

SICEEP WESTERN PLOT DARLING DRIVE STUDENT ACCOMODATION BUILDING W1

CONSTRUCTION METHODOLOGY

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1. Introduction

This report supports a State Significant Development (SSD) Development Application (DA) submitted to the Minister for Planning pursuant to Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

The Application (referred to as SSDA 12) follows the approval of a staged SSD DA (SSDA 2) in December 2013. SSDA 2 sets out a Concept Proposal for a new mixed use residential neighbourhood at Haymarket referred to as “Darling Square”, previously known as “The Haymarket”. Darling Square forms part of the Sydney International Convention, Exhibition and Entertainment precinct (SICEEP) Project, which will deliver Australia’s global city with new world class convention, exhibition and entertainment facilities and support the NSW Government’s goal to “make NSW number one again”.

More specifically this subsequent DA seeks approval for a residential building (student accommodation) within the Western development plot (Darling Drive) of Darling Square and associated public domain works. The DA has been prepared and structured to be consistent with the Concept Proposal DA.

1.1. Overview of Proposed Development

The proposal relates to a detailed (‘Stage 2’) DA for a residential building (student accommodation) in the Darling Drive Plot of Darling Square together with associated public domain works. The Darling Square Site is to be developed for a mix of residential and non-residential uses, including but not limited to residential buildings, commercial, retail, community and open space. The Darling Drive Plot is one of six development plots identified within the approved Concept Proposal.

More specifically, this SSD DA seeks approval for the following components of the development:

- Demolition of existing site improvements;
- Associated tree removal and planting;
- Construction and use of one residential building within the Darling Drive Plot, to be used for student accommodation purposes;
- Public domain improvements, including provision of a new urban courtyard space between student accommodation buildings W1 and W2; and
- Extension and augmentation of physical infrastructure / utilities as required.

1.2. Background

The NSW Government considers that a precinct-wide renewal and expansion of the existing convention, exhibition and entertainment centre facilities at Darling Harbour is required, and is committed to Sydney reclaiming its position on centre stage for hosting world-class events with the creation of SICEEP.

Following an extensive and rigorous Expressions of Interest and Request for Proposals process, a consortium comprising AEG Ogden, Lend Lease, Capella Capital and Spotless was announced by the NSW Government in December 2012 as the preferred proponent to transform Darling Harbour and create SICEEP.

Key features of the Preferred Master Plan include:

- Delivering world-class convention, exhibition and entertainment facilities, including:
 - Up to 40,000m² exhibition space;
 - Over 8,000m² of meeting rooms space, across 40 rooms;
 - Overall convention space capacity for more than 12,000 people;
 - A ballroom capable of accommodating 2,000 people; and
 - A premium, red-carpet entertainment facility with a capacity of 8,000 persons.

- Providing a hotel complex at the northern end of the precinct.
- A vibrant and authentic new neighbourhood at the southern end of the precinct, now called 'Darling Square', including apartments, student accommodation, shops, cafes and restaurants.
- Renewed and upgraded public domain that has been increased by a hectare, including an outdoor event space for up to 27,000 people at an expanded Tumbalong Park; and
- Improved pedestrian connections linking to the proposed Ultimo Pedestrian Network drawing people between Central, Chinatown and Cockle Bay Wharf as well as east-west between Ultimo/Pyrmont and the City.

On 21 March 2013 a critical step in realising the NSW Government's vision for the SICEEP Project was made, with the lodgement of the first two SSD DAs with the (now) Department of Planning and Environment. The key components of these proposals are outlined below.

1.3. Public Private Partnership SSD DA (SSD 12_5752)

The Public-Private Partnership (PPP) SSD DA (SSDA 1) includes the core facilities of the SICEEP Project, comprising the new, integrated and world-class convention, exhibition and entertainment facilities along with ancillary commercial premises and public domain upgrades. SSDA1 was approved on 22 August 2013.

1.4. Concept Proposal (SSD 13_5878)

The Concept Proposal SSD DA (SSDA 2) establishes the vision and planning and development framework which will be the basis for the consent authority to assess detailed development proposals within the Darling Square Site. SSDA2 was approved on 5 December 2013. The Stage 1 Concept Proposal approved the following key components and development parameters:

- Indicative staging of demolition and development of future development plots;
- Land uses across the site including residential and non-residential uses;
- Street and laneway layouts and pedestrian routes;
- Open spaces and through-site links;
- Six separate development plots, development plot sizes and separation, building envelopes, building separation, building depths, building alignments, and benchmarks for natural ventilation and solar access provisions;
- A maximum total gross floor area (non-residential and residential GFA);
- Above ground car parking including public car parking;
- Residential car parking rates;
- Design Guidelines to guide future development and the public domain; and
- A remediation strategy.

In addition to the approval of SSDA2, the following approvals have been granted for various stages of the Darling Square site:

- Darling Drive (part) development plot (SSDA3) for the construction and use of a residential building/W2 (student accommodation) and the provision of associated public domain works approved on 7 May 2014;
- North-West development plot (SSDA4) for the construction and use of a mixed use commercial development and public car park building and associated public domain works approved on 7 May 2014; and
- South-West development plot (SSDA5) – construction and use of a mixed use residential development and associated public domain works approved on 21 May 2014.
- North-East development plot (SSDA7) – construction and use of a mixed use residential development and associated public domain works approved on 16 April 2014.

Approval was also granted on 15 June 2014 for SSDA6 which includes the construction and use of the International Convention Centre (ICC) Hotel and provision of public domain works.

This report has been prepared to support a detailed Stage 2 SSD DA for a residential building/W1 (student accommodation) and associated public domain works within Darling Square (SSDA 12), consistent with the Concept Proposal (SSDA 2).

1.5. Site Description

The SICEEP Site is located within Darling Harbour. Darling Harbour is a 60 hectare waterfront precinct on the south-western edge of the Sydney Central Business District that provides a mix of functions including recreational, tourist, entertainment and business.

With an area of approximately 20 hectares, the SICEEP Site is generally bound by the light rail Line to the west, Harbourside shopping centre and Cockle Bay to the north, Darling Quarter, the Chinese Garden and Harbour Street to the east, and Hay Street to the south (refer to Figure 1). The Darling Square Site is:

- located in the south of the SICEEP Site, within the northern portion of the suburb of Haymarket;
- bounded by the Powerhouse Museum to the west, the Pier Street overpass and Little Pier Street to the north, Harbour Street to the east, and Hay Street to the south; and
- irregular in shape and occupies an area of approximately 43,807m².

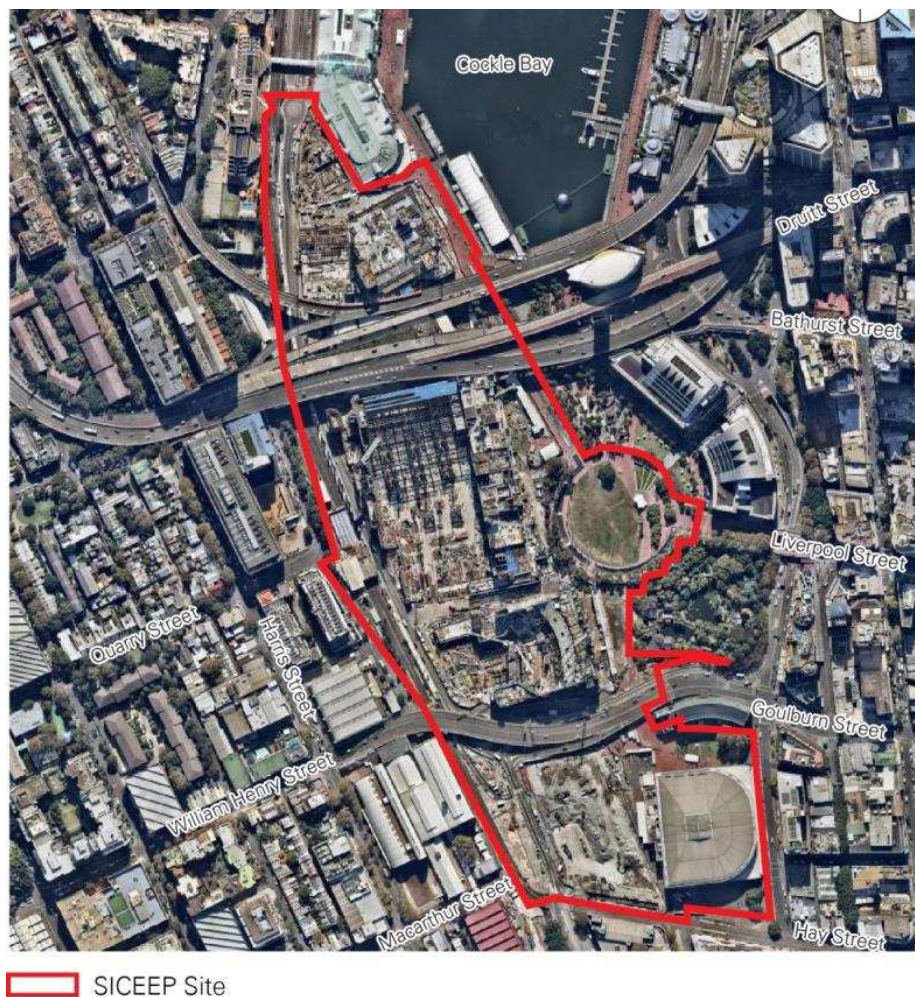


Figure 1 – Aerial Photograph of the SICEEP Site

The Concept Proposal DA provides for six (6) separate development plots across the Darling Square Site (refer to **Figure 2**):

1. North Plot;
2. North East Plot;
3. South East Plot;
4. South West Plot;
5. North West Plot; and
6. Western Plot (Darling Drive).

The Application Site area relates to the northern portion of the Western Plot and surrounds as detailed within the architectural and landscape plans submitted in support of the DA.

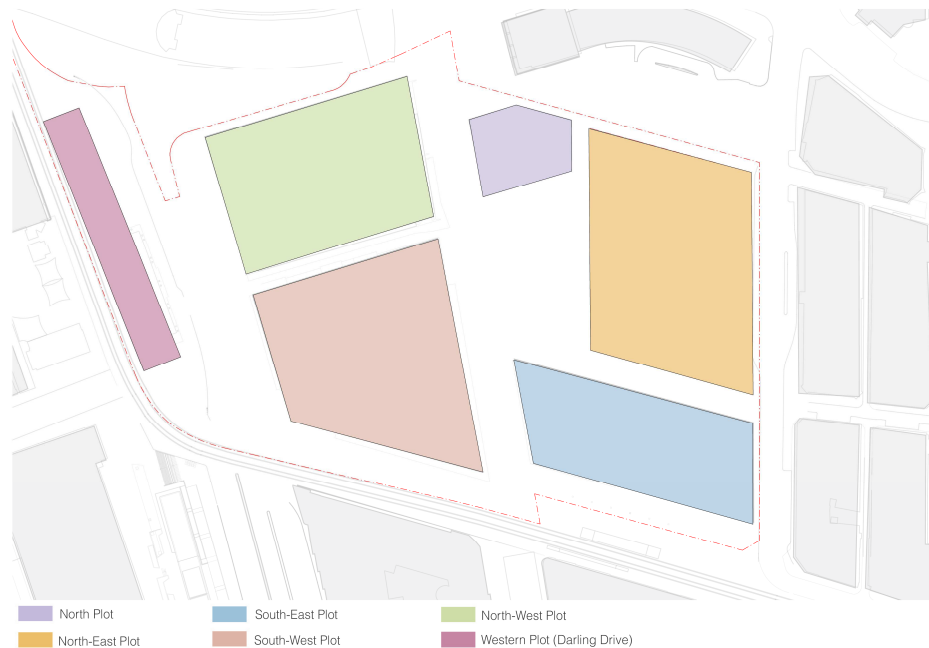


Figure 2 – Concept Proposal Development Plots

2. Aim of This Document

Outline

Urbanest intend to develop a second residential building for student accommodation to be known as Building W1.

Building W1 will be located on the SICEEP Western Plot, Darling Drive, directly North of Building W2, currently under construction.

Buildcorp is the building contractor engaged by Urbanest as the Head Contractor to complete the design development, risk mitigation and construction of the student accommodation project on both developments.

The aim of this document is to outline the proposed construction methodology for Building W1 student accommodation project, and demonstrate the consideration of adjacent issues such as;

- the proximity of the Sydney Light Rail Network (SLRN) to the West,
- the proximity of Darling Drive to the East, and
- the proposed construction activities of the greater precinct which will be concurrently occurring in the general area.

Approvals Precedent

Within this document reference will be made to construction methods and strategies which have been previously approved with relevant authorities and stakeholders for construction of the Building W2 student accommodation tower, currently under construction on the SICEEP Western Plot Darling Drive.

The approved construction methods and strategies for Building W1 include:

- ▼ Method and processes for Vibration and Track Monitoring whilst ground works occur.
- ▼ Method, sequence and process of Installing bored piers in association with the above.
- ▼ Methods of working over the Cross City Cable Tunnel and dilapidation prevention.
- ▼ Methods of working over & adjacent to Sydney Water Corporation Sewer assets.
- ▼ Methods of Site Screening including the details of installation, removal and type of insulation.
- ▼ Position and operation of site tower crane, and it's restriction from entering rail airspace.
- ▼ Methods of generally working adjacent to the Sydney Light Rail network.

Works Stages

The construction methodology is divided into **five (5) key stages**:

- ▼ Site Establishment and ground works
- ▼ Site screening and construction of the structure to Level 2
- ▼ Construction of the Tower including façade and internal works
- ▼ Completion of public domain works
- ▼ Removal of the western safety screens

Risk Mitigation Strategies to be implemented

- ▼ Appropriate directional signage and traffic control to ensure vehicles enter and leave the SSDA3 Site with minimal disturbance;
- ▼ Temporary road closures, single lane access and relocations during the construction period will be subject to coordination with the appropriate authorities;
- ▼ Carry out the above in non-peak periods where appropriate; and
- ▼ All traffic related issues and changes should be presented to stakeholders as part of the consultation process.

3. The site

The site identified as the SCEEP Western plot on the western side of Darling Drive in Haymarket, north of the Quay Street intersection.

The site has been created & prepared by Lend Lease (including the relocation of Darling Drive in early 2015). The site is now bounded by Darling Drive to the east and the Sydney Light Rail Network (**SLRN**) to the west and south. Lend Lease handed the W1 site over to Urbanest on 30 June 2015.

The north and south boundaries of the site are vacant, previously occupied by the redundant monorail track structure.

In creation of the site, various works including extensive services diversions and road realignment works have been completed by Lend Lease. The necessary works to create the site are not listed within this document as they were completed by others.



Fig. 1 – Aerial View of the Site

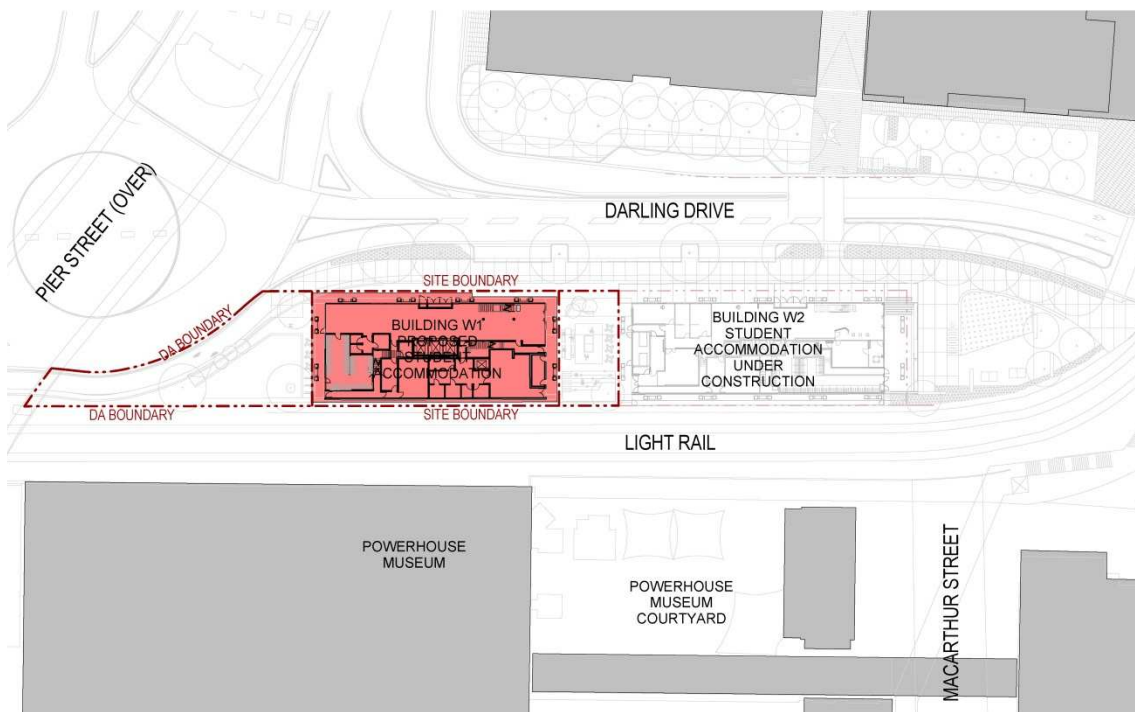


Fig. 2 – W2 DA boundary

4. The development

Building W1 development consists primarily of a ground level plus 21-storey student accommodation building, approximately 19m x 41m in plan and 75m in height to the upper roof.

The building consists of 20-off levels of student accommodation with additional common areas and zones for plant, maintenance, access, etc.

The building's structure is reinforced concrete with post tensioned floor slabs and a light-weight curtain wall façade.

Development Consent for Building W2 was granted in Application No SSD 6010 dated 7 May 2014 and is currently under construction (refer to digital rendering below). This construction management plan is for Building W1 (refer image below)



Fig. 3 – Digital Rendering Looking South. Building W1 located on the left side of Building W2.

5. The Construction Methodology

The following Construction Methodology demonstrates how Buildcorp will manage construction of the Building W1 development and focuses on five (5) key construction stages:

1. **Site Establishment and ground works**
2. **Site screening and construction of the structure to Level 2**
3. **Construction of the Tower including façade and internal works**
4. **Completion of public domain works**
5. **Removal of the western safety screens**

5.1. Site Establishment & ground works

On 30 June 2015, Urbanest were granted possession of the site. Ground levelling and site demolition works have been completed by Lend Lease, leaving the site at a reduced level (RL) 3.7m (+/-150mm).

The construction site is securely enclosed to restrict unauthorised access to the site in accordance with legislation. The western boundary fence (adjacent rail corridor) has been installed by others (agents of Transport for New South Wales) and we understand to be designed in compliance with all relevant standards for boundary fencing to rail corridors.

The remaining site boundaries under the control of Buildcorp, shall be secured with a semi-permanent fence in accordance with NSW building and construction industry standards.

To complete the inground foundation structure Buildcorp will establish a site compound in the northern corner of the site, with office, amenities and first aid facilities also in accordance with NSW building and construction industry standards.

Prior to commencing any excavation or piling works, suitably qualified structural and geotechnical engineers will assess the likelihood (or otherwise) of vibration or movement being experienced by the light rail tracks. Controls and methods of work shall be implemented as per precedents set for works on Building W2.

The established Building W2 precedents will continue to apply to all following works as listed on page 7.

The inground structure consists of bored insitu concrete piers, a perimeter capping beam and central lift core base. The piers will be installed with an appropriate sized piling rig.

The lift pit and below-ground beams will be excavated with an appropriately sized excavator, loading truck from within the site.

The onsite traffic flow will generally follow a south to north direction. To coordinate with the onsite construction activities, some truck movements may need to be 'drive in drive out' through gate 1.

Refer to SK01

5.1.1. Public Safety, Amenity and Site Controls

The general public is adequately protected from activities occurring on building sites. Buildcorp provides safe and secure job sites. The building sites are kept neat and tidy to maintain public safety and local amenity.

5.1.2. Operating Hours, Noise and Vibration Controls

Construction activities subject to approved development consent are anticipated to be:

- 7.00am to 7.00pm Monday to Friday

- ▼ 8.00am to 5.00pm Saturdays
- ▼ No work Sundays and Public holidays

5.1.3. Air and Dust Management

That air quality (airborne dust and pollutants) in and around the construction site be maintained at acceptable levels throughout the construction period.

5.1.4. Operational Controls

The following activities may cause excessive dust or otherwise affect air quality:

- ▼ Excavation of soil
- ▼ Movement of vehicles / plant on site
- ▼ Construction activities
- ▼ Uncovered stockpiles
- ▼ High winds

The following controls shall be implemented to minimise dust and maintain air quality:

- ▼ Any stockpiles shall be kept damp or covered
- ▼ Where vehicle movements over unsealed areas are required, these areas shall be kept damp.
- ▼ A supply of water shall be available at all times.
- ▼ The installation of metal grids and wash out facilities to ensure truck wheels do not disperse soil and dirt throughout the road network.
- ▼ Materials transported in open trucks shall be covered to prevent generation of dust.
- ▼ The tailgates of all vehicles transporting material from the construction site shall be securely fixed prior to loading and immediately after unloading.
- ▼ Equipment powered by internal combustion engines shall be properly maintained and regularly serviced to prevent the discharge of excessive pollutants, including smoke and/or toxic fumes or odors, and must meet acceptable noise levels.
- ▼ All plant/equipment exhaust volumes shall be monitored by the Project Supervisor to ensure they are kept to an acceptable level.
- ▼ Exhausts and ductwork from equipment shall be located away from air intakes, windows, enclosed areas and public areas
- ▼ The burning of timber and other combustible materials shall not be permitted.
- ▼ Perimeter fencing shall be covered with shade cloth to help prevent dust blowing outside the construction site.
- ▼ Materials shall only be cut in designated areas set away from boundaries and public areas, with adequate dust (and noise) suppression. Where cutting needs to occur in situ, localised dust suppression measures shall be used.
- ▼ Checking weather reports daily to enable action to be taken when high winds are predicted.
- ▼ Daily inspections of the site by the Project Supervisor.

5.1.5. Stormwater and Sediment Control

To prevent contamination of (or damage to) stormwater drains and waterways and ensure sediment from the building site is retained on-site during construction work. Refer to the Stormwater & Sediment Control Plan attachment 10

5.1.6. Waste and Materials Re-use

To maximise the re-use and/or recycling of construction materials, Waste material to be collected and stored on site until removed. Refer to the Waste Management Plan attachment 7.

5.1.7. Traffic Management

To minimise disruption to traffic (vehicles, pedestrians and cyclists) caused by construction activities to ensure the safety of all public users, a Traffic Management plan will be incorporated into the CMP. The movement and flow of the construction traffic cannot interfere with the safe access to the public, staff and visitors.

Traffic management of the site shall be managed throughout the activity period and periodic reports submitted as required. Refer to The Traffic Control Plan appendix attachment 8

5.2. Site screening construction of the structure to Level 2

Section 4.2 will explain our methodology to install a static 'safety screen' along the western boundary to act as:

- ▼ fall protection for workers,
- ▼ a barrier to stop any falling debris from entering the rail corridor, and
- ▼ an insulated barrier between the overhead cables and the site.

All works along this western boundary prior to the erection of the safety screen will comply with Transport for NSW System Guide; Working around Electrical Equipment (SMS-06-GD-0268).

Note: A graphical representation of the Site Establishment and inground structure works (scheduled for approximately the first 10 weeks onsite) can be seen in Attachment 1; Sketches 01 and 02.

Buildcorp will install and maintain physical separation between the light rail corridor and the construction site by the use of boundary fencing (discussed in Section 4.1) and by erecting the safety screens along the western boundary of the site for the full length of the building in the northern and southern direction.

This safety screen will be a galvanised metal screen, faced with non-conductive protection within the zone effected by the overhead cables along the rail boundary, constructed to the industry standards for multi-storey construction and in compliance with Transport for NSW System Guide; Working around Electrical Equipment (SMS-06-GD-0268).

The proposed safety screen (approx. 13m high with plywood facing to 8m) will be securely fixed and braced to the concrete ground floor to provide structural stability in accordance with an approved engineering design.

The safety screens (weighing approximately 1 tonne) will be assembled onsite and positioned using the tower crane which will be located wholly within the site and at all times will restrict the crane from lifting over the rail corridor.

For lifting and placement of the safety screens, the dogman will use 'double chains' (hooking the screens with double chains and hooks) to reduce the risk of hook or chain failure when lifting in close proximity of the rail corridor.

After placement of the safety screens, construction of the structure up to Level 2 will follow the below sequence:

- ▼ Assembly of the tower jump form, using mobile cranes located on the eastern elevation of the site, lifting materials off trucks located in the slip lane on Darling Drive
- ▼ Construction (formwork, reinforcement and pouring of concrete) to the raked columns to the four elevations of the building; including all engineered bracing and propping
- ▼ Commence the jump form process; maintaining a two storey distance between the jump form and the leading deck of formwork
- ▼ Construct formwork, reinforcement and pouring of the Level 1 slab, including tying in the concrete slab to the raked columns

- Construct formwork, reinforcement and pouring of the Level 2 slab, including tying in the concrete slab to the raked columns

The established precedent set for Building W2 for all works will continue to apply. Refer page 3.

A graphical representation of the Ground to Level 2 construction methodology is included in **Attachment 2; Sketches 03 & 04.**

Details of the 13m high perimeter safety screen can be seen in **Attachment 5.**

5.3. Construction of the tower including façade and internal works

Construction of the concrete framed tower and curtain wall façade will follow a similar construction methodology of the Level 2 transfer slab, including

- The 'static' safety screens discussed in Item 4.2 will be in place for the construction of the Jump Formwork to the central core, the erection of the raked columns and the construction of the level 2 slab.
- Assembly of the safety 'jump' screens from the Level 2 slab which will form the perimeter edge protection to the slab edges. This assembly will be completed within the static screen to the western boundary.
- The tower crane currently erected for Building W2 will remain to service Building W1.
- A man/materials hoist to the southern elevation of the building will assist to feed the tower construction.
 - Note 1:** The use of a luffing crane (in lieu of the hammerhead) removes the requirement of the jib to overhang the rail corridor
 - Note 2:** The proposed size and style of crane has an 'out of service' (weather vane) radius of approximately 11m, and has been positioned so that, when the crane is not in use (and is free to move with the wind) this out of service radius of the crane is away from the rail corridor.
 - Note 3:** A survey plan locates the crane relative to the site boundaries to confirm that the windvane radius does not overhang the boundaries. The location of the crane compared to the site boundaries is shown on a drawing to certify the crane relative to the rail corridor.
 - Note 4:** Commissioning reports have been provided to confirm that the restrictive devices are installed and operation to ensure that the crane does not slew over the rail corridor.
- The concrete works per floor will follow a consistent cycle, with the jump screens being lifted to provide edge protection with every level constructed.
- The jumping screens will be lifted by either the tower crane, forklift, or a small mobile crane from within the building. The jumping screens are fabricated and erected with guides fixed to the concrete frame to ensure the screens remain tied to the concrete slab edge even when they are being lifted.

Note: Details of the perimeter 'jump' safety screen can be seen in **Attachment 5.**
- As construction works follow the lifted jump screen, 2m high safety screens will be erected within the building line along the western boundary to ensure building debris do not exit the site and fall on to, or over, the rail corridor
- Handrails will be erected to all boundaries prior to the lifting of the screens to ensure safe access around the site and removing the potential for fall from height risks
- The façade panels will be lifted in place on all facades using a specialised lifting equipment from the floors
- The prefabricated bathroom pods will be lifted to the working level by either the tower crane or via the materials hoist located on the eastern elevation. Note: A graphical representation of the construction of the tower is included in **Attachment 3.**

5.4. Completion of public domain works

Following completion of the tower and internal fitout, public domain areas to the South, East and North of the development shall commence.

Public domain and landscape areas involve little construction work and thus will be coordinated in a staged manner to allow consistent access to the development and also ensure continuation of pedestrian access past the development to Darling Drive to the East.

5.5. Dismantle of the western safety screens

The combination of the safety screen, and the associated jumping screens, will provide protection to the rail corridor from the construction works (including fall from heights, falling debris etc) throughout the construction process.

As mentioned in Section 4.1 above, the safety screens will be faced with solid, non-conductive materials, and will remain in place for the construction of the low level structure and façade works.

The safety screen will be removed by the tower crane after the lower level structure and façade works are completed. This removal is envisaged to be approximately 10 to 12 months after construction works commence on the student accommodation works (exact program to be confirmed).

A detailed safe work method statement for the dismantle of the screens will be compiled and reviewed in accordance with accredited health and safety system.

This methodology will:

- utilise the internal screens (discussed in section 4.3) to ensure building debris associated with works completed prior to the installation of the façade do not fall onto the rail corridor,
- minimise the risk of damage to the completed façade
- review the potential need of a rail shutdown at the time of dismantle, with consideration of the nature of the site works

It should be noted that when the safety screen is removed from site, a solid boundary fence will remain between the rail corridor and the student accommodation site.

The “temporary” fence posts have been erected by Lend Lease (or its agents) before Urbanest and Buildcorp took possession of the site and are to Railcorp approved standards. This temporary fence will remain in place for the duration of the construction works, and will be replaced with a Railcorp approved permanent fence panels between the permanent fence post on completion.

As this fence is to be located on the boundary between the two sites, it will ensure that all works and people located within the student accommodation site will remain a safe distance away from the overhead wires and rail corridor.

6. Risks associated with proximity to the SLRN

In consultation with the industry experts, a number of potential risks associated with the construction process in close proximity to the rail corridor have been raised. In summary, the major risk items have included:

- ensuring works are completed outside the rail corridor
- lifting materials over the rail corridor
- ensuring building debris does not leave the Urbanest site and enter the rail corridor
- potential collapse of the building in the event of a collision between a light rail vehicle and the building in the completed state of the development
- potential collapse of temporary works in the event of a collision between a light rail vehicle and the building during the construction of the development
- potential impact (vibration or movement) of the light rail track during excavation works

Though the purpose of this document is not a risk assessment of the above raised risks, a summary of the mitigation strategies incorporated into this proposed construction methodology in response to the ASA concerns include:

1. Transport for NSW (through one of their agents) has erected a construction fence along the shared boundary between the SLRN and Urbanest sites prior to any works onsite
2. Buildcorp have modified their construction methodology to replace a scaffold system inside the rail corridor with a static & jumping safety screen wholly within the site boundaries.
 - a. The work method statement for the erection of the western safety screens will require 'double hooking' the screens (using 2 off chains for the mobile crane) to minimise the risk of chain / hook failure.
 - b. The mobile crane will be located completely within the Urbanest site, and guide ropes will be used to control the screens through their erection.
 - c. It should also be noted that Building W1 does not have any raked columns on the western elevation. This reduces risks associated with derailment.
3. Buildcorp have modified the initially proposed crane strategy (changing from a hammerhead to a luffing crane) to ensure that the crane does not project into the rail corridor
 - a. Restricting software will be installed on the cranes to restrict the crane from the rail corridor
4. Hyder Consulting has completed a Light Rail Assessment report No: F203A that considers the impact of:
 - a. Building collision protection
 - b. Consideration of Interfaces associated with façade maintenance
 - c. Noise and vibration
 - d. Use of cranes adjacent the light rail corridor

A risk assessment workshop is recommended to review, identify and mitigate the constraints these items will have on the light rail operations.

5. Hyder Consulting have completed a Transport and Traffic Impact assessment on the following components of the development:
 - a. Demolition of existing site improvements
 - b. Associated tree removal and planting
 - c. Construction and use of one residential building within Darling Drive Plot to be used for student accommodation purposes
 - d. Public Domain improvements, including provision of a new urban courtyard space between student accommodation buildings W1 and W2
 - e. Extension and augmentation of physical infrastructure utilities as required.
- Note: These conclusions can be found on page 25 of the Hyder assessment.

6. Hyder Consulting in conjunction with geotechnical engineering advice from PSM Engineers will review the potential vibration and movement impacts on the light rail track from the proposed excavation and pile boring works. This assessment will be provided to Transport for NSW for comment.

7. Summary

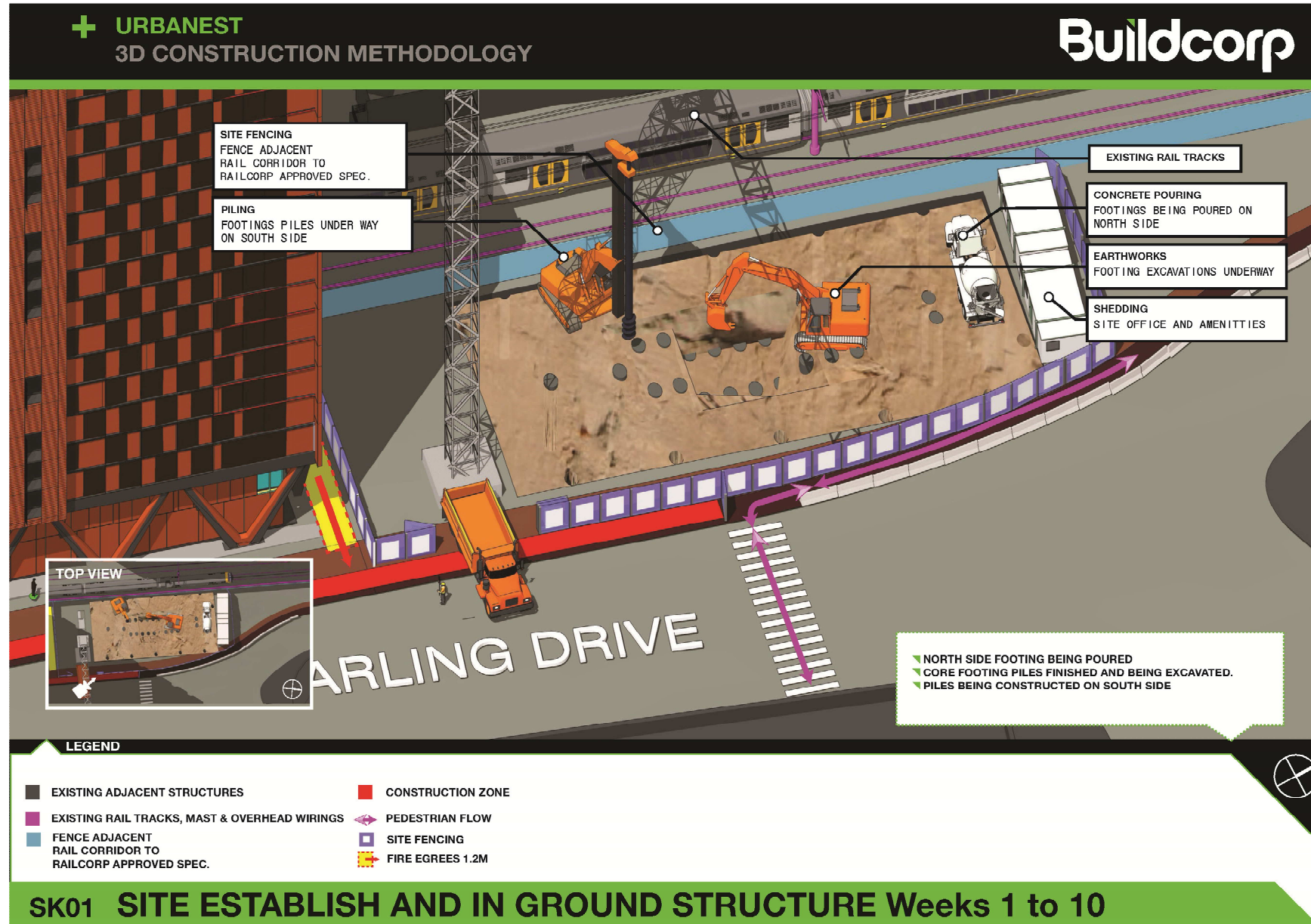
The proposed construction methodology is based on traditional multi-storey construction techniques including:

- ▼ jump formwork for the construction of the structural core
- ▼ erection of a luffing crane to minimise air space intrusion to neighbouring properties
- ▼ safety screens as edge protection for the erection and removal of formwork
- ▼ edge protection to all slabs prior to the lifting of the safety screen
- ▼ internal safety protection screens to ensure building debris does not fall from the site
- ▼ curtain wall façade erected with either tower or mobile cranes, or with forklifts from the floors.

The methodology is based on no access being required at any time within the rail corridor.

The execution of this methodology will be in strict accordance with the Buildcorp ISO accredited Health and Safety system, which has been accredited by the Federal Safety Commissioner in accordance with the Office of Federal Safety Commission certification scheme (FSC).

Attachment 1 – Sketches 01 & 02 (In Ground works)



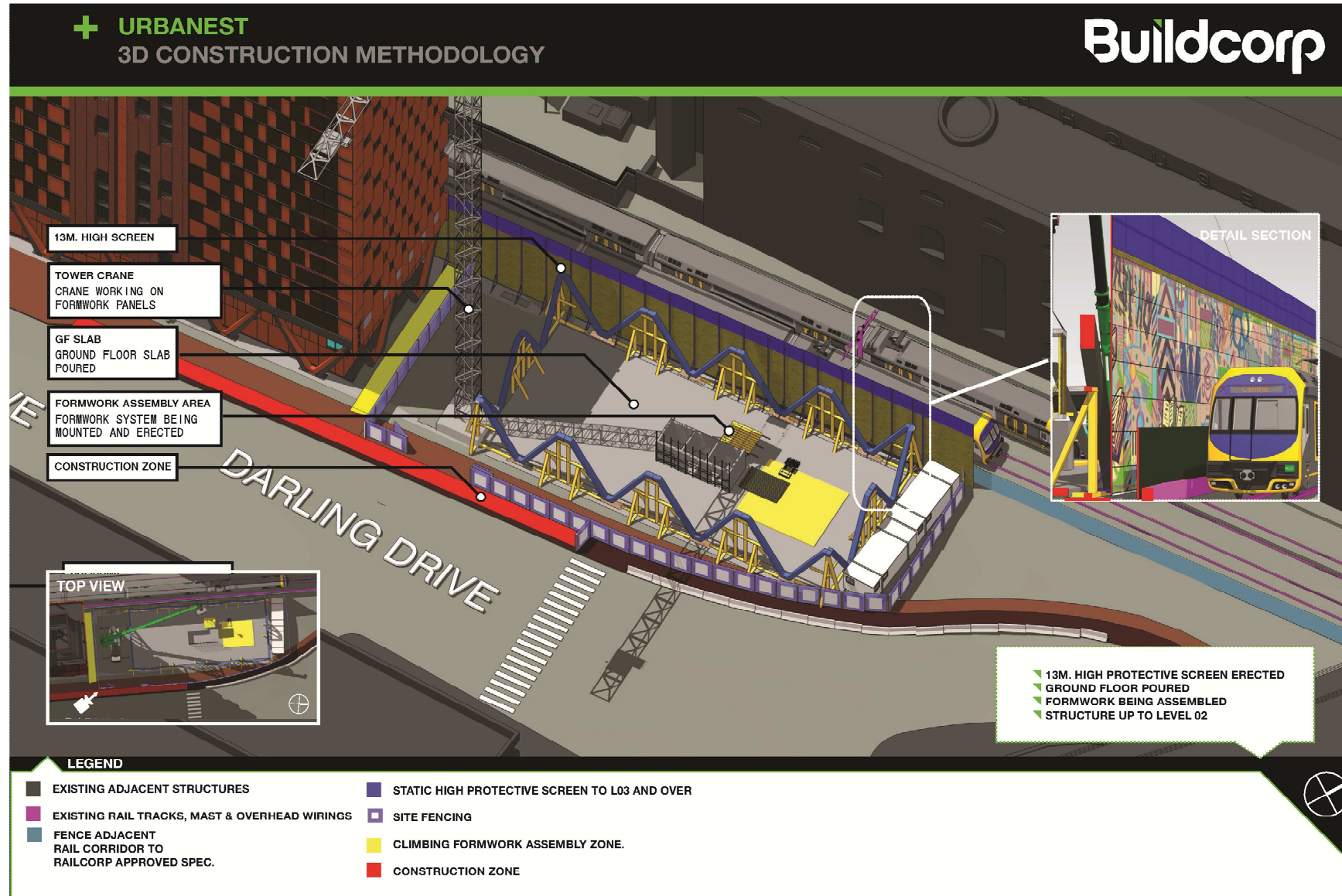
+ URBANEST
LIGHT RAIL SIDE VIEW

Buildcorp



SK02 SITE ESTABLISH AND IN GROUND STRUCTURE Weeks 1 to 10

Attachment 2 – Sketches 03 & 04 (to Level 2 works)



SK03 SITE SCREENING AND STRUCTURE TO LEVEL 2 – WEEKS 11 to 20