when the work is complete and where road conditions are returned to normal when the work ends.

5.2 Demolition of Structure across Thomas Street

Demolition of the structure at the entrance to the UPN area from Thomas Street requires separation of the work area from traffic turning at the end of Thomas Street and pedestrians in the UPN area. Waterfilled barricade will be installed in Thomas Street to separate traffic from the work area. A traffic controller will also be stationed in Thomas Street to give guidance to traffic making U-turns and traffic turning into and out of the Thomas Street carpark. A pedestrian fence (wire mesh) will be installed in the UPN area to separate pedestrians from the work area. A traffic controller will also be stationed in the UPN area to ensure that pedestrians do not enter the work area.

Traffic control signs indicating traffic controllers ahead and changed traffic conditions ahead will be installed in Thomas Street on the approach to the work area. "Pedestrians" signs with appropriate arrows will be installed on the fence in the UPN area. A plan showing the proposed traffic control plan is provided in Figure 4.

5.3 Installation of Pedestrians Overhead Protection

Installation of B-Class hoardings in the UPN area at the entrance to the Devonshire tunnel would require installation of pedestrian barriers around the work area and one traffic controller at the entrance and exit point of the Devonshire tunnel to guide pedestrians away from the work area. A warning sign for pedestrians, "Pedestrians Watch Your Step" sign will be installed on both approaches to the work area.

A traffic control plan that shows the proposed barrier, signs and location of the traffic controllers is provided in Figure 5.

5.4 Installation of Hoardings for Works Zone

Prior to the commencement of erection of the A-Class hoardings, fence materials would be off-loaded onto the site, within the proposed Works Zone area. A pedestrian fence will be installed in the UPN area at 2m from the location of the hoardings. During the installation of this fence, workers would stand inside the within the fenced area such that the workers are separated from the pedestrians. Therefore it will be necessary to close the section of the footpath outside the site.

Pedestrian direction signs will be installed to direct pedestrians around the fenced area. A traffic controller will also be stationed at both the entrance and exit to the UPN area from Thomas Street to provide guidance to pedestrians.

A traffic control plan showing the locations of proposed signs and traffic controllers is provided in Figure 6.

5.5 Trucks Movements

As discussed in Section 4.3, up to 15 trucks per day would visit the site during the construction works. This is equivalent to 30 truck movements per day. RTA guidelines recommend installation of advanced warning signs when there are 20 or more truck movements per shift. It would be necessary to provide advanced warning signage of truck movements to other drivers on approaches to the intersection of Thomas and Quay Streets and on approach to the vehicular access to the Works Zone area at the end of Thomas Street. The appropriate warning signs include TRUCKS (W5-22) and TRUCKS TURNING (W5-205). These signs would remain for the whole period of construction activities.

A traffic controller will also be stationed at the proposed access to the "Works Zone "area from Thomas Street to guide truck drivers and control pedestrians. Advanced warning signs of traffic controller will be provided for drivers approaching the site from the intersection of Thomas Street and Quay Street.

A traffic control plan showing location of the proposed signs is provided in Figure 7.

6 Impacts of the Proposed Works

An assessment of the traffic impacts of the demolition, excavation and construction works has been undertaken in accordance with the RTA Guidelines for preparing a traffic management plan. The assessment of the Traffic Management Plan is provided below

A. Description or detailed plan of the proposed measures.

The works to be carried out include

- Demolition of Structure across Thomas Street
- Installation of A-Class Hoarding
- Installation of B-Class Hoarding (Overhead pedestrian protection)
- Demolition of existing structures
- Installation of site facilities
- Installation of Tower Crane
- Piling upgrade works
- Delivery of materials and equipment
- Erection of new structure
- BCA upgrade works to existing Building 6
- Installation of finishes

The proposed hours of works are 7:00am-7:00pm, Monday - Friday, and 7:00am-5:00pm, Saturday.

Up to 15 trucks per day would visit the site during the works. A "Works Zone" will be established in the Ultimo Pedestrian Network area. Trucks will enter the Works Zone in forward direction via Thomas Street. When leaving the site, trucks will reverse within the "Works Zone" and drive out in forward direction.

Traffic Control Plans have been prepared in accordance with AS1742.3 and RTA Guidelines. The traffic control plans will be implemented to inform the public and minimise impact of the works.

B. Identification and assessment of impact of proposed measures.

During the following stages of the works, pedestrian movement will be limited in a section of the Ultimo Pedestrian Network area:

- demolition of structure across Thomas Street,
- installation of hoardings in the proposed "Works Zone" area, and
- installation of overhead pedestrian protection in the Ultimo Pedestrian Network area between the Works Zone and the site accommodation area

Pedestrian barriers will be installed around the work area to separate the work area from pedestrians. Also "pedestrians" warning signs and traffic controllers will be provided to give guidance to pedestrians. The use of traffic controllers and signage will minimise impacts.

Traffic travelling into and out of the Mirvac carpark in Thomas Street will continue to have access to the carpark via the intersection of Quay Street/ Thomas Street

The estimated maximum truck generation of up to 15 trucks per day (maximum of 2 trucks per hour) that would visit the site is considered low when compared to the existing volume of traffic in the area. Therefore the traffic impact of the construction activities will be low.

Implementation of the Traffic Control Plans will ensure that adequate warnings and guidance are available to other road users, thus further minimising the impact.

C. Measures to ameliorate the impact of re-assigned traffic

The proposed works would not necessitate the redirection of any traffic.
No measures to ameliorate the impact of re-assigned traffic would be necessary.

D. Assessment of public transport service affected

There will be no re-direction of public transport traffic during the project as public transport does not use Thomas Street. Impacts on public transport will be minimal.

E. Details of provision made for emergency vehicles, heavy vehicles, cyclists and Pedestrians.

No change to access for emergency vehicles is proposed or required. There would be no disruption to emergency vehicles in Thomas Street and Quay Street during the demolition and construction works.

Heavy vehicles will continue to have access into all the streets that they currently have access to.

To minimise impact on pedestrians in the Ultimo Pedestrian Network area, concrete barriers will be installed to separate the work area from pedestrians. Warning signs and traffic controllers would be available to guide pedestrians and direct them to appropriate paths.

There are no designated cycle routes in Thomas Street, hence there will be minimal impact on cyclists.

Traffic Control plans prepared for the works will be implemented to minimise conflict between pedestrians and construction vehicles during the works.

F. Assessment of effect on existing and future developments with transport implications in the vicinity of proposed measures.

The proposed works would not affect any existing development in the area as no road closures are proposed, and vehicular and pedestrian access to nearby properties would be retained.

The proposed works and any traffic control measure would be temporary and the works would be completed in 18 months. Therefore there would be no impact on any future development in the area.

G. Assessment of effect of proposed measures on traffic movements in adjoining Council areas.

The works will have no effect on adjoining Council areas.

H. Public consultation process

Hutchinson Builders has already consulted with the Sydney Harbour Foreshore Authority regarding the proposed access to the construction site via the Ultimo Pedestrian Network area, and the establishment of a "Works Zone" within the area. Consultation has also been carried out with Mirvac, the owners of the public carpark adjacent to the site, regarding demolition of the structure across Thomas Street. The name and telephone number of the Project Manager are as follows:

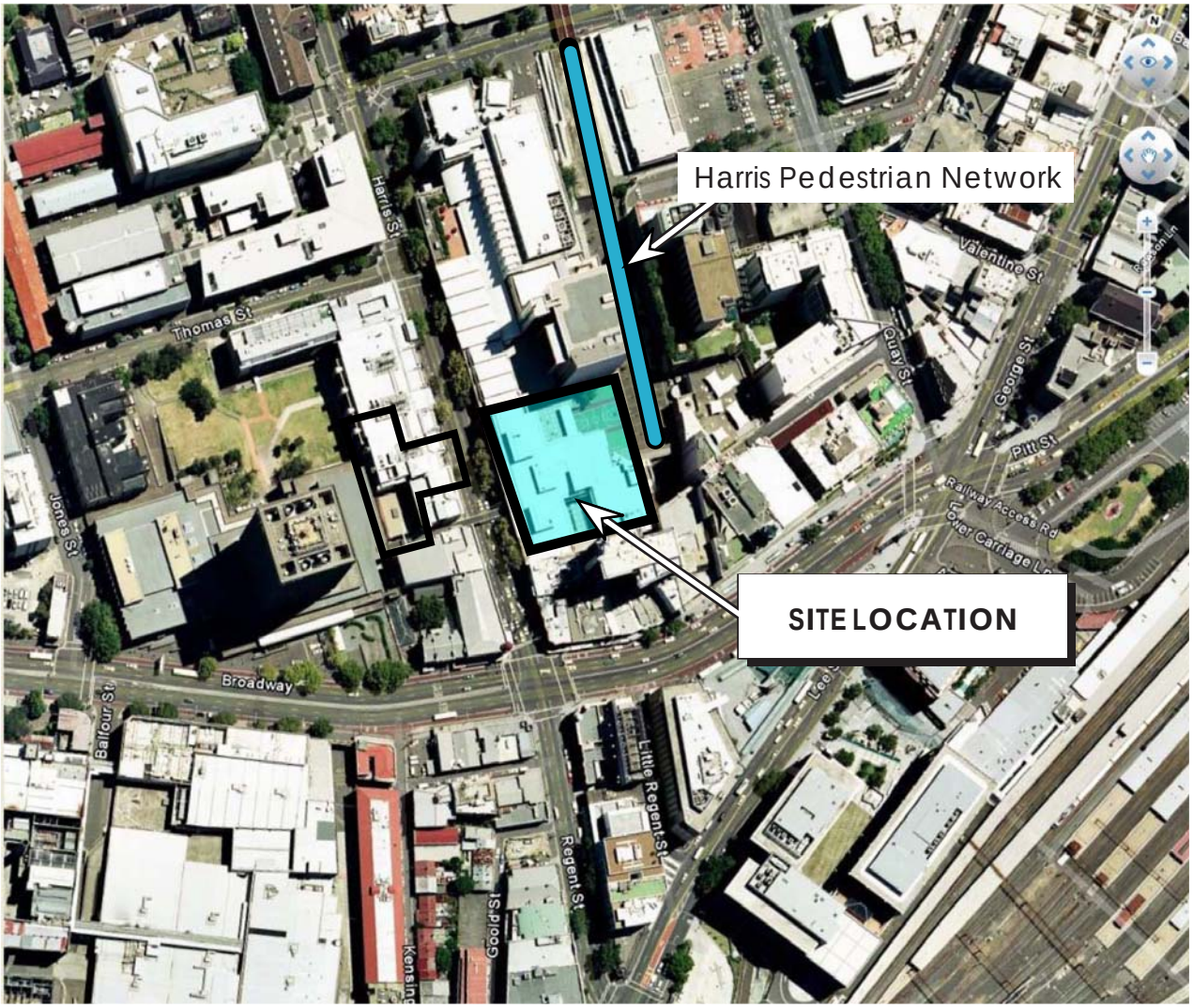
Name: Andrew Gulliford

Contact (Mobile No): 0439 490 903

SITE LOCATION

UTS BUILDING 6 HARRIS STREET, BROADWAY

North



Halcrow MWT

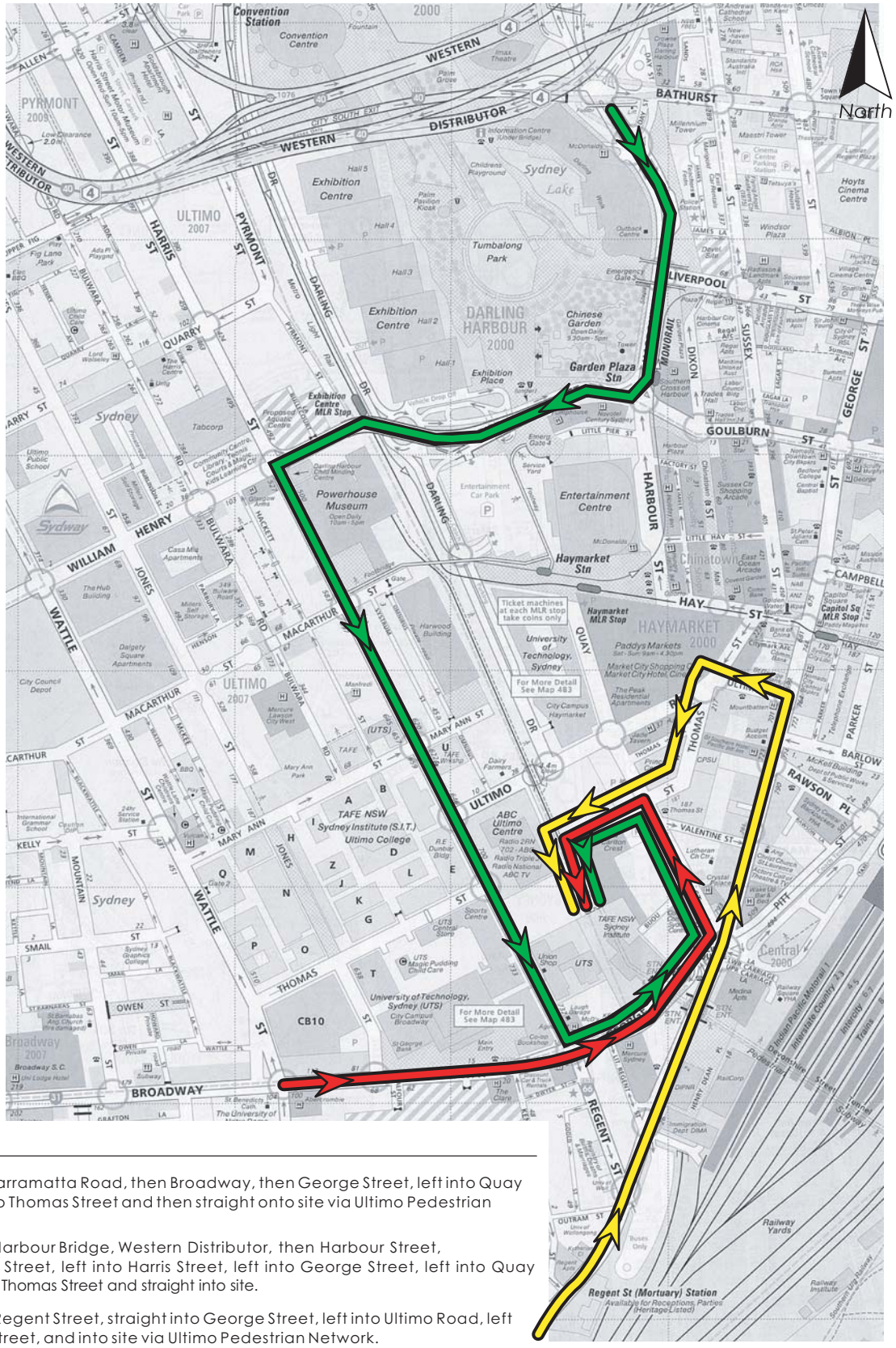
Figure 1

Filename: 083920di02.ai

Date: 6 February 2009

CONSTRUCTION TRUCK ENTRY ROUTES

UTS STUDENTS ACCOMMODATION, BUILDING 6 ULTIMO



Key

From West – Parramatta Road, then Broadway, then George Street, left into Quay Street, left into Thomas Street and then straight onto site via Ultimo Pedestrian Network.

From North – Harbour Bridge, Western Distributor, then Harbour Street, right into Pier Street, left into Harris Street, left into George Street, left into Quay Street, left into Thomas Street and straight into site.

From South – Regent Street, straight into George Street, left into Ultimo Road, left into Thomas Street, and into site via Ultimo Pedestrian Network.

Halcrow MWT

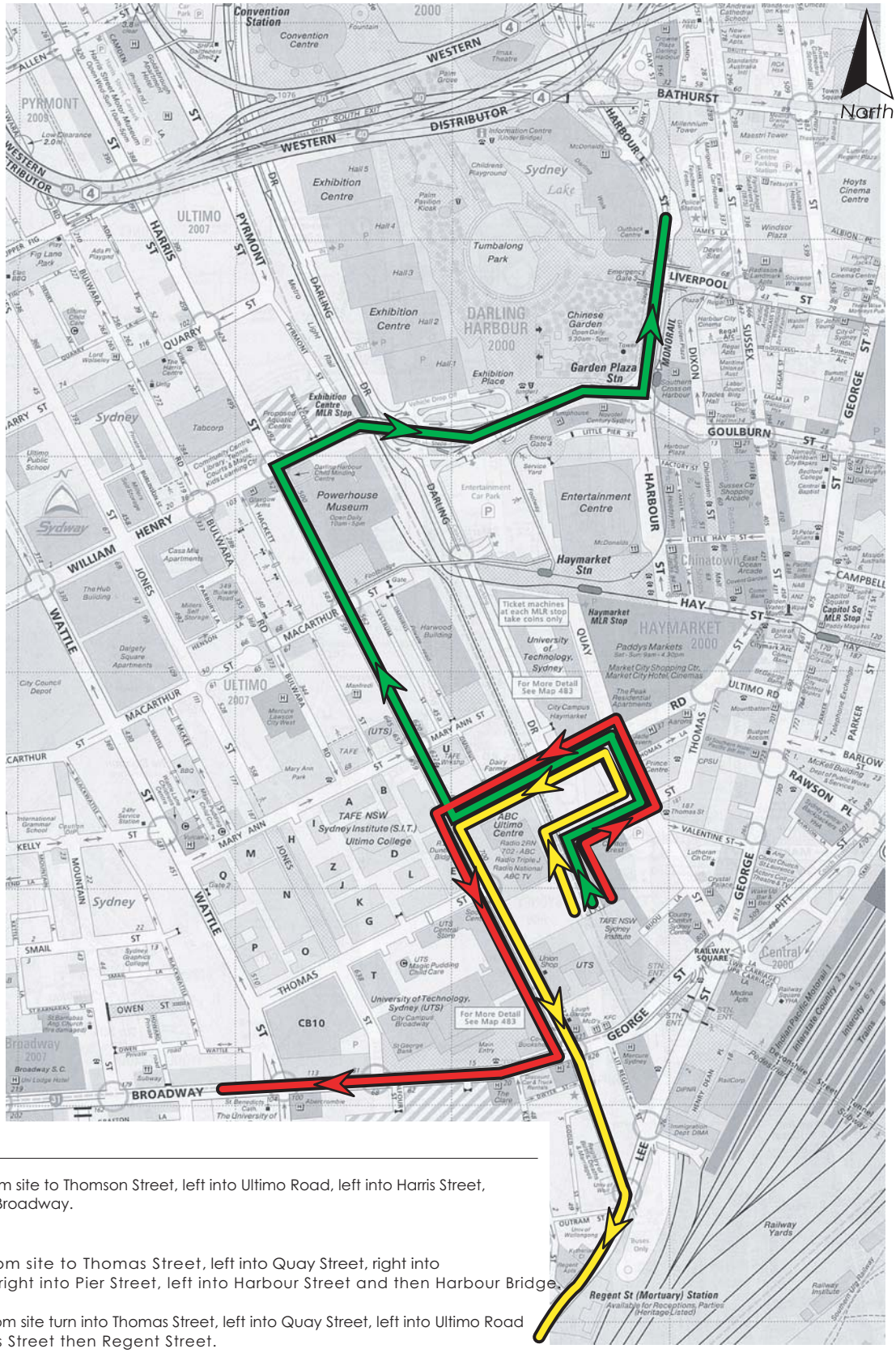
Figure 2

Filename: 083920di10.ai

Date: 13 February 2009

CONSTRUCTION TRUCK EXIT ROUTES

UTS STUDENTS ACCOMMODATION, BUILDING 6 ULTIMO



Key

To West – From site to Thomson Street, left into Ultimo Road, left into Harris Street, and right into Broadway.

To North – From site to Thomas Street, left into Quay Street, right into Harris Street, right into Pier Street, left into Harbour Street and then Harbour Bridge.

To South – From site turn into Thomas Street, left into Quay Street, left into Ultimo Road left into Harris Street then Regent Street.

Halcrow MWT

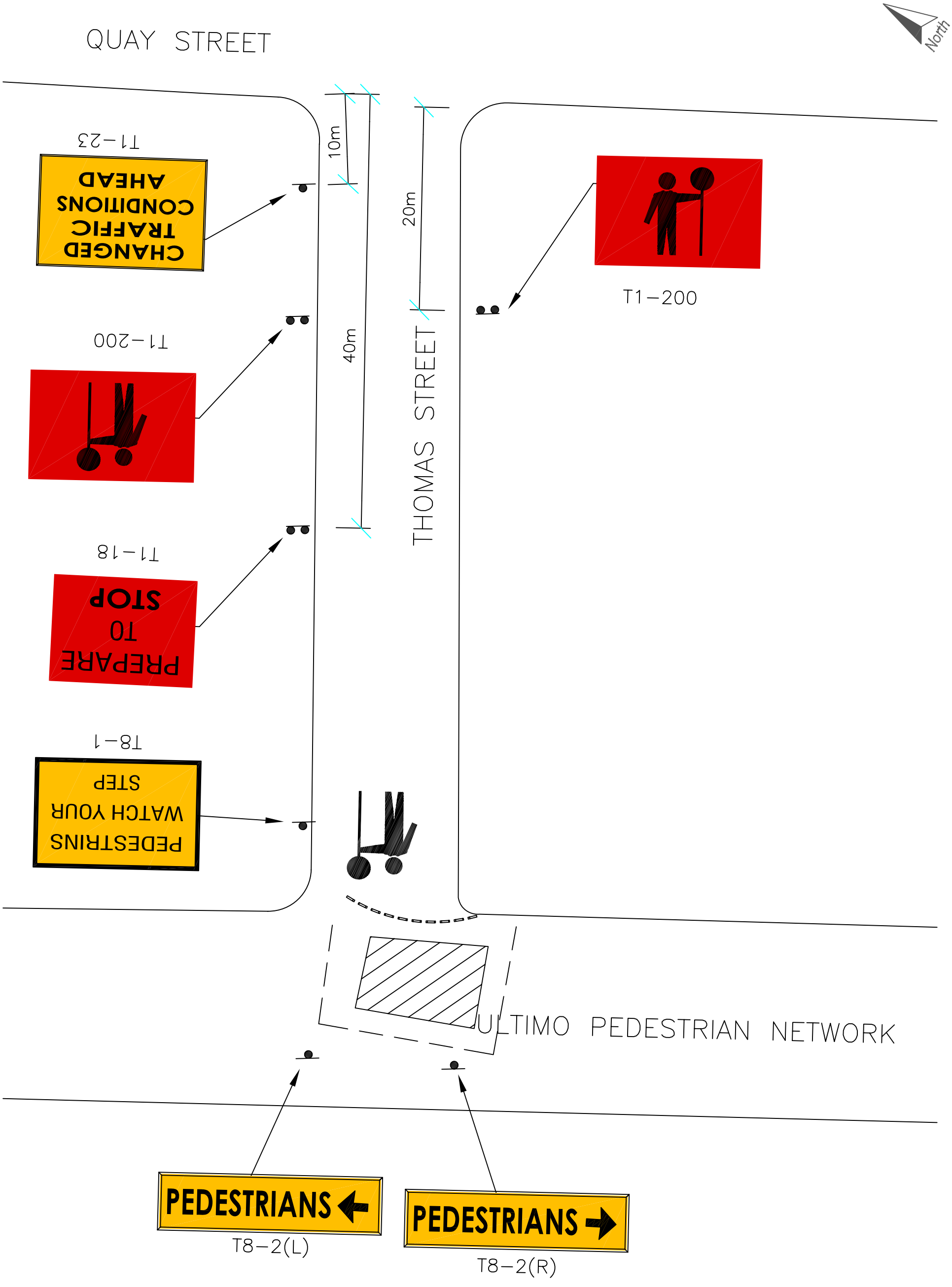
Figure 3

Filename: 083920di10.ai

Date: 13 February 2009

TCP DURING DEMOLITION OF STRUCTURE ACROSS THOMAS ST

UTS STUDENT ACCOMMODATION - BUILDING 6, ULTIMO



Scale: NTS@A3

Halcrow MWT

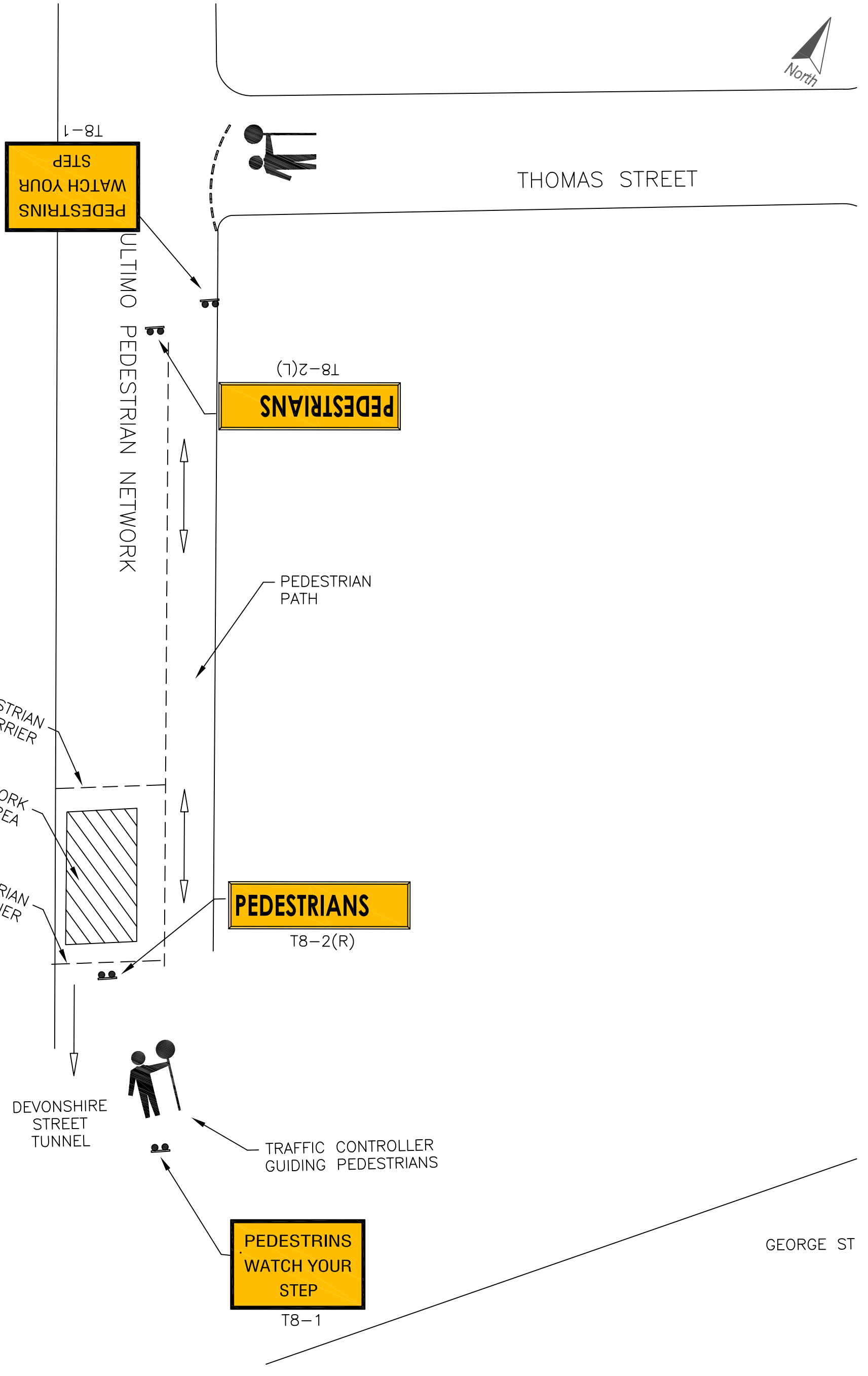
Filename: 083920da04 Truck Warning Signs

Figure 4

Date: 13 February 2009

PEDESTRIAN SIGNAGE DURING INSTALLATION OF OVERHEAD PROTECTION

UTS STUDENT ACCOMMODATION - BUILDING 6, ULTIMO



Scale: NTS@A3

Halcrow MWT

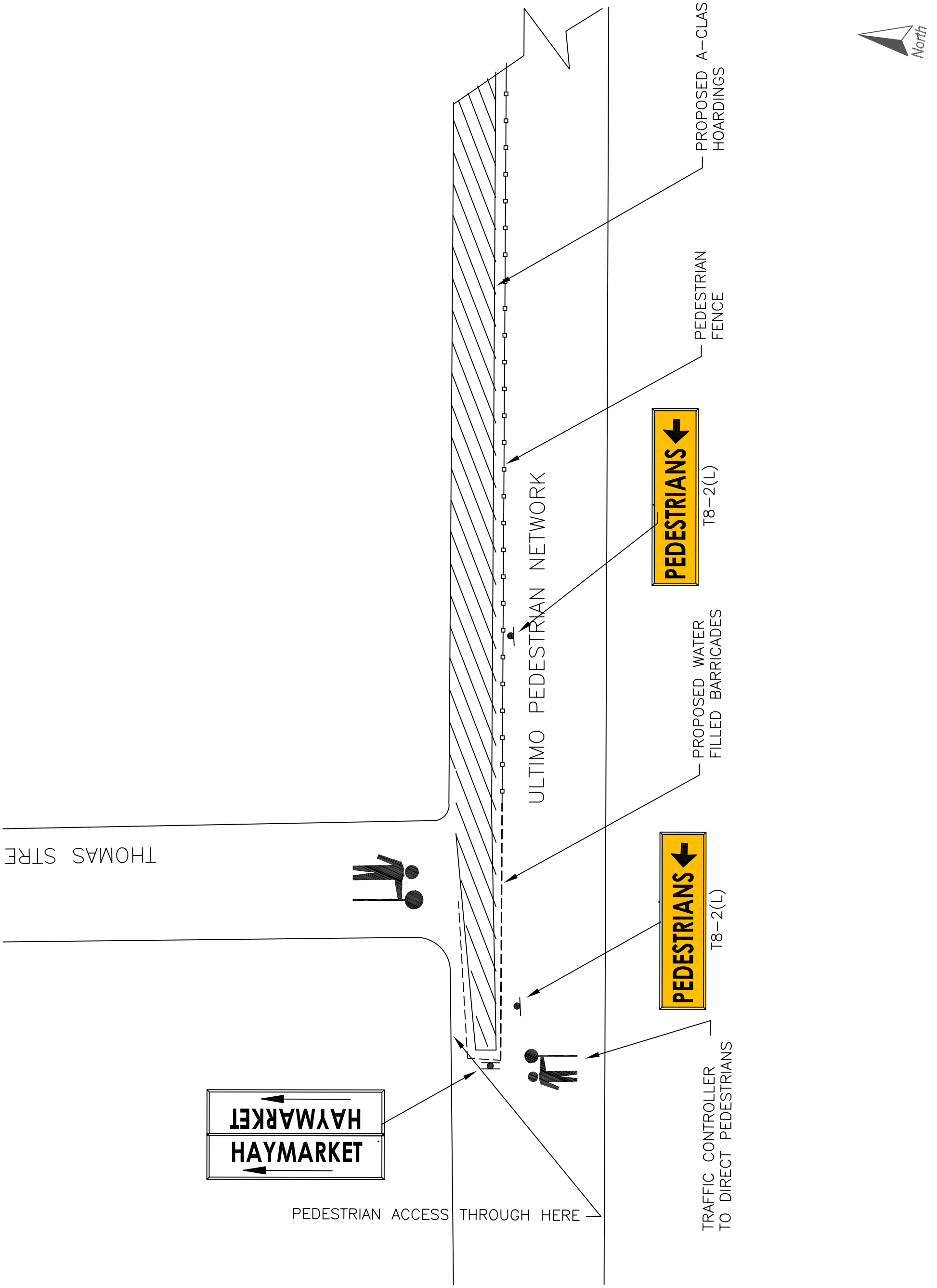
Figure 5

Filename: 083920da04 Truck Warning Signs

Date: 13 February 2009

PEDESTRIAN DIRECTION SIGNAGE DURING INSTALLATION OF HOARDINGS AREA

UTS STUDENT ACCOMMODATION - BUILDING 6, ULTIMO



Scale: NTS@A3

Halcrow MWT

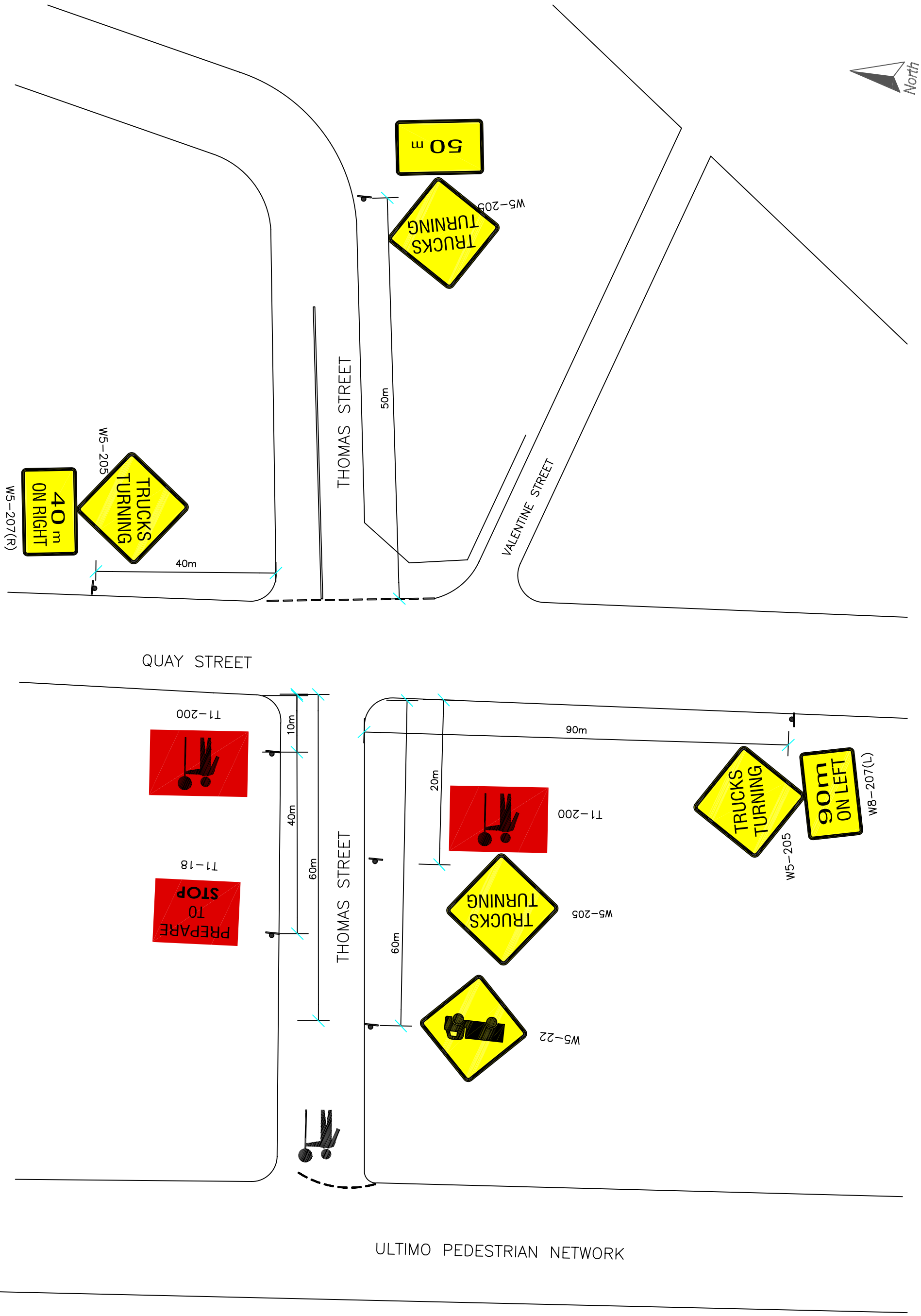
Filename: 083920da04 Truck Warning Signs

Figure 6

Date: 13 February 2009

TRUCK WARNING SIGNS IN THOMAS AND QUAY STREET

UTS STUDENT ACCOMMODATION - BUILDING 6, ULTIMO



Scale: NTS@A3

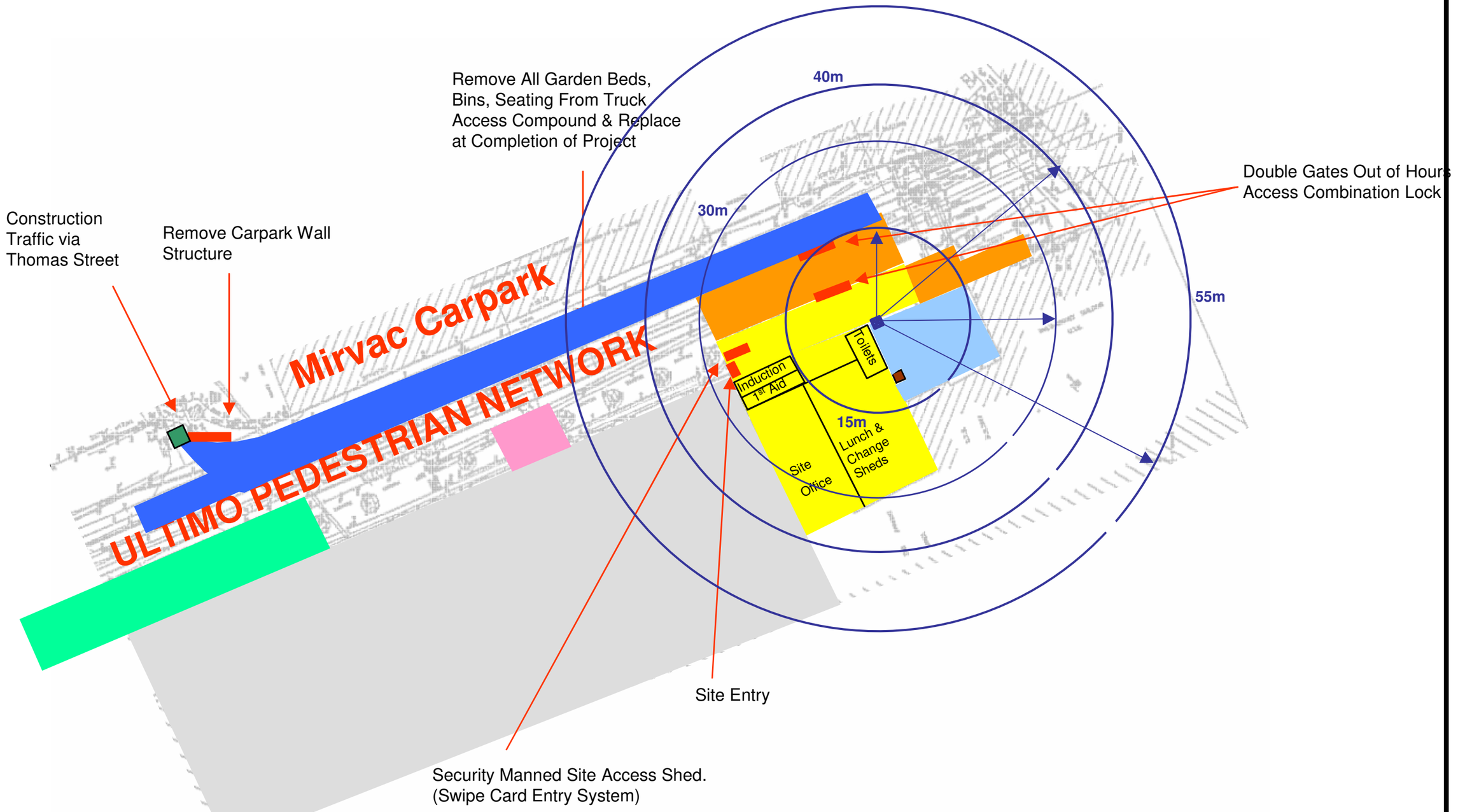
Halcrow MWT

Filename: 083920da04 Truck Warning Signs

Figure 7

Date: 13 February 2009

Appendix A Construction Establishment Plans



LEGEND

- TRAFFIC CONTROL / GUARD HOUSE – THOMAS STREET
- 6000mm WIDE TRUCK ACCESS COMPOUND
- 10 kPa OVERHEAD PEDESTRIAN PROTECTION GANTRY
- SITE ACCOMMODATION COMPOUND
- EMERGENCY EVACUATION ASSEMBLY AREA
- MATERIAL STORAGE AREA
- INSTALL NEW SEATING & BINS TO REPLACE TRUCK ACCESS AFFECTED
- HOISTS
- TOWER CRANE

LOAD CHART M230DSX.F 55m BOOM

Radius (metres)	5.2	10.0	13.5	20.0	22.5	25.0	30.0	35.0	40.0	45.0	50.0	55.0
Load (tonnes)	16.0	16.0	16.0	13.0	12.0	11.0	9.5	8.0	7.0	5.5	4.7	3.7

Living EDUCATION

HUTCHINSON BUILDERS Established 1912

CLIENT: HUTCHINSON BUILDERS

PROJECT: UTS STUDENT ACCOMMODATION

DATE: 15 Feb 09

DESIGN: CBP

APP'D: CBP

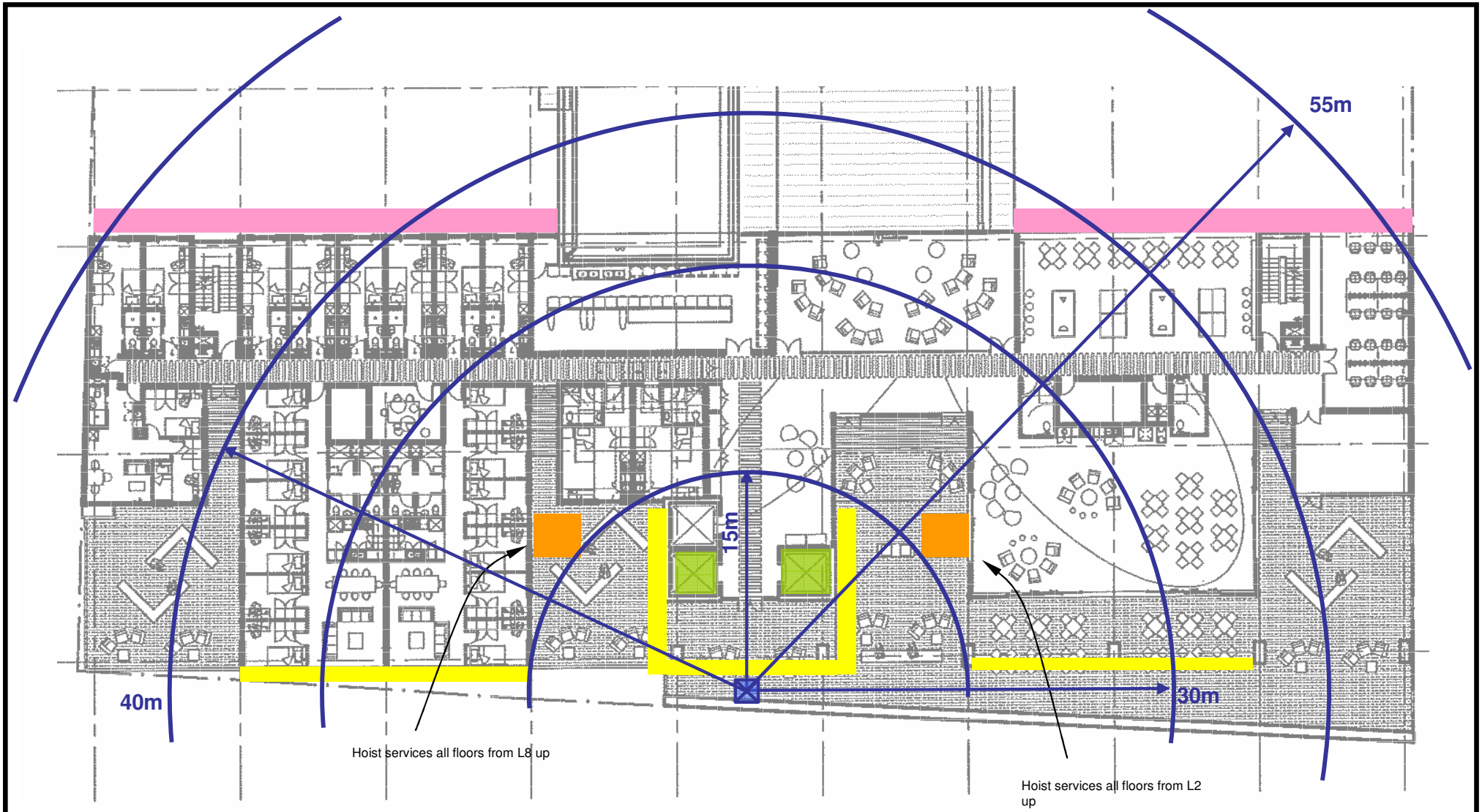
JOB No.: Y

TITLE: MATERIALS HANDLING SITE LAYOUT

DWG No.: 01 of 01

SIZE: A3

REV: I



LEGEND

- HOISTS
- BUILDERS LIFTS
- TOWER CRANE
- HOARDING & FAN IN COURTYARD
- PERIMETER SCAFFOLD

LOAD CHART M230DSX.F 55m BOOM												
Radius (metres)	5.2	10.0	13.5	20.0	22.5	25.0	30.0	35.0	40.0	45.0	50.0	55.0
Load (tonnes)	16.0	16.0	16.0	13.0	12.0	11.0	9.5	8.0	7.0	5.5	4.7	3.7

Living EDUCATION

HUTCHINSON BUILDERS
Established 1912

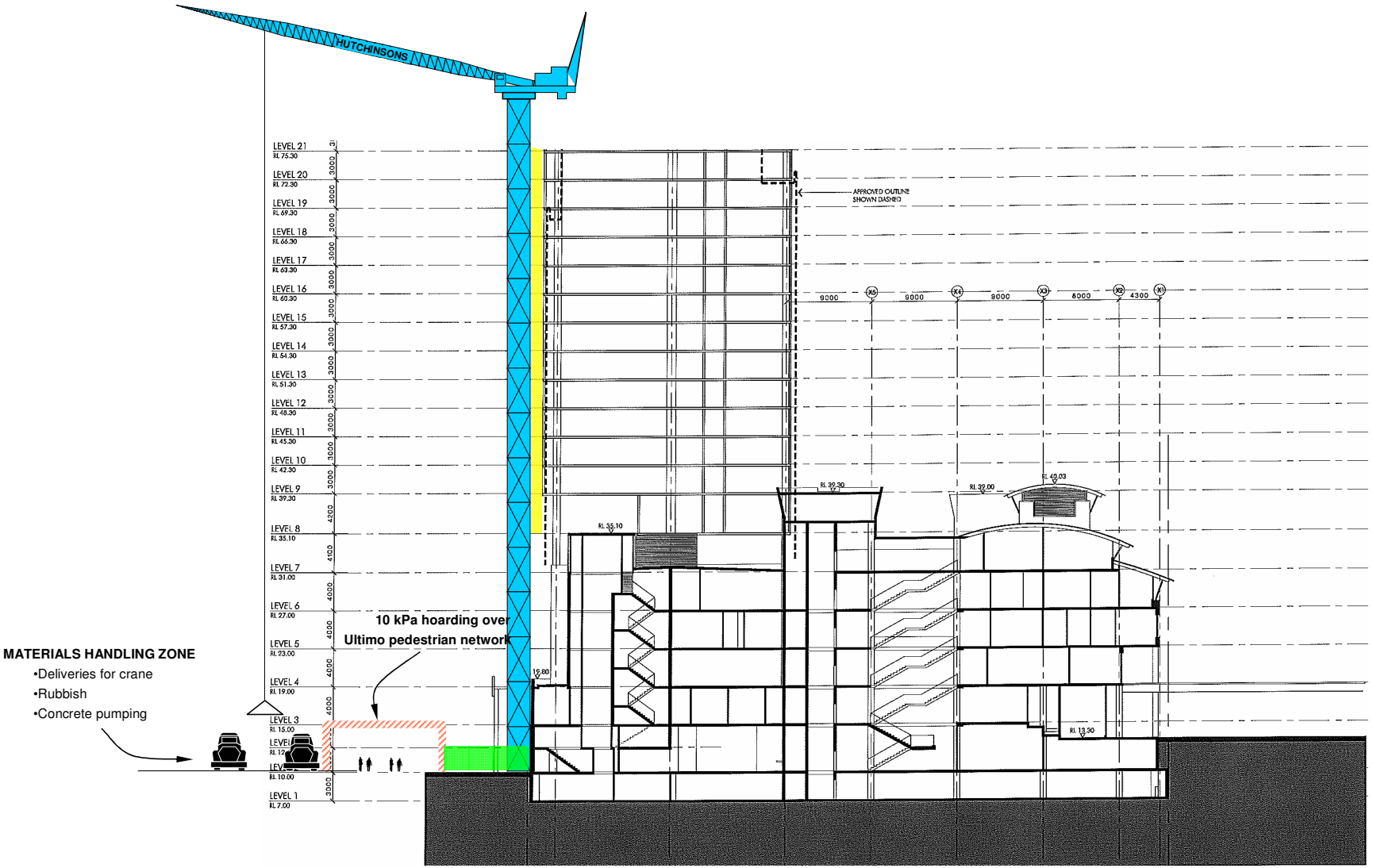
CLIENT: HUTCHINSON BUILDERS

PROJECT: UTS STUDENT ACCOMMODATION

DATE: 02 FEB 09
DESIGN: SB
APP'D: CBP
JOB No.: Y

TITLE: MATERIALS HANDLING SITE LAYOUT LEVEL 8

DWG No.: 01 of 01
SIZE: A3
REV: H



LEGEND

PERIMETER SCAFFOLD FROM L8 TO L22

SITE ACCOMMODATION

Living EDUCATION

HUTCHINSON BUILDERS
Established 1912

CLIENT: HUTCHINSON BUILDERS

PROJECT: UTS STUDENT ACCOMMODATION

DATE: 02 FEB 09
DESIGN: SB
APP'D: CBP
JOB No.: Y

TITLE: MATERIALS HANDLING SITE LAYOUT SECTION

DWG No.: 01 of 01
SIZE: A3
REV: H

Appendix B General Notes on Traffic Control Plans

These requirements apply when workers are working within the road reserve.

Standard RTA TCP

- The minimum RTA certification for personnel on site involved in the supervision or installation of temporary construction traffic arrangements should include RTA's "Introduction to Traffic Control at Road works" and "Traffic control Using a Stop / Slow Bat".

Work Clearances

The RTA Guidelines require a clearance of 1.2m and over between the edge of the work area and the nearest edge of a lane carrying traffic when there is no intervening physical barrier. In addition, to the clearance the following is required as a minimum:

- A Workers symbolic (T1-5) sign in advance of the work area.
- Delineation of the edge of the traffic lane with cones, bollards or similar means.

Signs

- T1-5 (digger symbol) must only be used when personnel are on the road and should be covered at other times. This symbolic sign is required at all road works sites.
- Sign size A is considered appropriate on local roads.
- All signs must be kept a minimum of 1m from the travel path.

Nightworks

- Flashing arrow signs are essential at night for lane closures.
- Signs for nightworks should replace standard signs used during daylight
- The work area is to be fully lit by floodlighting
- Cones and bollards used to delineate edge of traffic lane shall have retro-reflective band of Class 1 material.

Excavations

• Excavations shallower than 0.5 metres and within 3.0 metres of the travel path or edge line shall be defined by plastic mesh fencing, barrier boards (perpendicular to the traffic flow), cones, bollards or similar delineation while the adjacent lane is not under traffic control.

• Should the above requirement not be fulfilled, then RTA TCP 108 may be used in lieu of RTA TCP 109.

Delineation

• Barrier boards shall be located at right angle to the travel path or otherwise 4m from the travel path. Cones (at a spacing of 4m) are considered appropriate for day time use however may only be used when personnel are in attendance.

• All work areas should be separated from traffic and pedestrians by a minimum of mesh fencing. When used mesh fencing must be located 1.2m from the travelled path.

Disclaimer

Halcrow MWT Pty Limited and its employees and officers accept no liability for any loss or damage arising as a result of any reliance placed on the information provided. Such liability is hereby explicitly excluded.

This information is general in nature. Detailed information on appropriate training and documentation of work site operations are found in the RTA Traffic Control at Work Sites 2006, Australian Standard Documents and associated Work Site Manuals. Traffic Control at work sites must be undertaken with specific reference to Work cover Requirements and the Companies own Occupational Health and Safety Manuals.

8. Construction Safety Plan

Prior to any works being undertaken on the UTS Building 6 a Site OH&S Plan will be formulated and signed off by senior staff controlling the project. The Site OH&S plan dovetails the company OH&S Plan and outlines responsibilities planning and controls during construction on the Student Accommodation UTS Building 6 Project. The first activity in formulating the site OH&S Plan is to identify the risks in constructing the project. This identification process is undertaken using a risk register.

The Risk Register

1 How to use the Risk Register

a) Activity Segregation

- List all activities to be undertaken for the duration of works on site.

b) Hazard Identification

- Using the prompts in the hazard column of the Risk Register forms determine which hazard is associated to each activity.

2 How best to obtain information in completing the risk register

a) Experience

- Use the knowledge and experience of the 'experience person' involved in the planning, execution and supervision of the task.

b) Consultation

- Consult with people that may have been involved in the same or similar task(s) and value their input.

c) Specialist Practitioners

- Obtain and use the services of Government Bodies, Specialist Contractors, Employee/Employer groups, Consultants and publications.

Risk Assessment

Taking in to account the hazards identified on the Risk Register determine an overall level of risk for each activity.

1 Risk Classes

Class 1 – Personal Damage (Injury)

- Permanently alters the future of an individual *(fatality, quadriplegia, amputation, impaired back, disfigurement, psychological disturbances)*.

Class 2 – Personal Damage (A lost time injury)

- Temporarily alters the future of an individual *(normally personal damage from which the individual fully recovers, such as a broken limb, sprains etc)*. This classification includes personal

damage where the injured person returns to work on alternate duties in accordance with a 'return to work' plan **whether or not** there was any time lost.

Class 3 – Personal Damage (An injury requiring medical treatment or first aid)

- Damage which temporarily inconveniences the individual *(minor cuts, bruises, sprains etc., which hurt and discomfort a person, but do not stop the person carrying out normal activities)*.

2 Safe Work Method Statements (SWMS)

Under the heading SWMS required on the Risk Register, list all activities that require SWMS and ensure that Hutchinson Builders or the subcontractor provides the required SWMS.

The Hutchinson Builders foreman/supervisor responsible for coordinating and/or supervising a particular activity is to review the SWMS **PRIOR** to the particular task commencing.

3 Training

Employees involved in any task covered by a SWMS are to be trained and/or inducted in to the requirements for the SWMS with details recorded and filed for record purposes.

All persons involved with conducting a SWMS will be inducted and will sign off on the SWMS prior to works being undertaken.

The following is a list of contents which will be included in the Site OH&S Management Plan.

Contents

Index OH+S Forms/Checklists

9. Waste Management Plan

HUTCHINSON BUILDERS
Established 1912

WASTE MANAGEMENT PLAN

UTS Building 6

702-730 Harris Street, Ultimo

Recycling

Recycling is a vital means whereby Australia's natural resources are conserved and efficiently utilised.

Hutchinson Builders aim is to develop a waste management system centred on resource recovery and recycling.

Option 1: On-site Recycling

The efficiency of on-site recycling depends on the anticipated waste stream types and quantity along with space being available (and suitable) to house the bins required.

The on-site separation of scrap metals such as aluminium, copper pipe and wire, lead and steel is viable provided on-site security is adequate. A colour coding system is currently sued on sites to aid in the separation of materials. Separation on site is accredited separately to each site. By working together to reduce waste coming to site, a vast amount of waste can be reduced.

Site conditions permitting separate on-site bins for cardboard and paper are also possible and Hutchinson Builders have committed to provide a paper bin for use on site for this purpose.

Hutchinson Builders feel that off-site recycling is the more viable option for all other wastes.

Option 2: Off-site Recycling

Off-site recycling is the most appropriate course of action for mixed waste streams and sites with minimum room or access difficulties.

At the landfill and recycling facility, it is possible to sort and recycle wastes coming in. This sorting and recycling includes the recovery and production of the following materials:

Paper/cardboard
Glass
Steel – OSI and Black Iron
Non-ferrous Metals such as:
- Lead
- Copper
- Electrical cable
- Brass and aluminium

All of which are sorted and sent to the appropriate processing plants

Timber, such as:
- Formwork
- Pallets
- Hardwood
- Oregon and the like

are sorted for reuse with the remainder being processed to make woodchip.

Plasterboard and Gyprock are transformed into soil conditioners.

Green waste is transformed into mulch.

Problem waste such as:
- Carpet
- Mattresses
- Tree stumps
- Plastic and tyres

Are all processed to avoid the potential problems that wastes such as these cause at landfills.

All hardcore materials:
- Bricks
- Mortar
- Concrete
- Dirt
- Soil
- Sand
- Tiles
- Marble and stone

are either stacked for reuse or reprocessed into high quality raw materials such as:
- Roadbase
- Aggregates for drainage
- Fill sand
- Soil
- Turf underlay

Environmental Management and Compliance

Hutchinson Builders offer a waste management service in accord with the Protection of the Environment Operations Act 1997 and the Waste Minimisation and Management Act 1995.

Clients of Hutchinson Builders are secure in the knowledge that their waste is being disposed of according to environmental protection legislation and the principles of ecologically sustainable development. Hutchinson Builders has in place, as a major part of our business, a materials recovery and recycling programme that exceeds the objectives of the waste minimisation and management legislation.

Legislation and Due Diligence

Legislation

The disposal of wastes in New South Wales is under the control of the Environmental Protection Authority. The EPA administers the Protection of the Environment Operations Act and associated legislation and regulations.

Due Diligence

Companies and individuals are required to act with due diligence in respect of the disposal of the wastes they generate. Companies and individuals are exercising due diligence by using appropriate organisations to dispose of waste.

Due diligence may be considered to be the legal opposite of negligence. If due diligence is not exercised then negligence may be considered to have occurred. Due diligence applies to both a requirement to act and to a failure to act, thus commission and omission of actions. Due diligence applies to companies, company directors and employees. Due diligence means that companies and individuals have been all reasonable means to ensure that legal obligations have been met.

For waste management, due diligence requires both the waste producer and the waste collector to mutually exercise:

(a) duty of care, and
(b) duty of disclosure

that is each to inform the other of any and all matters which affect the undertaking of the waste management operations.

Definitions of Wastes

Wastes

Wastes are described by many different names and come in many different types, ie, industrial, commercial, building and demolition, clinical, solid, domestic, putrescible, non-putrescible, hazardous, household, inert, municipal and trade waste. They are defined for regulatory purposes in the Protection of the Environment Operations Act.

For practical purposes, New South Wales has adopted a waste management hierarchy that prioritises ecological sustainable waste solutions. The hierarchy consists of:

1. Avoiding waste
2. Reusing materials
3. Recycling and reprocessing materials
4. Waste disposal

Waste Management

Wastes need to be managed in order to comply with every aspect of the legislation covering wastes. The waste management service provided by Hutchinson Builders is a total waste management service. By engaging Hutchinson Builders to manage wastes, a waste generator has exercised complete due diligence. Hutchinson Builders assumes the responsibility and requirement for the correct collection, transport, storage and disposal of wastes.

The waste management service of Hutchinson Builders covers all aspects of all wastes, a complete and thorough service to assist industry, a significant service that is keeping Australia clean.

Ecologically Sustainable Development

Ecologically sustainable development as the fundamental tenant of Australian business stems from the Intergovernmental Agreement of the Environment between Australian Commonwealth, State, Territory and Local Governments on ecologically sustainable development made in May 1992. Hutchinson Builders fully endorses and is committed to the four principles which constitute ecologically sustainable development.

Principle 1: The Precautionary Principle

For general hard wastes, there is a great deal of scientific certainty concerning their treatment, storage, transport and disposal. Such materials, in general, have been used by society for millennia. For special wastes, Hutchinson Builders applies the measures and procedures for handling and disposal required by NSW legislation. These measures and procedures are designed to ensure the known and suspected effects of such materials are controlled.

Principle 2: Inter-generational Equity

Resource recovery and recycling as carried out by Hutchinson Builders together with corresponding savings in fossil fuel energy and more efficient use of landfill sites are direct, positive and practical measures to provide for inter-generational (future generations) and intra-generational (present generation) equity.

Principle 3: Conservation of Biological Diversity and Ecological Integrity

Disposal of waste by Hutchinson Builders is at a designed licenced landfill site. The site has detailed rehabilitation plans to ensure the biological diversity and ecological integrity of the site and its environs. The recovery and recycling of resources conserves resources and consequently minimises the impact of the initial production of resources on the biological diversity and ecological integrity of land.

Principle 4: Improved Valuation and Pricing of Environmental Resources

Hutchinson Builders applies control measures in the treatment, storage, transport and disposal of waste materials to minimise air, water and noise pollution. These control measures are the means whereby the valuation of the environmental resources of air quality, water quality and area amenity is enhanced.

Disclaimer

Information herein dealing with NSW legislation is derived from a reasonable and logical interpretation of that legislation. The EPA has a number of publications dealing with wastes and waste management that provide specific information and details that may be of value to waste generators.

Recycling

Recycling is a vital means whereby Australia's natural resources are conserved and efficiently utilised. Hutchinson Builders' waste management system is centred around resource recovery and recycling and through innovative approaches.

Hutchinson Builders encourages clients to utilise our facilities.

The efficiency of on-site recycling is dependent on a number of factors including:

- anticipated waste streams
- adequate space available for bins to be labelled for specific waste stream (Hutchinson Builders currently utilises a colour coding system for this option)
- adequate security for valuable materials including scrap metals (aluminium, copper pipe and wire, lead and steel)
- quality on-site staff training to ensure waste streams stay 'clean'.

Off-site recycling is an efficient and cost effective option for Hutchinson Builders clients. General loads of collected waste are sorted and recycled. Materials currently recycled and reused include:

Metals	Resold to appropriate processing plants
Timber	Recycled into woodchip
Green Waste	Recycled into mulch
Hardcore	Recycled into products including roadbase, sand, fill and aggregate

Hutchinson Builders' clients can feel secure in the knowledge that their waste is being disposed of and recycled according to environmental protection legislation and the principles of ecologically sustainable development.

Recycling Reports are a key feature of Hutchinson Builders' waste management services and can bde provided to clients at the end of each month indicating the recycling results achieved by individual sites. This allows our clients the confidence of knowing they are achieving Government standards and meeting all reporting requirements.

Hutchinson Builders can also assist in the recycling and reuse of products on site with screens and crushers available to transform bricks, concrete and similar hardcore materials into recycles and reusable aggregates, roadbases and fill materials.

Email Transmission

Date:		**Email:**	
Company:			
Site Address:			
Post Address:			
Attention:		**Phone:**	

Client:	
Site:	
Job Stage:	
Month:	
Total Volume:	
Landfill:	

Recycling & Waste Minimisation:	%
Recycling & Waste Minimisation comprising as below:	
Hardcore:	%
Softcore:	%
Steel: Ferrous / Non Ferrous:	%
Paper / Cardboard:	%
Miscellaneous:	%

10. Environmental Management Plan

HUTCHINSON BUILDERS
Established 1912

Student Accommodation UTS Building 6,

702 – 730 Harris Street

Ultimo

ENVIRONMENTAL MANAGEMENT PLAN

26 February 2009

Rev A

ENVIRONMENTAL POLICY

Hutchinson Builders is committed to pursing a responsible approach in its operational activities that facilitates a sustainable community environment.

The scope of this Site Specific Environmental Management Plan is to minimise the effect of the construction activities on the adjoining urban properties, roadways, footpaths and environment.

The aim is to identify environmental risks relating to the following environmental policy issues:

Issue 1	-	AIR QUALITY, DUST
Issue 2	-	NOISE, VIBRATION, CONSTRUCTION HOURS
Issue 3	-	WASTE MANAGEMENT, DANGEROUS GOODS
Issue 4	-	WATER MANAGEMENT, SEDIMENT CONTROL
Issue 5	-	SOIL MANAGEMENT
Issue 6	-	MATERIALS HANDLING, PLANT PLACEMENT
Issue 7	-	GENERAL PUBLIC
Issue 8	-	DESIGN

The above policy issues will be managed to the following procedure:

- Planning — site awareness and impact
- Controls — practical solutions
- Implementation — training and installation
- Maintenance — making good, corrective action and review
- Reporting — via an incident report

GREG QUINN
Managing Director

Issued: January 2007

Issue 1: Air Quality – Dust

PROCEDURE	ENVIRONMENTAL ISSUE CONTROLS
Objective/Targets	- Comply to the Environmental Protection (Air) Policy 1997 - Contain dust and emissions from plant and equipment which is generated from building construction activities, in accordance with statutory requirements - On-site watering equipment to be available to dampen dusty activities, no visible dust emissions at the boundaries - During construction if dust emissions exceed the conditions above work must cease until sufficient corrective action has been implemented to reduce dust emissions to an acceptable level
Management Strategy	- To control and monitor construction activities which generate dust and emissions from plant
Tasks/Actions	- When plant and equipment are to be operated on site, check the service log and check emission controls attachments - Reduce speed limits for plant movements - Regular watering down of trafficable areas - Regular cleaning of work areas - Plant generating dust to be fitted with appropriate water or collection control
Performance Indicators	- Visually monitor the effects of dust and emissions generated - Monitor plant movements - Monitor dewatering and cleaning of work areas - Monitor plant attachment controls
Frequency Deadline	- Each time plant and equipment are operating on site and during work activity - When work activity creates dust to accumulate - When plant activity creates black emissions - Consultation prior to plant start up
Responsible Persons Organisations	- Site manager together with construction foremen - Subcontractors
Reporting/Review	- Incident/Complaint Register to control dust and emissions created - Review if frequency deadlines are not being maintained
Corrective Actions	- Site manager together with construction foremen to review resources being used to maintain objectives/targets - Use Corrective Action Report for remedial action

Issue 2: Construction Hours, Noise, Vibration

PROCEDURE	ENVIRONMENTAL ISSUE CONTROLS
Objective/Tasks	- Comply to the Environment Protection (Noise) Policy 1997 - Contain noise and vibrations from plant and equipment which is generated from building construction activities, in accordance with relevant statutory requirements - Operation of plant and equipment on the site must not exceed the adjusted noise level by the following: 7.00am -7.00pm Monday to Friday and 7.00am-5.00pm Saturday by +10dB for a commercial premises - During these working hours the adjusted noise level from any single source or activity shall not exceed 65dB (A) at the boundary of any property - Construction activities to be limited between the hours of 7.00am-7.00pm Monday to Friday and 7.00am-5.00pm Saturday
Management Strategy	- To control and monitor construction activities which generate noise and vibration
Tasks/Actions	- Select the correct size plant and equipment to reduce the impact of noise and vibration via silencing equipment - Schedule deliveries to site to reduce the volume of noise created from work activities - All audible noise to be carried out between the hours 7.00am-7.00pm Monday to Friday and 7.00am-5.00pm Saturday - Position stationary plant so as to reduce the impact of continuous operation - All construction activities to be carried out between the hours of 7.00am-7.00pm Monday to Friday and 7.00am-5.00pm Saturday
Performance Indicators	- Plan the work activity with the contractor involved, check silencing equipment is being used - Plan and monitor work activities - Plan the position of plant to carry out stationary work activity - Site to start work after 7.00am and finish before 7.00pm Monday to Friday and 7.00am-5.00pm Saturday
Frequency Deadline	- Every time plant and machinery is ordered - Every time material orders are placed with suppliers - Discussion between the people involved in the work activity - Start and finish times controlled by site personnel
Responsible Persons Organisations	- Site manager together with construction foremen - Subcontractors
Reporting/Review	- Incident/Complaint Register to control noise levels - Review if frequency deadlines are not being maintained
Corrective Actions	- Site manager together with construction foremen to review planning and schedules to maintain objectives/targets - Use Corrective Action Report for remedial action taken

Issue 3: Waste Management, Dangerous Goods

PROCEDURE	ENVIRONMENTAL ISSUE CONTROLS
Objectives/Targets	- Comply to the Environmental Protection (Waste Management) Interim Regulation (2000) - Minimise, collection and disposal of waste generated by building construction activities, in accordance with relevant statutory requirements - Vehicles delivering and collecting waste skips to be between the hours of 7.00am-7.00pm Monday to Friday and 7.00am-5.00pm Saturday - Manage dangerous goods as classified under the ADG Code as a dangerous good
Management Strategy	- To control and evaluate waste delivered and generated from materials and packaging used on the building site - Control the storage and usage of dangerous goods for the site
Tasks/Actions	- All packaging around materials delivered to site to be placed into the collection bins provided - All food scraps to be placed into the collection bins provided on each level - All material wastes generated by the installation process to be placed into collection bins provided on each level - Regular clean up of work areas to control the amount of waste from each level , lowered to a central collection skip to be removed from site - Dangerous goods to be contained in a lockable container which has a floor, sides and roof separating them from the environment
Performance Indicators	- Visually monitor the effects of waste generated - Visually monitor the cleaning of work areas - Monitor the efficiency of waste removal from site - Record and monitor the storage of dangerous goods
Frequency Deadline	- Before work areas become cluttered with waste where there is a chance of a incident - Before collection bins become over full to transport in safety from site - When the dangerous goods are being used and stored on site
Responsible Persons Organisations	- Site manager together with construction foremen - Subcontractors to monitor own clean ups
Reporting/Review	- Incident/Complaint Register to control waste generated - Review if frequency deadlines are not being maintained
Corrective Actions	- Site manager together with the construction foremen to review collection and disposal procedures to maintain objectives/targets - Use Corrective Action Report for remedial action taken

Issue 4: Water Control, Sediment Control

PROCEDURE	ENVIRONMENTAL ISSUE CONTROLS
Objectives/Targets	- Comply to the NSW EPA (2006) Water Quality Objectives - Contain sediment and water run off which is generated from building construction activities, in accordance with relevant statutory requirements - The stormwater management plan to be updated as required to reflect current standards and best practices to limit the impact on the environment - Stormwater discharge from the site to be directed to the existing stormwater system and discharge must not contain levels of water pollutants outside the acceptable ranges given in the Australian Water Quality Objectives - Sewerage generated from site amenities to discharge direct to existing sewer main
Management Strategy	- To control and monitor sediment, water run off and sewerage generated by construction activities
Tasks/Actions	- Where practical divert surface water to minimise the existing podium roof outlets - Install Geotech fabric into the podium roof outlets together with purpose built wire silt traps placed over the roof outlets to contain sediment run off at site level - Install hay bales to areas where surface can not be directed to roof outlets at site boundaries - Clean sediment build up against hay bales and roof outlets - Roof water to discharge into storm water system as soon as possible - Site amenities to discharge into existing sewerage system
Performance Indicators	- Visually monitor the surface water movements and evaluate - Monitor and maintain podium outlets and hay bales on boundary locations - Maintain sediment removal against hay bales and roof outlets - Monitor sewer line connections to existing sewer
Frequency Deadline	- During and after rain periods - During and after rain periods, check hay bales and cages - Regularly inspect sewerage layout
Responsible Persons Organisations	- Site manager together with construction foremen
Reporting/Review	- Incident/Complaint Register to control surface water and sediment run off Review if frequency deadlines are not being maintained
Corrective Action	- Site manager together with construction foremen to review sediment and surface water run off to maintain objectives/targets - Use Corrective Action Report for remedial action taken

Issue 5: Soil Management

PROCEDURE	ENVIRONMENTAL ISSUE CONTROLS
Objectives/Targets	- Comply to the Environmental Protection (Soil) Policy - Manage acid sulphate soils during construction activities where soils are disturbed
Management Strategy	- Control and monitor soil disturbance during excavation activities
Tasks/Actions	- Where soils are disturbed engage a Geotech consultant to identify elements exposed - Manage exposed soil as per consultant's Soil Management Plan
Performance Indicators	- When existing concrete ground slabs are removed - Arrange site meeting with consultant for soil testing
Frequency Deadline	- As soon as concrete is removed and prior to excavating - As indicated in Soil Management Plan
Responsible Persons Organisations	- Site manager together with construction foremen - Soil consultant
Reporting/Review	- Incident/Complaint Register to control surface water and sediment run off Review if frequency deadlines are not being maintained
Corrective Action	- Site manager together with construction foremen to review soil disturbance to maintain objectives/targets - Use Corrective Action Report for remedial action taken

Issue 6: Materials Handling, Plant Placement

PROCEDURE	ENVIRONMENTAL ISSUE CONTROLS
Objectives/Targets	- Comply to the environmental requirements to achieve best environmental management - Coordinate the storage of construction materials to be used on site - Coordinate removal and deliveries of materials generated by construction activities to occur within the site boundaries - Plan and coordinate plant placement to confine generated activities to inside site boundaries
Management Strategy	- Control and monitor movement of materials to and from site, the storage and handling of building components during construction and the placement of plant used for construction activities
Tasks/Actions	- Areas to be allocated for the storage of construction materials - Access for delivery and removal will be via Works Zone on College Street and Gate 2 on Stanley Street - Tower cranes and plant to be positioned to keep construction movements within site boundaries
Performance Indicators	- Monitor materials stored to reflect the construction programme - Monitor and maintain safe entry and exit of vehicles delivering and removing materials from Works Zone on College Street, and Gate 2 on Stanley Street - Monitor crane movements to restrict activities over construction site
Frequency Deadline	- Forward daily and weekly planning of work activities - During vehicle entry and exit Works Zone on College Street, and Gate 2 on Stanley Street
Responsible Persons Organisations	- Site manager together with construction foremen
Reporting/Review	- Incident/Complaint Register to control vehicle and crane movements Review if frequency deadlines are not being maintained
Corrective Action	- Site manager together with construction foremen to review crane and vehicle movements to maintain objectives/targets - Use Corrective Action Report for remedial action taken

Issue 7: General Public

PROCEDURE	ENVIRONMENTAL ISSUE CONTROLS
Objectives/Targets	- Comply with environmental requirements to achieve best environment management - Provide purposed built gantry to comply to building and safety requirements - Maintain pedestrian access to College Street, Stanley Street and Francis Street - Maintain minimal disruption to local businesses and nearby residential buildings as per this EMP
Management Strategy	- To control and monitor the general public's comfort and convenience as stated in this EMP
Tasks/Actions	- Install and maintain a purpose built gantry to College Street, Francis Street, College Lane and Stanley Street - Implement this EMP to minimise disruption to local businesses and nearby residential buildings
Performance Indicators	- Monitor gantry for fit for purpose during vehicle and pedestrian movements - Monitor the footpath in front of the adjacent buildings - Monitor the effectiveness of the EMP
Frequency Deadline	- During vehicle movements at College Street Works Zone and Gate 2, Stanley Street - On a regular basis to maintain compliance of this EMP
Responsible Persons Organisations	- Site manager together with construction foremen
Reporting/Review	- Incident/Complaint Register to control and minimise disruption to the general public Review if frequency deadlines are not being maintained
Corrective Action	- Site manager together with construction foremen to review the movement between vehicles, general public and the impact of the EMP to maintain objectives/targets - Use Corrective Action Report for remedial action taken

Issue 8: Design

PROCEDURE	ENVIRONMENTAL ISSUE CONTROLS
Objectives/Targets	- To achieve a BASIX energy score of TBA % and BASIX water score of TBA%
Management Strategy	- Obligation to meet the minimum BASIX performance will be discharged by ensuring the minimum BASIX requirement is included as part of the D+C Services Contract scope - Achievement of same by D+C Services contractor is a core requirement of the design obligation being contracted - Monthly inspection and reporting by services consultants will identify remedial actions or non-conformity
Tasks/Actions	-
Performance Indicators	- Monthly design certification from design consultants
Frequency Deadline	- Monthly
Responsible Persons Organisations	- Design Manager
Reporting/Review	Review if frequency deadlines are not being maintained
Corrective Action	- Design Manger toreview the movement between vehicles, general public and the impact of the EMP to maintain objectives/targets - Use Corrective Action Report for remedial action taken

INCIDENT / COMPLAINT REGISTER

Recorded By: _____ Date: / / Time: am / pm

Date of Incident: / / Approx Time of Incident: am / pm

Type of Communication:		Detail of Complaint / Notifier	
Written	☐	Name:	_____
Telephone	☐	Not Identified	☐
Personal	☐	Address:	_____
Statutory Advise	☐		_____
Other (please specify)	☐	Telephone:	_____

Notified To:

Name: _____ Position: _____

Nature and Location of Incident:
Additional Details Attached ☐

Response / Investigation Method:
Additional Details Attached ☐

Corrective Action Report

Remedial Actions Taken:

Delegated By: _____ Position: _____

Signature: _____ Date: _____

Delegated To: _____ Position: _____

Signature: _____ Date: _____

Completion of Actions

Signature: _____ **Date:** _____

Comments:
