#12856577

Commercial and General

Demolition of existing structures and the construction of a mixed use building accommodating a Proton Therapy Unit, ground floor commercial tenancy, 12 levels of health and medical research, a plant level, associated car parking and infrastructure

North Terrace, Adelaide

020/A035/18

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OVERVIEW

Application No	020/A035/18
Unique ID/KNET ID	2018/10281/01 # 12856577 (id 3170)
Applicant	Commercial and General
Proposal	Demolition of existing structures and the construction of a mixed use building accommodating a Proton Therapy Unit and associated uses and services in basement levels, ground floor commercial tenancy, 12 levels of health and medical research, a plant level, associated car parking and infrastructure
Subject Land	North Terrace, Adelaide (land adjacent SAHMRI 1 – on the corner of George Street)
Zone/Policy Area	Riverbank Zone: Health Policy Area 27
Relevant Authority	State Commission Assessment Panel (SCAP) pursuant to Schedule 10 section 4B(1) of the Development Regulations 2008: Development that exceeds $10m in the City of Adelaide
Lodgement Date	26 April 2018
Council	City of Adelaide
Development Plan	Adelaide (City) consolidated 20 June 2017 (A DPA was also gazetted 4 July 2017 and 19 Dec 2017)
Type of Development	Merit
Public Notification	Category 2
Representations	Two (2) – neither requested to be heard by SCAP
Referral Agencies	Government Architect, Environment Protection Authority, DPTI (Transport), Adelaide Airport
Report Author	Gabrielle McMahon
RECOMMENDATION	Development Plan Consent subject to conditions

EXECUTIVE SUMMARY

The proposal for the mixed use building for health and medical research, including a Proton Therapy Unit sits within the context of the Government's Health and Biomedical Precinct, which includes the SAHMRI 1, Royal Adelaide Hospital, the University of Adelaide building and University if South Australia building. The building is known as South Australian Medical Research Institute 2 (SAHMRI 2)). The development is for a total of 17 levels (including mezzanine), including 3 levels within the basement and an enclosed plant level.

The proposal sits within the context of a Common Development Framework (CDF) that was prepared by the interested parties to ensure connected development outcomes for the precinct. It is noted that this is not a statutory document.

The proposed uses are consistent with the desired uses within Riverbank Zone and specifically the Health Policy Area 27, which was introduced by the Minister for Planning to enable the growth of this precinct for health and biomedical land uses, including related training and education.

The building is within the desired height for the zone of up to 15 storeys. The building is an innovative response to the site constraints, and will result in a building with an architectural expression, scale and massing that is compatible with the locality and is supported by the Government Architect.

The proposal is consistent with desired character for an active and interesting ground plane that allows views into and out of the building, is well lit, of human scale and provides

opportunities for passive surveillance. The site permeability and the intent of the public realm and landscape responses are also supported.

The Government Architect, while generally supportive of the proposal, raised matters which would benefit from refinement – including revisions to the ground floor site configuration, additional curtilage to the north side and a review of the end of trip facilities to provide safe and convenient access for users. The Adelaide Airport, Environment Protection Authority and DPTI (Transport) were consulted and have no objections to the proposal. Council are generally supportive of the proposal subject to a number of technical matters which can be addressed through conditions and advisory notes. The proposal was notified to adjoining land owners and two representations were received, predominantly raising issues that may arise during construction.

ASSESSMENT REPORT

1. BACKGROUND

1.1 Pre-Lodgement Process

The applicant engaged in the pre-lodgement process with one Design Review session and two pre-lodgement meetings. The application was lodged prior to any pre-lodgement agreements being reached.

1.2 Precinct Wide

Forming part of the redevelopment of the land within the Biomedical Precinct is a Common Development Framework (CDF). The CDF provides a pre-agreed position in relation to a range of common technical and aspirational outcomes for the development of the South Australian Health and Biomedical Precinct. This precinct comprises three independent sites that are proposed to be separately developed and occupied by the South Australian Health and Medical Research Institute, University of Adelaide and the University of South Australia. A copy of the CMP is provided with Representation 2.

The then IMDAC granted Planning Consent to Adelaide University for the construction of a 14 level building (total height of 98.7m AHD) and the University of South Australia for a 15 level building. These buildings are now completed.

The Government has agreed to lease the subject land to Commercial and General on a long term lease. Three levels will remain for the use by SAHMRI.

2. DESCRIPTION OF PROPOSAL

Application details are contained in the ATTACHMENTS.

The proposed development comprises the construction of a multi-storey building accommodating: a commercial tenancy and reception areas on the ground level; a Proton Therapy Unit (for precision radiation therapy) within the basement levels; floor area dedicated to clinical and dry lab research on the upper 11 levels (3 levels to be dedicated to the SAHMRI).

The applicant advises the Proton Therapy Unit is Australia's first and the most technologically advanced precision radiation therapy in the Southern Hemisphere and has the potential to be part of the cure for a significant number of cancers.

A summary of the proposal is as follows:

Land Use Description	Mixed use development comprising health and medical research and commercial / retail use on ground level and associated services
Building Height	Total of 17 levels and a height of 59.55m (97.750m AHD) - 3 levels below ground, 13 levels at ground and above and an additional plant level
Description of levels	Ground floor and mezzanine level commercial tenancy and reception areas
	The Proton Therapy Unit (PTU) is accommodated over five building levels, three below the North Terrace finished ground level, a ground floor reception and mezzanine offices
	11 building levels envisioned for health and medical research (SAHMRI who will occupy Levels 04, 05 and 06 includes a dedicated ground floor entrance to the tenancy at the eastern end of the building beyond the lift core and is vertically integrated across Levels 03, 04, 05 and 06 with a void and stair case access between these levels)
	Level 16 plant
Site Access	Vehicular access via George Street Pedestrian access via North Terrace Bicycle access via George Street
Car & Bicycle Parking	8 car parks,152 bike parks (n basement levels 01 and 02)
Encroachments	N/A
Staging	1 Demolition
	2 Substructure and retention (including excavation)
	3 Superstructure
	4 Balance of works (architectural services, finishes & fitout)

3. SITE AND LOCALITY

3.1 Site Description

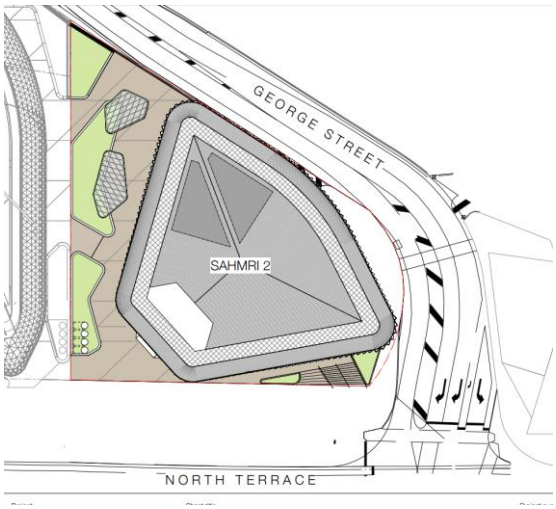
The site consistent of one allotment, described as follows:

Lot No	Section	Street	Suburb	Hundred	Title
Allotment 20	DP 85645	North Terrace	Adelaide	Adelaide	CT: 6083/76

The subject land has a site area of 3372 square metres with a frontage of 59.79 metres to North Terrace. It is irregular in shape with a significant slope from south (North Tce) to north. The Eastern access road slopes from North Terrace by approximately 9.5 metres to the lower level service area (Level 00). The site currently contains the Rail Operations Control Centre building which will be demolished.

The site is on the north-western corner of the intersection of North Terrace and the Eastern Access Road / George Street (being a private road which provides access to SAHMRI 1 and the RAH). Gray Street, south of North Terrace, connects to the plaza space between SAHMRI 1 and the RAH and has been collectively identified as a key north south connection through the city to the river.

A Site Contamination Audit Report has been prepared in respect of the subject land in accordance with the Environment Protection Act 1993 (Dealing No. 12738724).



3.2 Locality

The locality is characterised by institutional land uses associated with health, medical research and education.

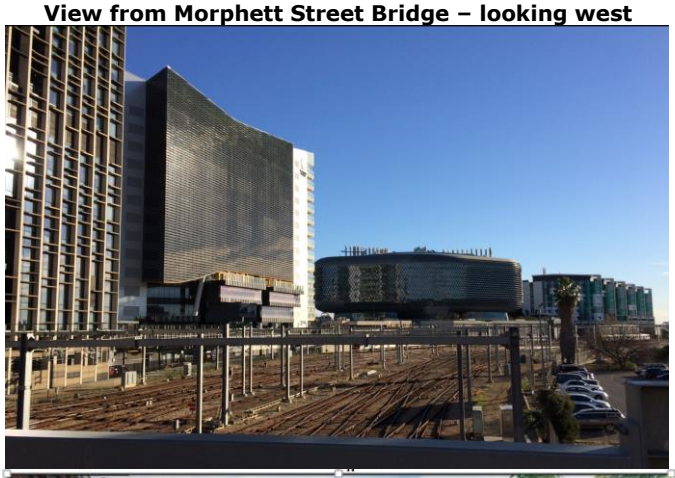
Directly west is the South Australian Health and Medical Research Institute (SAHMRI) building (height of 80m AHD including the stacks). The new Royal Adelaide Hospital is located further west of this building. Directly east on the other side of George Street is the University of Adelaide's Health and Medical Sciences building (height of 100.040m AHD) and then an urban park and the University of South Australia Health Innovation Building (15 levels). Further east is the Montefiore Bridge and then the Adelaide Convention Centre.

The Adelaide Metro train yards are located to the north of the subject land, on the northern side of George Street.

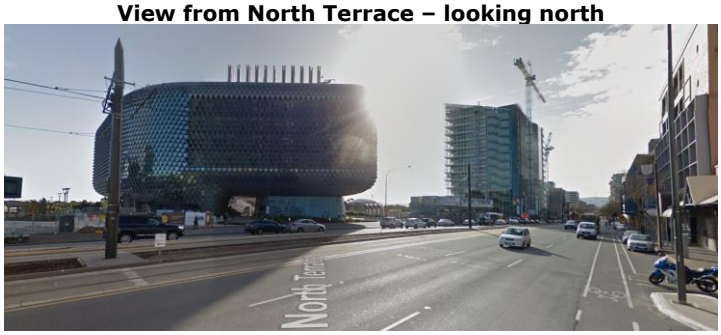
The south side of North Terrace is dominated by the University of South Australia's 'City West' campus, but also includes Hotels, a Church, a Museum, an Arts Centre, a private hospital and several offices.

The site is within the Adelaide Park Lands (although zoned Riverbank). The railway lines are located directly north with the Torrens Riverbank and open Park Lands further north of the site. A bus stop and tram stop is located near the site on north Terrace.

View from Morphett Street Bridge – looking west

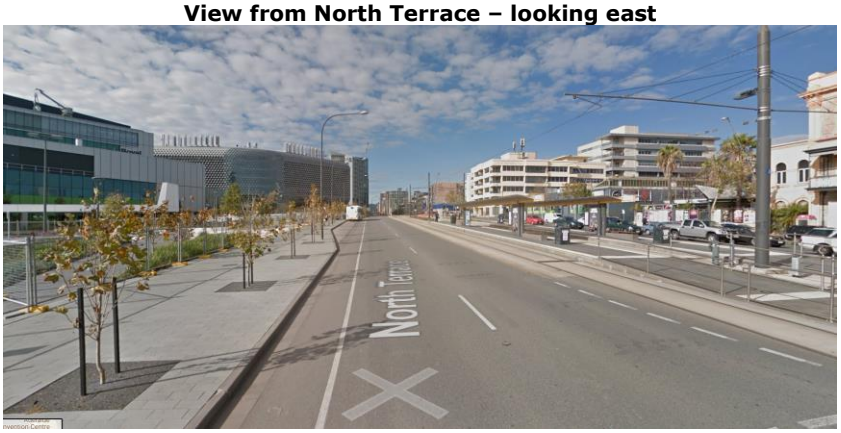


View from North Terrace – looking north



Source: Google Maps

View from North Terrace – looking east

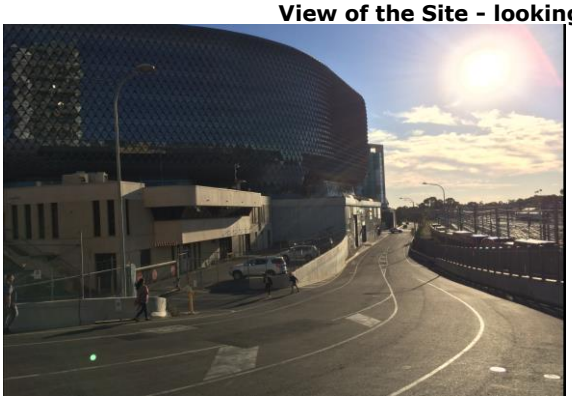


Source: Google Maps

View from North Terrace – looking north

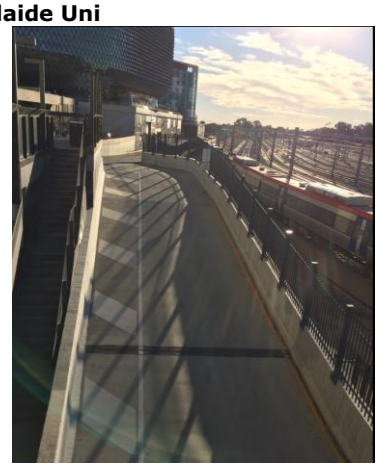
Source: Google Maps

View of the Site - looking west (George Street)



View of Uni SA – south side of Nth Tce

View of the eastern access road behind the Adelaide Uni



4. COUNCIL TECHNICAL ADVICE

4.1 City of Adelaide

The City of Adelaide has provided technical advice on car parking, footpaths engineering, stormwater, lighting and waste. No concerns are raised although advice is provided which are recommended as conditions or notes where appropriate. The following additional comments were made.

- The drop-off area on North Terrace is not supported by the current masterplan for North Terrace west. Any temporary pick up/drop off point on North Terrace will be removed at the completion of SAHMRI 2, as per the agreement with SAHMRI. Once removed, all pick-up and drop-off movements are expected to be accommodated within the SAHMRI sites, outside of the public realm, as per the agreement with SAHMRI.

- The current proposal should include improved wayfinding features for people with vision impairment travelling east-west past the site.

- It is unclear from the ground floor plans covering the parking area how pedestrians are catered for, particularly with regard to linkage from the disability permit spaces to the lift area.

- Concerns with regards to the vehicular access to the site was raised with the critical area for sight distance to/from the loading and car park area should be kept clear of impediment. Sight distance assessment appears to show the critical line of sight running through the corner walled section, which therefore appears to require amendment. Care will also be required around any landscaping in this space to ensure sight lines are maintained. (Note: DPTI also provided advice on this issue – refer below for details).

- Commentary was made on bike storage and ability to have bikes fit within the lifts, the sloped walls which require amendment or remedial treatment to meet safety required (with tactile ground surface indicators to be used if shielding is not possible). Refer to the Council advice for screen shots and the requirements of the legislation.

5. STATUTORY REFERRAL BODY COMMENTS

Referral responses are contained in the ATTACHMENTS.

5.1 Government Architect

The Government Architect is a mandatory referral in accordance with Schedule 8 of the Development Regulations 2008. The SCAP must have regard to this advice.

The Government Architect supports the development and the ambition to create an integrated precinct and rich user experience. The design intent is for the building to be a 'mediator' in height between the University of Adelaide Clinical School and the SAHMRI 1. The height and massing of the building is supported and is considered to be an appropriate and complementary scale to the existing built form context.

Notwithstanding the support it is considered that the proposal would benefit from some refinements, such as:

- *Review of the ground floor site configuration to ensure the design intent for an active forecourt plaza between SAHMRI 1 and SHAMRI 2, and separated/discrete*

entry for PTU reception entry is realised, and northern aspect for the commercial space is provided.

- *Review of opportunities to provide additional curtilage to the north site at the base/level 3 of the building to ensure future connectively and useable public space with northern aspect.*
- *Further design development of the plaza area and provision of a scaled wind tunnel test to ensure maximum future flexibility and usability of the forecourt plaza with high amenity for both seated and walking uses.*
- *Review of the location of the EOT facilities with a view to provide safe and convenient access to facilities at ground level for all users.*
- *A high quality of external materials supported by the provision of a materials samples board.*

5.2 Environment Protection Authority (EPA)

The EPA is a mandatory referral in accordance with Schedules 8 and 22 Part A and 2-3(4) of the *Development Regulations, 2008* and they have power of direction. The SCAP must adhere to their advice. The EPA is satisfied that the proposed activities producing listed waste onsite can be designed and operated in a manner that would result in a low risk of environmental harm. Any operational management issues arising could be managed through the EPA licence.

The response does not provide an assessment against the provisions of the *Radiation Protection and Control Act* (RP&C Act) as it is not required under the Environment Protection Act. Notwithstanding this, the owner of the PTU must apply for a facilities licence pursuant to the RP&C Act prior to preparing a site for, or constructing, establishing, controlling, operating, managing, decommissioning, disposing of or abandoning, a radiation facility. I recommend this be included as an advisory note.

Waste management – waste is proposed to be stored in a common waste room located on level 1. Medical waste would be stored separately within a secure area of the proposed waste room and collected by an appropriately licensed contractor. This is acceptable to the EPA. Any operation issues arising would be dealt with the by the required EPA licence.

5.3 Adelaide Airport (AAL)

The AAL is a mandatory referral in accordance with Schedule 8 of the *Development Regulations 2008* and approval is required from the Department of Infrastructure and Regional Development.

The application has been assessed and at a height of RL 97.750m AHD the application will penetrate the Adelaide Airport Obstacle Limitation surfaces (OLS) by approximately 19.7 metres, which is protected airspace for aircraft operations. The application will require approval in accordance with the Airports Act 1996 and the Airports (Protection of Airspace) Regulations 1996 and therefore has been forwarded to the Department of Infrastructure and Regional Development for their approval.

Any further proposed addition to the structure, including aerials, masts and vent/exhaust stacks, must be subject to a separate assessment. If the development is approved by the Department of Infrastructure and Regional Development any associated lighting would also need to conform to the airport lighting restrictions and shielded from aircraft flight paths. Crane operations associated with construction, if approved, will also be subject to a separate application. These are recommended to be included as advisory notes.

5.4 DPTI (Transport Assessment & Policy Reform)

DPTI transport were informally consulted on the proposal and provided the following advice to the SCAP.

Based on the small number of predicted traffic movements (192 per day) the development is not expected to adversely impact the adjacent road network.

GTA has assess the location of the proposed access in accordance with Safe Intersection Sight Distance (SISD) and Minimum Gap Sight Distance (MGSD) and concluded that the appropriate sightlines will be provided from the access for safe access in conjunction with the relatively low traffic volumes on George street. However it is noted that the sight lines only just meet the minimum requirements. DPTI is concerned about right turn out movements from the site given the limited sight distance around the bend and the steep grade of George Street and recommends that all exiting vehicles turn left onto George Street (i.e movements be restricted to left turn in, left turn out and right turn in). This is included as a condition of consent.

DPTI are satisfied with the traffic movements for delivery and loading to the site.

Seven other conditions have been recommended, with the majority included in the recommendation.

6. PUBLIC NOTIFICATION

The application was notified as a Category 2 development pursuant to Part 38 (2a) of the *Development Act, 1993* and Part 6(1) and (3)(a) and (b) – being a form of development that involves an activity of major environmental significance under the *Environmental Protection Act, 1993*. Public notification was undertaken (by directly contacting adjoining owners of the land) and two representations were received. Neither have requested to be heard by the SCAP. The main concerns and the applicant's response are summarised below.

Rep. ID	Issue	Applicant's Response
R1 South side of North Tce	Concerned about after hours disruptive noise and dust affecting house guests at the Adelaide Riverina Hotel across the road.	Construction will be undertaken in accordance with all relevant construction management and environmental management standards, specifications, processes and practices. This includes, but is not limited to, hours of operation, dust and air quality and acoustic environment
R2 Uni of Adelaide	Operational management issues – such as the need to address vibration or excessive noise to ensure research and breeding activities are not affected / appropriate induction of staff	*As above*
	Maintenance of access on eastern access road	It is proposed to maintain access along the "eastern Access Road" George Street. Any proposals that affect this would be subject to the relevant approval processes and in consultation with the land owner and interested parties of the eastern access road
	Dilapidation Report	Will be prepared
	Services interruption to be notified	Where and if necessary, notification will be provided where such activity is in the control of the SAHMRI development
	AHMS Façade cleaning	Normal processes will be followed to ensure no unreasonable impacts occur as a consequence of construction activities. No commitment will be made as

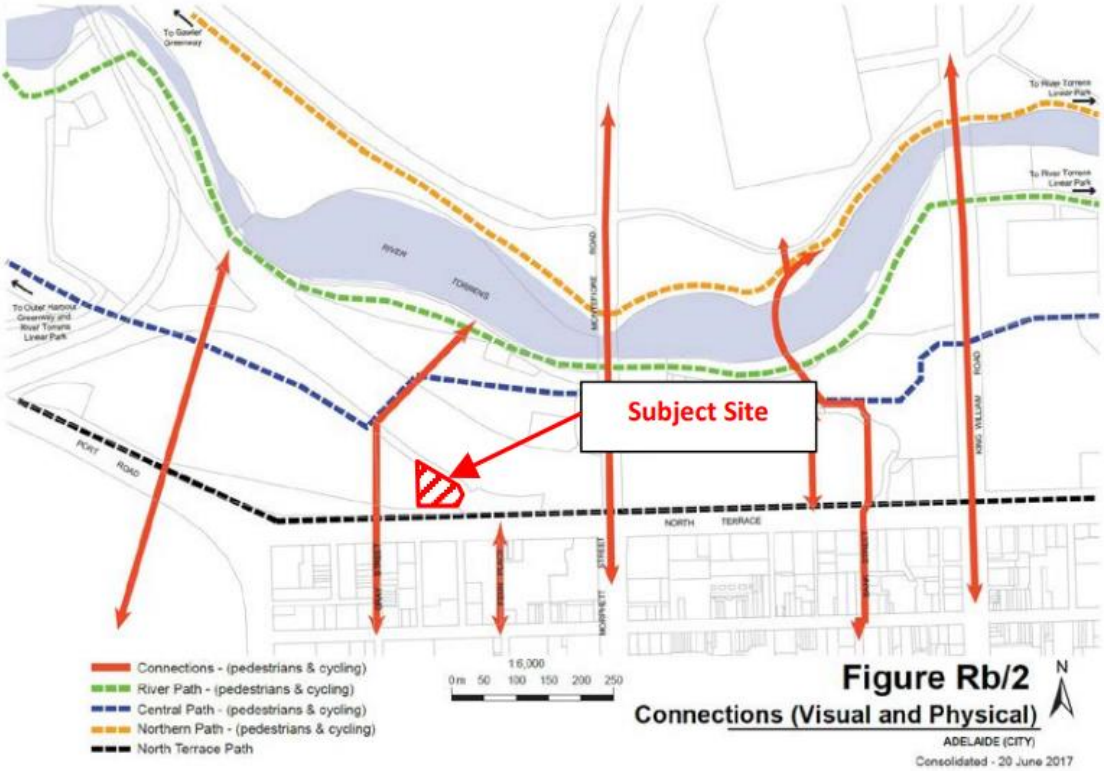
Rep. ID	Issue	Applicant's Response
		to the cleaning of the façade of the university building as there are many factors that influence the air quality in this environment
	The design statement does not reference the Common Development Framework (CDF) and promotes links to the north along the northern walkway to Morphett Street Bridge	The CDF is a guiding document only with no statutory function The design reflects the broad CDF desired outcomes. We acknowledge that the CDF has been referenced in the consideration of development proposals in this precinct. The linkages and connections created by the proposal allows connection with the proposed northern walk via George Street. However, it does not preclude the opportunity for a bridge connection by others from the plaza area between SAHMRI 1 and SAHMRI 2 which could also link the north side of George Street from the Plaza level. This could serve the facilities to the east and west of the Plaza and create a direct and more visible and prominent connection from North Terrace

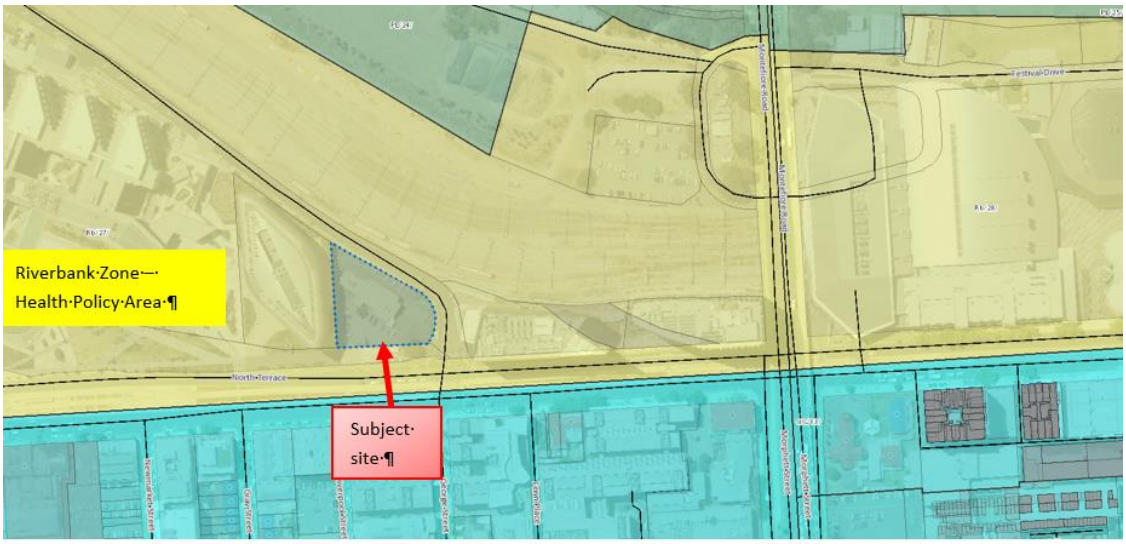
A copy of each representation and the applicant's response is contained in the ATTACHMENTS.

7. POLICY OVERVIEW

The subject site is within the Riverbank Zone and the Health Policy Area 27 as described within the Adelaide (City) Development Plan (Consolidated 20 June 2017).

Relevant planning policies are contained in Attachment 8 and summarised below.





7.1 Policy Area

Medical and health facilities are envisaged in the Policy Area with strong connections to the Torrens River, North Terrace, the Royal Adelaide Hospital and wider city. The ground floors of buildings are expected to be visually interesting and permeable, active, allow views into and out of the buildings, be well lit, of human scale and provide opportunities for passive surveillance and will have an emphasis on sustainable design principles including energy efficiency and water sensitive urban design.

Buildings along North Terrace in the Health Policy Area are to be designed to be viewed from all sides, promoting open spaces between adjacent buildings in contrast to the strong built form edge in the Capital City Zone

Buildings fronting North Terrace are to generally be up to 15 storeys in height (subject to compliance with Airports Regulations) to reinforce the boulevard character of North Terrace and to have a relationship appropriate in scale with buildings in the Policy Area and along the North Terrace edge of the Capital City Zone. This is reinforced by the Zone provisions which envisage a general transition in height with taller buildings closer to North Terrace and along Montefiore Road and lower buildings at the interface with the River Torrens.

Well defined and accessible public spaces are expected to provide civic entries to the Zone and include active and visually permeable frontages. Buildings will be exemplary in their design quality, with contemporary and innovative design and will enhance their setting among landscaped public spaces.

Development should incorporate landscaped forecourts and/or public meeting spaces as transition spaces between North Terrace and buildings within the Zone. The formal avenue planting along North Terrace will be maintained and reinforced.

Development should be serviced by vehicular access points from North Terrace and Port Road that provide for convenient, safe and legible controlled access

Development should be sited and designed to enable the continued operation of rail and road services within and adjacent to the Zone. It should provide for a satisfactory interface to roads and railways by addressing issues of access, safety, security, noise, air emissions and vibration. This is to ensure that the effective and efficient operation of the road system and rail service adjacent to the Zone is not detrimentally affected; and the potential for adverse impacts on hospital occupants and activities as a result of road traffic and the operation of rail services adjacent to the Zone is minimised.

7.2 Zone

Public spaces will be responsive to the local climate and include features that provide both shade and solar access at appropriate times. Public art, landscaping, surfaces and materials will be exemplary in quality and appearance and inviting for the public to visit and remain comfortable for extended periods of time

Pedestrian and cycling access and permeability are paramount to the successful activation and vibrancy of the Zone and will be separated from vehicle movement. Existing pedestrian and cycling connections, including the Gawler Greenway, Outer Harbor Greenway and River Torrens Linear Park trail, should not be compromised, particularly those connections shown on Figures Rb/2 and 3. These connections will link the Zone with the city and the River Torrens. A central pathway will allow people to walk and ride through and within the Zone from East to West and connect with the North to South pathways. The central pathway will be a single plane surface designed primarily for pedestrians and will link key buildings and public areas within the Zone.

The site is located adjacent the Capital City Zone, being the economic and cultural focus for the State with high density development envisaged. The Concept Plan identifies envisaged building heights adjacent the subject site as being 53m to the south, south east and 43m to the south west, unless over height provisions are met (and subject to compliance with Airports Regulations) and then development may be higher

7.3 Council Wide

Council Wide policies seek development that achieves envisaged urban design, appropriate use of materials, good levels of pedestrian and visitor amenity, safety in the public realm, appropriate advertising, car parking and bicycle parking requirements, and other technical requirements such as stormwater, site contamination etc.

7.4 Overlays

7.4.1 Adelaide City Airport Building Heights

The height of the development riggers a referral to the Commonwealth for airport operations. A mandatory referral was undertake to Adelaide Airport Limited.

8. PLANNING ASSESSMENT

The application has been assessed against the relevant provisions of the Adelaide (City) Development Plan, which are contained in Appendix One.

8.1 Quantitative Provisions

	Development Plan Guideline	Proposed	Guideline Achieved	Comment
Site Area	N/A	3372m^2		
Building Height	Up to 15 storeys Taller than 15 storeys may be contemplated where there is design excellence	17 levels overall – including 14 levels above ground, 3 levels below ground.) 59.55m (97.750m AHD)	YES ☑ NO ☐ PARTIAL ☐	Appears as 14 levels from North Tce elevation. Refer below for details

	Development Plan Guideline	Proposed	Guideline Achieved	Comment
Land Use	Land uses associated medical and health, including medical research, training and education and a range of ancillary uses that provide services	Mixed use - comprising health and medical research and ancillary commercial / retail use for staff and visitors	YES ☑ NO ☐ PARTIAL ☐	
Car Parking	N/A	8 spaces	YES ☑ NO ☐ PARTIAL ☐	No parking required
Bicycle Parking	Table 6 – the proposal is an unspecified land use	152 spaces – accessed from Level 02 (George St)	YES ☑ NO ☐ PARTIAL ☐	152 spaces is considered to be adequate for the proposed development
Setbacks	No setbacks are specified. However PDC 5 of PA 27 states that development should incorporate landscaped forecourts and/or public meeting spaces as transition spaces between North Terrace and buildings within the Zone		YES ☐ NO ☐ PARTIAL ☐	See below

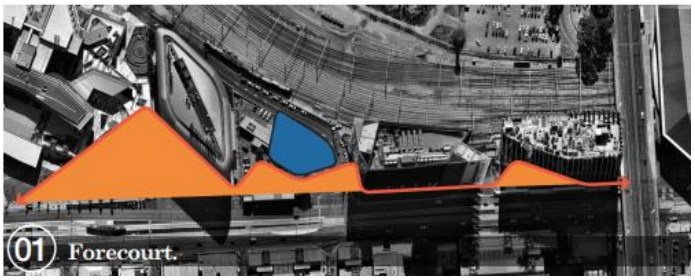
8.2 Land Use and Character

The proposal is predominately for health and medical research uses and is consistent with the land uses envisaged in the Riverbank Zone and Health Policy Area. It is noted that 3 levels will be used by SAHMRI and the remaining levels above ground are yet to have a tenant – although will be used for health, medical or educational uses. It is recommended that this be included as a condition of consent. The development will provide important linkages with the RAH and SAHMRI 1 and potentially the adjacent universities, will generate a high level of activity for this site and contribute to the South Australian Health and Biomedical Precinct and is consistent with the desired character for the policy area.

The development takes advantage of the topography of the land by building 3 basement and subbasement levels and accords with Zone PDC 5. The policies seek developments of up to 15 storeys in height. This development has a total of 17 levels (including mezzanine). However, as it incorporates 3 levels underground, it will present as a 14 level building from North Terrace and is considered to comply with the intent of the desired height provisions within the Development Plan. In addition the overall height includes a plant level, with all plant screened from public view which is considered to be a positive design element. The proposal complies with airport safety requirements.

The Riverbank and Health Policy Area provisions do not specifically require a quantitative front setback, although PDC 5 requires *the incorporation of landscaped forecourts and/or public meeting spaces as transition spaces between North Terrace and buildings within the Zone*. The land is constrained in that it is a narrow site and it cannot accommodate a generous landscaped forecourt as envisaged by the

Development Plan. The constraints of the site have resulted in a tall building with a strong built presence to North Terrace. While the development has not allowed for a generous landscaped plaza onto North Terrace, the geometry and setbacks is consistent with the SAHMRI 1 building and has allowed for a landscaped space between the two SAHMRI buildings and is considered to be compatible with the context of the setbacks for the immediate locality (SAHMRI 1, the Adelaide University and University of SA buildings to the east). The configuration of the building will allow for views to the park lands will be maintained from Gray Street and George Street. The image below shows the immediate forecourt areas within the precinct.

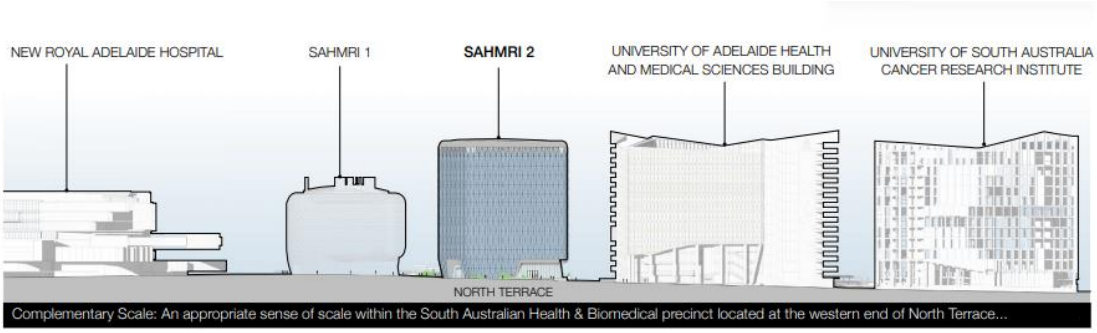


8.3 Design and Appearance

The provisions for the Riverbank Zone and Health Policy Area expect development which:

- is exemplary, contemporary and innovative in design
- is visually interesting, permeable and active
- is up to 15 storeys in height to reinforce the boulevard character of North Terrace and to have a relationship appropriate in scale with buildings in the Policy Area and along the North Terrace edge of the Capital City Zone
- enhances their setting among landscaped public spaces
- has well defined and accessible public spaces to provide civic entries to the Zone and include active and visually permeable frontages
- has public spaces which are responsive to the local climate and include features that provide both shade and solar access at appropriate times.
- has public art, landscaping, surfaces and materials that are exemplary in quality and appearance and inviting for the public to visit and remain comfortable for extended periods of time
- has an emphasis on sustainable design principles including energy efficiency and water sensitive urban design

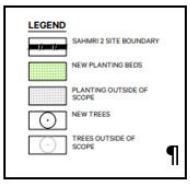
While the proposal is 17 storeys (when considering the three basement levels) it presents as a 14 storey building to North Terrace and meets the intent of the height requirements within the Development Plan. The proposal was presented to the Design Review Panel on one occasion with some changes made to the development. The Government Architect is supportive of the height and massing of the building, as the proposal is considered to be of an appropriate and complementary scale to the existing built form context. The image below shows the context of the development in the precinct. Furthermore the form and alignment of the proposed building is reasonably sympathetic to the existing views across the site from surrounding streets towards the parklands.

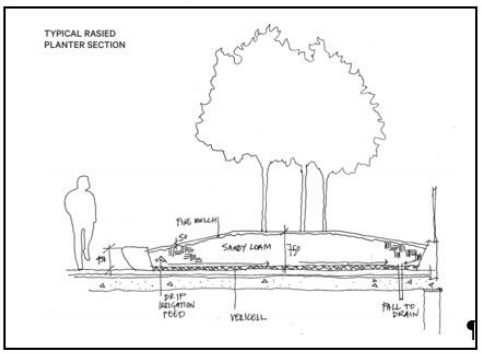


Landscaped open space

A landscape plan has been prepared by Oxigen for the forecourt and outdoor courtyard areas surrounding the building. The landscaping aims to integrate with the existing landscaping associated with the SAHMRI 1 development while also allowing for the potential future redevelopment of the North Terrace Public Realm. The landscaping (see images below) will incorporate:

- raised concrete planters with integrated seating
- freestanding canopies and seating within the western courtyard
- a Layered Planting Palette with an indicative selection of plant species including trees and understorey planting in the Planters
- an opportunity for an entry feature with integrated paving adjacent the entry forecourt.





The landscaping proposed is considered to be reasonable in the context of the site and the adjacent uses. It is recommended that the final landscaping plan with details of the materials and plantings, sculptures, seating etc be provided to the SCAP for final approval.

Public art

No details of the artwork is provided, however the applicant advises that an integrated approach to public art and interpretation is proposed as part of the development. This program extends to interpretation of the medicinal gardens, the design of the furniture, feature lighting, and wayfinding. It is recommended that this form a condition of consent (to be included in the landscaping condition).

Materials and Finishes
The palette of external materials and finishes includes:

- glass curtain wall façade
- glass plaza pod façade
- aluminium framing in the curtain wall and Plaza Pod
- perforated aluminium sun hoods
- a mix of metal framing and metal curtain to the plaza canopy
- polished concrete Internal Flooring
- concrete paving to the external plaza
- precast concrete plaza planters

The Government Architect considers the detailing of the façade and solar shading to be critical to the delivery of the successful design outcome, the ESD and LEED rating ambitions of the project commensurate with the distinctive location with the Biomedical precinct. The intention to provide glazing to the ground level in excess of 95% is supported, with a view to ensuring visual permeability and activation of the forecourt area. However the success of this is contingent upon a commitment and delivery of the design intent as presented. It is recommended that there be a condition requiring a materials samples board be provided to the satisfaction of the SCAP.

The permeability of the building, activation of the site and energy efficiency is considered in Section 4.6.3 of the report.

8.4 Traffic Impact, Access and Parking

The proposal identifies a vehicle drop-off area on North Terrace for four car spaces, adjacent to the Eastern slip road. This has been raised by Council and the Government Architect as an area of concern, posing a safety risk with the adjacency to the slip lane and the bicycle path. This land is outside of the subject land and will not be supported. Council advise that any temporary pick up/drop off point on North Terrace will be removed at the completion of SAHMRI 2, as per the agreement with SAHMRI.

No car parking is required within the Riverbank Zone, although is not precluded either. A traffic report has been provided by GTA, dated 13 April 2018. The proposal incorporates all vehicular access to the site from George Street and will allow for 8 on-site car parks, a passenger pick-up and set-down bay and a loading area to accommodate vehicles up to 8.8m Medium Rigid Vehicle. GTA has projected that the development will generate up to 16 trips during the peak hour and 192 trips over the daily period. This is considered to be low traffic movements. The design of the car park is considered to be safe and convenient.

Council raised concerns with regards to the sight distance with regards to the access in relation to minimum gap sight distances. GTA advised that appropriate sightlines will be provided for safe access in conjunction with the relatively low traffic volumes on George Street. Transport services of DPTI also considered this matter identifying that the sight lines only just meet the minimum requirements. DPTI is concerned about right run out movements given the limited sight distance around the bend and the steep grade of George Street and recommends that all exiting vehicles turn left onto George Street (i.e movements be restricted to left turn in, left turn out and right turn in). This is recommended to be included as a condition of consent. Provided the development meets this requirement the proposed access arrangements to and from the car park are considered acceptable.

DPTI are satisfied with the traffic movements for delivery and loading to the site. The proposal is considered to accord with car parking, vehicle access, loading and unloading.

8.5 Bicycle parking and access

Pedestrian and cycling access and permeability are paramount to the successful activation and vibrancy of the Riverbank Zone and are to be separated from vehicle movement. Existing pedestrian and cycling connections, including the Gawler Greenway, Outer Harbor Greenway and River Torrens Linear Park trail, should not be compromised, particularly those connections shown on Figures Rb/2 and 3. The development of the site does not prohibit the attainment of the preferred north south pedestrian and cycling connections identified on Figure Rb/2.

Table Adel/6 sets out bicycle parking numbers, however the proposal land use is not a designated use within this table and no guidance is given on required number of bicycle parks. Council Wide PDC 234 expects an adequate supply of on-site secure bicycle parking to meet the demand generated by the development within the site area of the development. 152 spaces with end of trip facilities are proposed on Level 02 with direct access from George Street (Eastern Access Road) and located adjacent the buildings lift core. I consider this to be a sufficient number of spaces.

The Government Architect considers:

> *that a holistic approach to the pedestrian and bicycle movement strategy and linkages for the precinct is critical to the success of the project. To that end I encourage ongoing discussions with Renewal SA to review the precinct wide strategies, including envisaged connections to the immediate north of the site between the university buildings, the new RAH and Linear Park to ensure futureproofing of the site and precinct. I also recommend further consideration of opportunities to provide additional curtilage to the north side at the base/level three of the building to ensure future connectivity and useable public space with northern aspect.*

The Government Architect has concerns with the location of the end of trip (EOT) facilities and recommends further consideration of the location of these facilities - with a view to providing safe and convenient access to facilities at the ground level for all users.

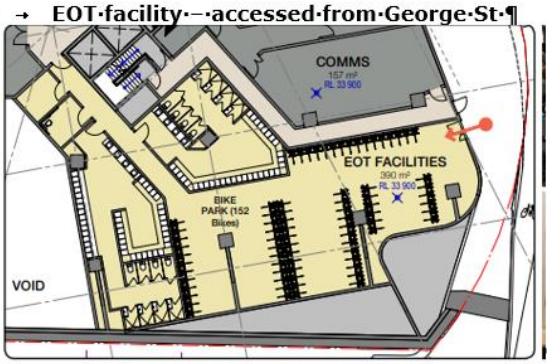
I appreciate the comments made by the Government Architect and a holistic movement strategy for the Riverbank is critical for the success of pedestrian and bicycle movements. However this is a wider issue – not that for this development alone. I am supportive of the access arrangements to the EOT facilities – as they do not use valuable ground level floor area, while still providing convenient access from George Street (and the bicycle path). Given the slope of the land, Level 02 is essentially at ground level when accessed from George Street. Convenient access within the basement area to the lifts is also provided. See images below. With regards to the connectivity for the broader precinct – this is a matter for State Government to take the lead. The development does not preclude this occurring.

There are opportunities for short stay visitor bicycle parking rails are available within the building forecourt area in order to satisfy Council-wide PDC 236.

View·of·the·site·–·looking·west·from·George·St·

Image 1: View of Site from Bike Lane on George Street (Eastern Access Lane)

EOT·facility·–·accessed·from·George·St·¶



8.6 Environmental Factors

8.6.1 Shielding Design – Proton Therapy Unit

Therapy Physics Inc has provided a report on Shielding Design Philosophy, with regards to radiation from the Proton Therapy Unit (PTU). The PTU is designed to provide cancer treatment. Each treatment room will be assumed to treat four patients per hour and do so for 8 hours per day, five days per week. The clinical dose is assumed to be 2 Gray per patient. The shielding design will be constrained to meet the radiation safety regulations as published in the Ionizing Radiation Regulations of South Australia. Specifically the regulations as published in Version 21.1, 2016, Radiation Protection and Control (Ionizing Radiation) Regulations 2015 will be met. In addition to these provisions, the radiation protection guidelines of the IAEA will be met with the most conservative guidelines between the two sources being used.

The EPA has advised that they have not assessed the proposal against the provisions of the *Radiation Protection and Control Act* (RP&C Act) as it is not required under the Environment Protection Act. Notwithstanding this, the owner of the PTU must apply for a facilities licence pursuant to the RP&C Act prior to preparing a site for, or constructing, establishing, controlling, operating, managing, decommissioning, disposing of or abandoning, a radiation facility.

8.6.2 Waste Management

A waste management plan has been provided by RAWTEC which includes an assessment of the main stream waste generation and storage required for the building – to address Council Wide Obj 28 and PDCs 101 to 104. Waste management and deliveries will be managed in a designated area on Level 01. Council has raised no concerns.

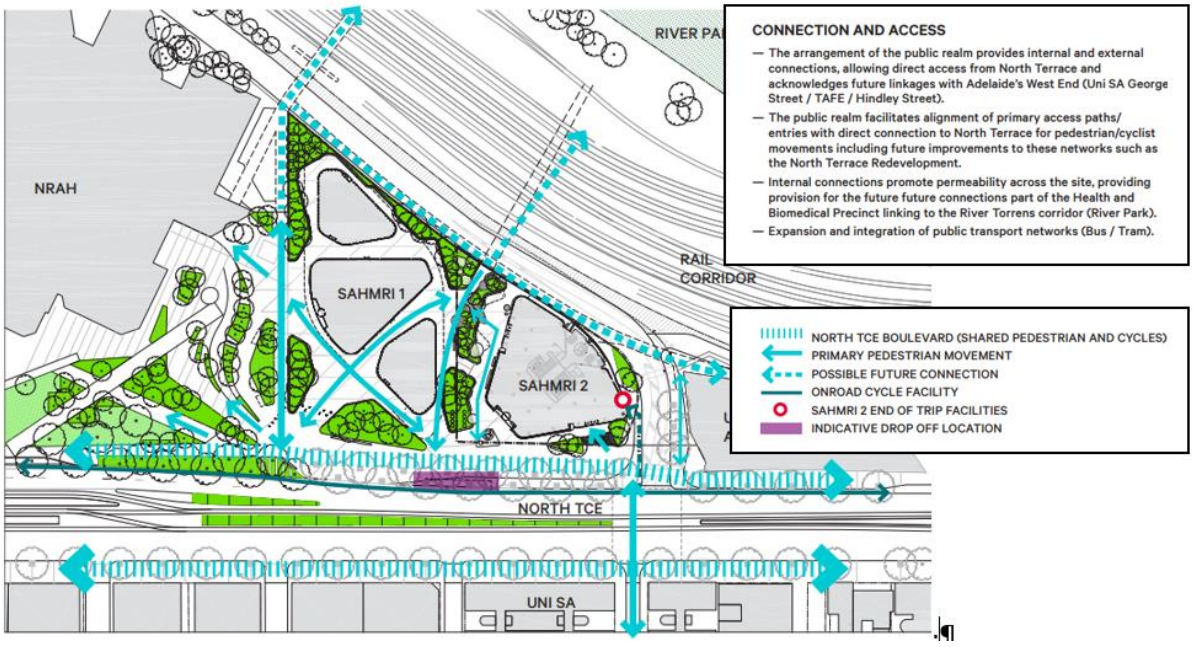
Medical waste would be stored separately within a secure area of the proposed waste room and collected by an appropriately licensed contractor. This is acceptable to the EPA. Any operation issues arising would be dealt with the by the required EPA licence.

Waste areas and collection is considered to meet the requirements of the Development Plan.

8.6.3 Crime Prevention through Urban Design, Permeability & Active Uses

The Desired Character and policies for the Health Policy Area and Council Wide Objectives 50 and 51 expect that ground floors of buildings are visually interesting and permeable, active, allow views into and out of the buildings, be well lit, of human scale and provide opportunities for passive surveillance. The building is designed to be orientated towards North Terrace, being a primary pedestrian path. The ground floor plan has three entrances comprising the main entrance, reception area and the café / commercial space. These are easily identifiable and these spaces will activate the ground level. The upper levels will be glazed providing passive surveillance of the street and public realm. Public transportation is conveniently located nearby (bus, tram and train).

It is acknowledged that the Government Architect recommends reconsideration of this ground level layout so that the café space is located on the northern side, in order to maximize solar access for patrons and to provide an active space on the north side and allow for a connection for the future northern linkage (refer to the connectivity plan below). While I acknowledge the comments of the Government Architect I consider that the future linkages are a broader precinct wide issue and the development of the site does not prohibit the attainment of the preferred north south pedestrian and cycling connections identified on Figure Rb/2. Further consideration of the location of the café/commercial tenancy and greater connectivity with the northern space of the site were discussed during the Design Review process, however the applicant is committed to this design response. While further activation of the north western corner would be beneficial there is considered to be a good level of activation proposed to the building on the ground level. In additional there will be will a landscaped spaces between the SAHMRI buildings.



The bicycle parks and end of trip facilities on Level 02 are considered to be conveniently accessed via George Street (adjacent to the bicycle path). It is noted that the Government Architect would prefer to see the access from the ground level (03). This has been discussed in Section 4.5 above.

The proposal provides for a permeable, transparent and active space that extends visually and functionally through the site. The development is considered to assist in activating the space and does not pose any unacceptable CTPED issues and is considered to satisfy CW Obj 24 and PDC 82 and Active Street Frontage provisions CW Obj 50 & 51, PDC, 196-198.

8.6.4 Noise Emissions

Resonate provided an acoustic report, dated 11 April 2018. It is expected that the main source of noise emission from the proposed development will be from building services plant. Noise sources are likely to include chillers, cooling towers, condenser units and a standby generator. The development also has the potential to be adversely impacted by existing sources of noise within the vicinity. The main sources of noise expected to impact on the proposed development are road traffic noise, tram noise, rail noise and noise from rooftop plant on SAHMRI 1 and University of Adelaide Health and Medical Sciences building.

Resonate conclude that compliance with noise requirements can be met with traditional acoustic design techniques. It is recommended that criteria for design of the façade and mechanical services be implemented (such as width of glass laminate etc). Note that acoustic requirements will be incorporated into the design as it proceeds. Based on this advice the proposal is considered to accord with the Development Plan requirements for acoustic amenity.

8.6.5 Energy Efficiency

An ESD report has been provided by Cundall, dated 29 March 2018. The applicant is targeting a LEED Gold rating for environmental efficiency. ESD initiatives include a highly exposed northern façade, shading devices to the west, energy modelling for natural ventilation, use of low emission materials promoting a healthy indoor environment for occupants of the building. It is a project brief requirement to achieve a certified LEED Gold Rating and project funding is contingent upon achieving the certified LEED rating. Cundall have been engaged to provide ESD consultancy services specifically in relation to delivery of the LEED Gold rating. However not a lot of detail has been provided on what ESD initiatives are proposed, and it is recommended that a condition be included that a LEED Gold environmental efficiency rating be sought.

8.6.6 Wind Analysis

VIPAC has provided a wind assessment report (desktop study) dated 10 April 2018. Vipac predicts that the ground level pedestrian areas will satisfy the various recommended comfort criteria. However, the findings conclude that all walking areas around the proposed development would be expected to have wind conditions within the recommended walking comfort criteria; and main building entrances would be expected to fulfil the standing comfort criteria. While no alteration to the design is considered necessary Vipac recommend that a scaled wind test be conducted at the detail design stage. This is supported by the Government Architect. A condition of Planning Consent is recommend to address this matter.

8.6.7 Site Contamination

A Site Contamination Audit Report has previously been prepared in respect of the subject land in accordance with the Environment Protection Act 1993 (Dealing No. 12738724).

8.6.8 Construction Management

A number of comments were made from representors with regards to the potential impacts during the construction of the development and seek to ensure there are minimal impacts to their operations and patrons. While some level of nuisance during construction is difficult to avoid, the applicant will prepare a

Construction Environmental Management Plan (CEMP) and a Dilapidation Report in order to meet the relevant environmental standards. A condition for the Dilapidation Report and an advisory note for the CEMP are recommended.

8.7 Signage

No signage is proposed as part of this application.

9. CONCLUSION

The proposal health and medical research facility, with active land uses at ground floor is a desired use within in the Riverbank Zone and Health Policy Area 27. The ground floor commercial and reception areas have a good level of street activation, promoting activity and passive surveillance to the public realm. There is a high level of articulation and detailing on all frontages and the bulk, form and scale of the development is supported.

The proposal incorporates shading devices to the western elevation and aims to meet a LEEDS energy rating. Car parking and access is considered to be acceptable.

The Government Architect, while generally supportive of the proposal, recommends further refinement, including revisions to the ground floor site configuration to ensure an active forecourt plaza, provision of additional curtilage to the north side to ensure future connectivity and usable public open space, a review of the end of trip facilities to provide safe and convenient access for users. The applicant remains committed to their proposal as lodged. Notwithstanding that further refinements could be made I consider the proposed deign, scale, site configuration, access and visual permeability, views to the Park Lands to be acceptable and to accord with the relevant provisions of the Development Plan.

A number of conditions and advisory notes are recommended to address matters relating to final materials and finishes, wind impacts, traffic requirements, landscaping etc. These are not considered to be fundamental to the overall success of the development. The two representations received, predominantly raised impacts during construction which will be addressed through a CEMP and dilapidation report.

Overall the proposal is considered to be of high quality which will respond to its environment and generally meets the relevant provisions of the Development Plan and warrants support. The Council and agencies consulted have not objected to the development.

10. RECOMMENDATION

It is recommended that the State Commission Assessment Panel:

1) RESOLVE that the proposed development is NOT seriously at variance with the policies in the Development Plan.

2) RESOLVE that the State Commission Assessment Panel is satisfied that the proposal generally accords with the related Objectives and Principles of Development Control of the Adelaide (City) Council Development Plan.

3) RESOLVE to grant Development Plan Consent to the proposal by Commercial and General for the demolition of existing structures and the construction of a mixed use building comprising a Proton Therapy Unit, ground floor commercial tenancy, 12 levels of health and medical research, a plant level and associated car parking and infrastructure at North Terrace, Adelaide subject to the following conditions of consent.

PLANNING CONDITIONS

1. That except where minor amendments may be required by other relevant Acts, or by conditions imposed by this application, the development shall be established in strict accordance with the details and following plans submitted in Development Application No 020/A035/18.

Table 1: PLANS BY WOODSBAGOT

PLAN NO.	SHEET TITLE	REVISION	DATE
AR-SK1001	Site Plan	A	09.04.18
AR-SK1011	Demolition Plan	A	09.04.18
AR-SK2200	Floor Plan - Level 00	N	12.04.18
AR-SK2201	Floor Plan - Level 01	p	09.04.18
AR-SK2202	Floor Plan - Level 02	M	09.04.18
AR-SK2203	Floor Plan - Level 03 - Plaza	K	11.04.18
AR-SK2203M -	Mezanine Floor Plan - Level 03	D	09.04.18
AR-SK2204	Floor Plan - Level 04 - SAHMRI Fitout	D	09.04.18
AR-SK2205 05	Floor Plan - Level- SAHMRI Fitout	D	09.04.18
AR-SK2206	Floor Plan - Level 06 - SAHMRI Fitout	D	09.04.18
AR-SK2207	Floor Plan - Level 07 - Typical L7, L9, L11, L13	B	09.04.18
AR-SK2208	Floor Plan - Level 08 - Typical L8, L10, L12, L14	F	09.04.18
AR-SK2215	Floor Plan - Level 15 - Plant Room	D	09.04.18
AR-SK2216	Floor Plan - Roof	F	09.04.18
AR-SK3100	Elevation - North	D	09.04.18
AR-SK3101	Elevation - East	E	09.04.18
AR-SK3102	Elevation - South	F	11.04.18
AR-SK3103	Elevation - West	E	11.04.18
AR-SK3200	Section - East West	D	09.04.18
AR-SK3201	Section - North South	D	09.04.18
AR-SK3201	Section – Podium Study	D	11.04.18
AR-SK3203	Section - Atrium	A	09.04.18
AR-SK4110	Façade - Design Elements	A	12.04.18

Table 2: LANDSCAPE DRAWING SCHEDULE – PLANS BY OXIGEN

PLAN NO.	SHEET TITLE	REVISION	DATE
17.074	Landscape and Public Realm Report		April 2018
17.074	SAHMRI 2 Landscape Plan (Within Report)	A	11.04.18
17.074	SAHMRI 2 Public Realm Plan (Within Report)	A	11.04.18
	Floor Plan - Level 00 (Transformer Room)		
	Floor Plan - Level 01 (Generators, Fire Booster, Gas Metre Room, Fire Control Room, Central Chiller Plant and Sewer Connection) Floor Plan - Level 02 (Water Connections, Metres and Fire Main)		
	Floor Plan - Level 15 (Fire tank, Central Plant, Cooling Towers)		
	Roof Plan (Cooling Towers, Smoke Exhaust Fans, Hot Water Plant Flues)		
	East-west Section (Generator Flues)		

Reports:

- Planning Report by MASTERPLAN, dated April 2018
- Schematic Design ESD Report prepared by Cundall dated 29 March 2018;
- Storm Water Management Plan prepared by WGA dated 4 April 2018;
- Traffic Impact Statement prepared by GTA Consultants dated 12 April 2018;
- Acoustic Report prepared by Resonate dated 11 April 2018;
- Wind Impact Assessment prepared by VIPAC dated 10 April 2018;
- Service Report prepared by Aurecon dated 4 April 2018;
- Waste Management Report prepared by RAWTEC dated 11 April 2018; and
- Radiation Protection and Control Report prepared by Therapy Physics Inc dated 10 April 2018.

2. Prior to Development Approval being issued for super-structure works, a final detailed schedule of external materials and finishes shall be submitted to the satisfaction of the State Commission Assessment Panel, in consultation with the Government Architect.

3. The floor levels identified as a warm shell on the plans shall be used for health, medical or educational land uses.

Wind

4. As recommended in the Wind report by VIPAC, dated 10 April 2018 a scaled wind test shall be conducted at the detailed design stage and any recommendations adopted, subject to the approval of the State Commission Assessment Panel, in consultation with the Government Architect. The measures shall be made operational prior to the occupation or use of the development.

Landscaping

5. The final landscaping plan shall incorporate details of the materials and plantings, integrated art strategy, sculptures, seating, wayfinding signage etc and shall be submitted to the satisfaction of the State Commission Assessment Panel prior to these works commencing on site.

Traffic and Parking

6. Access to George Street shall be designed in general accordance with Woods Bagot Floor Plan – Level 01, Project number 140290, Sheet number AR-SK2201, Revision P, dated 12.04.18.

7. All loading and unloading, parking and manoeuvring areas shall be designed and constructed to ensure that all vehicles can safely enter and exit the subject land in a forward direction.

8. When exiting the site, all vehicles shall turn left onto George Street. Appropriate on-site signage shall be provided to direct drivers to turn left.

9. All car parking areas shall be designed in accordance with *AS/NZS 2890.1:2004* and *AS/NZS 2890.6:2009*.

10. The largest vehicle permitted on-site shall be restricted to an 8.8 metres Medium Rigid Vehicle and the delivery area shall be designed in accordance with *AS 2890.2-2002*.

11. All bicycle parking areas shall be designed in accordance with *AS 2890.3:2015* and the relevant Austroads Guides (including Cycling Aspects of Austroads Guides).

External Lighting

12. All external lighting on the site shall be designed and constructed to conform to Australian Standard (AS 4282-1997).

Stormwater

13. All stormwater design and construction shall be in accordance with Australian Standard AS/NZS 3500.3:2015 (Part 3) to ensure that stormwater does not adversely affect any adjoining property or public road.

Noise

14. The acoustic attenuation measures recommended in the Acoustic report by Resonate dated 11 April 2018, shall be fully incorporated into the building rules documentation to the reasonable satisfaction of the State Commission Assessment Panel. Such acoustic measures shall be made operational prior to the occupation or use of the development.

Conditions- Infrastructure

15. All Council, utility or state-agency maintained infrastructure (i.e. roads, kerbs, drains, crossovers, footpaths etc.) that is demolished, altered, removed or damaged during the construction of the development shall be reinstated to Council, utility or state agency specifications.

16. Any dis-used driveway inverts resulting from the development are to be reinstated to equivalent footpath levels to City of Adelaide standards and specifications. All costs associated with these works shall be met by the proponent.

Environmental

17. Prior to the commencement of site clearance, demolition or construction works, a Dilapidation report (i.e. condition survey) shall be prepared by a qualified engineer to investigate and report on the condition and stability of adjoining buildings, structures and Council assets. A copy of this report – including all photographic and video records - shall be provided to the State Commission Assessment Panel and the City of Adelaide in electronic format.

18. A LEED Gold environmental efficiency rating shall be sought for the development.

ADVISORY NOTES

a. This Development Plan Consent will expire after 12 months from the date of this Notification, unless final Development Approval from Council has been received within that period or this Consent has been extended by the State Commission Assessment Panel.

b. The applicant is also advised that any act or work authorised or required by this Notification must be substantially commenced within 1 year of the final Development Approval issued by Council and substantially completed within 3 years of the date of final Development Approval issued by Council, unless that Development Approval is extended by the Council.

c. The applicant has a right of appeal against the conditions which have been imposed on this Development Plan Consent. Such an appeal must be lodged at the Environment, Resources and Development Court within two months from the day of receiving this notice or such longer time as the Court may allow. The applicant is asked to contact

the Court if wishing to appeal. The Court is located in the Sir Samuel Way Building, Victoria Square, Adelaide, (telephone number 8204 0289).

d. Staging works are indicated as (but not limited to):
   1 Demolition
   2. Substructure and retention (including excavation)
   3. Superstructure
   4. Balance of works (architectural services, finishes and fitout)

Environmental

e. The applicant is reminded of its general environmental duty, as required by Section 25 of the Environment Protection Act 1993, to take all reasonable and practical measures to ensure that the activities on the whole site, including during construction, do not pollute the environment in a way which causes or may cause environmental harm.

f. Further guidance about the storage, handling and disposal of medical waste can be found in the EPA publication *Medical waste – storage, transport and disposal* http://www.epa.sa.gov.au/files/4771338_guide_medical.pdf

g. An environmental authorisation in the form of a licence is required for the operation of this development. The applicant is required to contact the Environment Protection Authority before acting on this Approval to ascertain licencing requirements. Information on applying for a licence (including licence application forms) can be addressed here:
http://www.epa.sa.gov.au/business_and_industry/applying_for_a_licence

h. The applicant is reminded that the EPA holds site contamination records in relation to the subject site. Any work undertaken onsite should be compatible with recommendations for site contamination consultants and/or auditors. For further information about investigating and managing onsite contamination, refer to the following EPA publications:
http://www.epa.sa.gov.au/files/4771800_guidelines_sc_audit.pdf

i. EPA information sheets, guideline documents, codes of practice, technical bulletins etc can be accessed on the following website http://www.epa.sa.gov.au

j. If, in carrying out the activity, contamination is identified which poses actual or potential harm to the health or safety of human beings or the environment or potential harm to the health or safety of human beings or the environment that is not trivial (taking land use into account), the applicant may need to remediate the site in accordance with EPA guidelines.

k. If, at any stage, contamination is identified which poses actual or potential harm to water that is not trivial, a notification of contamination which affects or threatens groundwater (pursuant to Section 83A of the *Environment Protection Act 1993*) must be submitted to the EPA.

l. Continual monitoring of soil condition and appearance shall be undertaken during any site works including the excavation of footings and the trenching of services. In the event that any potential soil contamination is detected (discoloured soil or odour) the applicant shall undertake appropriate testing and remediation/removal of the soil in accordance with standard industry procedures and as advised by an appropriately qualified person. Upon completion of all earthworks, a statement from an appropriately qualified person shall be submitted to the State Commission Assessment Panel confirming the completion of remediation works in accordance with industry procedures.

m. You are advised that the Proton Therapy Unit requires a facilities licence pursuant to the *Radiation Protection and Control Act* (RP&C Act) prior to preparing the site for, or constructing, establishing, controlling, operating, managing, decommissioning, disposing of or abandoning, a radiation facility.

n. A Construction Environment Management Plan (CEMP) shall be prepared in consultation with the City of Adelaide and be implemented in accordance with current industry standards – including the Local Nuisance and Litter Control Act 2016, the EPA publications "Handbook for Pollution Avoidance on Commercial and Residential Building Sites – Second Edition" and, where applicable, "Environmental Management of On-site Remediation" – to minimise environmental harm and disturbance during construction.

The management plan should incorporate, without being limited to, the following matters:

- timing, staging and methodology of the construction process and working hours;
- traffic management strategies;
- control and management of construction noise, vibration, dust and mud;
- management of infrastructure services during construction and re-establishment of local amenity and landscaping;
- stormwater and groundwater management during construction;
- site security, fencing and safety and management of impacts on local amenity for residents, traffic and pedestrians;
- disposal of construction waste, any hazardous waste and refuse in an appropriate manner according to the nature of the waste;
- protection and cleaning of roads and pathways; and
- overall site clean-up

Infrastructure (off-site) / Local authority requirements

o. Any proposed works with the public realm adjacent to the site, including the installation of street furniture, bicycle parking infrastructure and planting of street trees shall be undertaken in consultation with the City of Adelaide.

p. Pursuant to Regulation 74, the Council must be given one business day's notice of the commencement and the completion of each stage of the building work on the site.

q. All Council, utility or state-agency maintained infrastructure (i.e. roads, kerbs, drains, crossovers, footpaths etc) that is demolished, altered, removed or damaged during the construction of the development shall be reinstated to the City of Adelaide, utility or state agency specifications. All costs associated with these works shall be met by the proponent.

r. All new or alterations to existing crossovers require City of Adelaide approval and need to be to Council standards and specifications via the City Works Guidelines.

s. The City of Adelaide advise that existing boundary (back of path) levels must not be modified. Finished floor levels should be based around retaining the existing back of path levels. If the level difference between top of kerb and back of path is less than 50 mm please contact the Asset Manager for Water Infrastructure prior to setting finished floor levels.

t. Stormwater runoff from the proposed medical building must be retained within the property boundaries, collected and discharged to stormwater infrastructure located in the easement for "drainage purposes" marked "Q". As George Street is not a Council road reserve, Council cannot approve stormwater discharge to George Street.

u. Collected seepage water from the proposed PTU/Clinic Support basement area must be either discharged to sewer or a property recycled water reuse system.

v. Collected irrigation "seepage water" from the proposed landscaped areas located in the Plaza area must be either discharged to sewer or a property recycled water reuse system. "Seepage" water does not include stormwater runoff from landscaped areas which can be discharged to the property stormwater system.

w. There are multiple sloped walls that may require amendments to the development or remedial treatment in accordance with AS1428.4.1. Shielding the hazard as the primary remedial measure, may be necessary with Tactile Ground Surface Indicators (TGSIs) only to be used if shielding is not possible.

Signs

x. No additional signs shall be displayed upon the subject land other than those identifying the parking area access points and those shown on the approved plans. If any further signs are required, these shall be the subject of a separate application.

Construction

y. The applicant should ensure there is no objection from any of the public utilities in respect of underground or overhead services and any alterations that may be required are to be at the applicant's expense.

z. As work is being undertaken on or near the boundary, the applicant should ensure that the boundaries are clearly defined, by a Licensed Surveyor, prior to the commencement of any building work.

aa. Any proposed works with the public realm adjacent to the site, including the installation of street furniture, bicycle parking infrastructure and planting of street trees shall be undertaken in consultation with the City of Adelaide.

bb. Any activity in the public realm, whether it be on the road or footpath, requires a City Works Permit. 48 hours' notice is required before commencement of any activity. Email: cityworks@adelaidecitycouncil.com

Airport

cc. Approval for the proposed building height and construction methodology is required by the Commonwealth Secretary for the Department of Transport and Regional Services in accordance with the Airports Act 1996 and the Airports (Protection of Airspace) Regulations 1996.

dd. Any further proposed addition to the structure, including aerials, masts and vent/exhaust stacks, must be subject to a separate assessment by the Commonwealth Department of Infrastructure and Transport. Crane operations associated with construction shall be the subject of a separate application. Adelaide Airport Limited requires 48 days prior notice of any crane operations during the construction.

Gabrielle McMahon
Principal Planner
INNER METRO DEVELOPMENT ASSESSMENT
DEVELOPMENT DIVISION
DEPARTMENT OF PLANNING, TRANSPORT and INFRASTRUCTURE

SAHMRI TWO

Planning Submission
Schematic Design
Architectural Report
April 2018

REV. C

Commercial & General

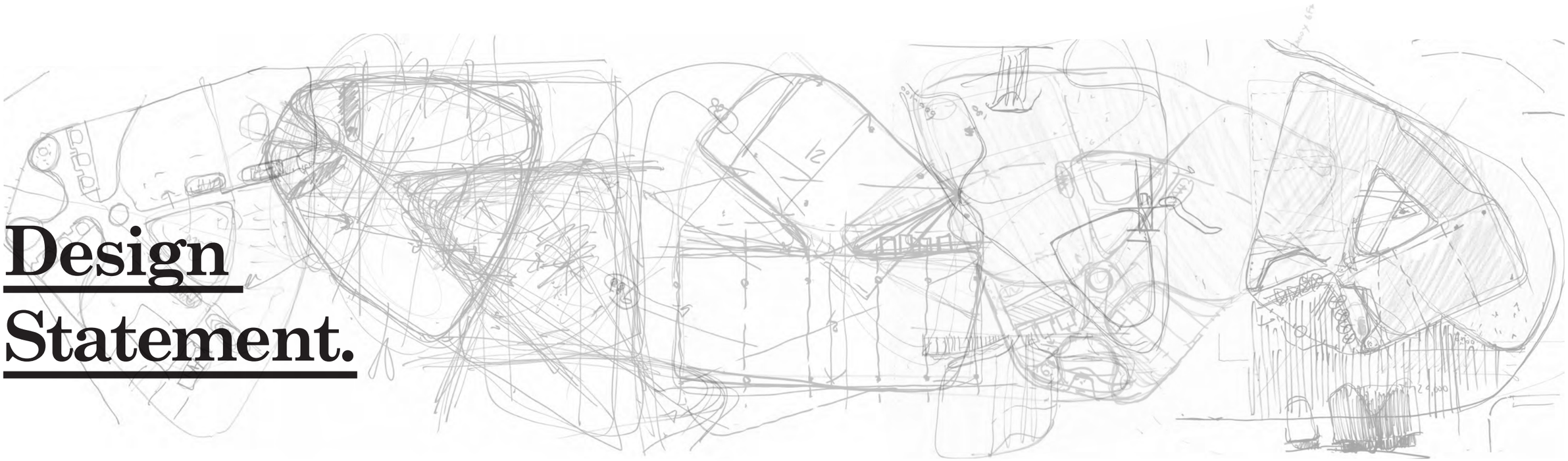
WOODS BAGOT

SAHMRI

Contents

01 Summary.

01 SAHMRI TWO
Summary



Design Statement.

The SAHMRI 2 project involves the development of a new clinical and research facility in the Adelaide CBD, adjacent to the existing SAHMRI building. The project site is within the South Australian Health & Biomedical precinct located at the western end of North Terrace, which forms part of a wider “Riverbank precinct”. The new facility will incorporate a Proton Therapy Unit (PTU), which is intended to be the first in Australia, and is a significant commercial driver for the project. The vision for the SAHMRI precinct is to provide flexible, intelligent and high performance research and work spaces that connect people across teams, disciplines and generations. SAHMRI 2 will expand on and complement activities within the existing SAHMRI facility. SAHMRI 2 will provide a significant area of “Dry Lab” research space, which will allow suitable research functions to decant from the existing SAHMRI building to make better use of its inherent “wet lab” capability. The Dry Lab floors are also expected to accommodate 3rd party research, clinical and commercial tenants.

Derived from its unique site geometry, the need to create a forecourt entry similar to the adjacent buildings within the Health & Biomedical precinct and maintain views from the adjacent SAHMRI building, the proposed building’s bold form will complement the existing SAHMRI building. The design draws its identity from the characteristics and context of the site, acknowledging the existing natural topography, solar orientation, prevailing winds, views and parkland context.

Located on the corner of North Terrace and George Street, the subject site has three frontages. Transparent building lobby and retail areas work to activate North Terrace with pedestrian movement and outdoor terrace. The PTU patient reception and education offers refuge within the Plaza with sheltered canopies and landscaped zones. The Plaza level also acts as a mediator between the PTU areas on the lower floors and the dry labs on the upper floors. The gradient along George Street has been utilized to provide access to service/waste vehicles and patient/ambulance drop-off on level 1 and EOT facility on level 2.

The built form of SAHMRI 2 will acknowledge its sense of place within the Adelaide park lands, its position adjacent to North Terrace and link with the precinct, including an appropriate response to architectural detailing, articulation, modulation and material selection. The integration of built form and landscape results in a variety of public and private open spaces which promote a flexible and healthy environment responding to the needs of staff, clinicians, patients and the community. A purposeful and restrained approach has informed the design of the tower component, with repetition of glass panels, rectangular curtain walling and sunshading system, creating an elegant and sophisticated design aesthetic.

01 SAHMRI TWO
Summary

Development Summary.

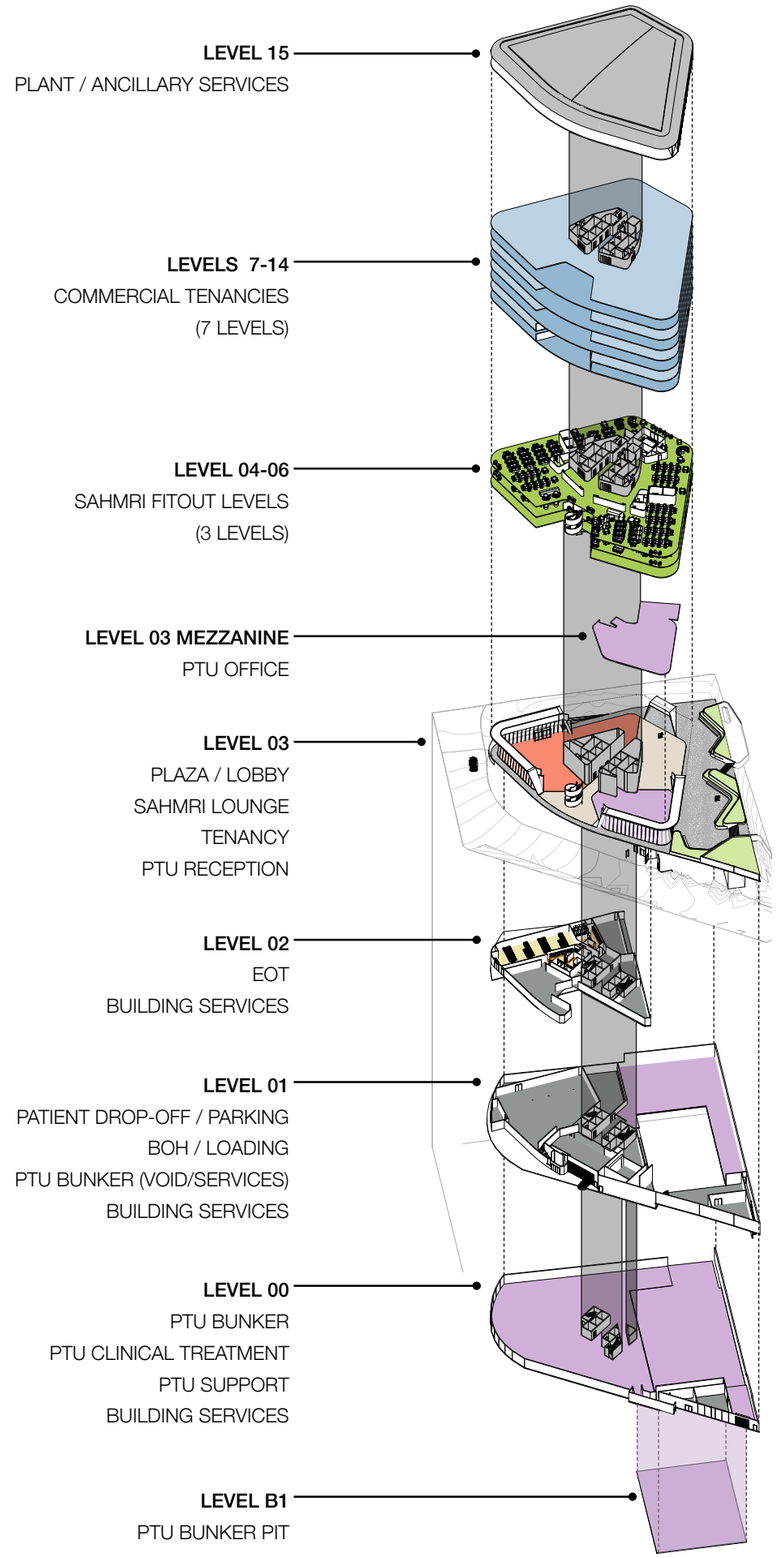
Location

Health & Biomedical Precinct, North Terrace, Adelaide SA

Stacking / Content

18 storey building comprising of:

- L15: Plant Rooms (roof)
- L07 - L14: 8 floors of Dry Labs (commercial tenancies)
- L04 - L06: 3 floors of SAHMRI Fitout (clinical trials / dry labs)
- L03M: PTU Office
- L03: PLaza, Lobby, PTU Reception, SAHMRI Lounge, Tenancy
- L02: EOT (148 bike parks), Plant Rooms
- L01: PTU patient drop-off, Parking (8 car parks), Loading, Plant Rooms, BOH
- L00: PTU (bunker, beamline, clinical treatment and support areas)
- B1: PTU Bunker Pit (plant room)



01 SAHMRI TWO
Summary

Area Schedule.

SAHMRI 2 | Schematic Design | Area Schedule **Rev. B | 11-04-2018**

Levels	Program	Approx. GFA (m²)	Approx. NLA (m²)	
L15	Plant Rooms	1,979	-	
L14	Dry Lab (Warm Shell) / Amenities	1,788	1,649	
L13	Dry Lab (Warm Shell) / Amenities	1,910	1,771	
L12	Dry Lab (Warm Shell) / Amenities	1,788	1,649	
L11	Dry Lab (Warm Shell) / Amenities	1,910	1,771	
L10	Dry Lab (Warm Shell) / Amenities	1,788	1,649	
L9	Dry Lab (Warm Shell) / Amenities	1,910	1,771	
L8	Dry Lab (Warm Shell) / Amenities	1,788	1,649	
L7	Dry Lab (Warm Shell) / Amenities	1,910	1,771	
L6	SAHMRI Dry Lab Fitout / Amenities	1,808	1,669	
L5	SAHMRI Dry Lab Fitout / Amenities	1,808	1,669	
L4	SAHMRI Dry Lab Fitout / Amenities	1,808	1,669	
L3M	PTU Office	490	470	
L3	Lobby / PTU Reception / SAHMRI Lounge / Tenancy / Amenities	1,601	1,573	
	Plaza External Paving			1032
	Landscape / Planter			418
L2	EOT Facility / Plant Rooms	858	-	
L1	PTU patient drop-off /Parking / Loading / Plant Rooms / BOH	2,470	-	
L0	PTU Bunker / Beamline / Clinical Treatment / Support Areas	3,257	-	
	Total	**30,871**		

02 Site Context.

02 SAHMRI TWO
Site Context

Urban Context.

PORT RD

NORTH TERRACE

HINDLEY ST

CURRIE ST

WAYMOUTH ST

WEST TCE

GRAY ST

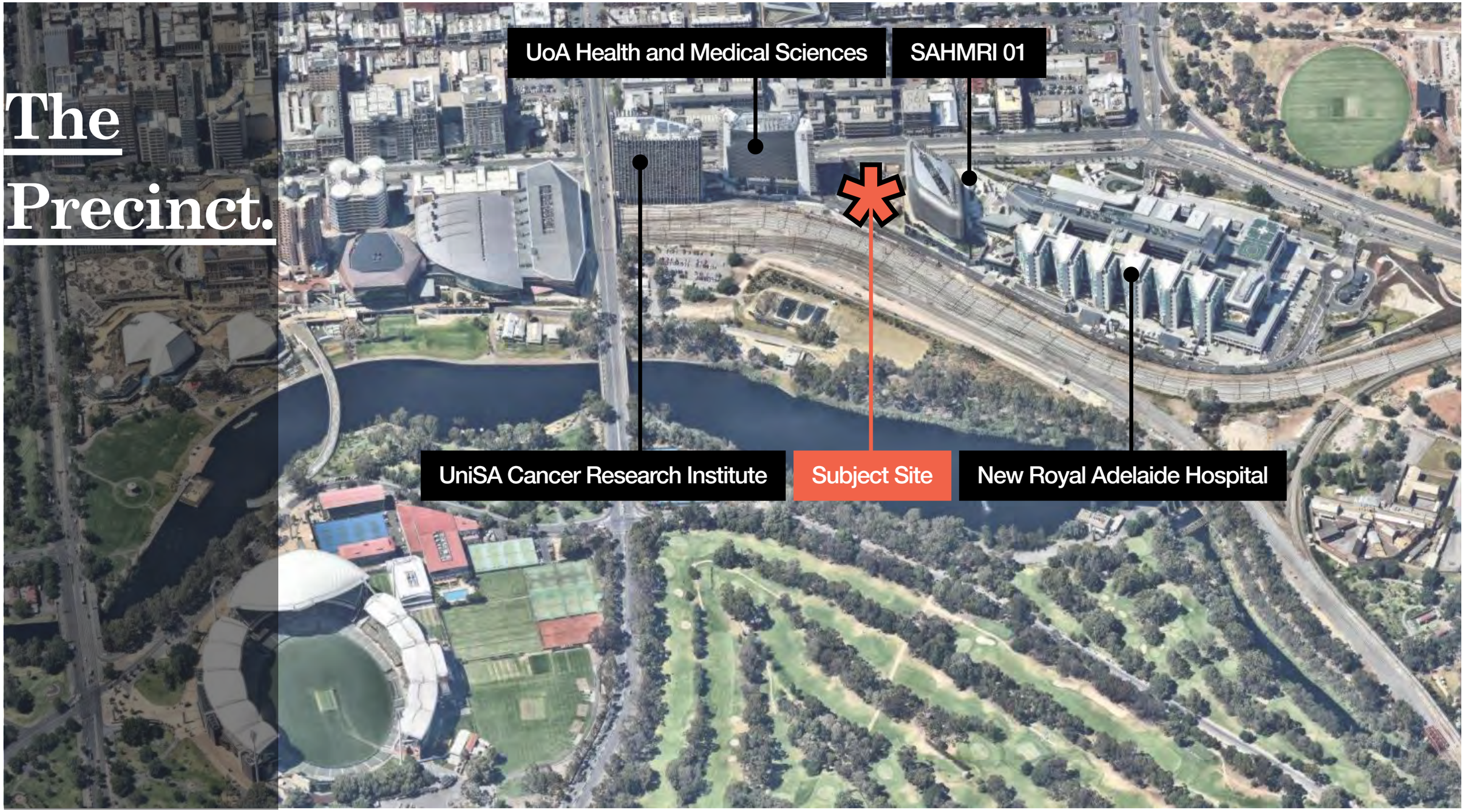
CLARENDON ST

MORPHETT ST

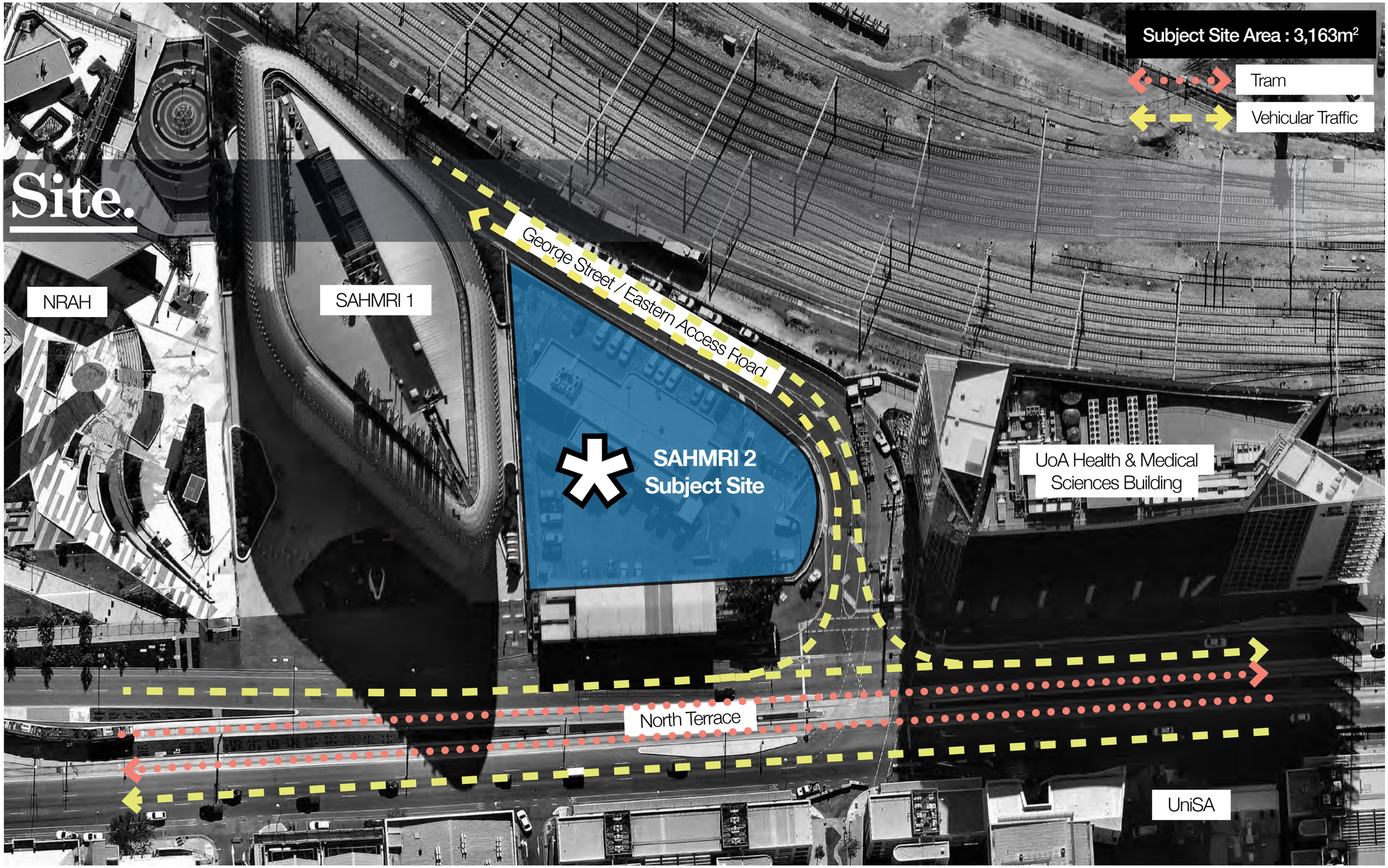
Adjacent to the existing SAHMRI building, the subject site is within the South Australian Health & Biomedical precinct located at the western end of North Terrace, which forms part of a wider “Riverbank precinct”.

02 SAHMRI TWO
Site Context

The Precinct.

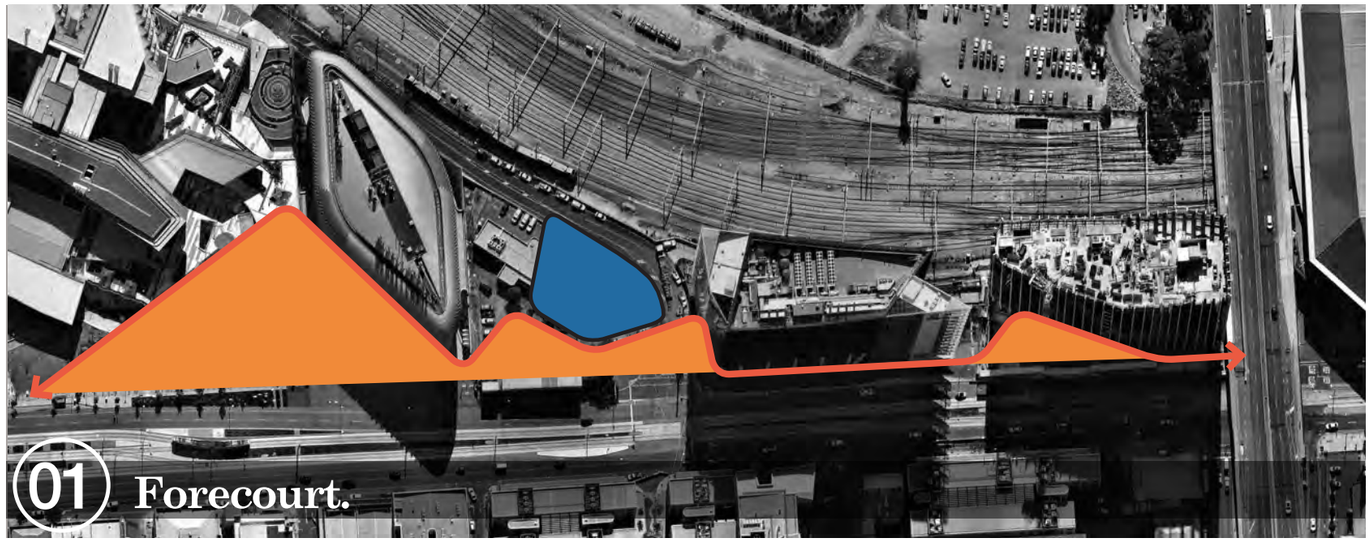


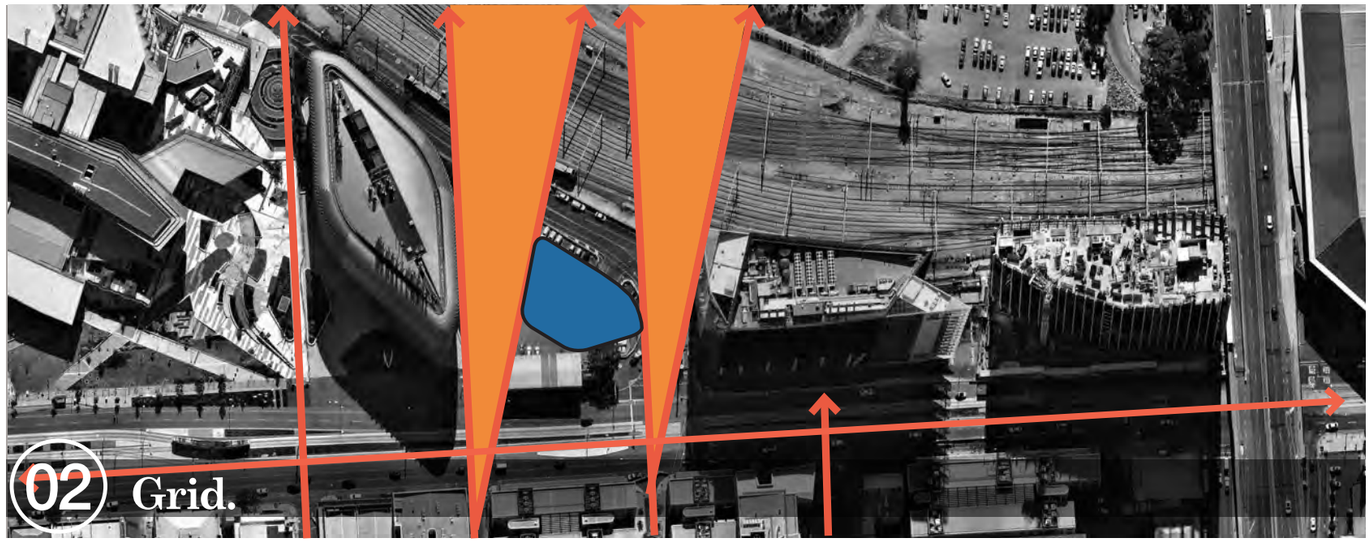
02 SAHMRI TWO
Site Context



02 SAHMRI TWO
Site Context

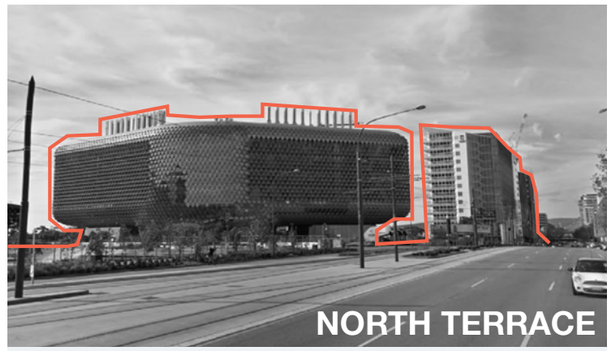
Urban Principles.

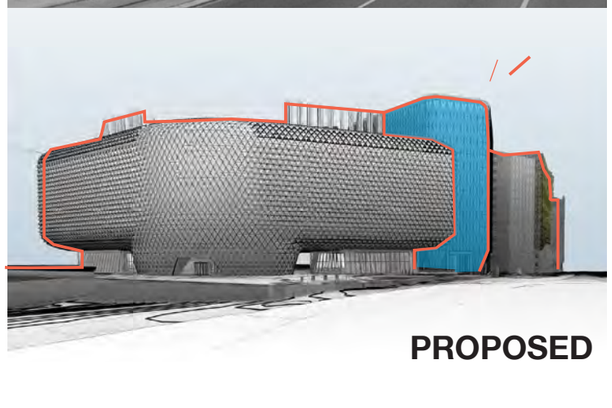


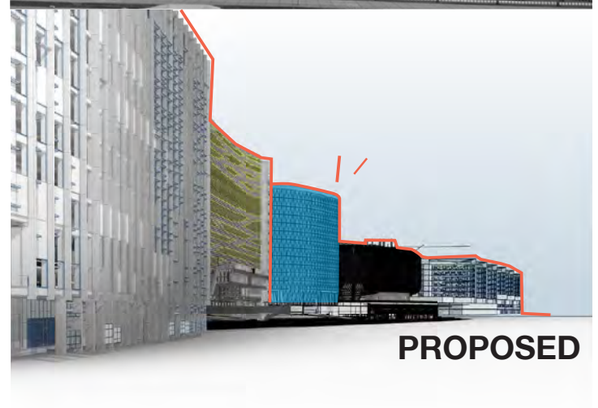


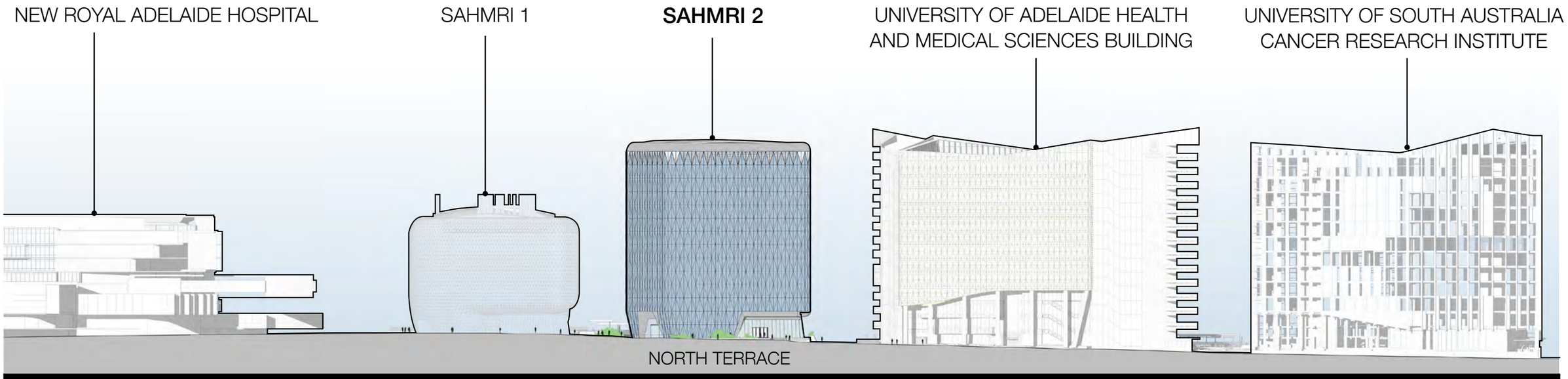
02 SAHMRI TWO
Site Context

Streetscape Massing.









Complementary Scale: An appropriate sense of scale within the South Australian Health & Biomedical precinct located at the western end of North Terrace...

03 Design Response.

03 SAHMRI TWO
Design Response

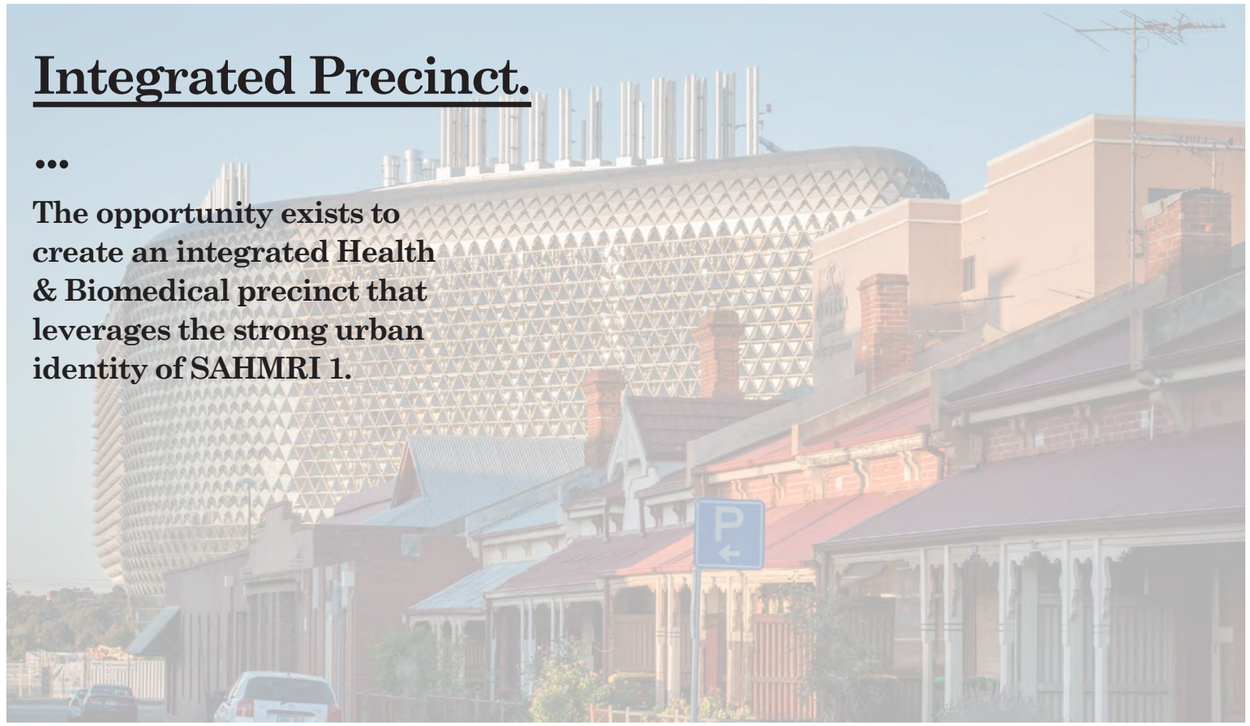
Design Principles.

Concept informs the buildings planning, access and massing...

Integrated Precinct.

...

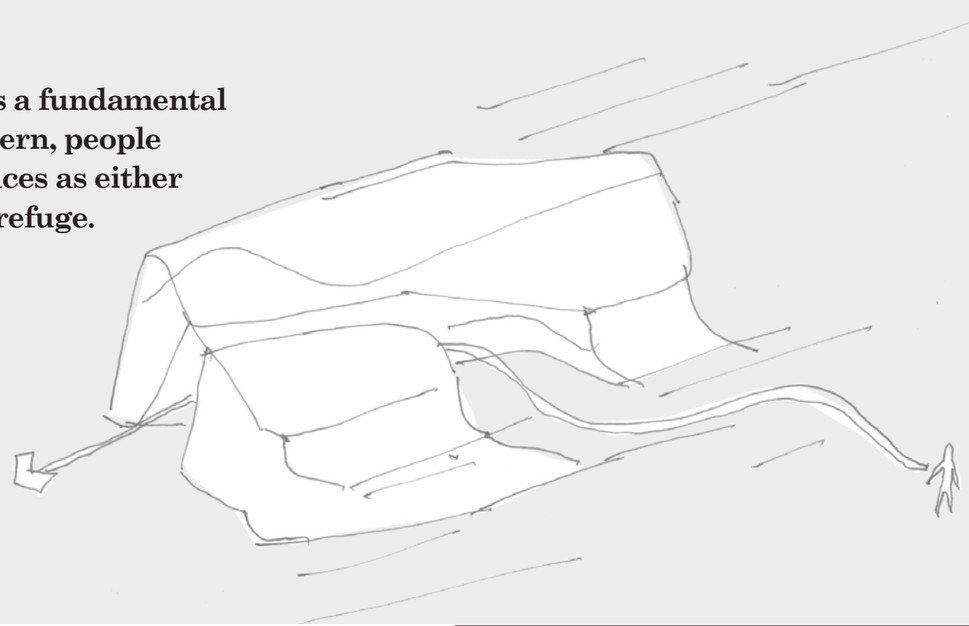
The opportunity exists to create an integrated Health & Biomedical precinct that leverages the strong urban identity of SAHMRI 1.



Prospect and Refuge.

...

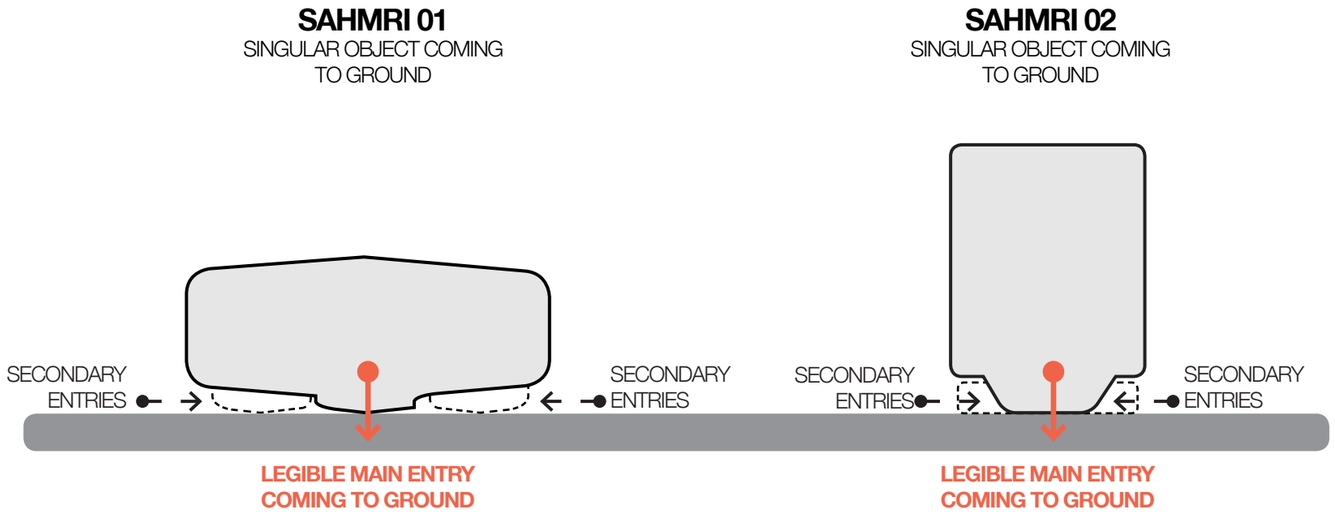
Described as a fundamental human concern, people perceive spaces as either prospect or refuge.



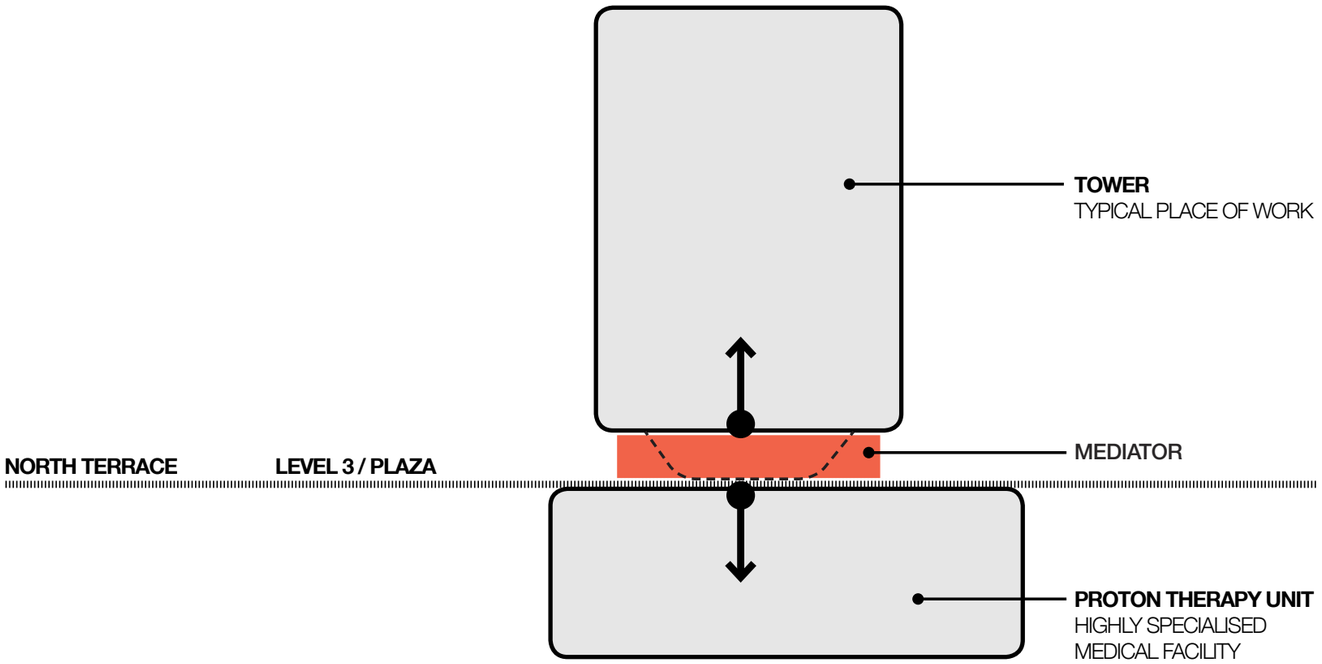
03 SAHMRI TWO
Design Response

Integrated Development.

AN INTEGRATED DEVELOPMENT



GROUND PLANE MEDIATOR



03 SAHMRI TWO
Design Response

Prospect / Refuge.

“ Described as a fundamental human concern, people perceive spaces as either prospect or refuge. ”

Changes: *Our need for prospect or refuge can change over time. The time of day, season, year, and/or our life situation all influence our need for prospect or refuge.*

Light levels: *Light levels play an intricate part in our perception of prospect and refuge.*

Materials: *Material choice contributes significantly to the comfort of people in a space.*

Ceiling height: *Ceiling height also has a big influence on our perception of prospect and refuge.*

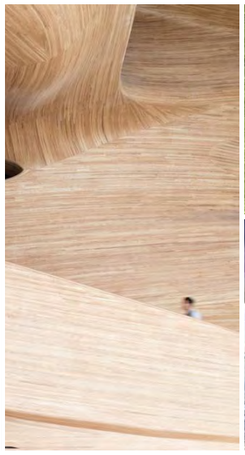
Transitions: *Transitions enhance our perception of prospect and refuge, e.g. a terrace in front of a house.*

Prospect (Public Space).

The Public Body

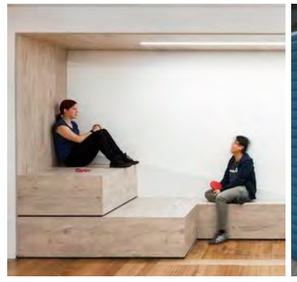




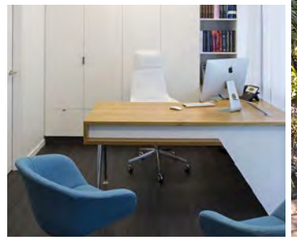



Refuge (Private Space).

The Private Body

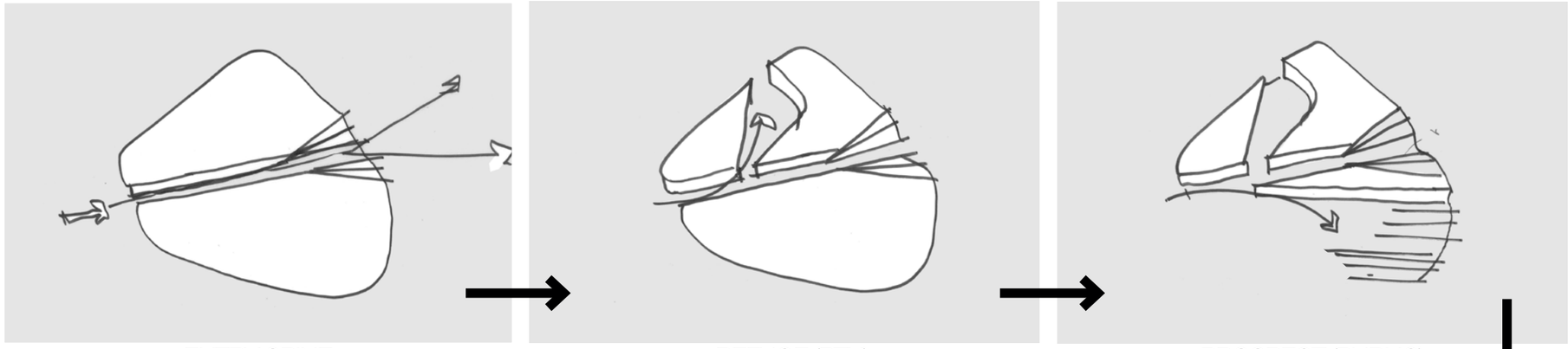



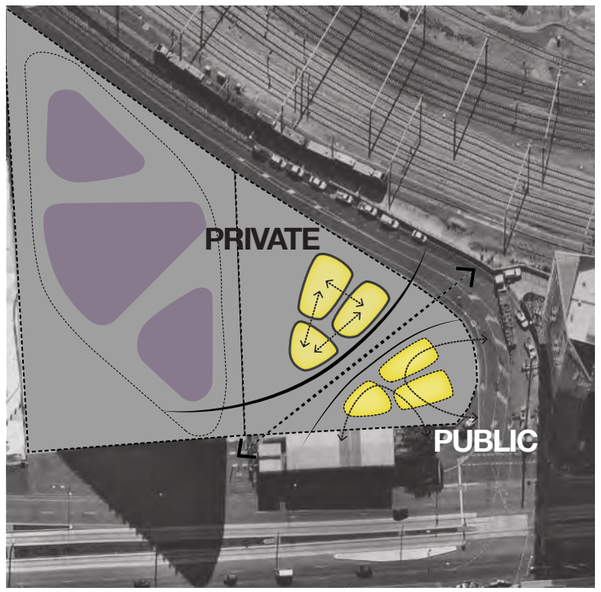


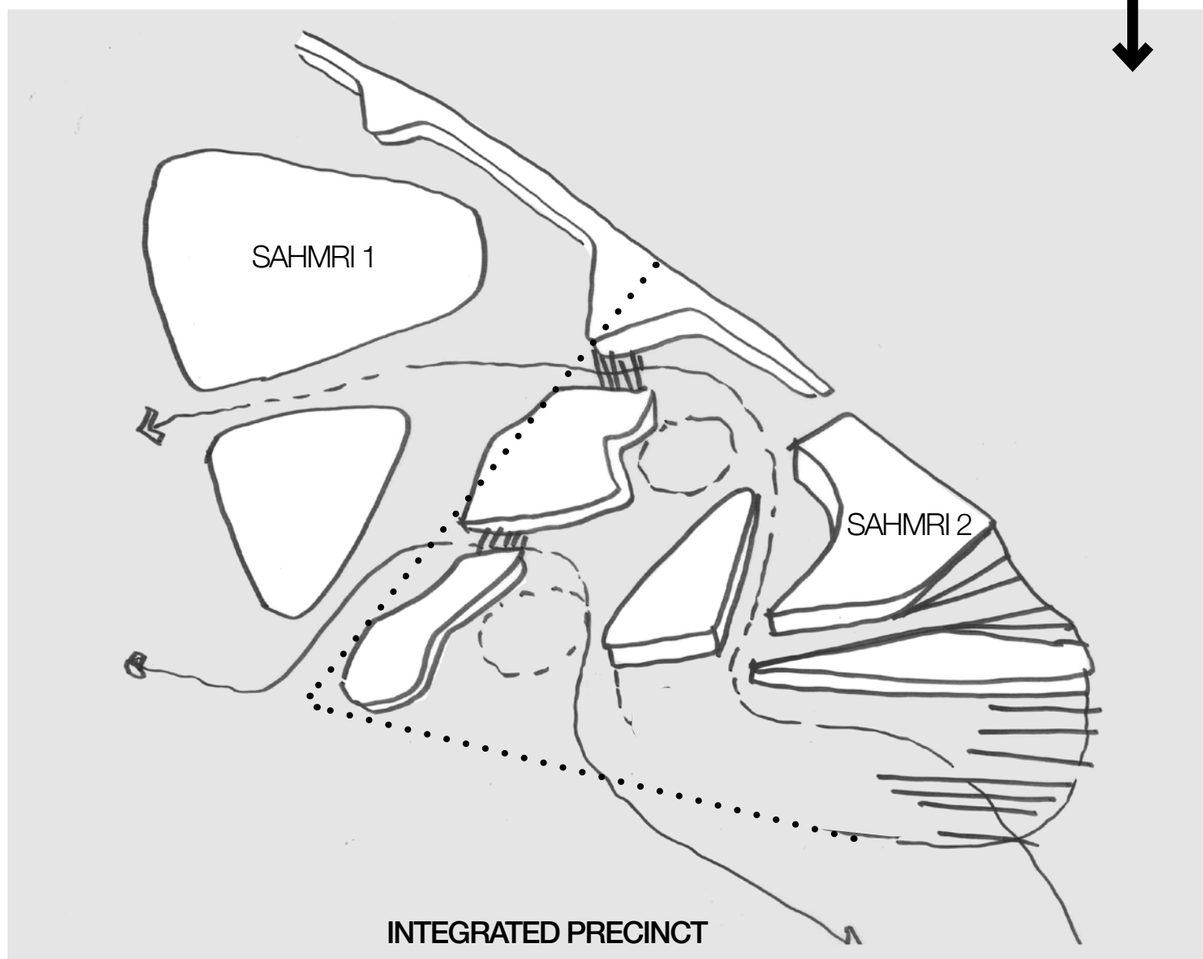



03 SAHMRI TWO
Design Response

Ground Plane.





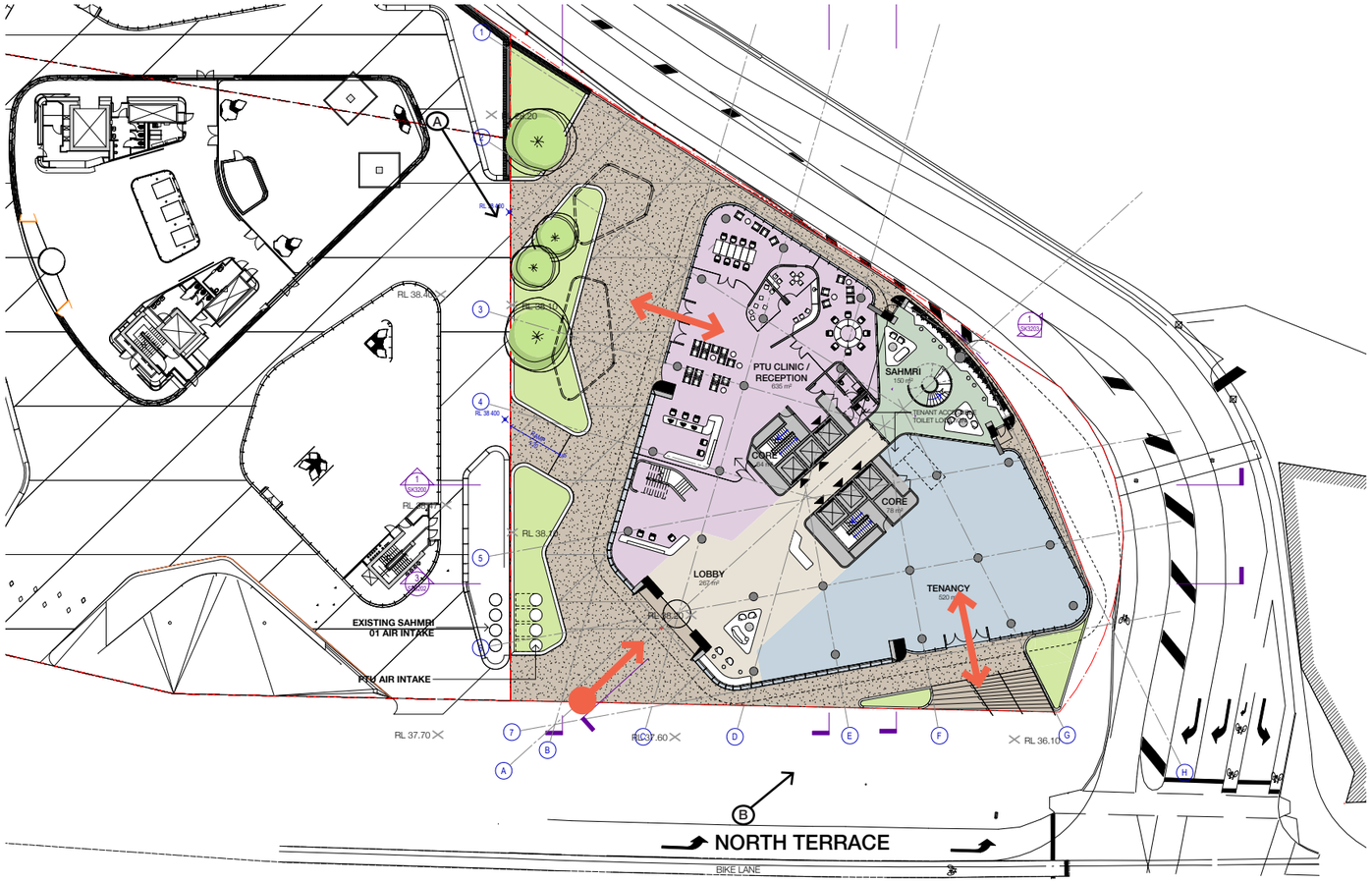


03 SAHMRI TWO
Design Response

User Journey.

Level 3 / Plaza
Ground Floor Plane

...



A FORECOURT PLAZA

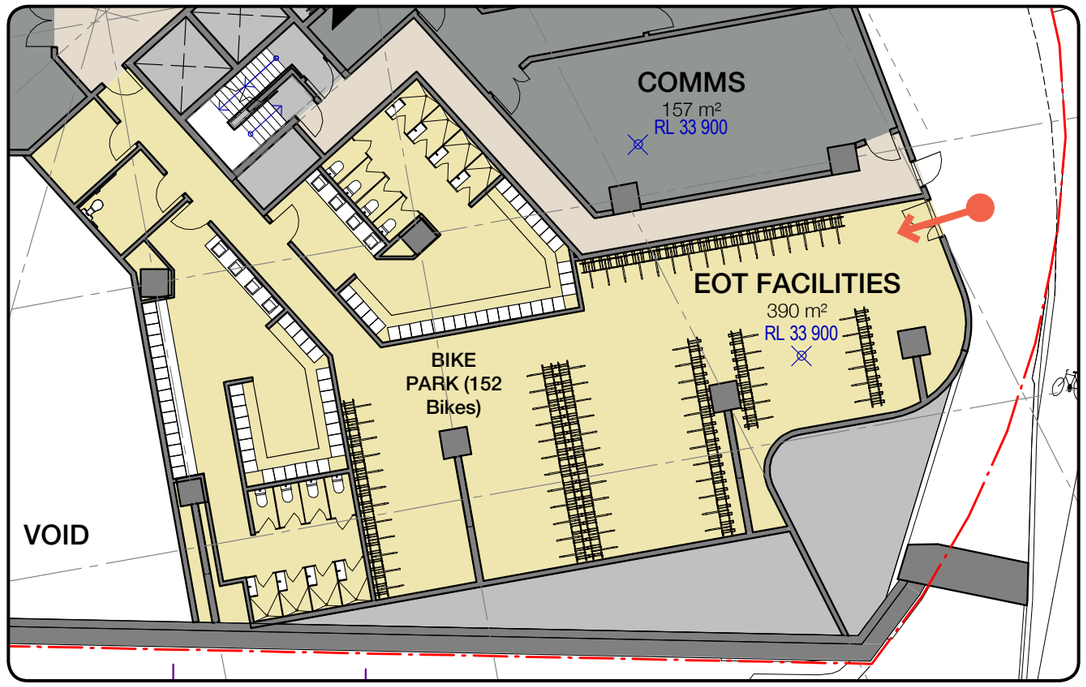
B EAST TERRACING TOWARDS NORTH TERRACE

03 SAHMRI TWO
Design Response

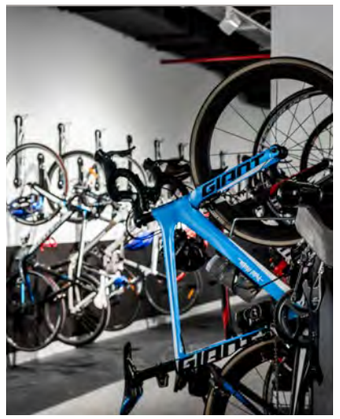
User Journey.

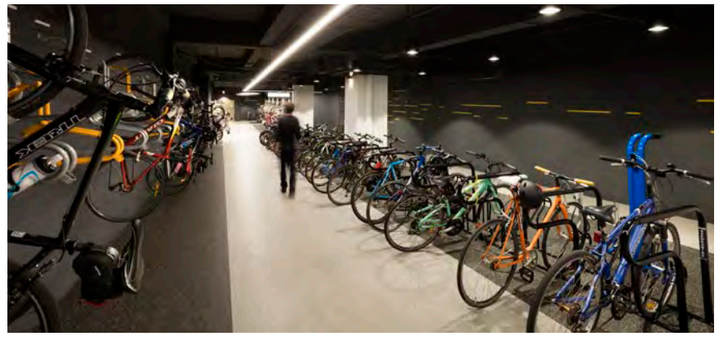
Level 2
EOT Facility

...



End of Trip Facility Layout



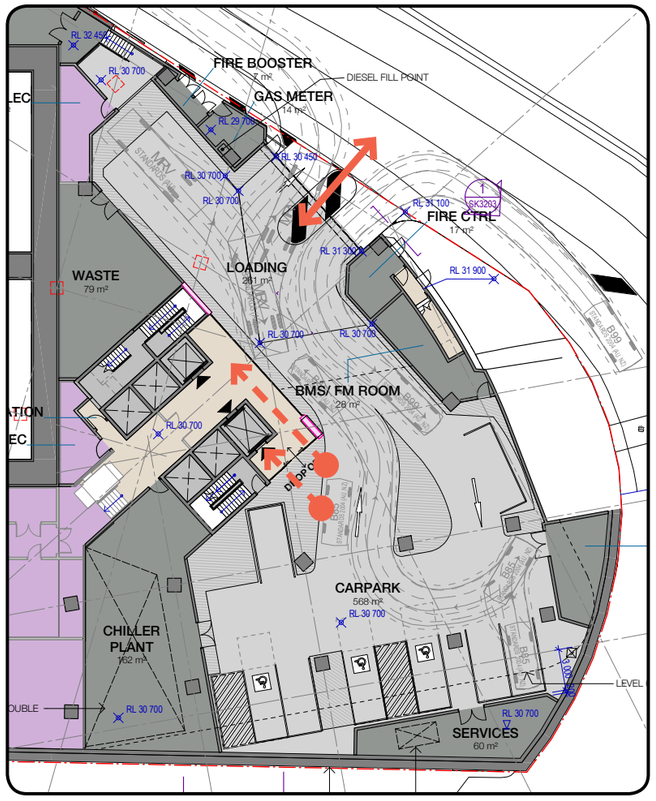


03 SAHMRI TWO
Design Response

User Journey.

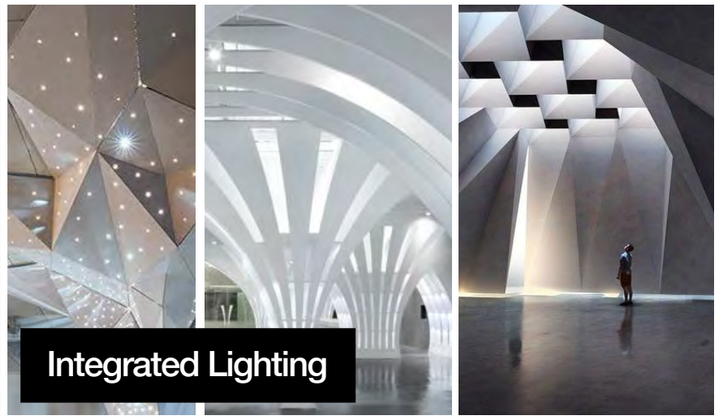
Level 1
PTU Patient Drop-off / Loading

...

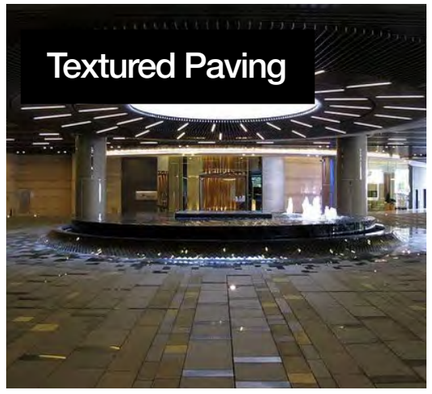


Drop-off / Loading

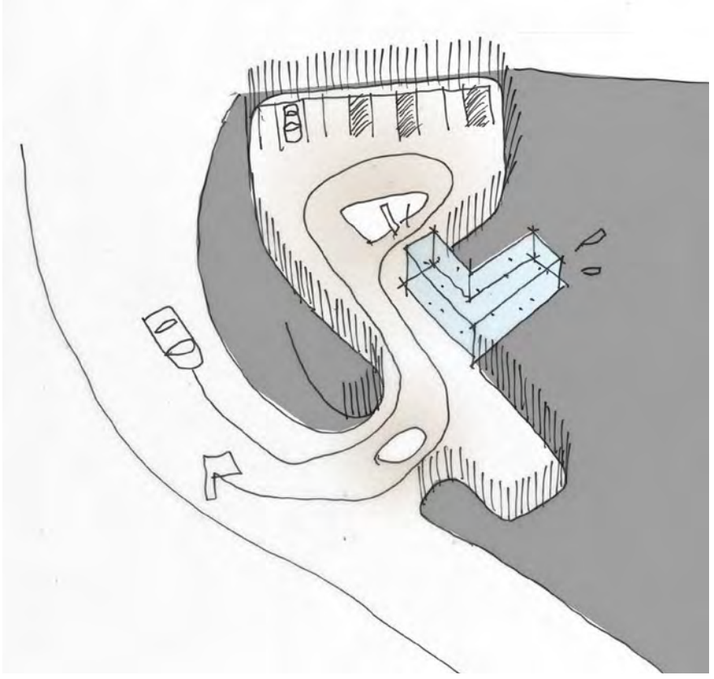
Bold Entry

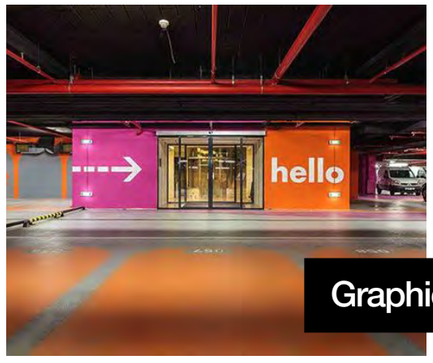


Integrated Lighting

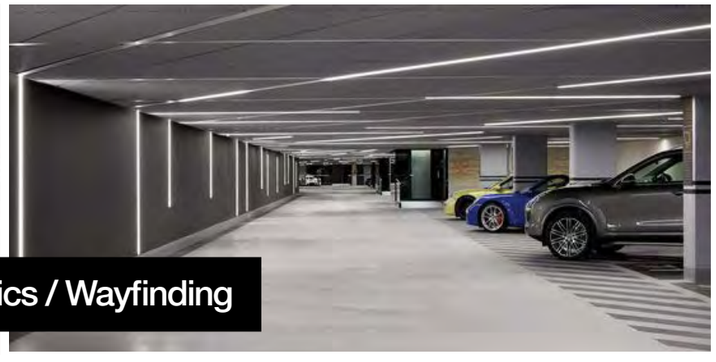


Textured Paving



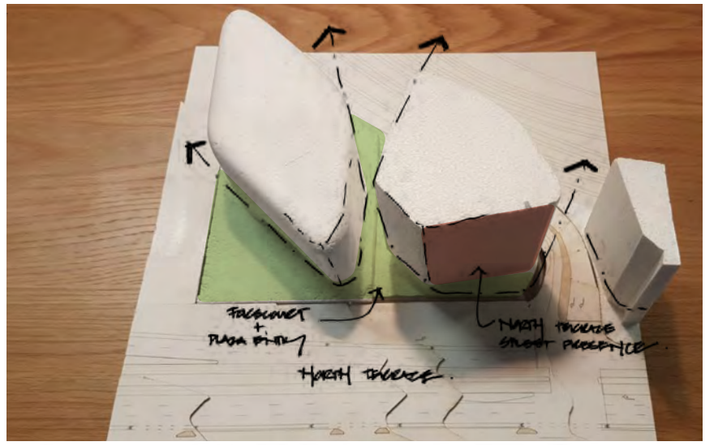


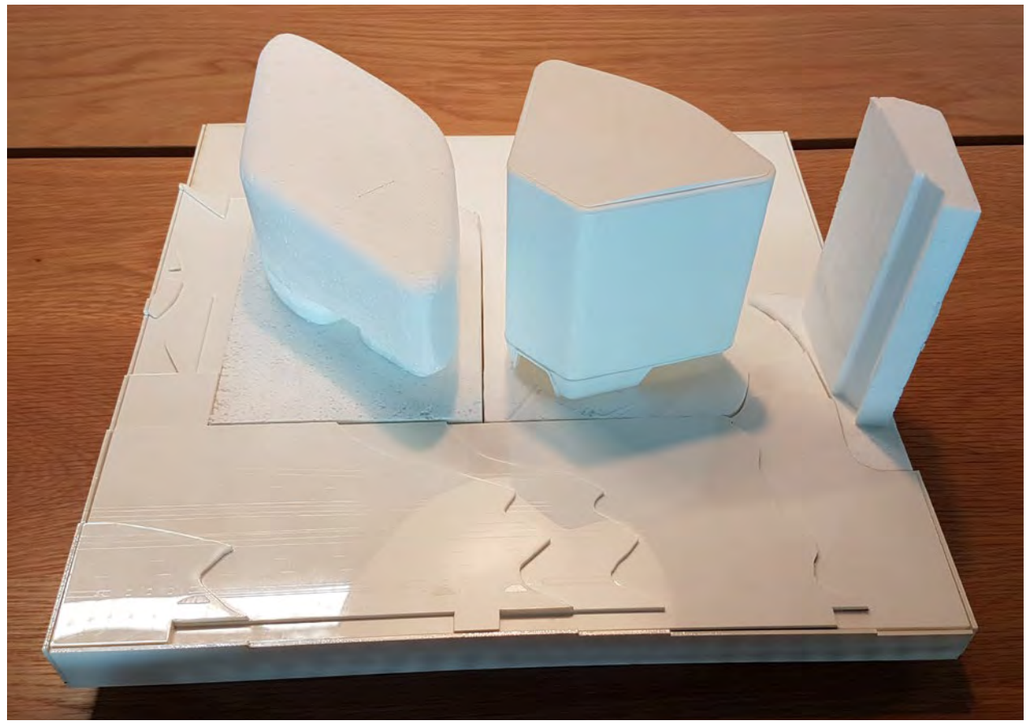
Graphics / Wayfinding

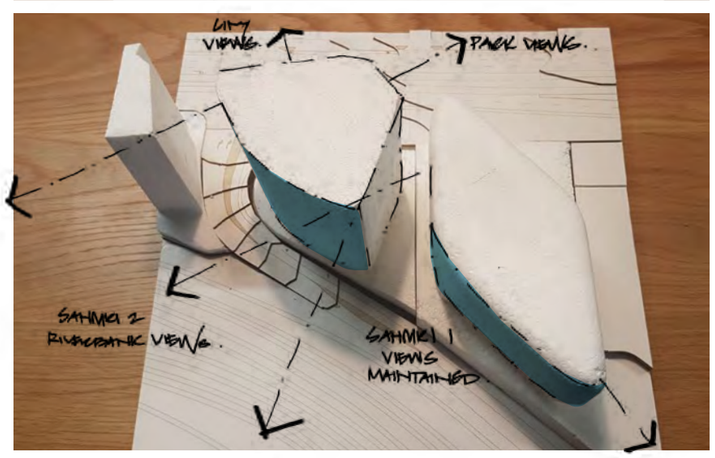


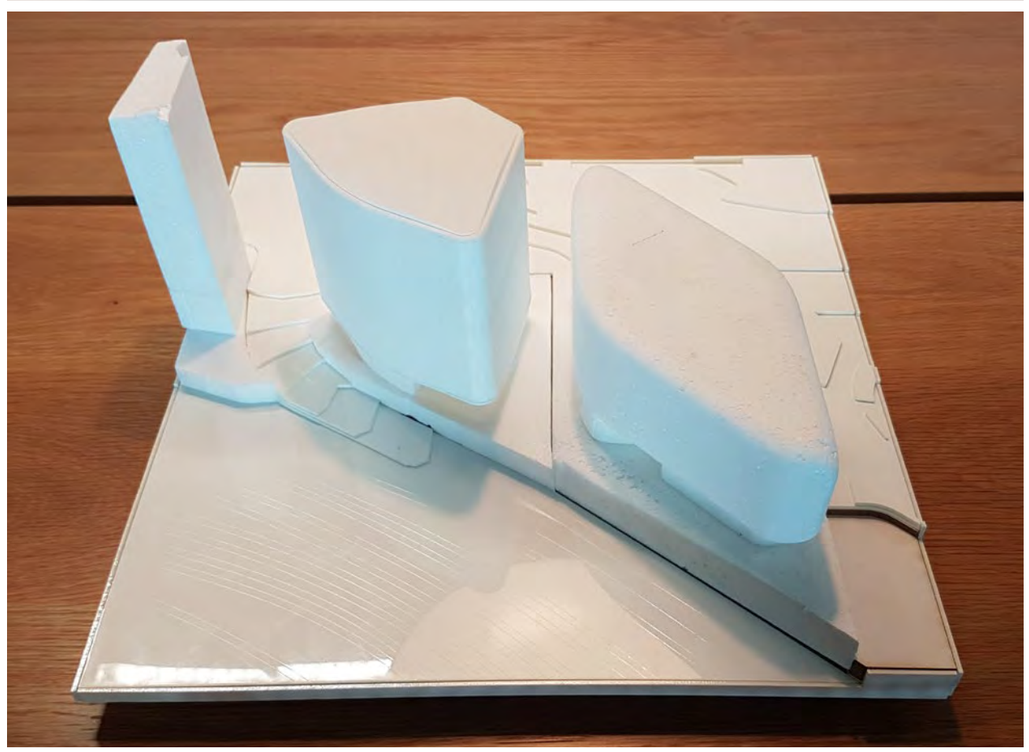
03 SAHMRI TWO
Design Response

Tower Form.







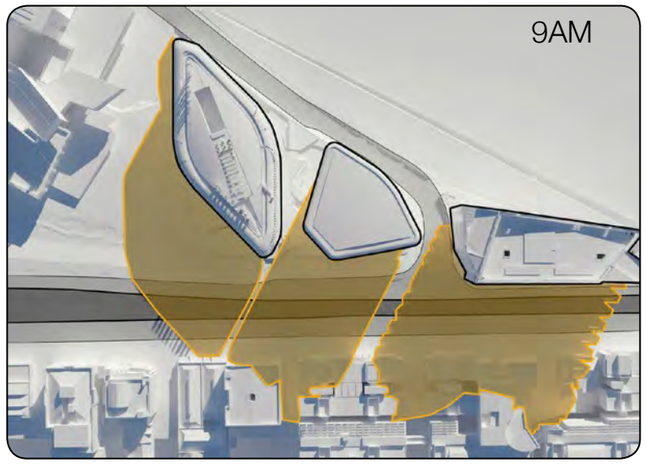


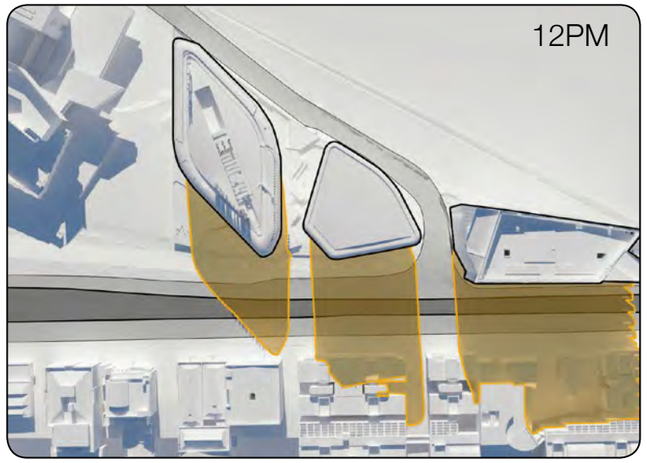
03 SAHMRI TWO
Design Response

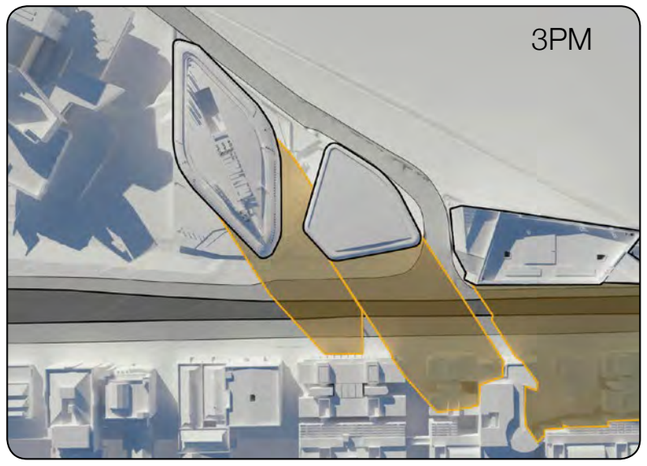
Shadow Analysis.

Plans indicating the extent of overshadowing of the proposal on adjoining properties on the winter solstice (22 June) and summer solstice (22 December) at the times of 9 am, 12 noon and 3 pm...

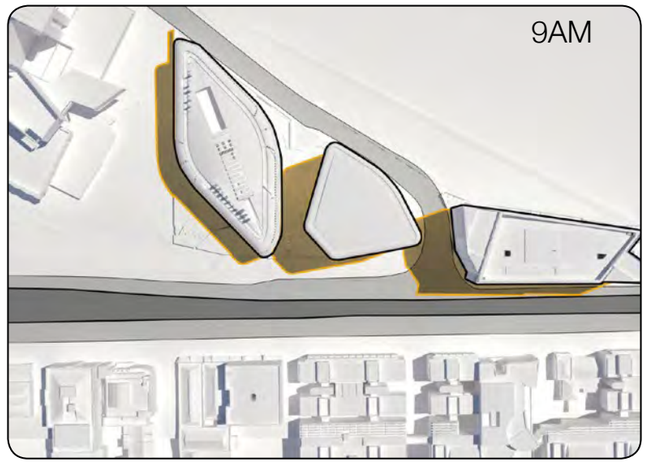
WINTER SOLSTICE

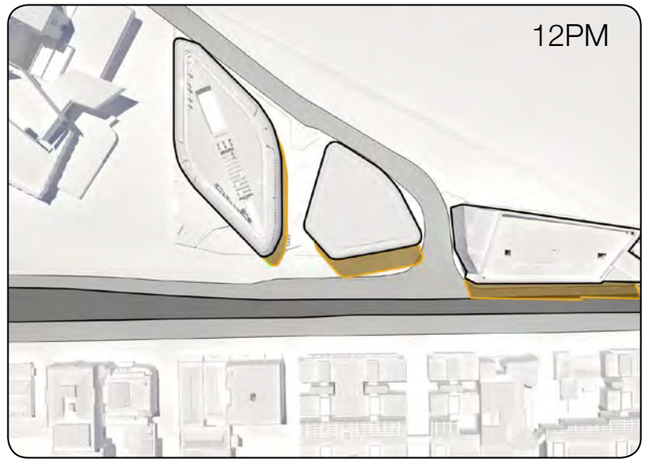


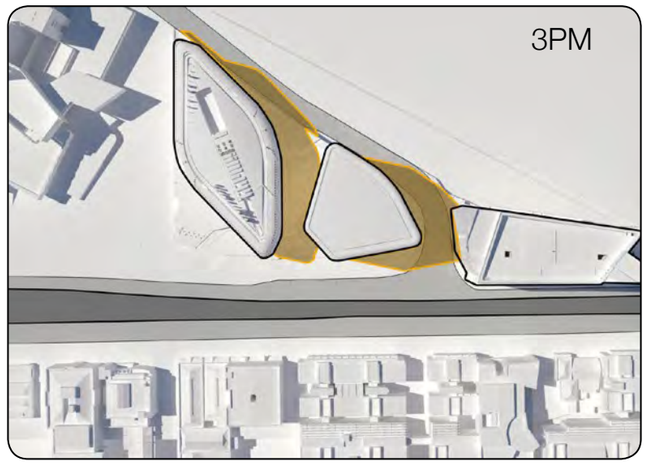




SUMMER SOLSTICE

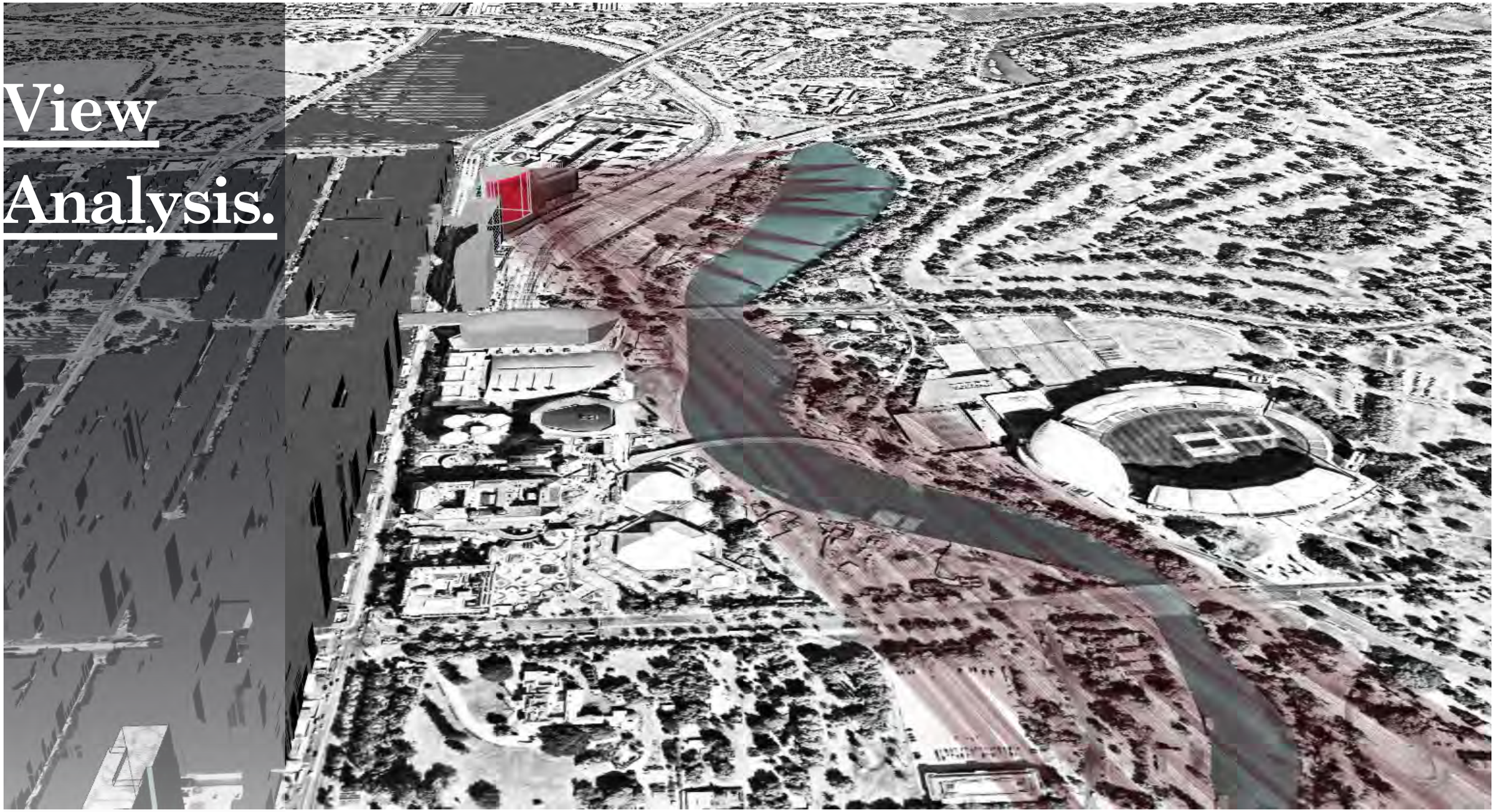






03 SAHMRI TWO
Design Response

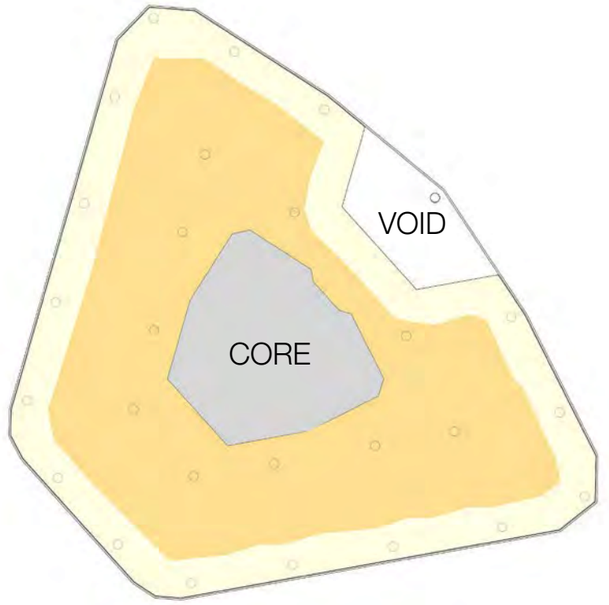
View Analysis.



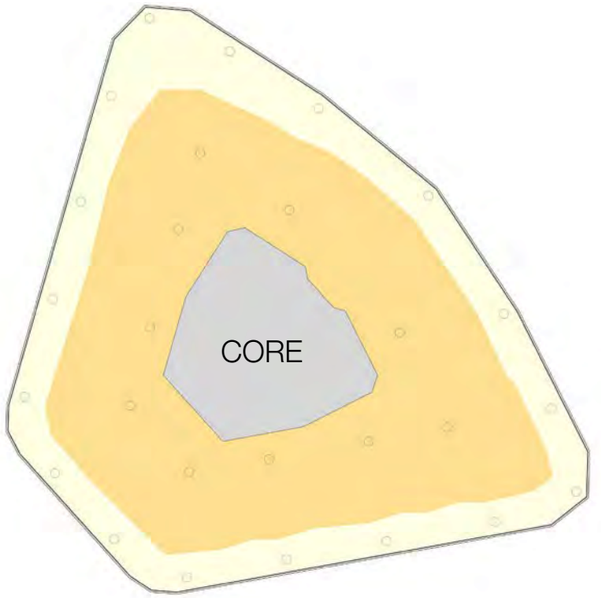
03 SAHMRI TWO
Design Response

Floor Plate Depth Analysis.

A factor closely related to floor efficiency is the amount of open space between core and building envelope, determined by a distance known as leasing depth. This dimension is critical for natural light penetration as well as for interior planning, multi-tenant subdivision and fitout flexibility. As evident in the floor plate depth analysis shown adjacent, the majority of the floorplates should achieve day lighting levels above 250 Lux...

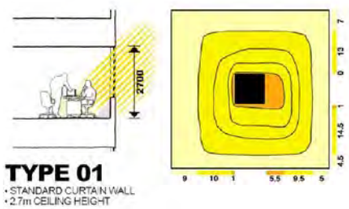


LEVELS 04, 05, 06, 08, 10, 12, 14



LEVELS 07, 09, 11, 13

ADELAIDE



Legend

BRIGHT
(2000 Lux or more)

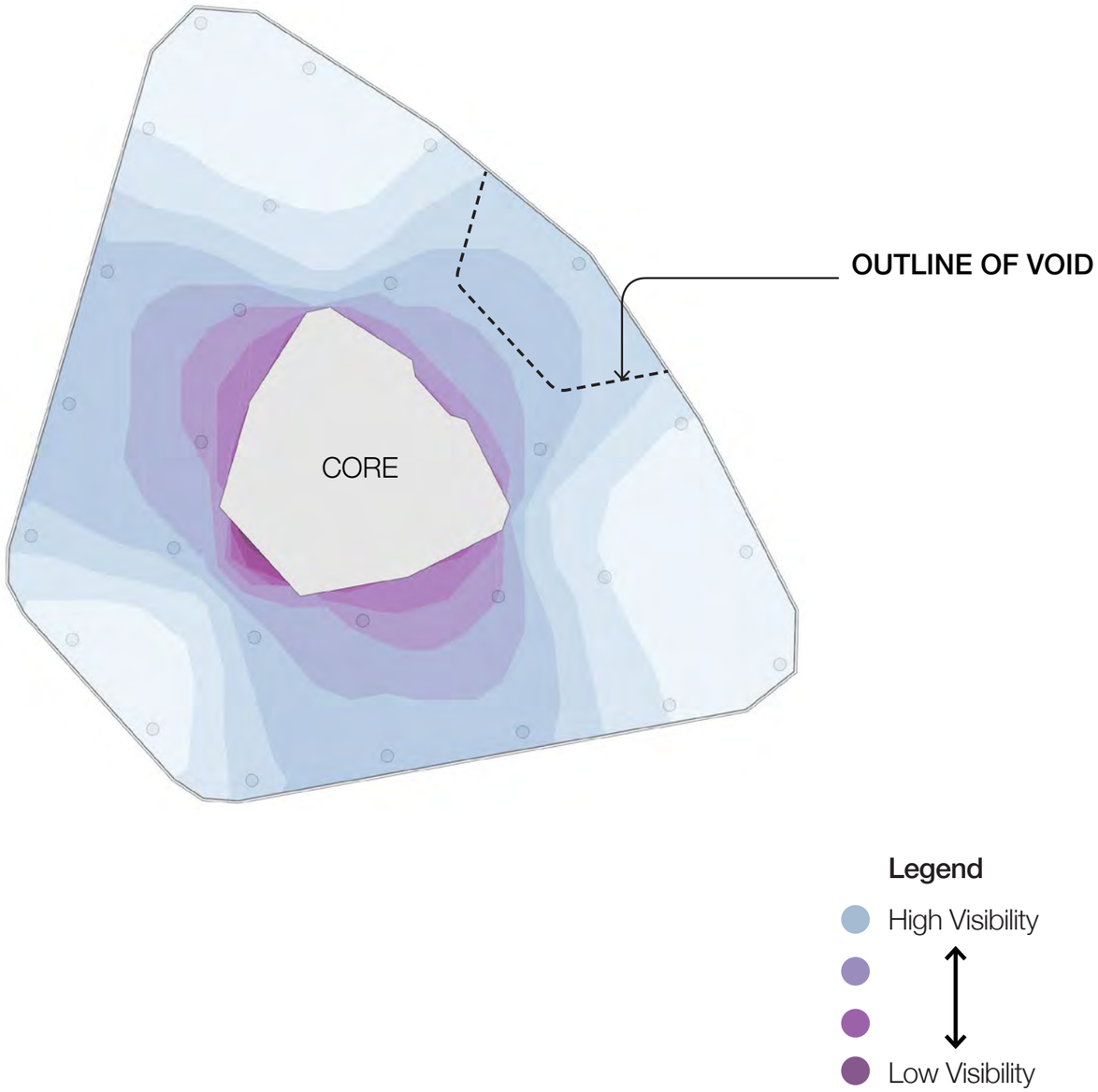
USEFUL LIGHT
(250-2000 Lux)

DIM
(250 Lux or less)

03 SAHMRI TWO
Design Response

Floor Plate Visibility Analysis.

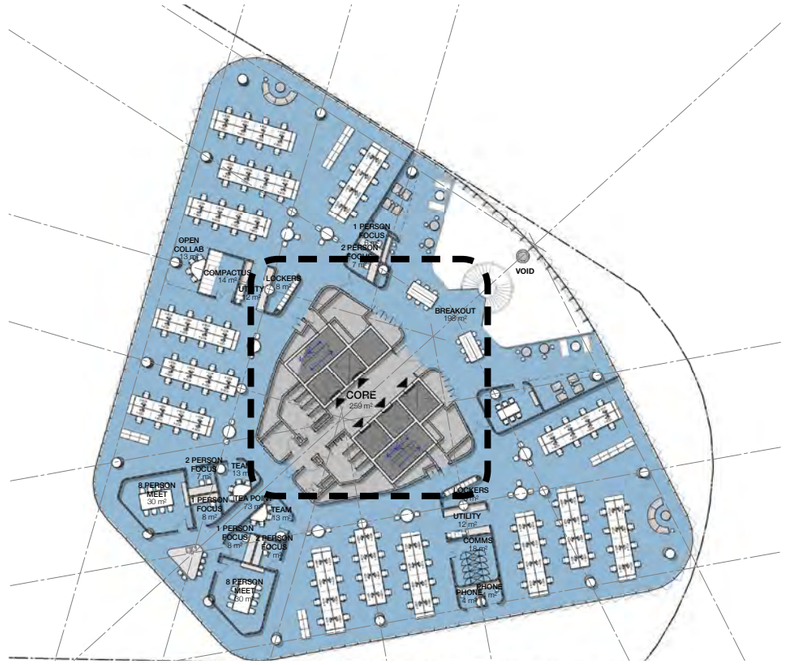
The assessment of a floor plate visibility considers the area of floor plate visible from each point within the assessment grid as seen from the rest of the floor to determine an average floor plate visibility percentage. The algorithm calculates this for each point within the assessment grid to provide a more robust and true measure of the criteria. As indicated on the adjacent diagram of a typical floor plate, the majority of the floor plates should achieve medium to high visibility…

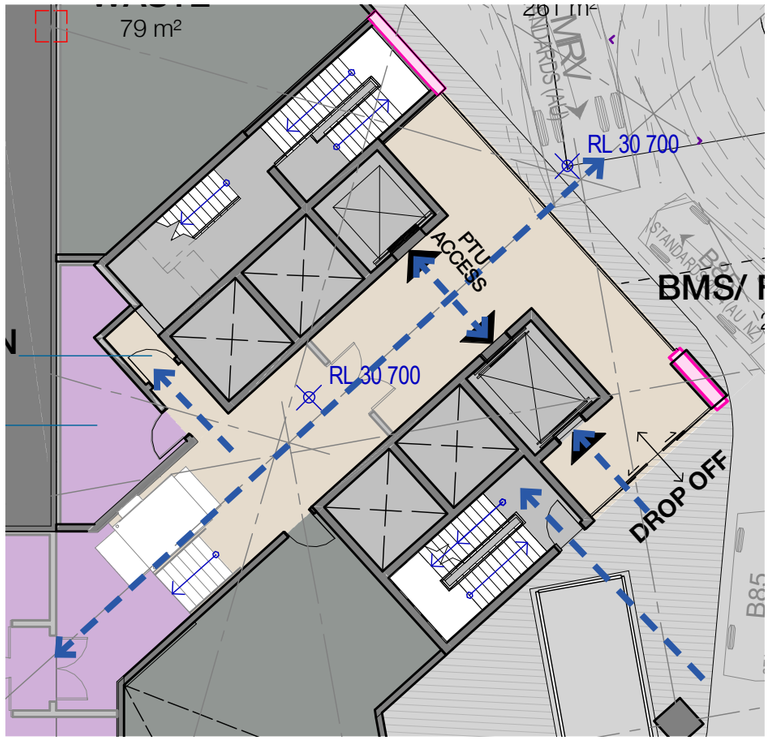


03 SAHMRI TWO
Design Response

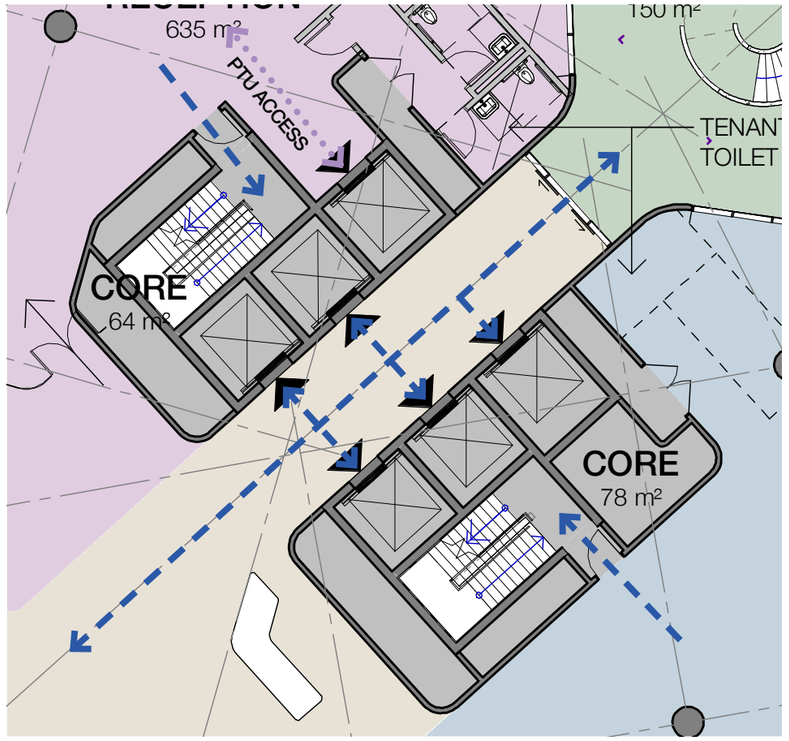
Core Design.

Referencing the building's form at a smaller scale, the central core has been located and sized efficiently allowing fitout flexibility, 360 degree views, access to natural daylight, compliant fire egress exits and coordinated with the PTU bunkers on level 0.

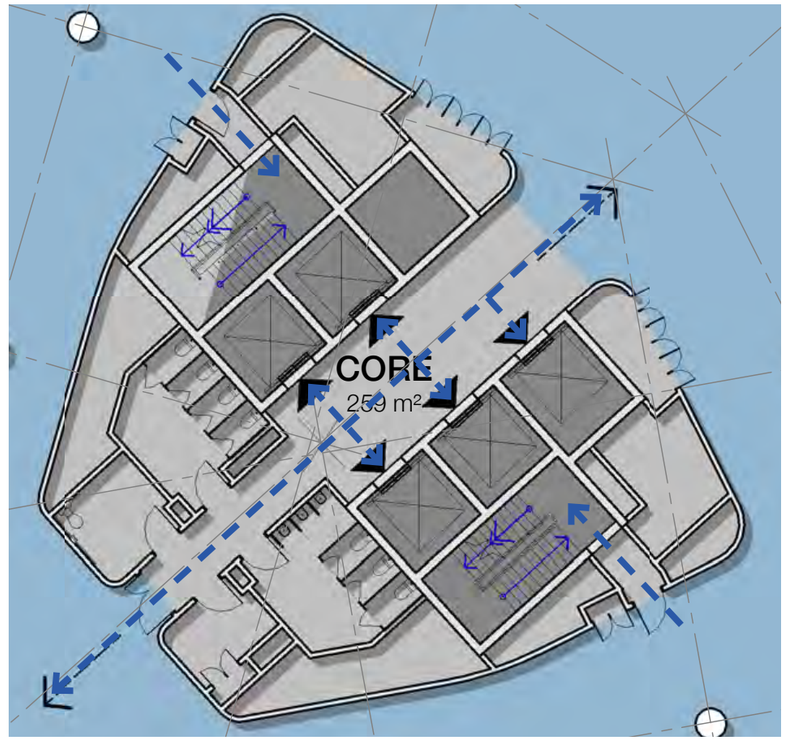




LOWER FLOORS (BELOW PLAZA)



LEVEL 3 | PLAZA



UPPER FLOORS (ABOVE PLAZA)

03 SAHMRI TWO
Design Response

L04
Test Fitout.

Note: Fitout shown for context only (seperate Development Approval).

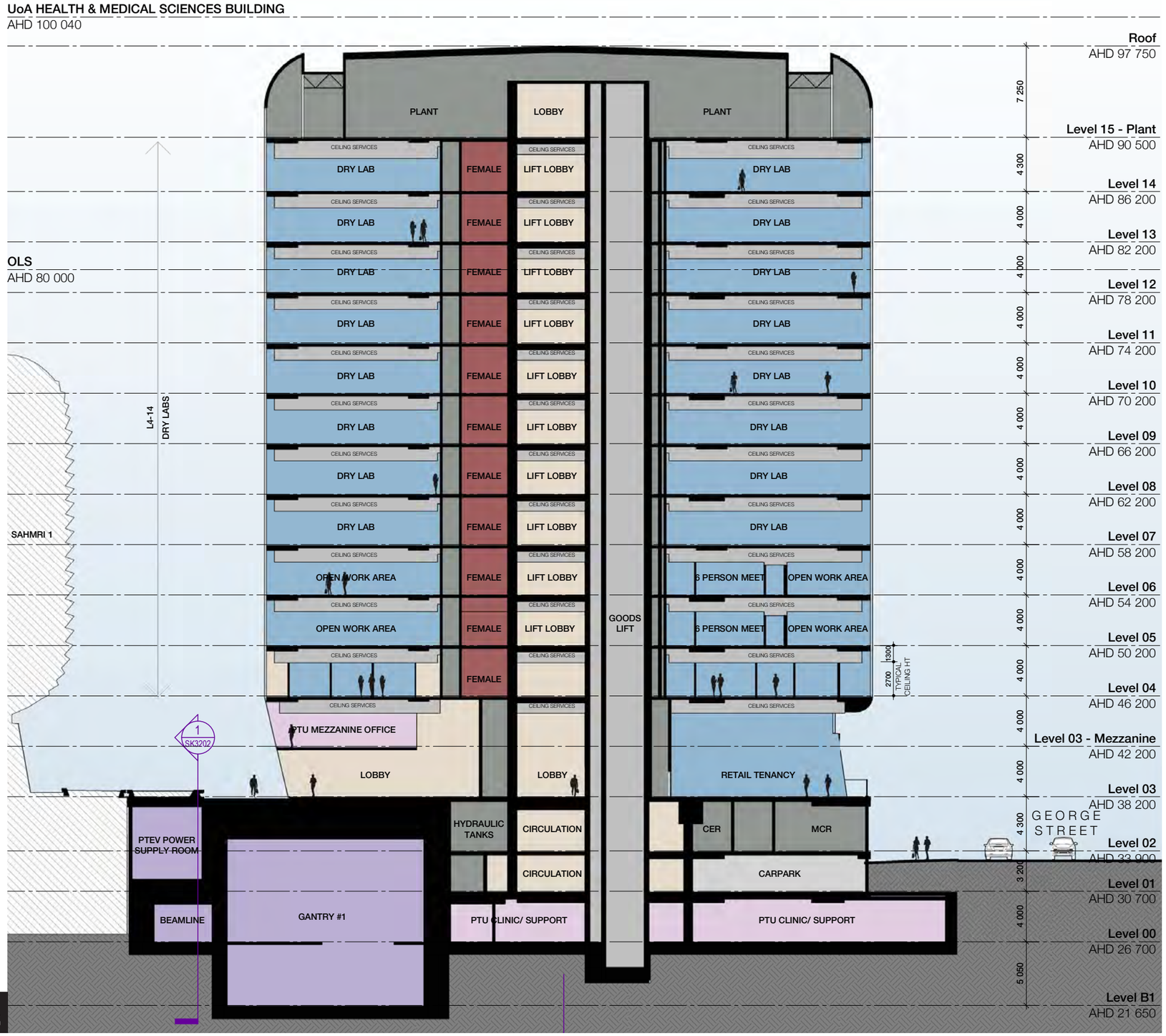
03 SAHMRI TWO
Design Response

L06
Test Fitout.

Note: Fitout shown for context only (seperate Development Approval).

03 SAHMRI TWO
Design Response

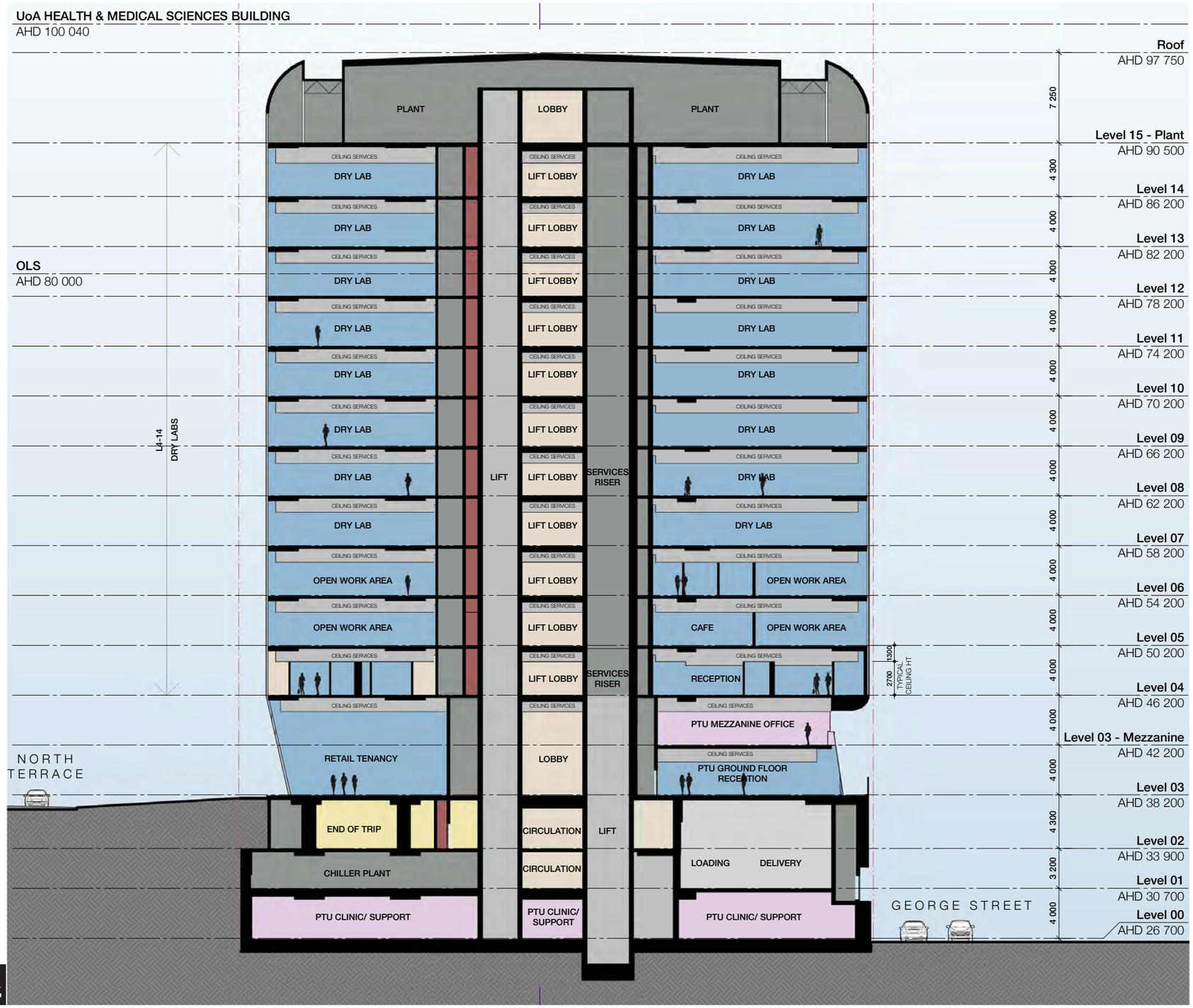
Section.



East West Section

03 SAHMRI TWO
Design Response

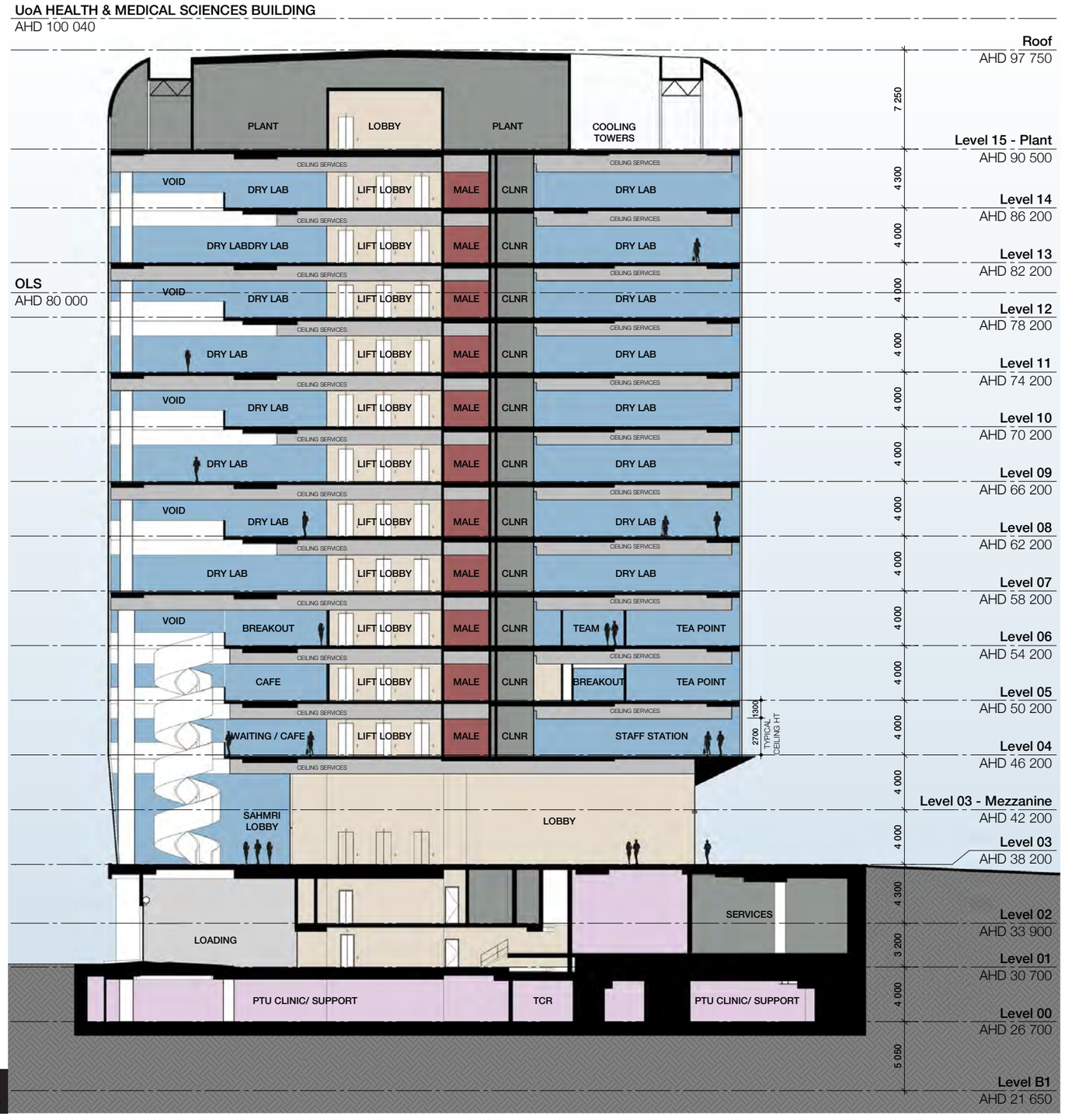
Section.



North South Section

03 SAHMRI TWO
Design Response

Section.



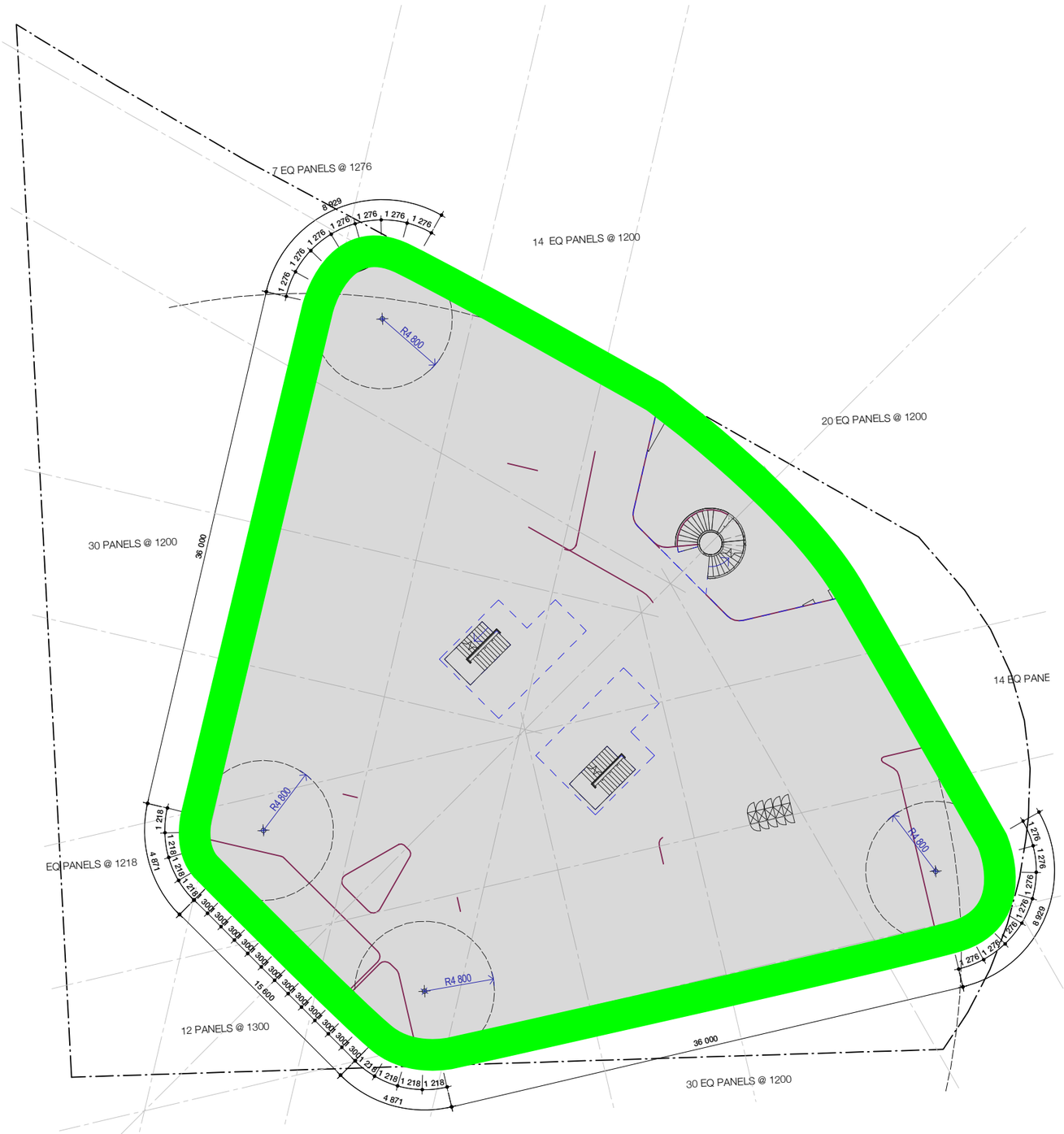
Atrium Section

03 SAHMRI TWO
Design Response

Facade Design.

Base Concept

...

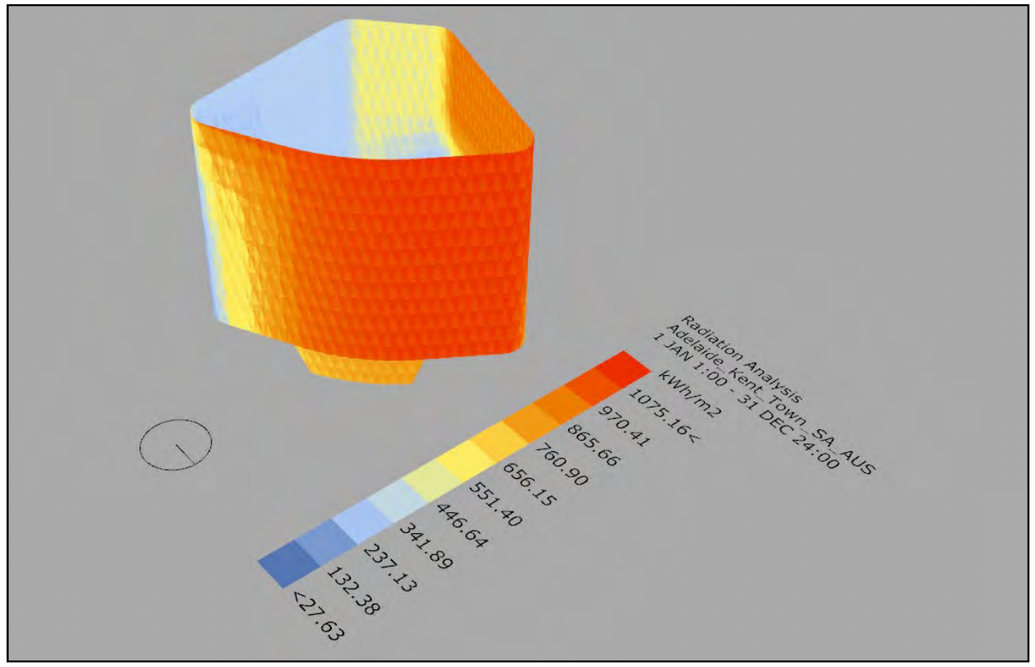


RECTANGULAR PANEL TYPE

03 SAHMRI TWO
Design Response

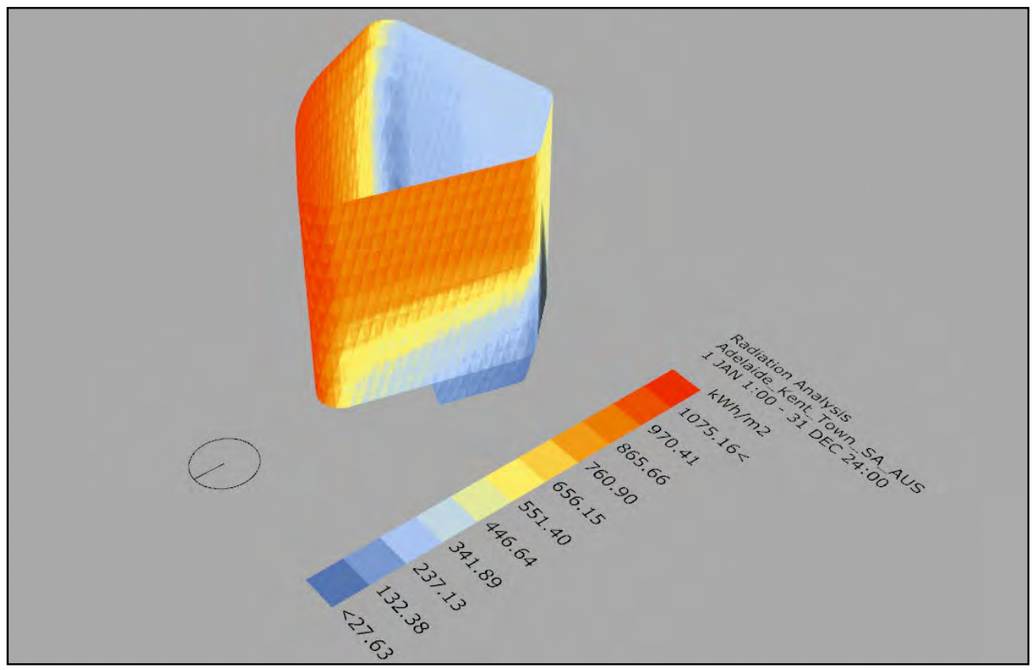
Facade Solar Analysis.

NORTH FACADE



* The opportunity exists to introduce shading fins to the North & North West facade to provide shading to these areas.

WEST FACADE



***** Reduction in heat gain to west facade due to overshadowing from SAHMRI 1

03 SAHMRI TWO
Design Response

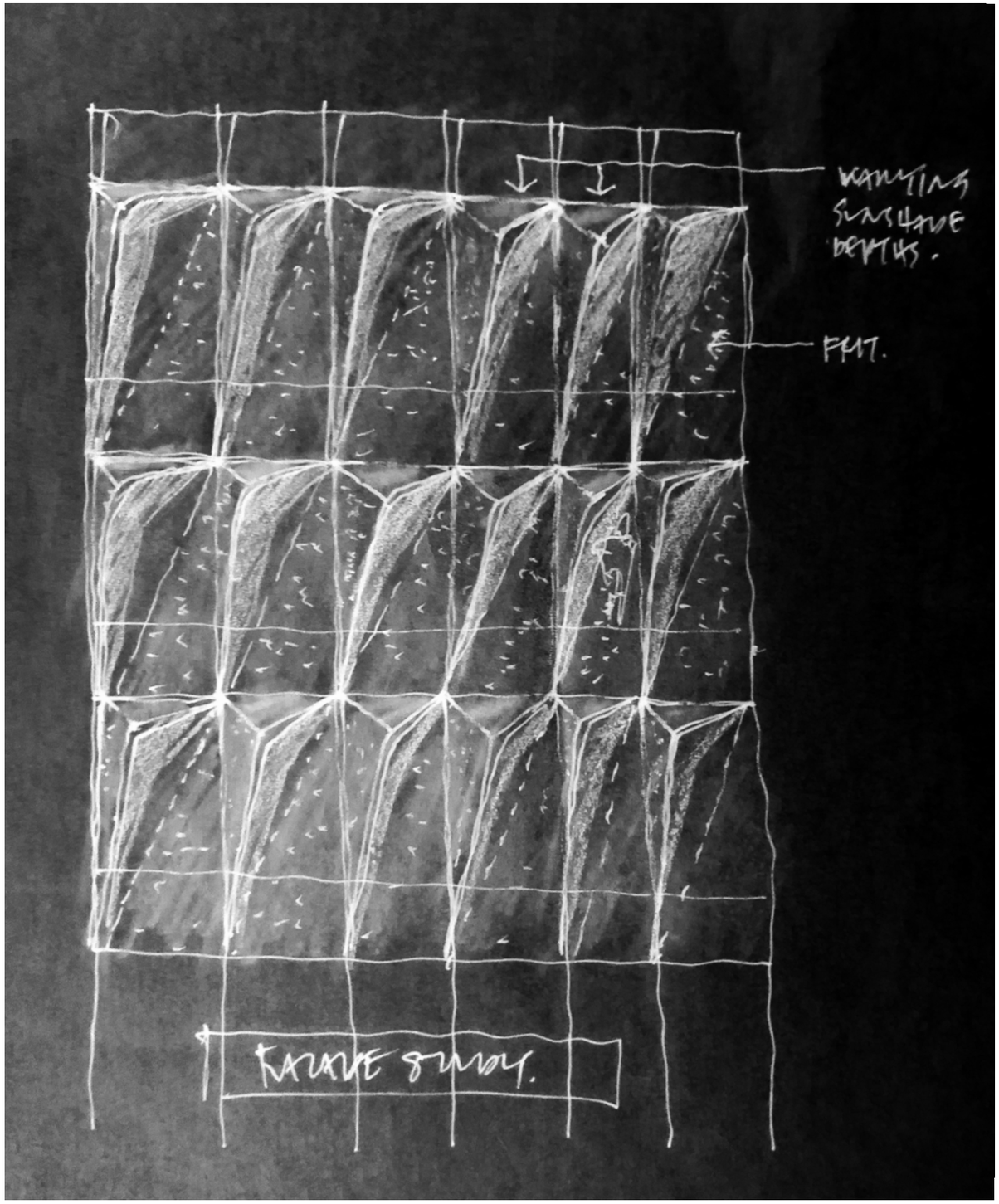
Facade Design.

Sunhood Concept

...

CREATING A SINGULAR IDENTITY

A DYNAMIC & RESPONSIVE SHADING SOLUTION



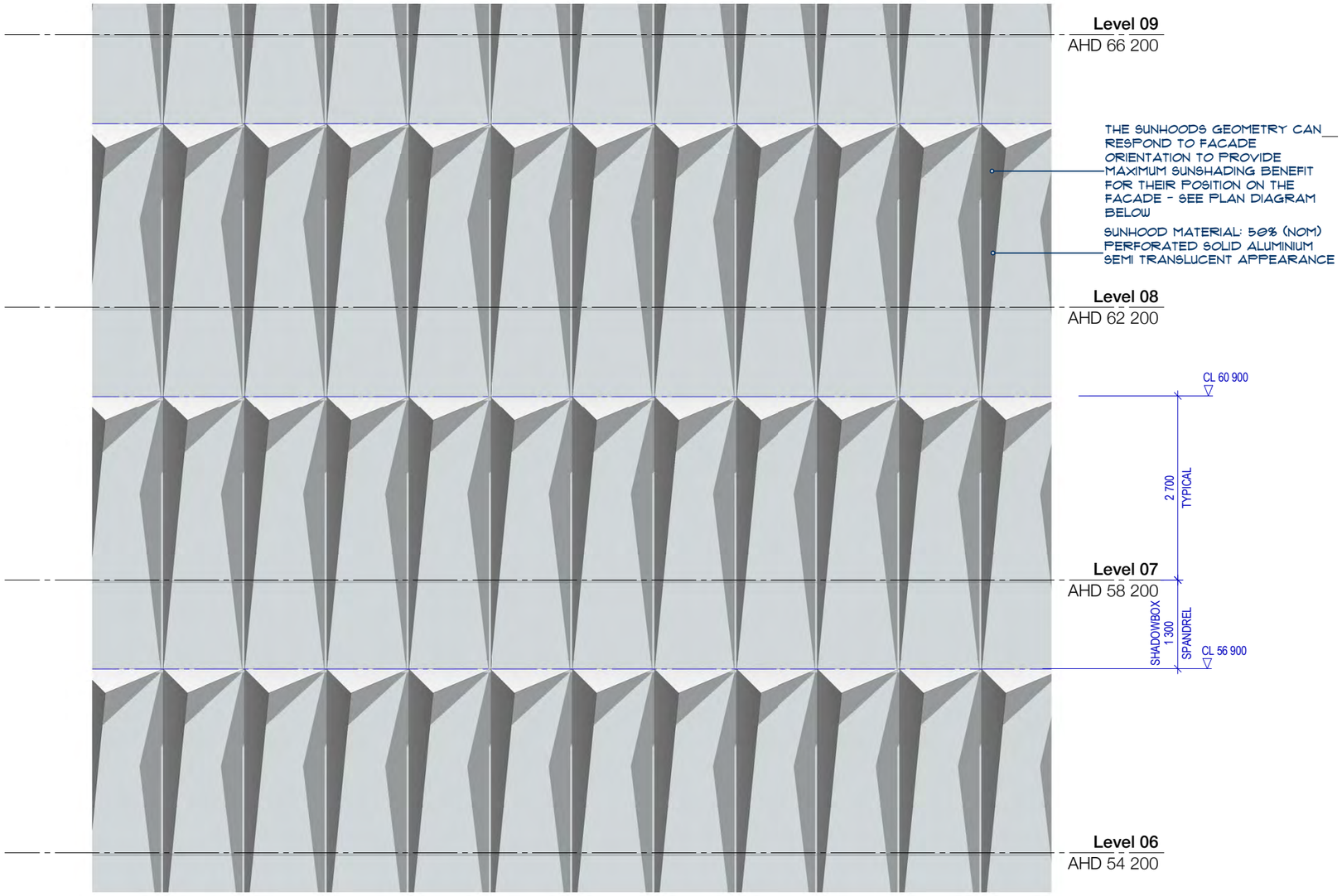
03 SAHMRI TWO
Design Response

Facade Shading.

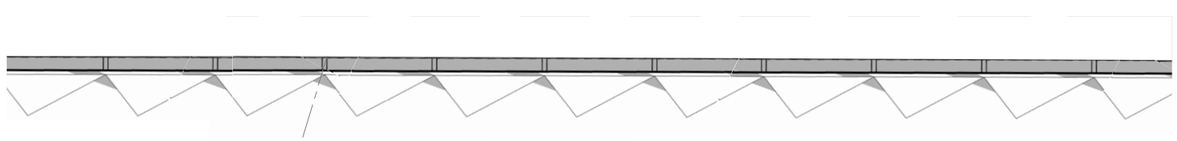
Sunhood Detail

...

...



FACADE PANEL ELEVATION



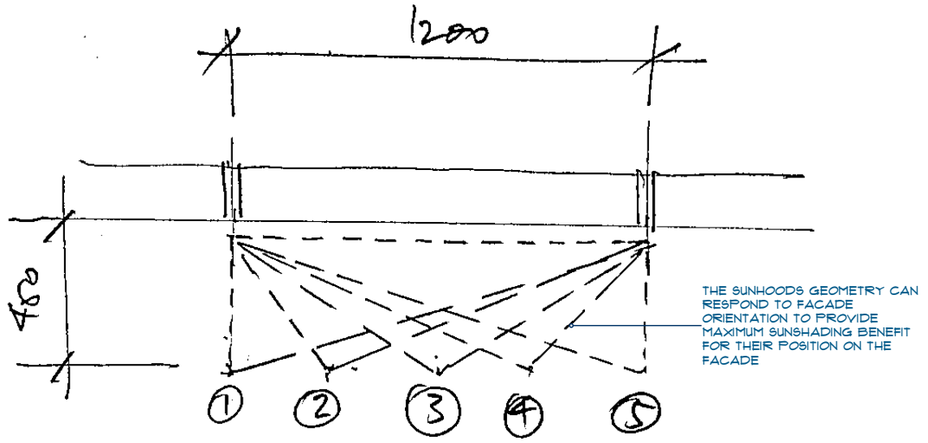
FACADE PANEL PLAN

03 SAHMRI TWO
Design Response

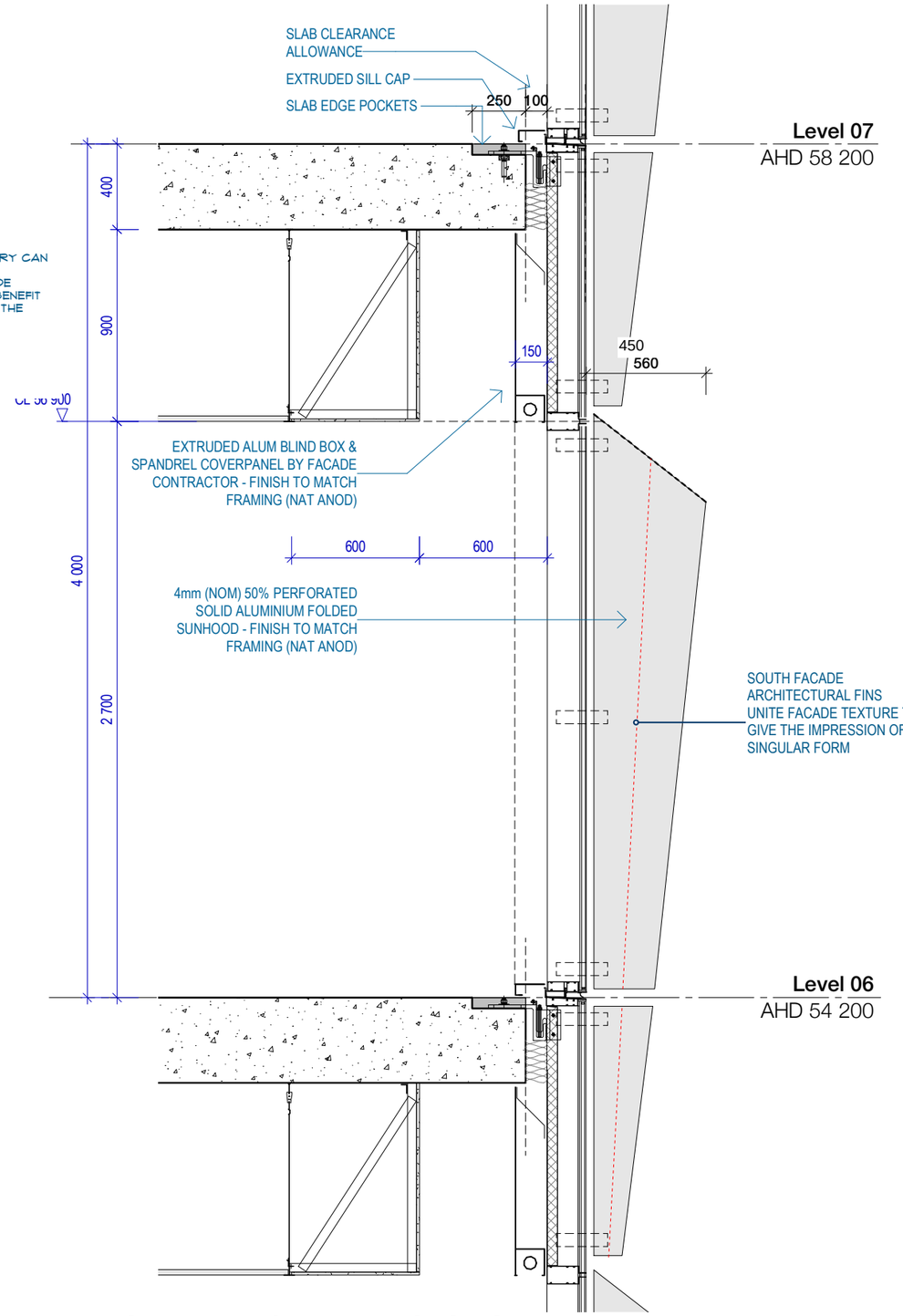
Facade Shading.

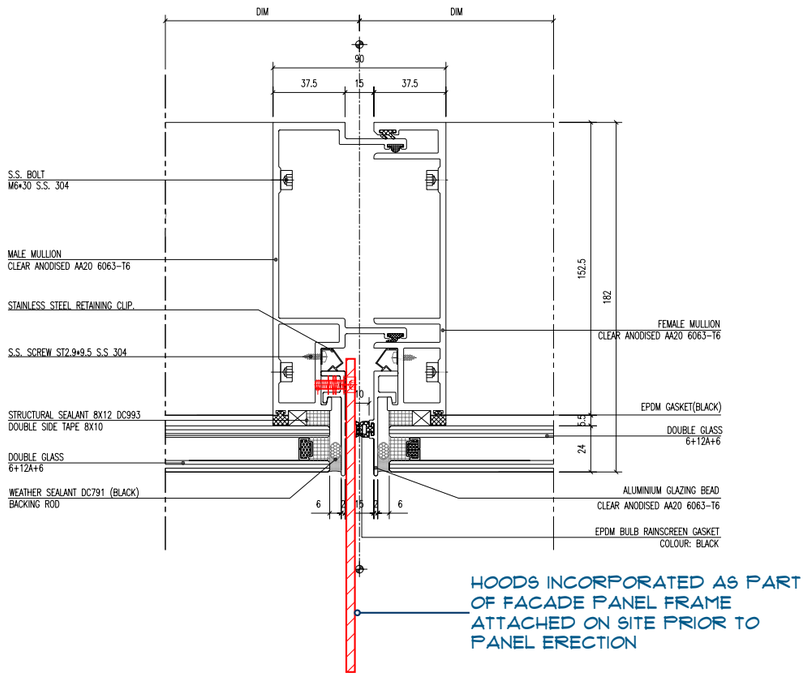
Detail Studies

...



SUNHOODS SHIFTING GEOMETRY - PLAN VIEW





TYPICAL MULLION TYPE - PLAN DETAIL

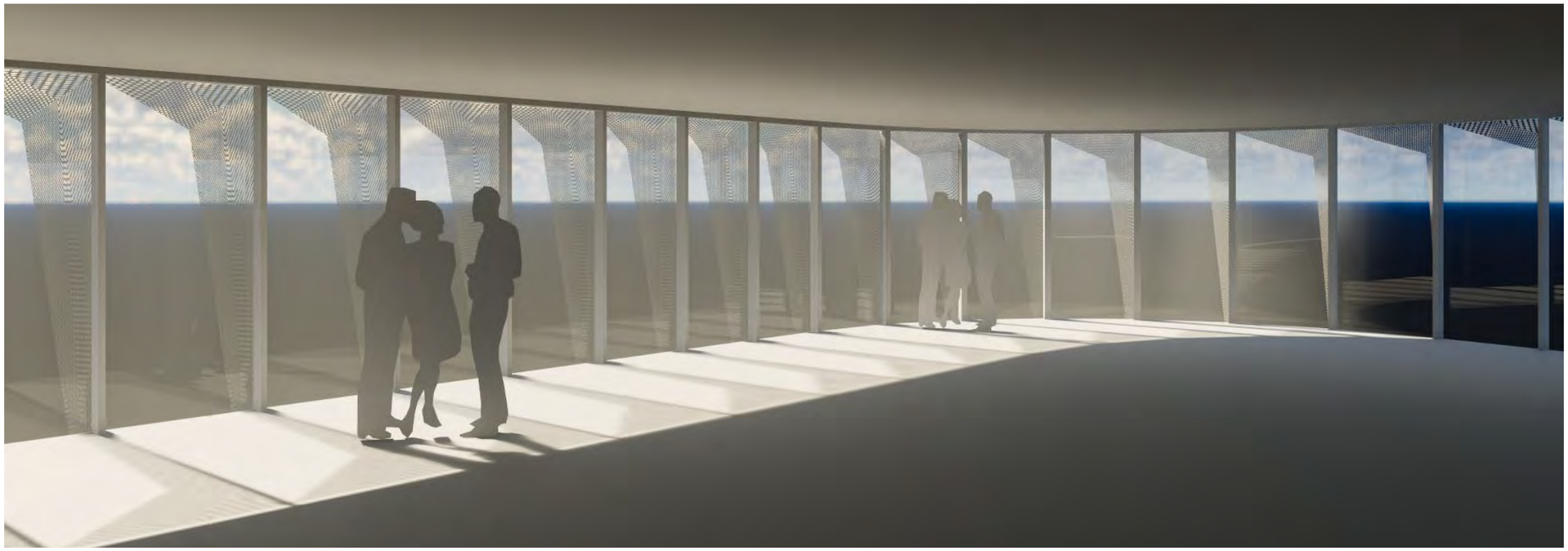
TYPICAL MULLION TYPE - SECTION DETAIL

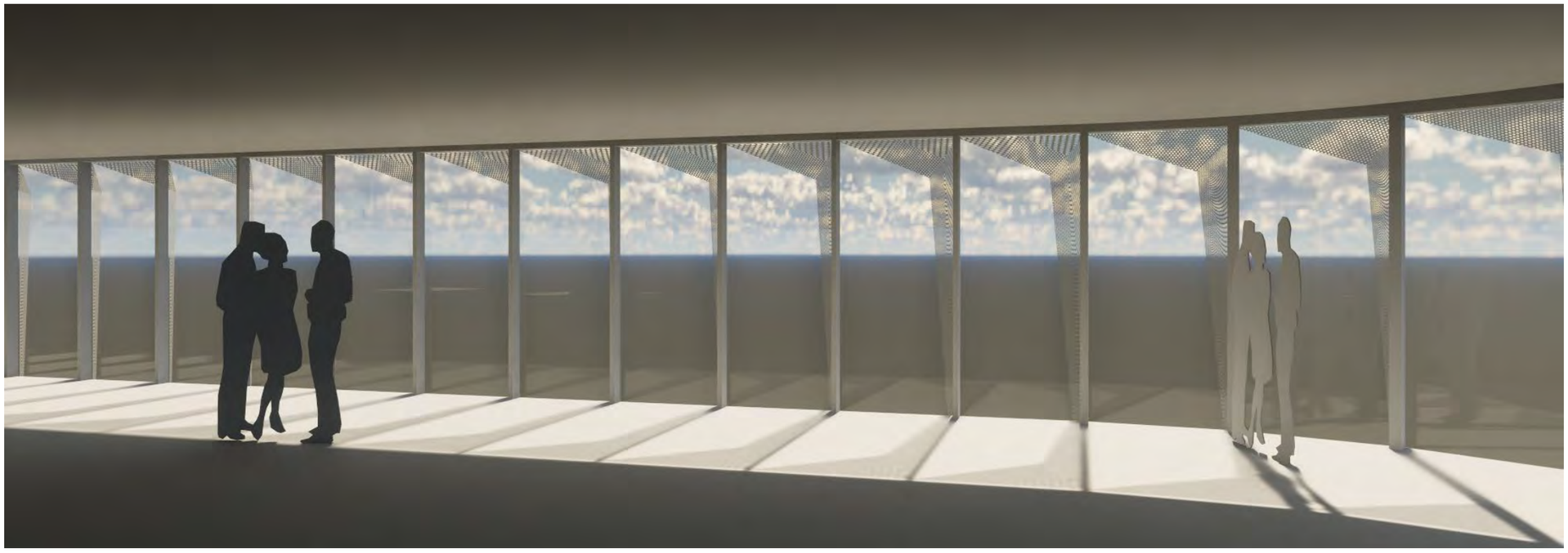
03 SAHMRI TWO
Design Response

Facade Shading.

Internal Experience

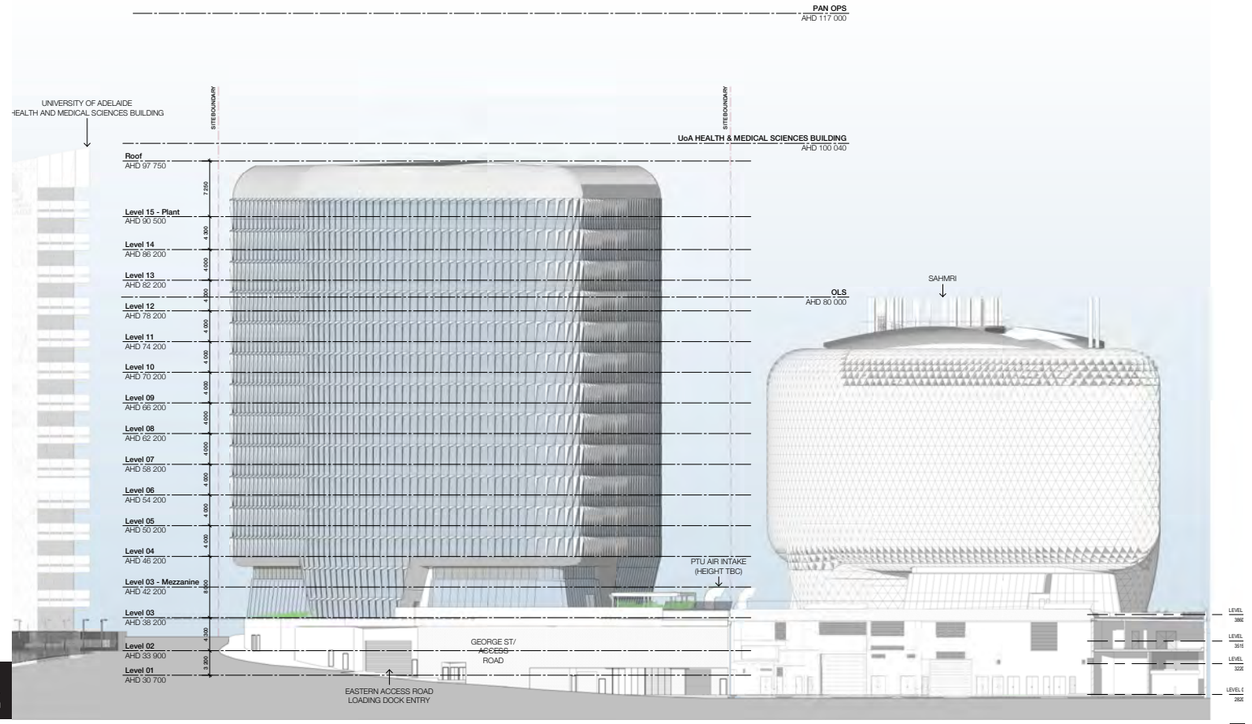
...



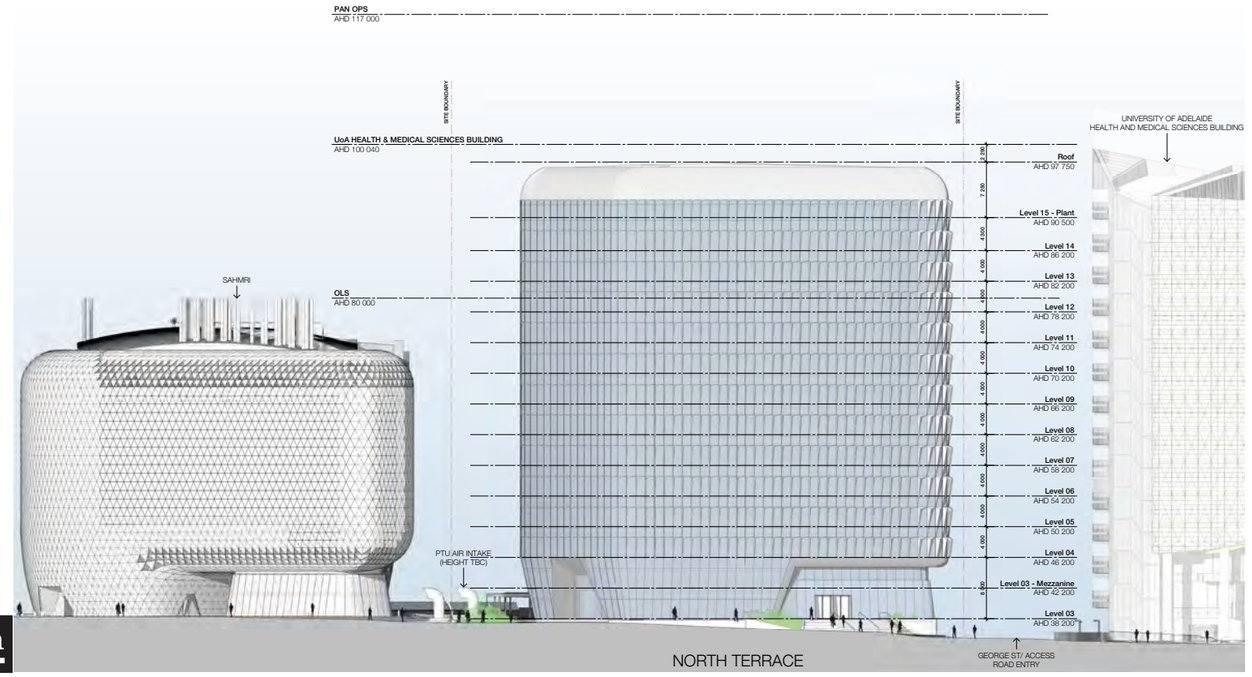


03 SAHMRI TWO
Design Response

Elevations
North / South.



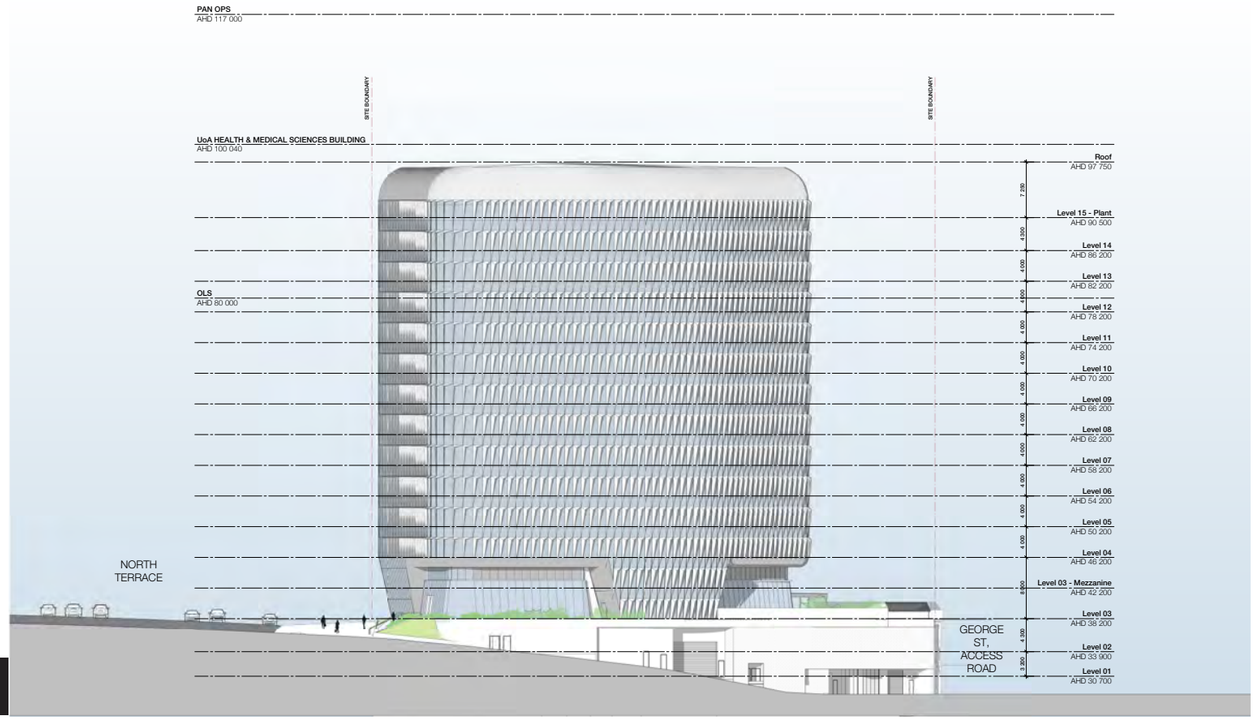
North Elevation



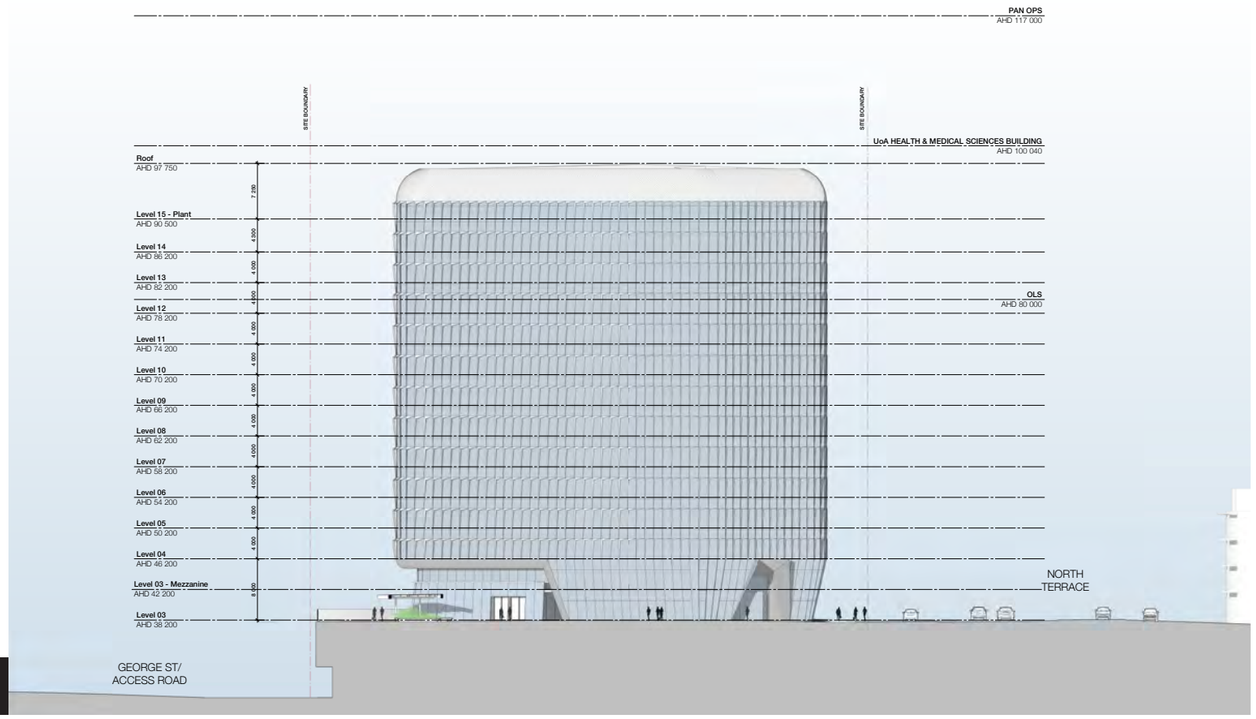
South Elevation

03 SAHMRI TWO
Design Response

Elevations
East / West.



East Elevation



West Elevation

03 SAHMRI TWO
Design Response

VIEW FROM RAIL CORRIDOR

03 SAHMRI TWO
Design Response

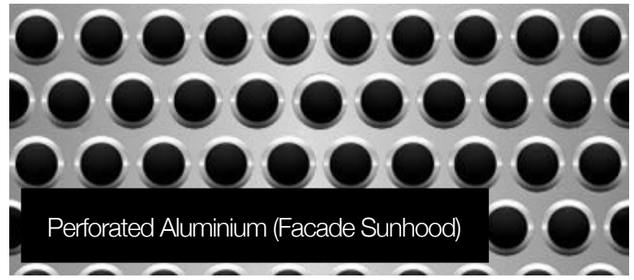
VIEW FROM NORTH TERRACE

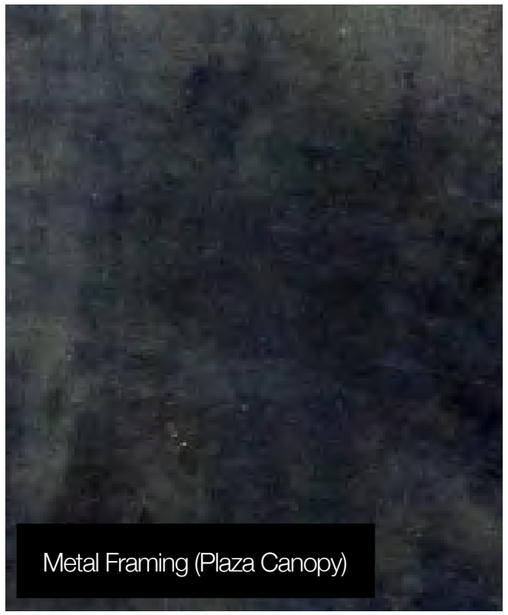
03 SAHMRI TWO
Design Response

Materials Palette.


Metal Fabric (Plaza Canopy)


Insulated Metal Panels (Roof Plant Room)


Perforated Aluminium (Facade Sunhood)

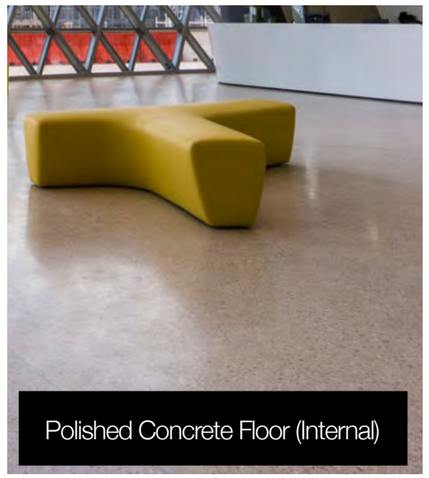

Metal Framing (Plaza Canopy)


Glass (Curtain Wall Facade)


Glass (Plaza Pod Facade)

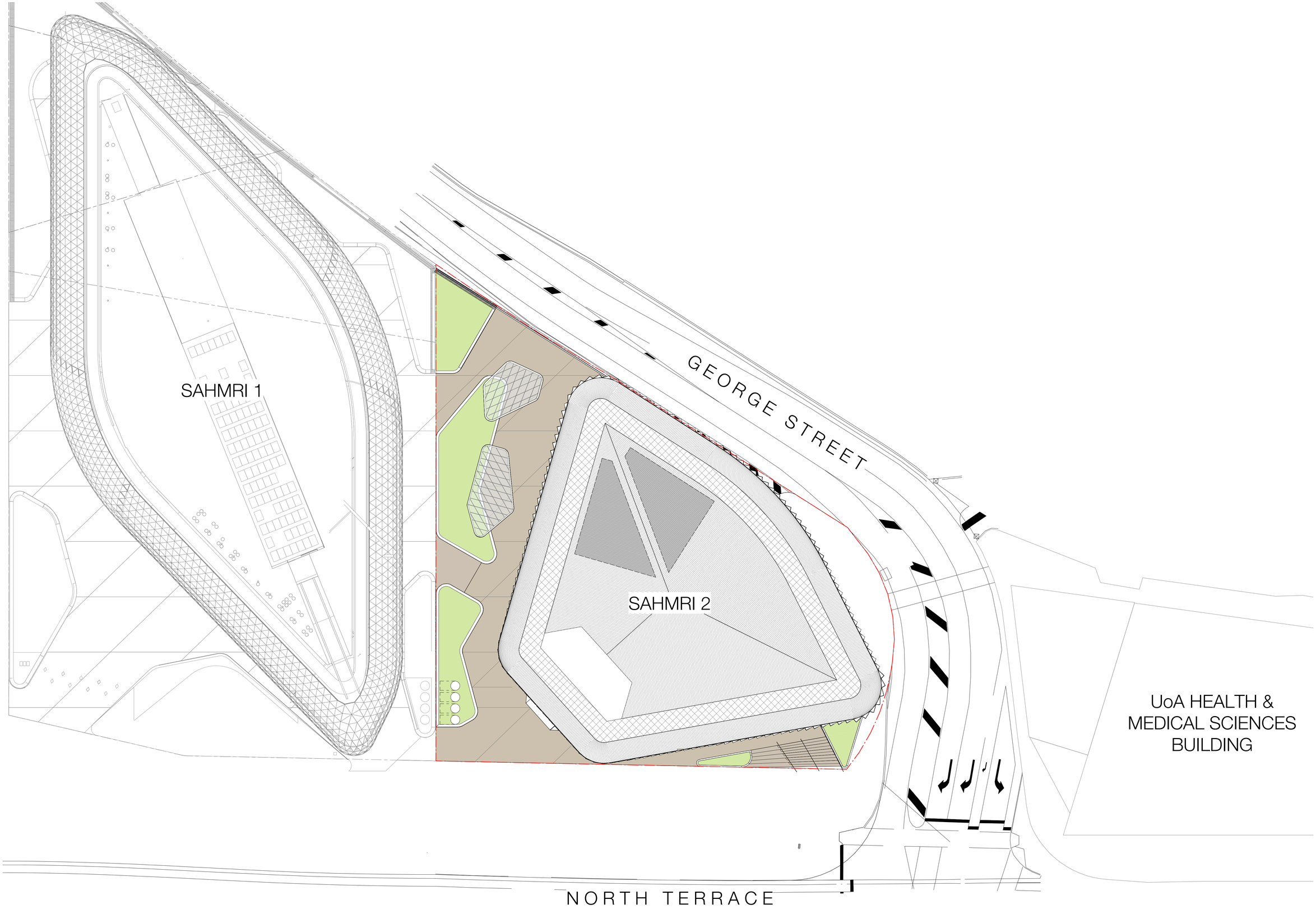

Aluminium Frame (Facade)


Precast Concrete (Plaza Planter/Seat)


Polished Concrete Floor (Internal)


Concrete Paving (Plaza External)

04 Architectural Drawings.



WOODS BAGOT™

Client
Commercial & General

Project
SAHMRI 2

Sheet title
SITE PLAN

Project number
140290

Scale
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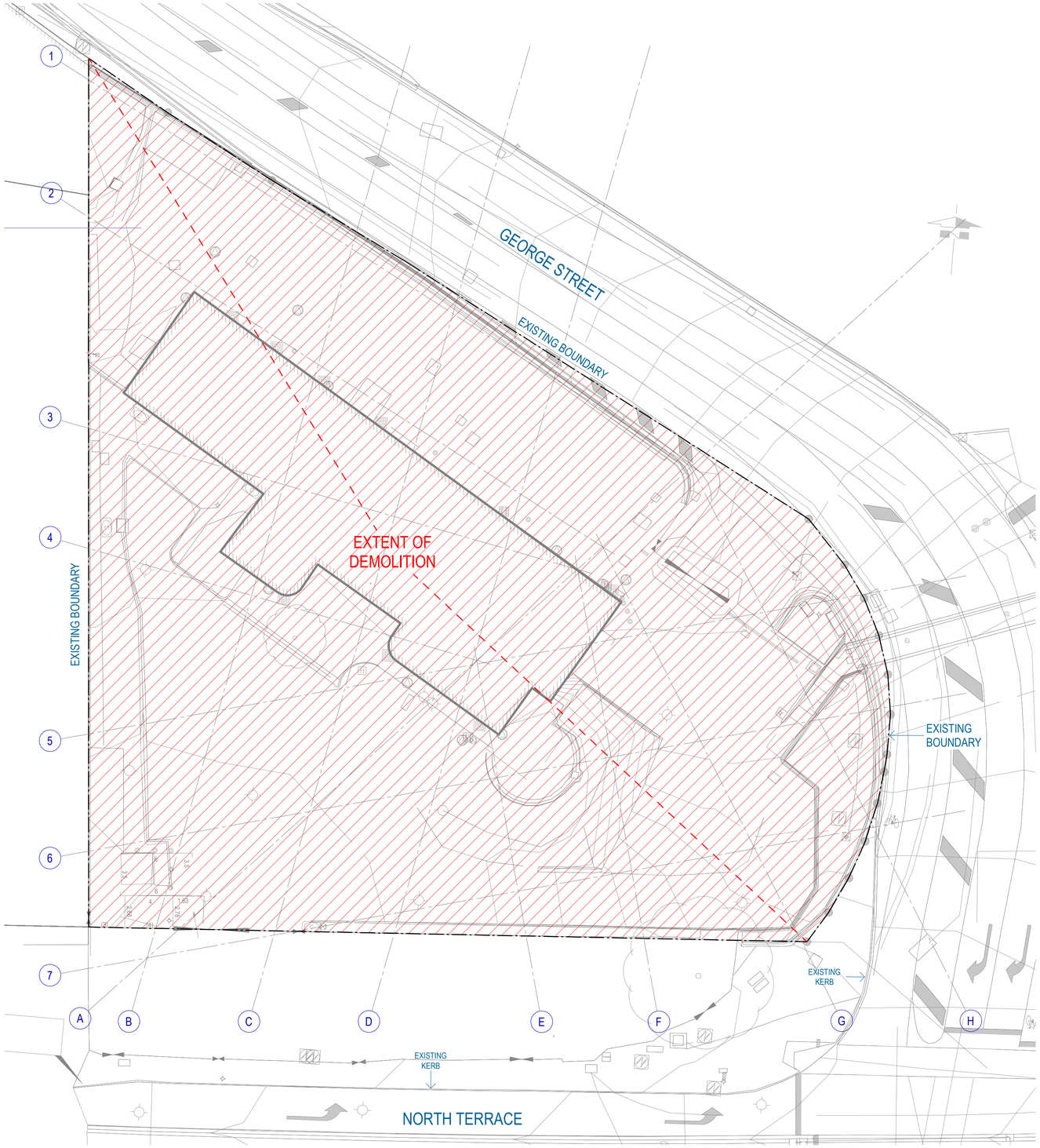
Sheet size
A1

Sheet number
AR-SK1001

Revision
A

Date
09.04.18



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Commercial & General

Project
SAHMRI 2

Sheet title
DEMOLITION PLAN

Project number
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Scale
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Sheet size
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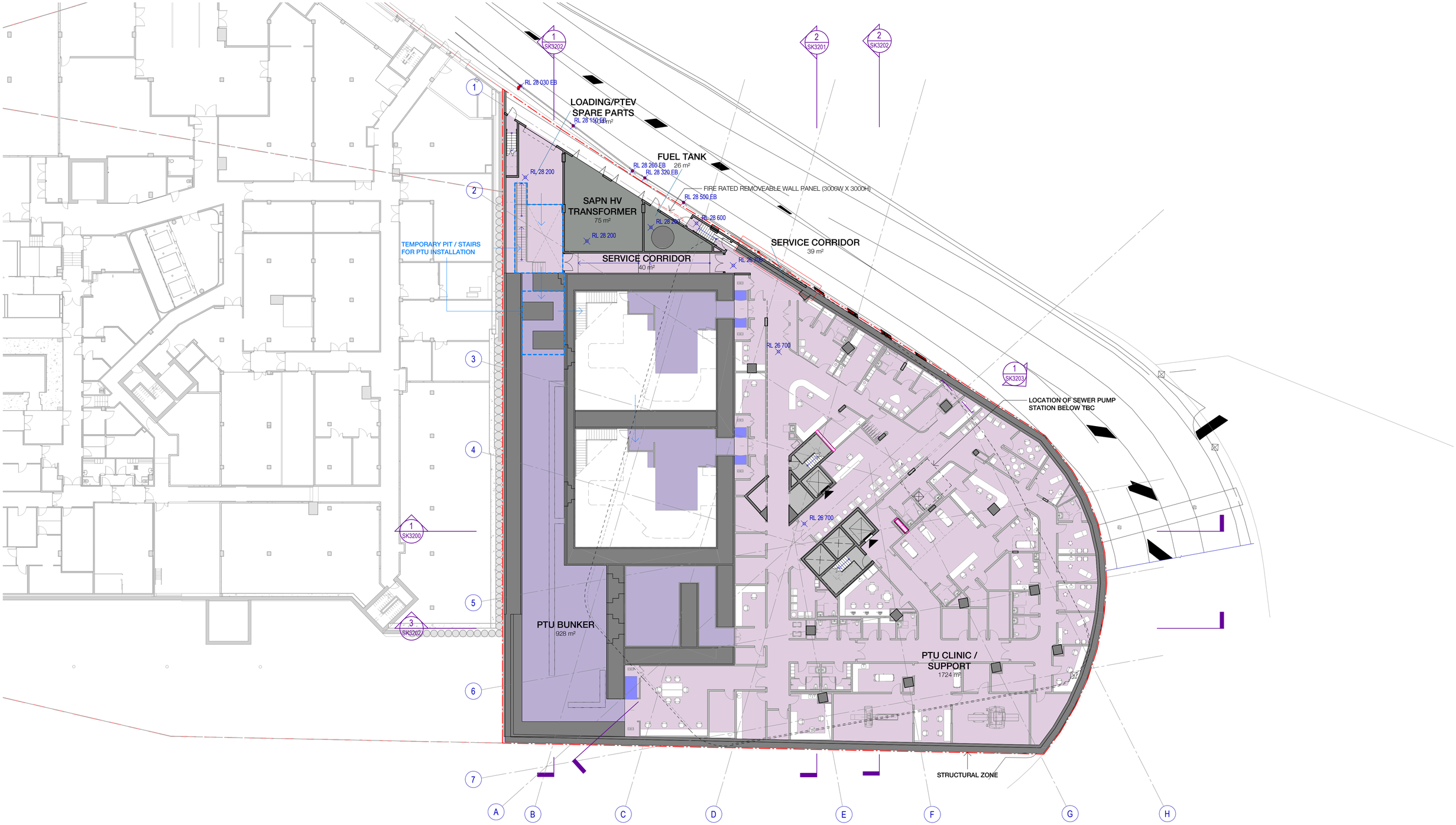
Sheet number
AR-SK1011

Revision
A

Date
09.04.18



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Project
SAHMRI 2

Sheet title
FLOOR PLAN - LEVEL 00

Project number
140290

Scale
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Sheet size
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Sheet number
AR-SK2200

Revision
N

Date
09.04.18

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Project
SAHMRI 2

Sheet title
FLOOR PLAN - LEVEL 01

Project number
140290

Scale
1 : 200

Sheet size
A1

Sheet number
AR-SK2201

Revision
P

Date
12.04.18

SAHMRI 1

GEORGE STREET

VOID

VOID

VOID

HYDRAULIC TANKS
42 m²

SERVICES
81 m²

VOID

SERVICES
32 m²

RL 33 900

COMMS
157 m²
RL 33 900

EOT FACILITIES
390 m²
RL 33 900

BIKE PARK (152 Bikes)

VOID

VOID

structural zone

water inlet pathway

NORTH TERRACE

UoA

1 SK3202

2 SK3201

2 SK3202

1 SK3203

1 SK3200

3 SK3202

1 2 3 4 5 6 7

A B C D E F G H

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Project
SAHMRI 2

Sheet title
FLOOR PLAN - LEVEL 02

Project number
140290

Sheet number
AR-SK2202

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Revision
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Sheet size
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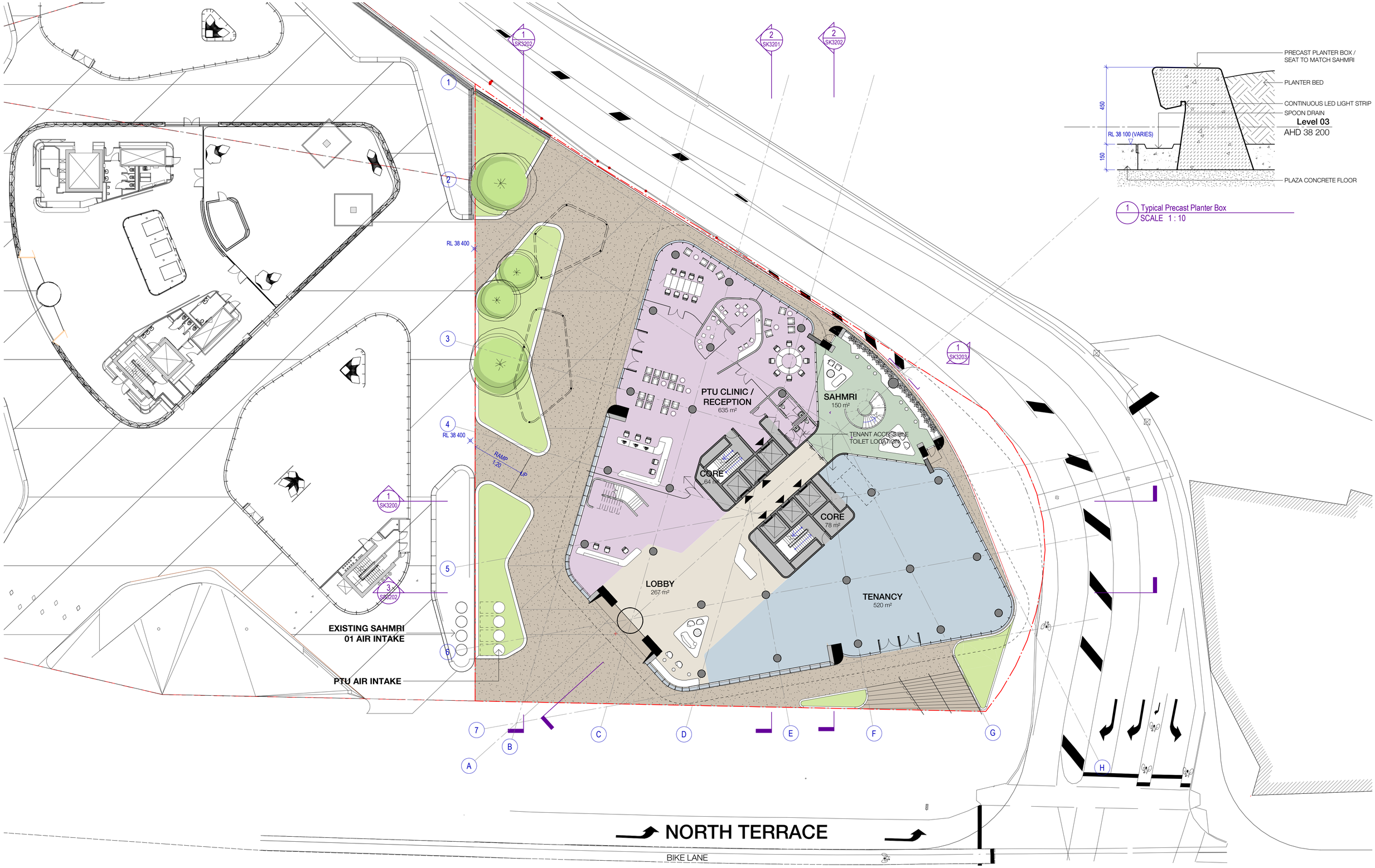
Date
09.04.18



1 Typical Precast Planter Box
SCALE 1 : 10

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Commercial & General

Project
SAHMRI 2

Sheet title
FLOOR PLAN - LEVEL 03

Project number
140290

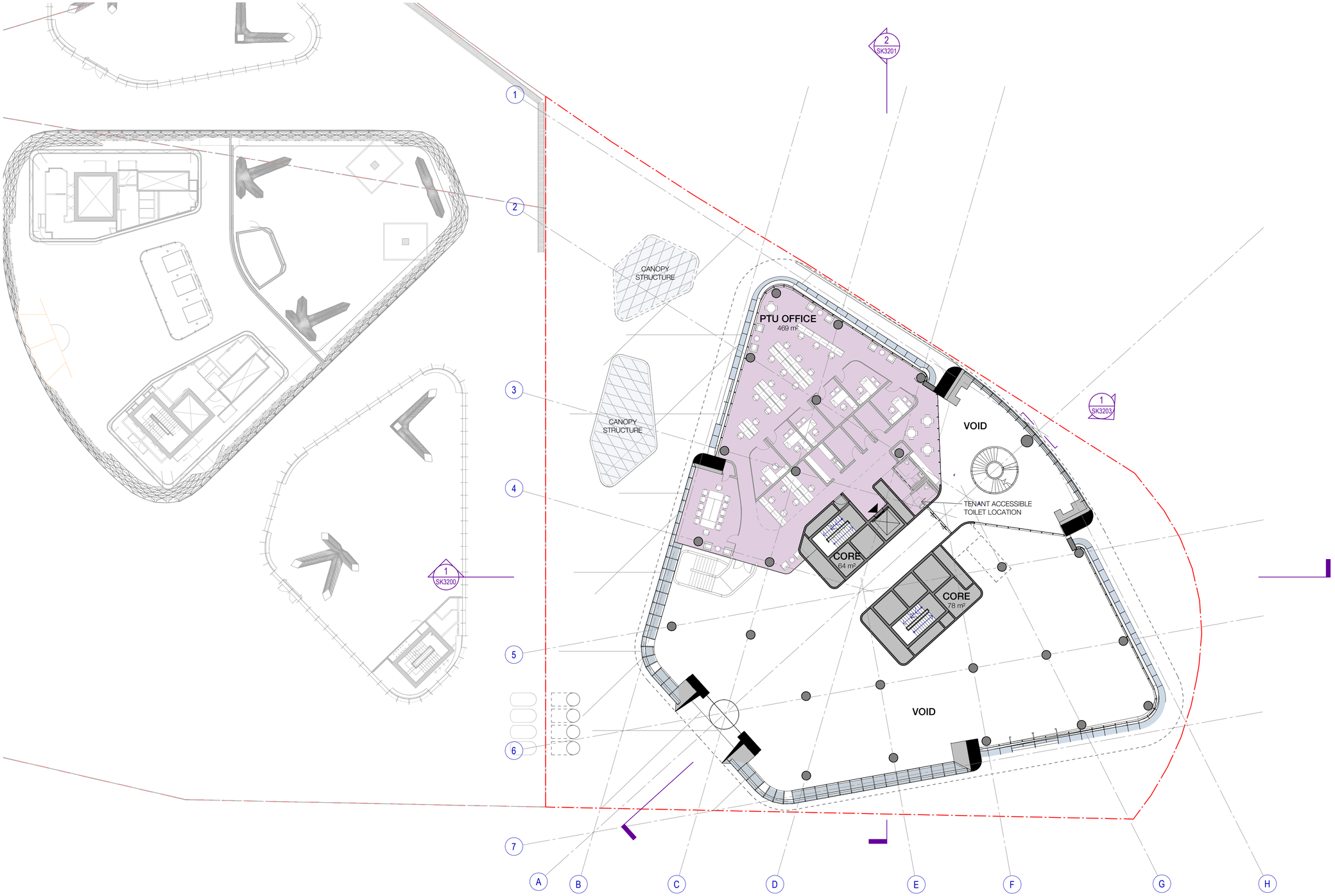
Scale
As indicated

Sheet size
A1

Sheet number
AR-SK2203

Revision
K

Date
11.04.18



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Project
SAHMRI 2

Sheet title
FLOOR PLAN - LEVEL 03 MEZZANINE

Project number
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Sheet number
AR-SK2203M

Revision
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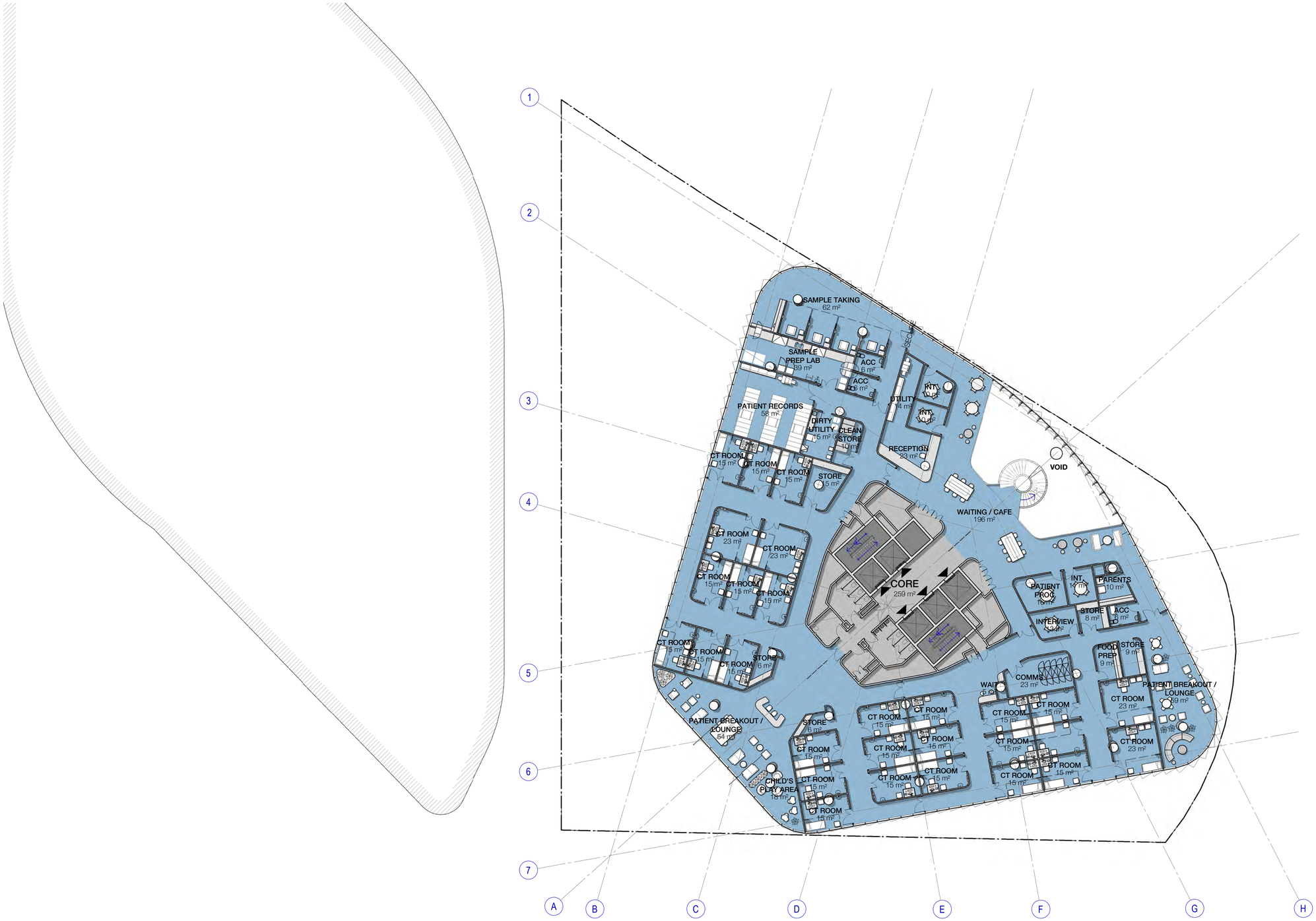
Date
09.04.18



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Project
SAHMRI 2

Sheet title
FLOOR PLAN - LEVEL 04

Project number
140290

Scale
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Sheet size
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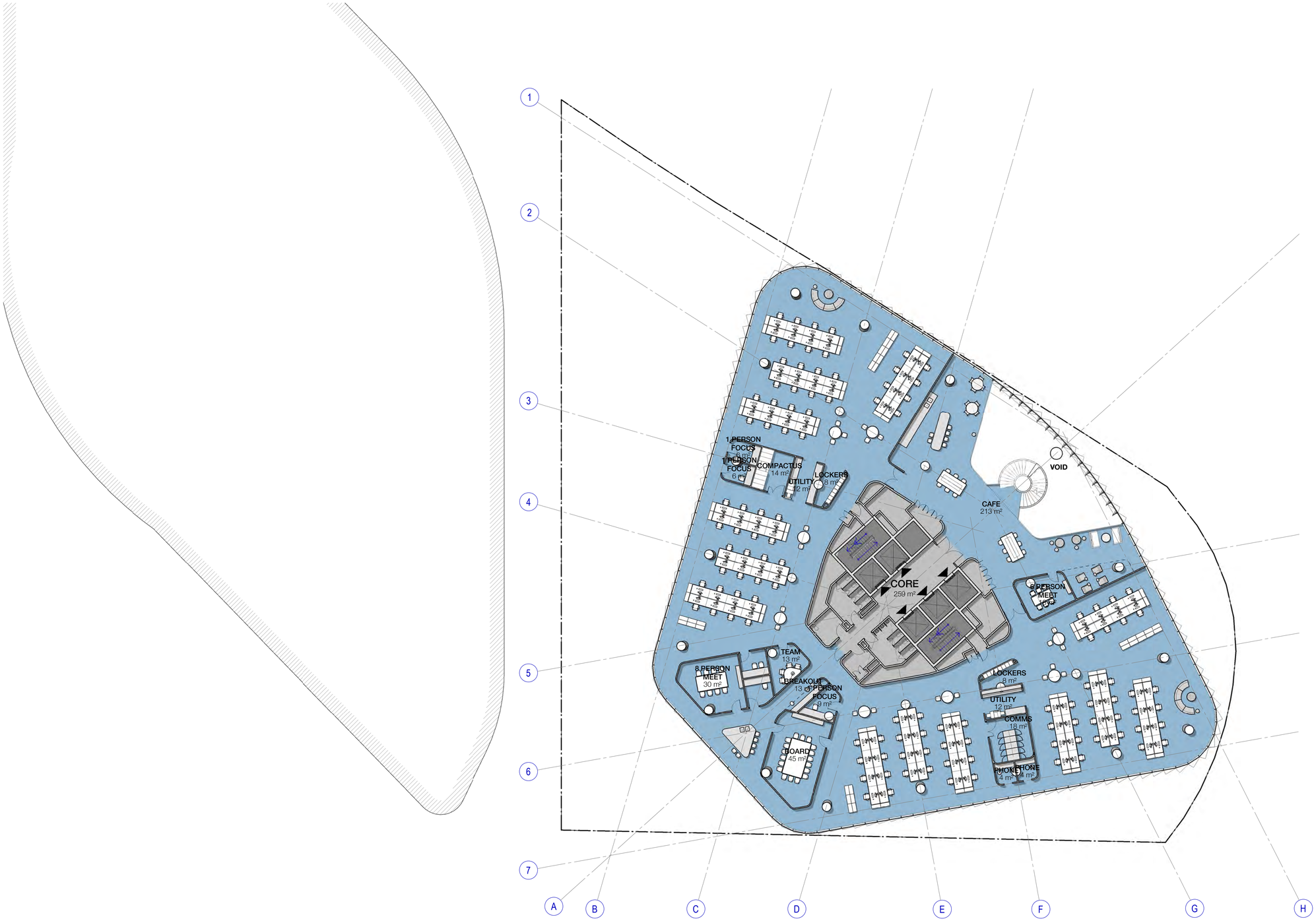
Sheet number
AR-SK2204

Revision
D

Date
09.04.18

WORKSTATIONS

Level	Number
Level 05	112
Level 06	112
	224



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Project
SAHMRI 2

Sheet title
FLOOR PLAN - LEVEL 05

Project number
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Scale
1 : 200

Sheet size
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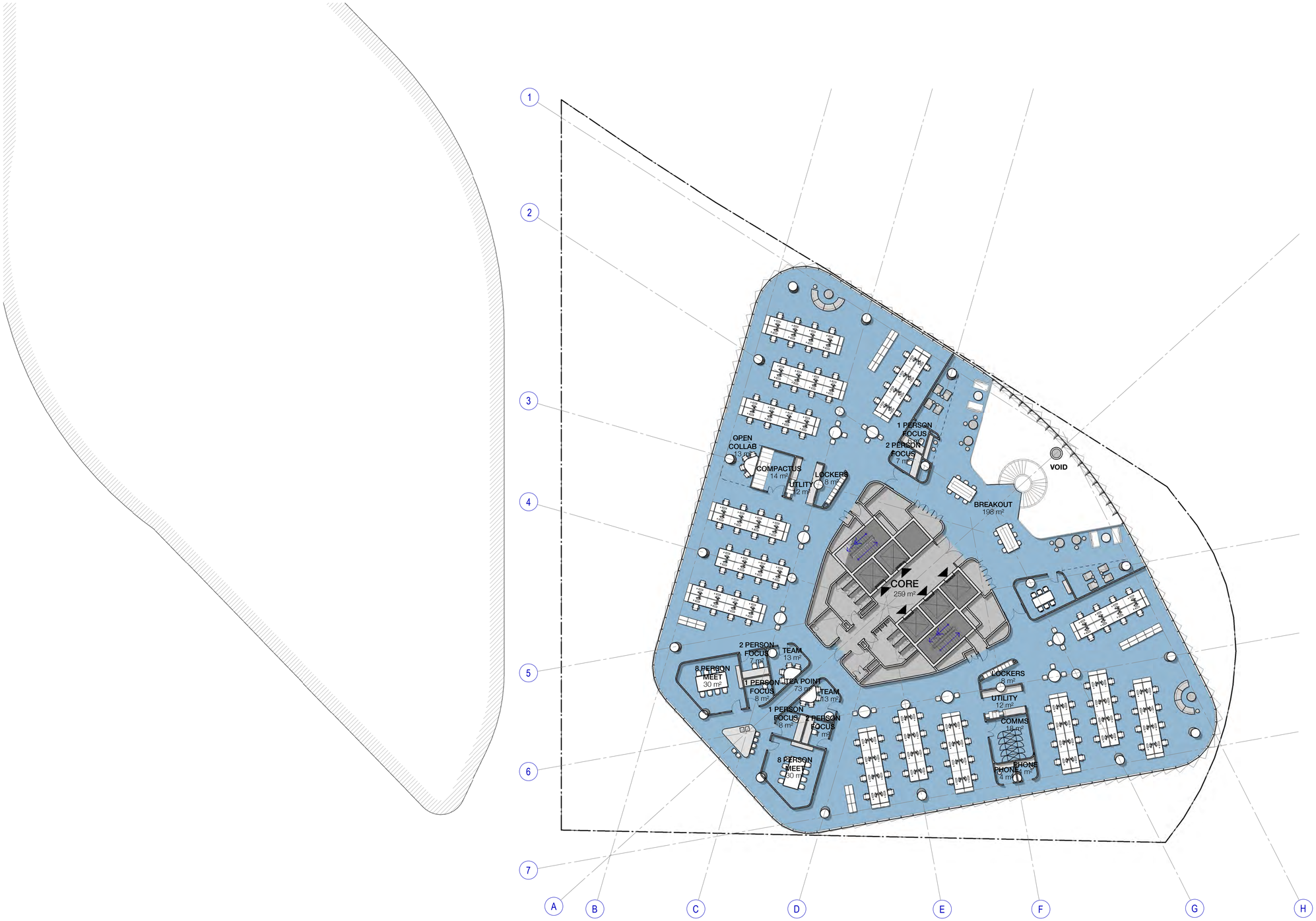
Sheet number
AR-SK2205

Revision
D

Date
09.04.18

WORKSTATIONS

Level	Number
Level 05	112
Level 06	112
	224



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Project
SAHMRI 2

Sheet title
FLOOR PLAN - LEVEL 06

Project number
140290

Scale
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Sheet size
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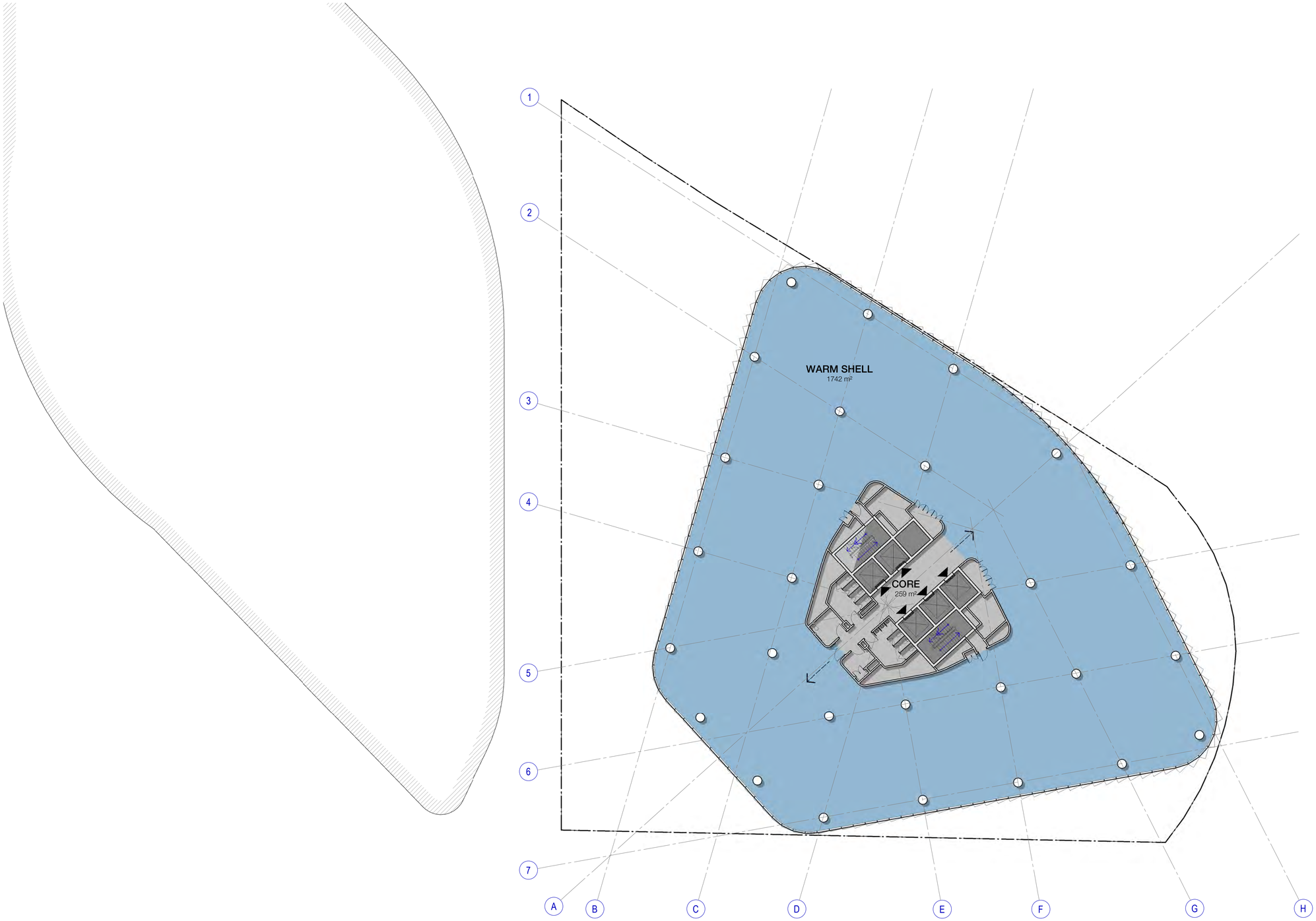
Sheet number
AR-SK2206

Revision
D

Date
09.04.18



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Project
SAHMRI 2

Sheet title
FLOOR PLAN - LEVEL 07
(TYPICAL LEVELS 07, 09, 11 & 13)

Project number
140290

Scale
1 : 200

Sheet size
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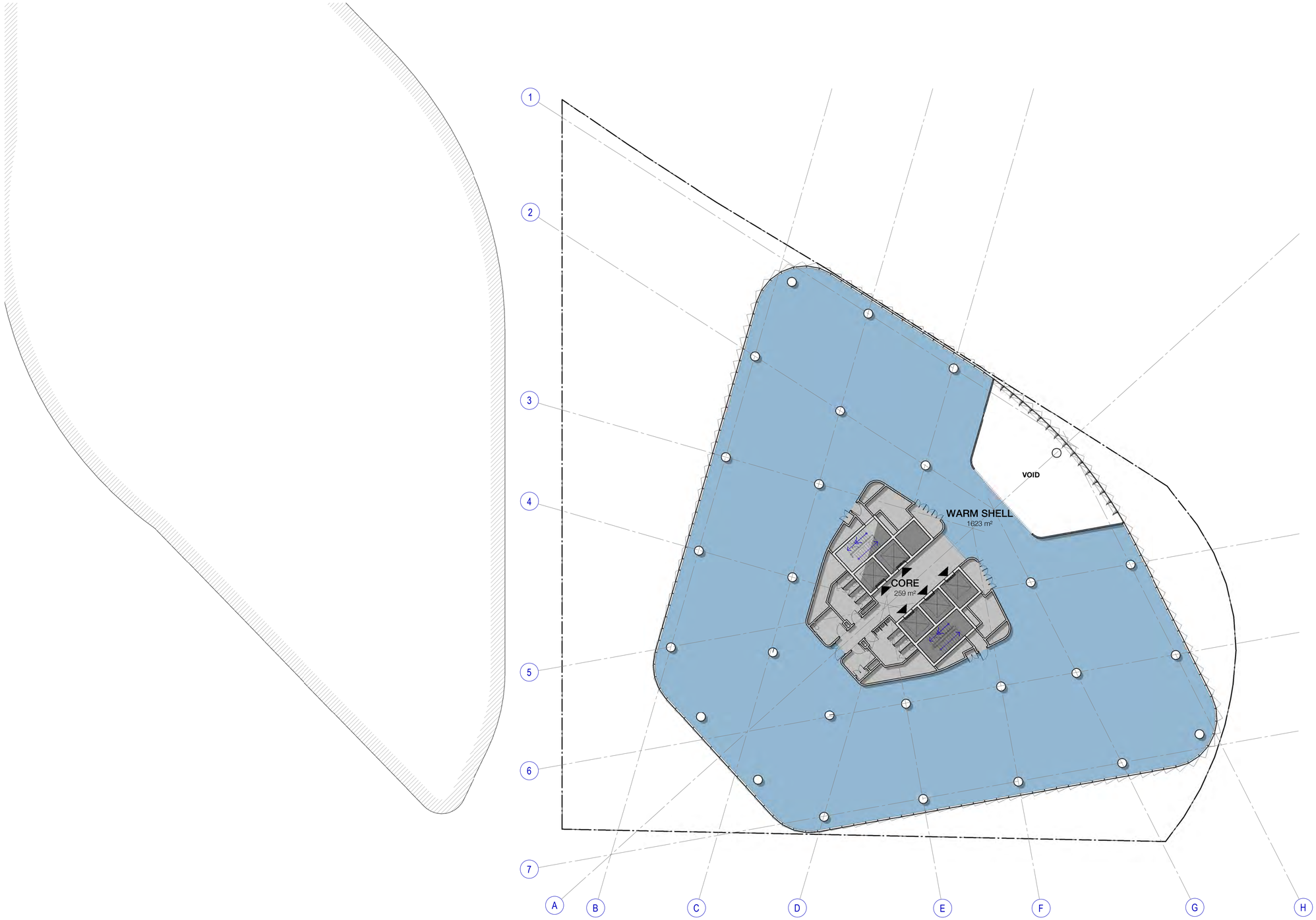
Sheet number
AR-SK2207

Revision
B

Date
09.04.18



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Project
SAHMRI 2

Sheet title
FLOOR PLAN - LEVEL 08
(TYPICAL LEVELS 08, 10, 12 & 14)

Project number
140290

Scale
1 : 200

Sheet size
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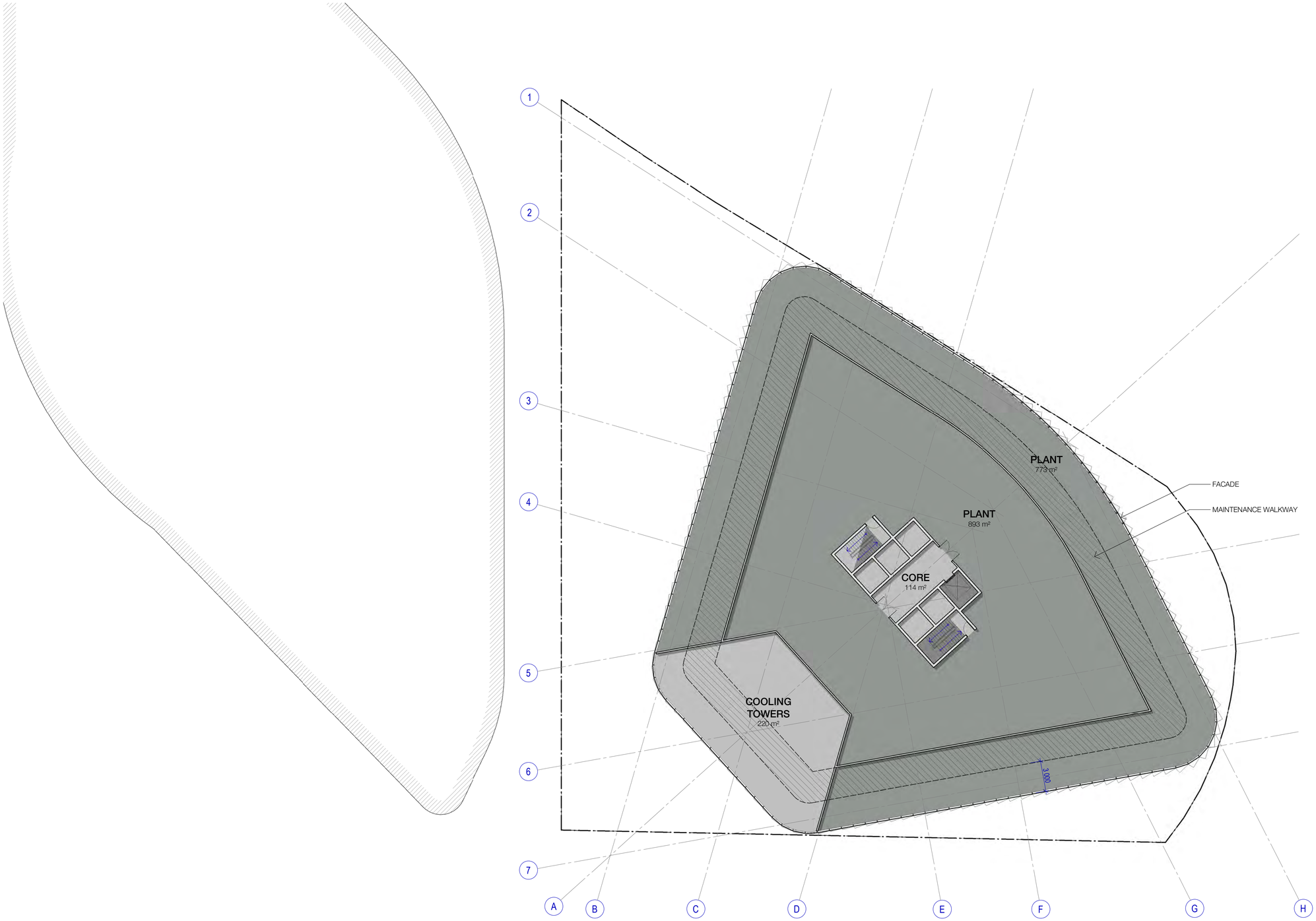
Sheet number
AR-SK2208

Revision
F

Date
09.04.18



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Project
SAHMRI 2

Sheet title
FLOOR PLAN - LEVEL 15

Project number
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Scale
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Sheet size
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Sheet number
AR-SK2215

Revision
D

Date
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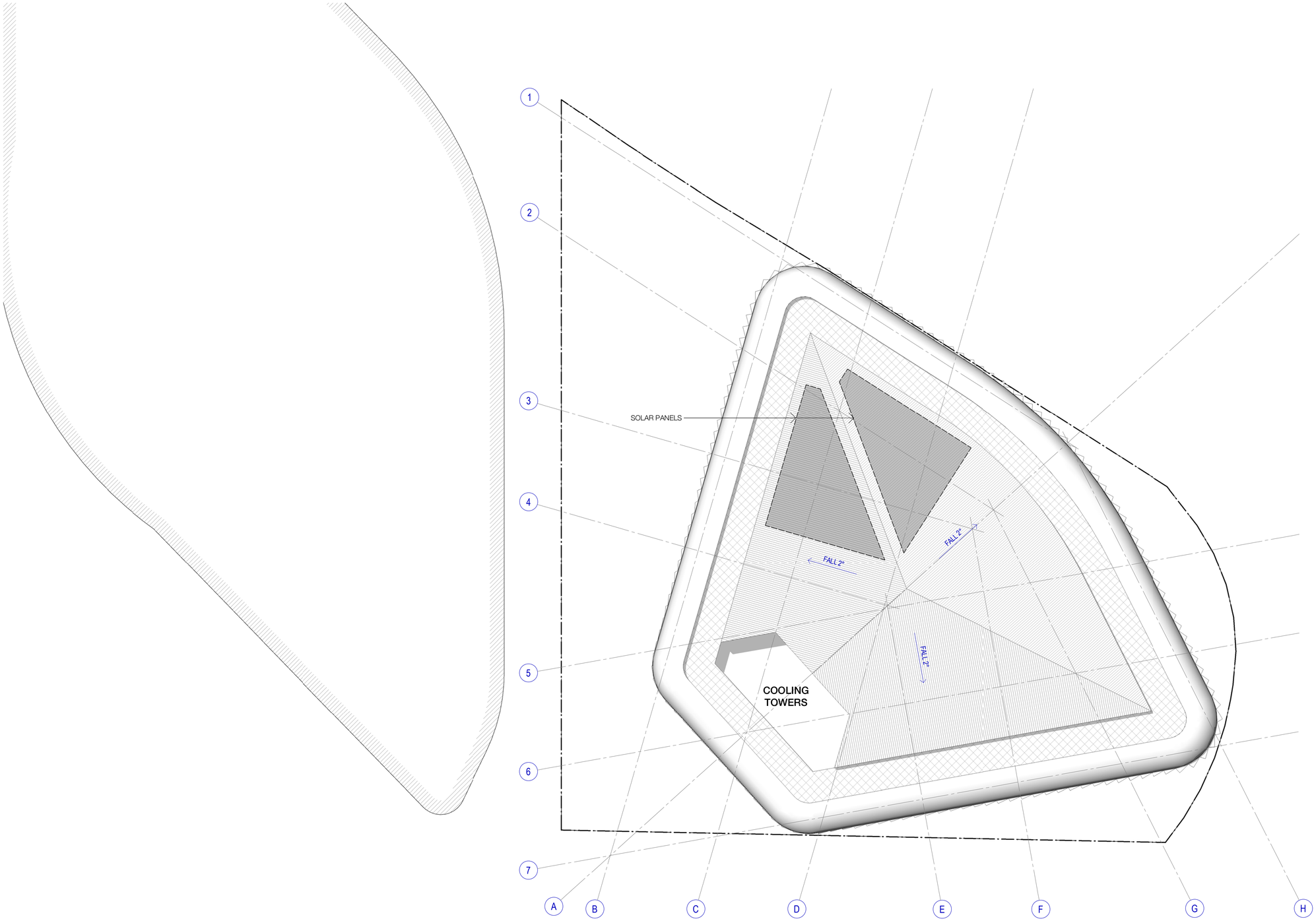

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Client
Commercial & General

Project
SAHMRI 2

Sheet title
ROOF PLAN

Project number
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Scale
1 : 200

Sheet size
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Sheet number
AR-SK2216

Revision
F

Date
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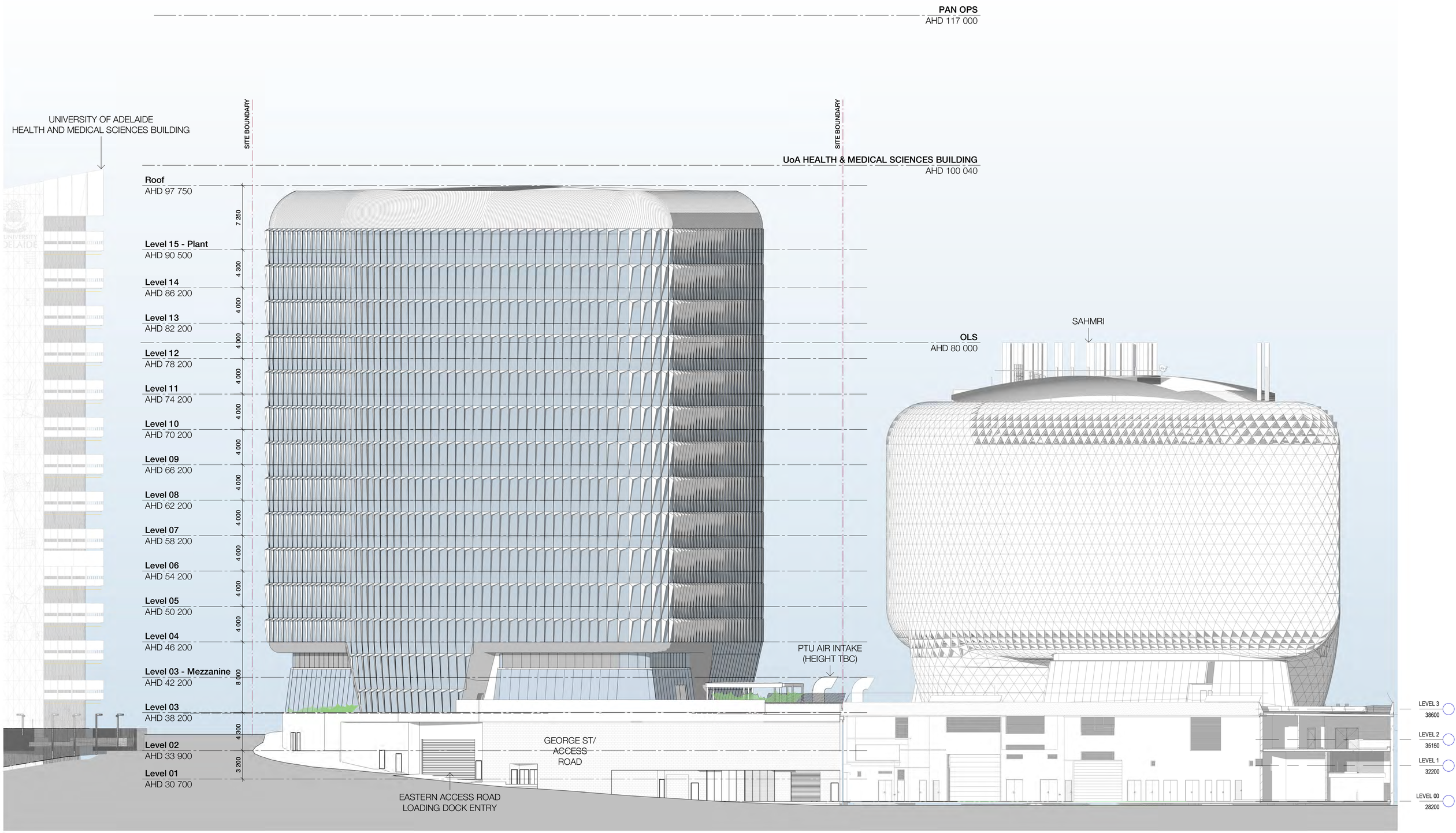

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Client
Commercial & General

Project
SAHMRI 2

Sheet title
NORTH ELEVATION

Project number
140290

Scale
1 : 200

Sheet size
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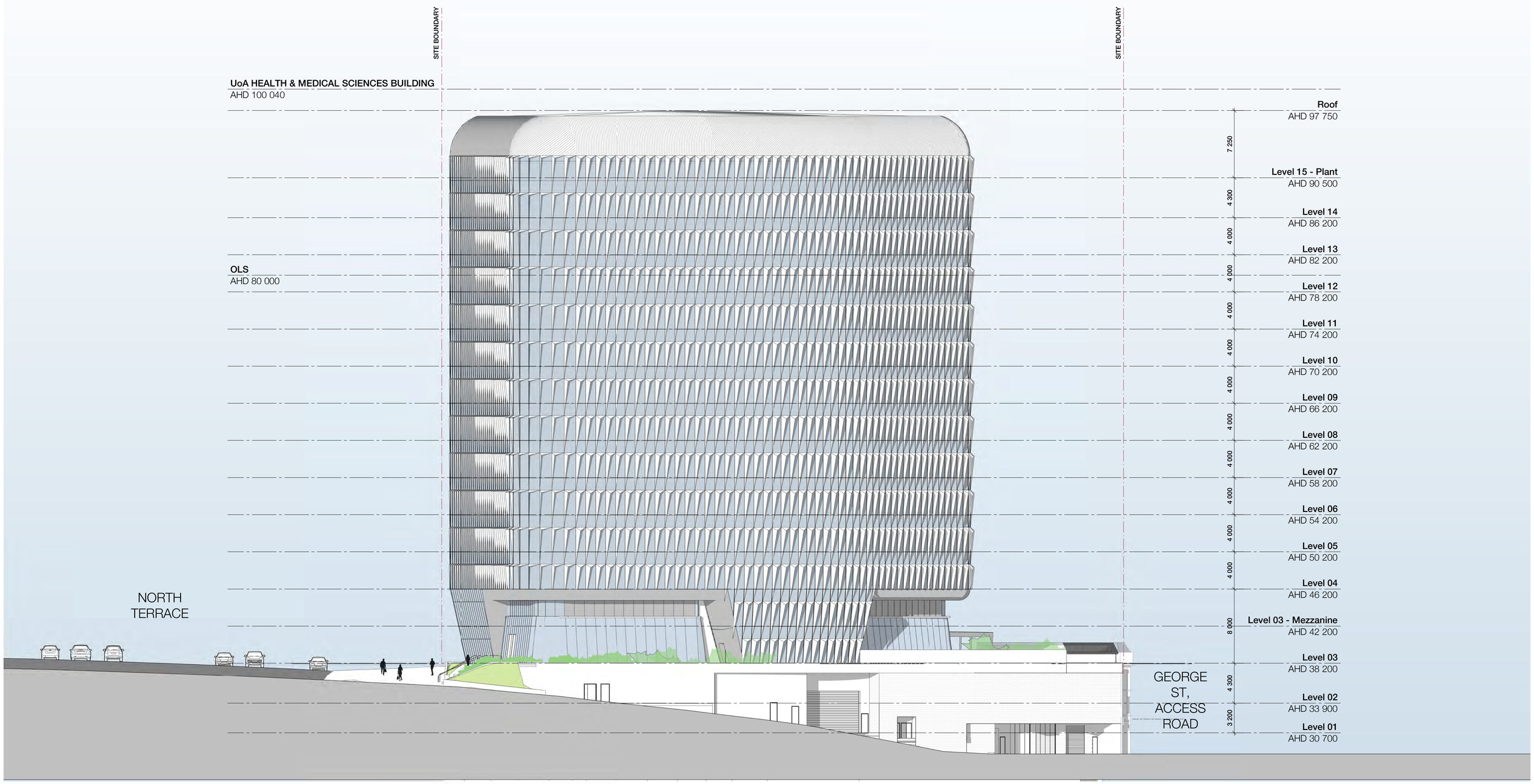
Sheet number
AR-SK3100

Revision
D

Date
09.04.18



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Client
Commercial & General

Project
SAHMRI 2

Sheet title
EAST ELEVATION

Project number
140290

Scale
1 : 200

Sheet size
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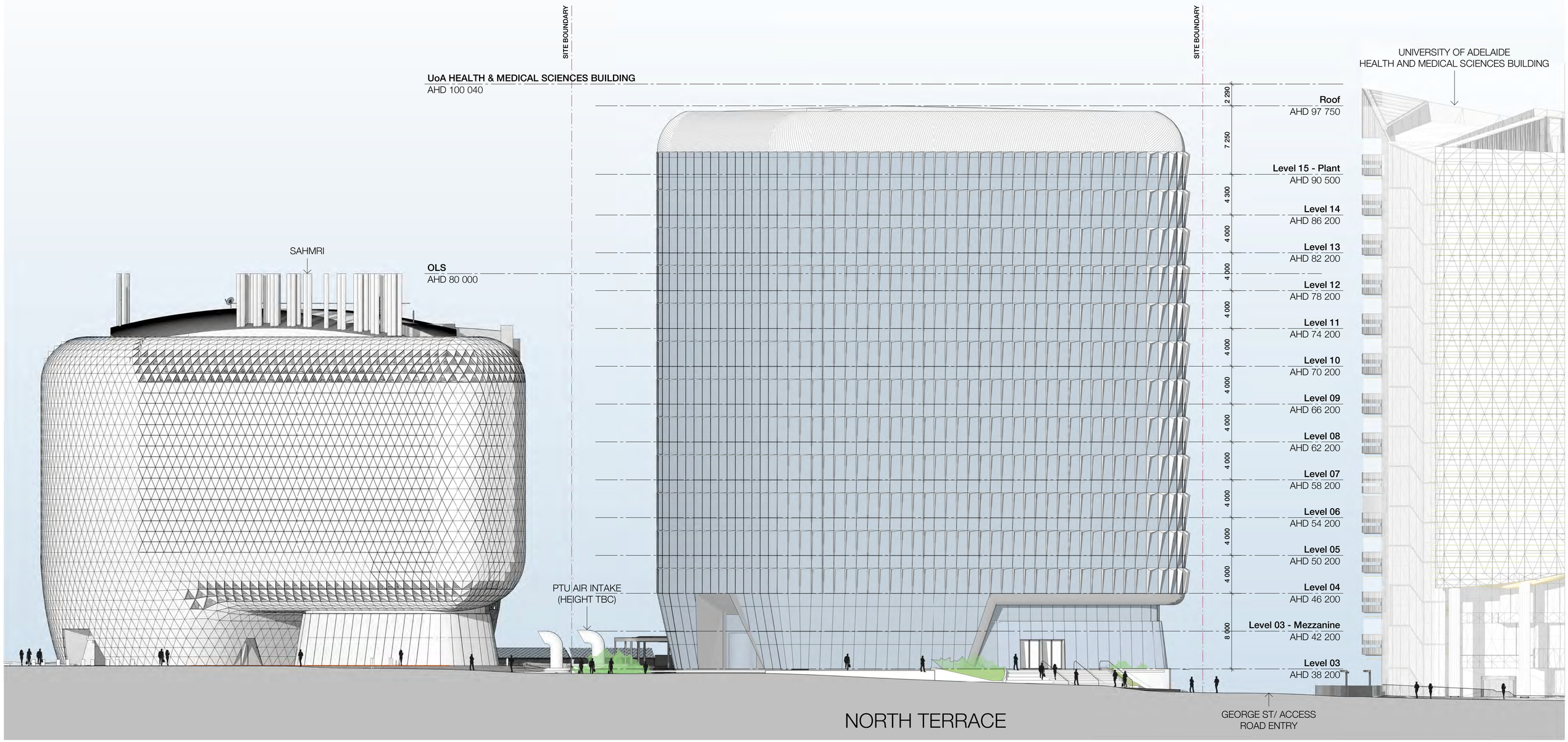
Sheet number
AR-SK3101

Revision
E

Date
09.04.18



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Client
Commercial & General

Project
SAHMRI 2

Sheet title
SOUTH ELEVATION

Project number
140290

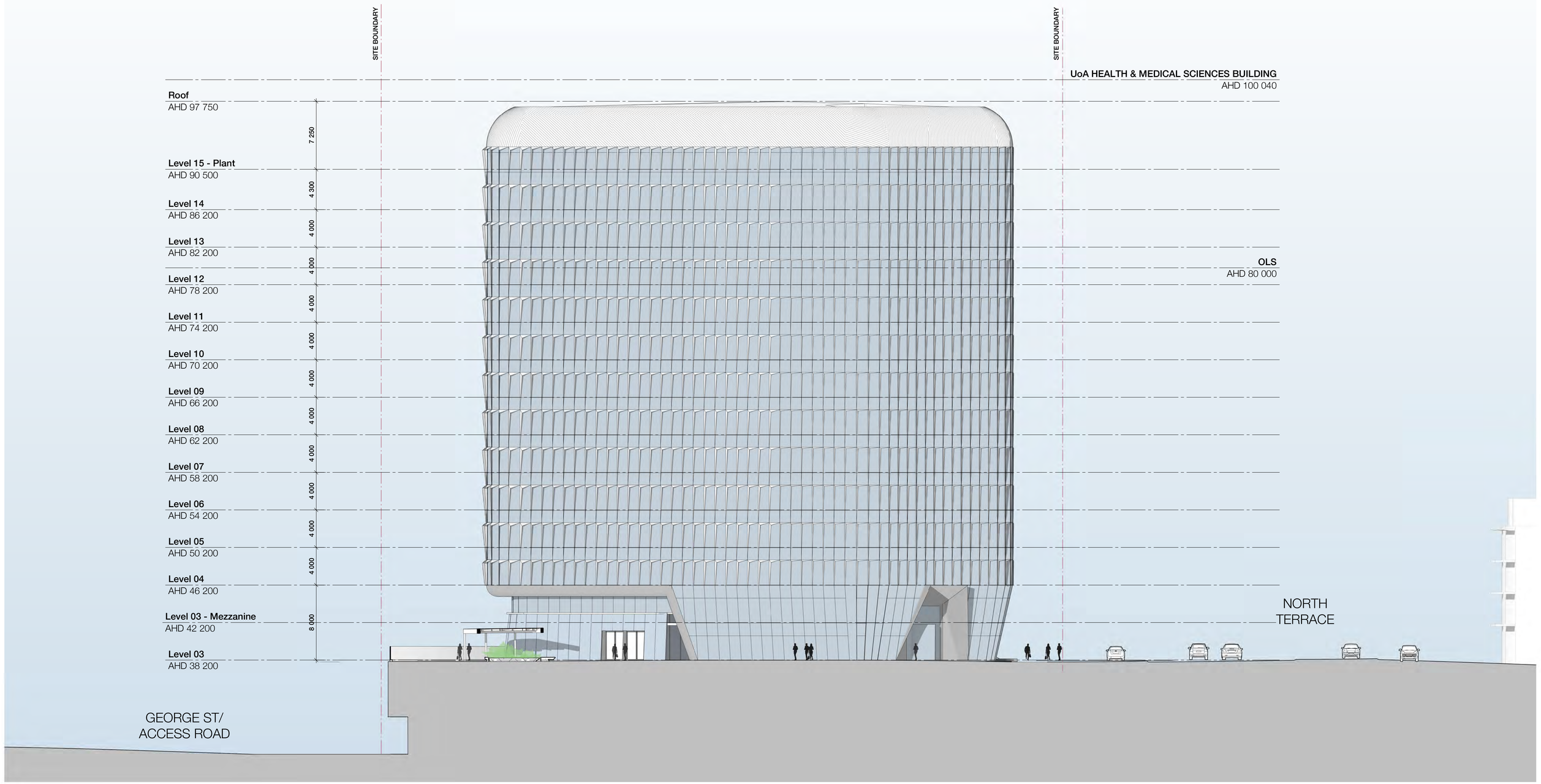
Scale
1 : 200

Sheet size
A1

Sheet number
AR-SK3102

Revision
F

Date
11.04.18



WOODS BAGOT™

Client
Commercial & General

Project
SAHMRI 2

Sheet title
WEST ELEVATION

Project number
140290

Scale
1 : 200

Sheet size
A1

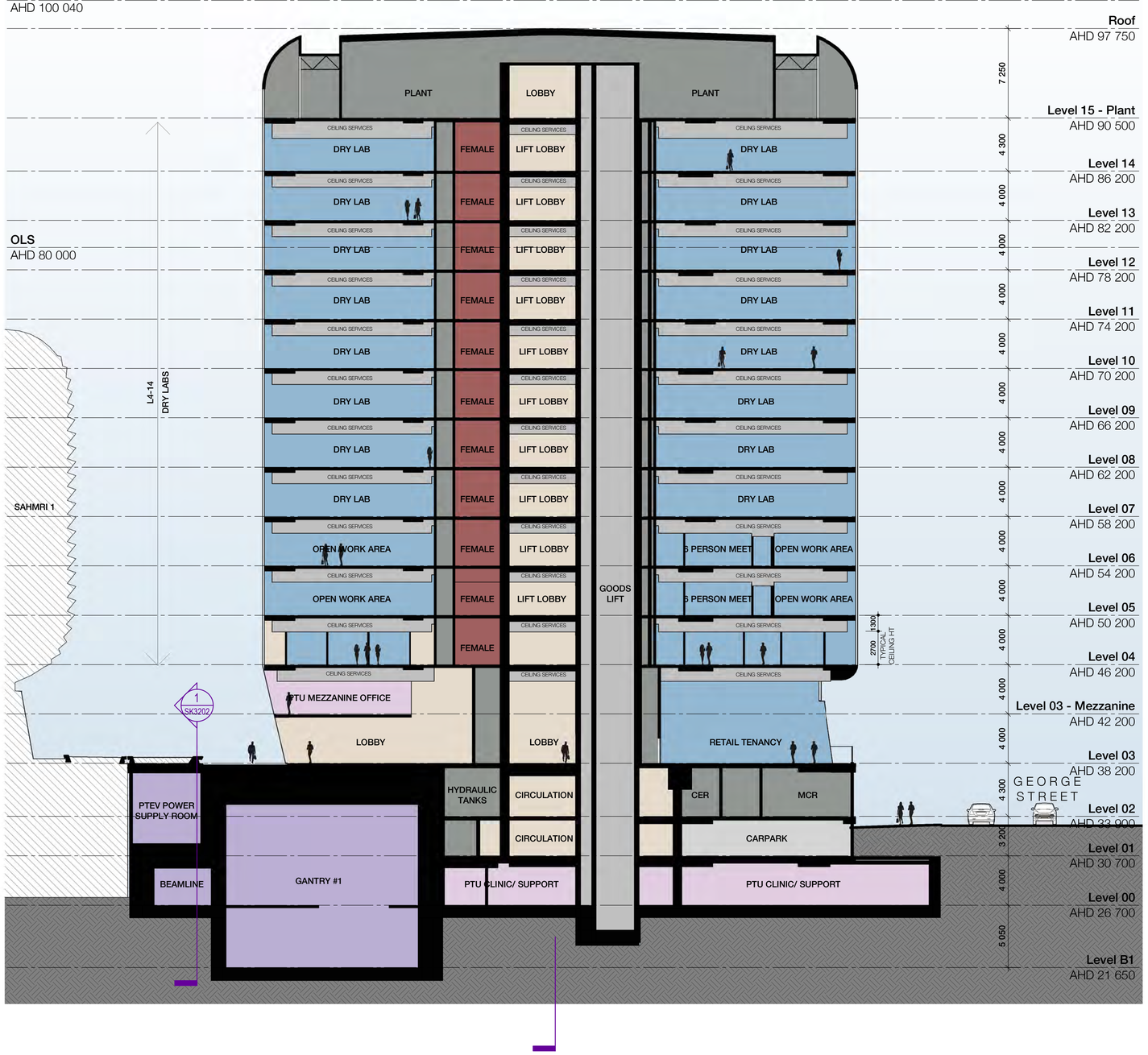
Sheet number
AR-SK3103

Revision
E

Date
11.04.18

2
SK3201

UoA HEALTH & MEDICAL SCIENCES BUILDING
AHD 100 040



WOODS BAGOT™

Client
Commercial & General

Project
SAHMRI 2

Sheet title
EAST - WEST SECTION

Project number
140290

Scale
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Sheet size
A1

Sheet number
AR-SK3200

Revision
D

Date
09.04.18

WOODS BAGOT™

Client
Commercial & General

Project
SAHMRI 2

Sheet title
NORTH - SOUTH SECTION

Project number
140290

Scale
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Sheet size
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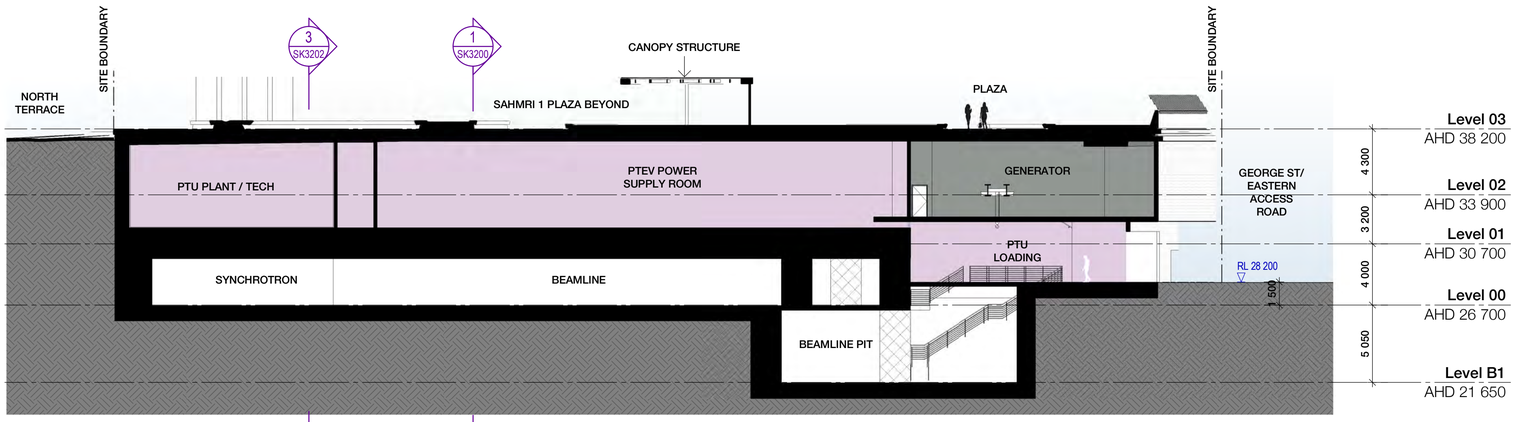
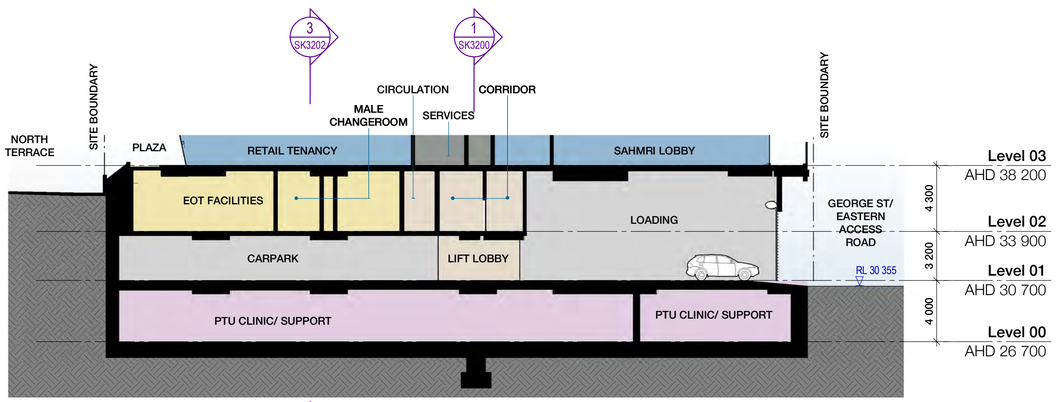
Sheet number
AR-SK3201

Revision
D

Date
09.04.18



1 Option 4 - Section 1
SCALE 1 : 200



2 Option 4 - Section 2
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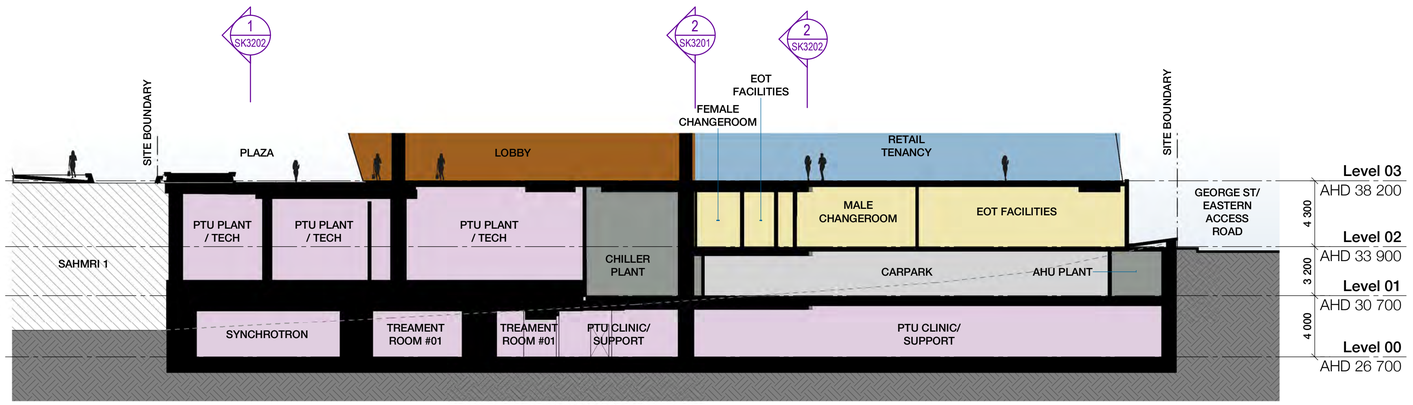


3 Option 4 - Section 5
SCALE 1 : 200

WOODS BAGOT™

Client
Commercial & General

Project
SAHMRI 2

Sheet title
PODIUM STUDY - SECTIONS

Project number
140290

Scale
1 : 200

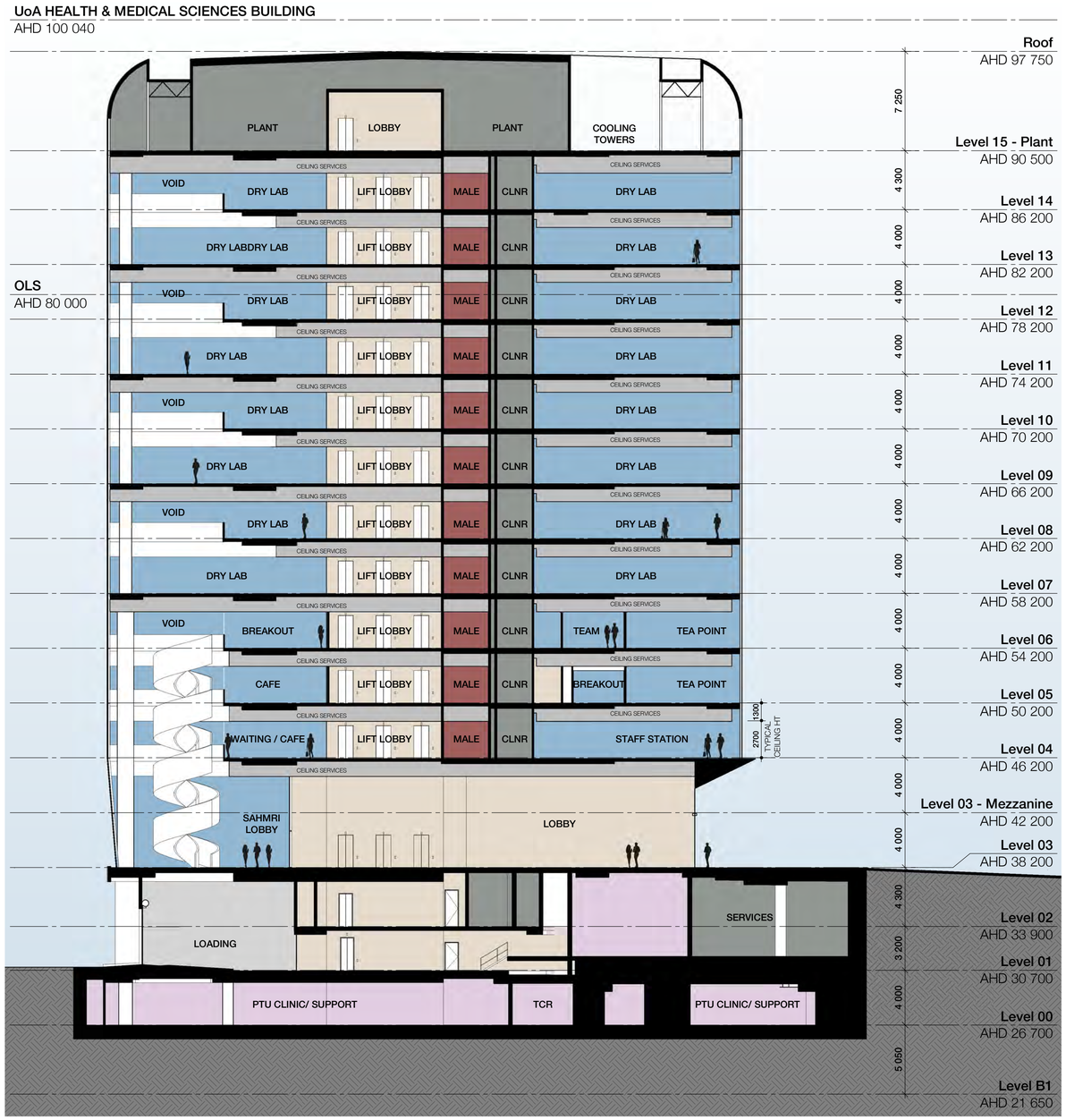
Sheet size
A1

Sheet number
AR- SK3202

Revision
D

Date
11.04.18

UoA HEALTH & MEDICAL SCIENCES BUILDING



WOODS BAGOT™

Client
Commercial & General

Project
SAHMRI 2

Sheet title
ATRIUM SECTION

Project number
140290

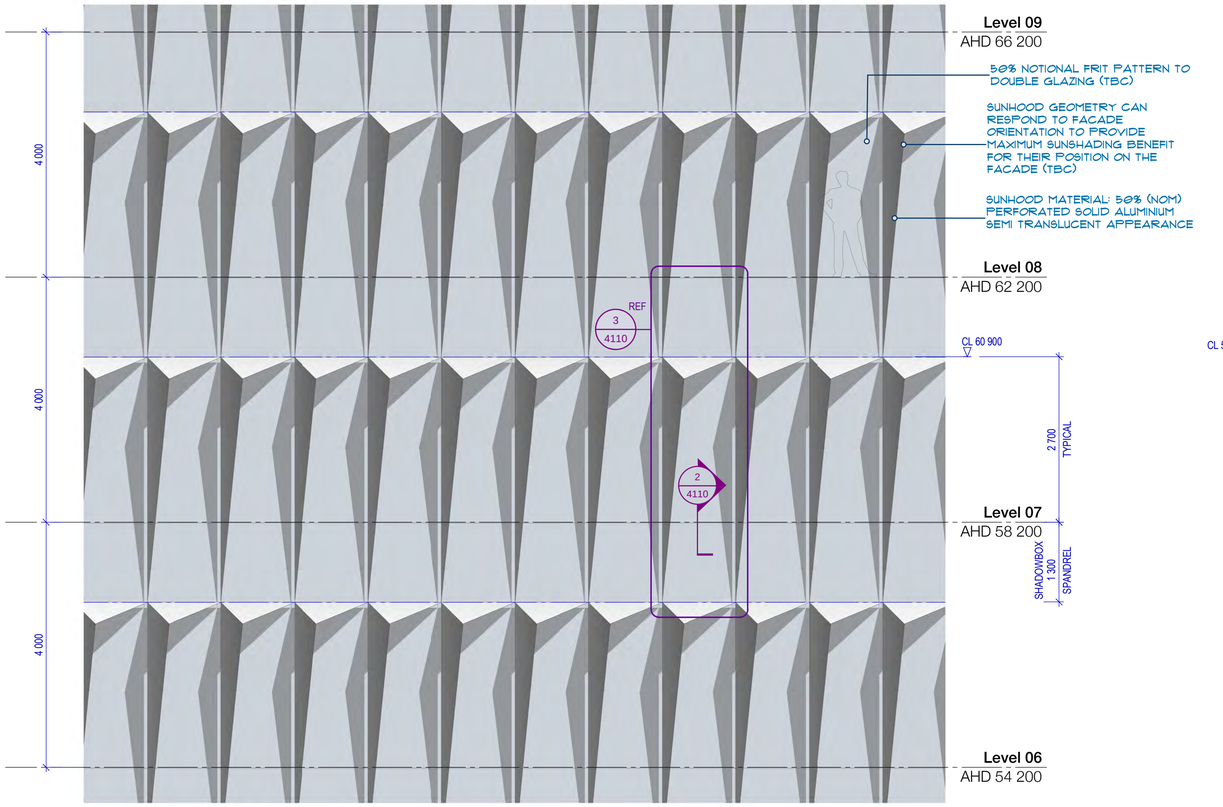
Scale
1 : 200

Sheet size
A1

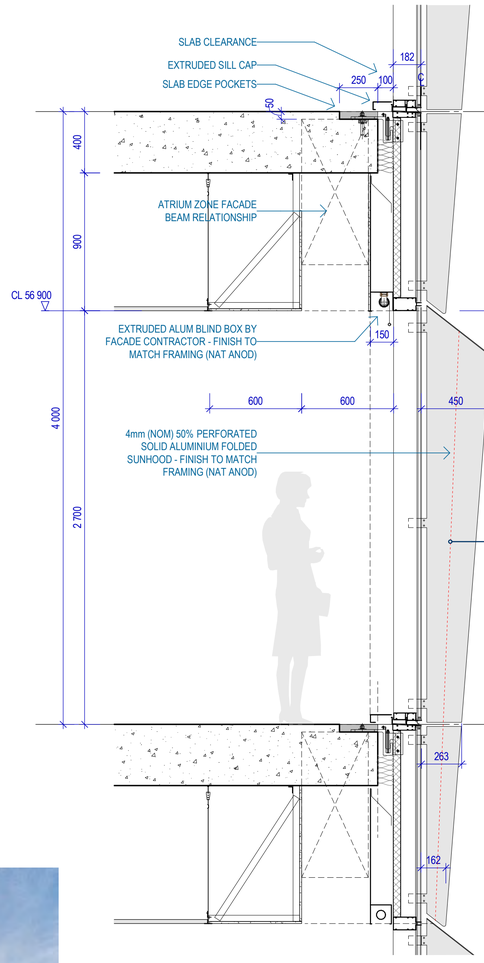
Sheet number
AR-SK3203

Revision
A

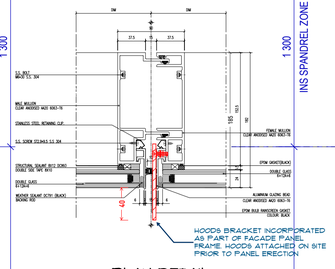
Date
09.04.18



1 L-Hoods Part North Elevation (TYPICAL)
SCALE 1 : 50

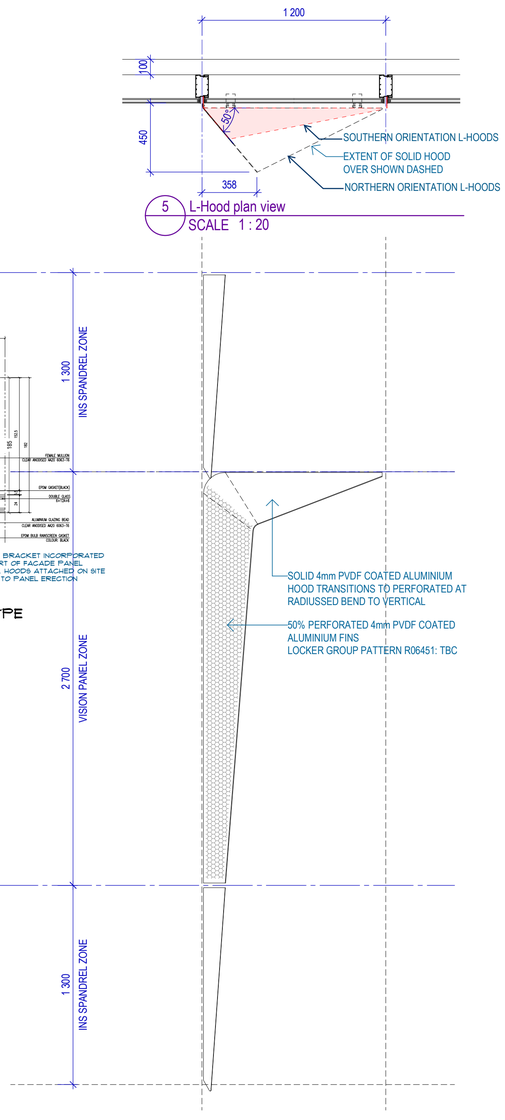


2 Rectangular Sunhoods Typical facade section
SCALE 1 : 20



PLAN DETAIL
TYPICAL MULLION TYPE

SOUTH FACADE ARCHITECTURAL FINS UNITE FACADE TEXTURE TO CONVEY IMPRESSION OF A SINGULAR FORM

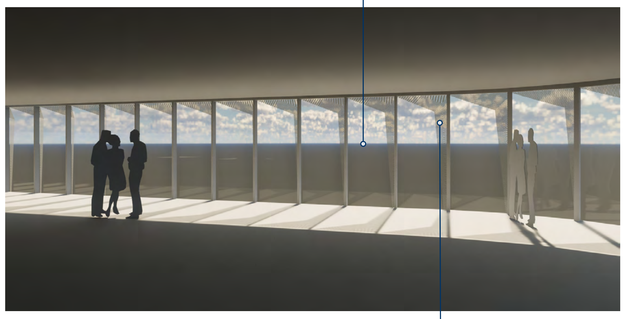


5 L-Hood plan view
SCALE 1 : 20

3 L-Hood_2.7m Elevation & side view
SCALE 1 : 20

ARTIST'S IMPRESSION OF NORTHERN FACADE

ARTIST'S IMPRESSION FROM NTH.TCE.



INTERIOR EXPERIENCE / VIEWS

FACADE KEY PLAN
R= RECTANGULAR PANELS
D= 450 L-HOOD EXTENT
D= 225 L-HOOD EXTENT

WOODS BAGOT™

Client
Commercial & General

Project
SAHMRI 2

Sheet title
FACADE - Design Elements

Project number
140290

Scale
As indicated

Sheet size
A1

Sheet number
AR-SK4110

Revision
A

Date
12.04.18

Issue —
Planning Submission

Date —
April 2018

Project —
17.074

SAHMRI 2

LANDSCAPE & PUBLIC REALM

APRIL 2018

oxigen

Oxigen Pty Ltd
98–100 Halifax Street
Adelaide SA 5000

T +61 (08) 7324 9600
design@oxigen.net.au
oxigen.net.au

LANDSCAPE & PUBLIC REALM

SITE CONTEXT

The site development responds to the characteristics and context of the site, acknowledging the existing natural topography, solar orientation, prevailing winds, views and parkland context.

The site is located within the Adelaide City Parklands. The SAHRMI 2 site recognises this parklands context and provides the opportunity to improve the connections from North Terrace to the proposed new uses.

The form and distribution of new built form acknowledges and takes advantage of existing views and vistas to, from, and through the site, including:

— views along North Terrace,
— views to the Adelaide foothills and western suburbs,
— River Torrens and River Park corridor,
— parklands,
— the Adelaide city skyline, and
— through to SAHMRI 1 within the Heath and Biomedical Precicnt.

The development of the site contributes to the existing view corridors along North Terrace, as well as broader views around the parklands, river corridor and outwards to the foothills, North Adelaide and western suburbs. The form and alignment of SAHRMI 2 is sympathetic to the existing views across the site from surrounding streets towards the parklands.

URBAN STRUCTURE

The site development integrates with the established urban structure of North Terrace, including appropriate building setback, bulk, form and massing. The site development relates to the scale of the city and the topography of the River Torrens corridor, providing a transition between the two by way of built form and open space.

The development of the site, through the arrangement of built form and open space, acknowledges the grid structure, the role of North Terrace as the northern edge to City of Adelaide bordering the parklands, and the alignment with the City's street and block arrangement.

The SAHRMI's North terrace frontage reflects an appropriateness to the City's context in respect to building heights and setback. It considers what form and alignment best contributes to the development of the West End's urban structure, the North Terrace boulevard and parklands surround.

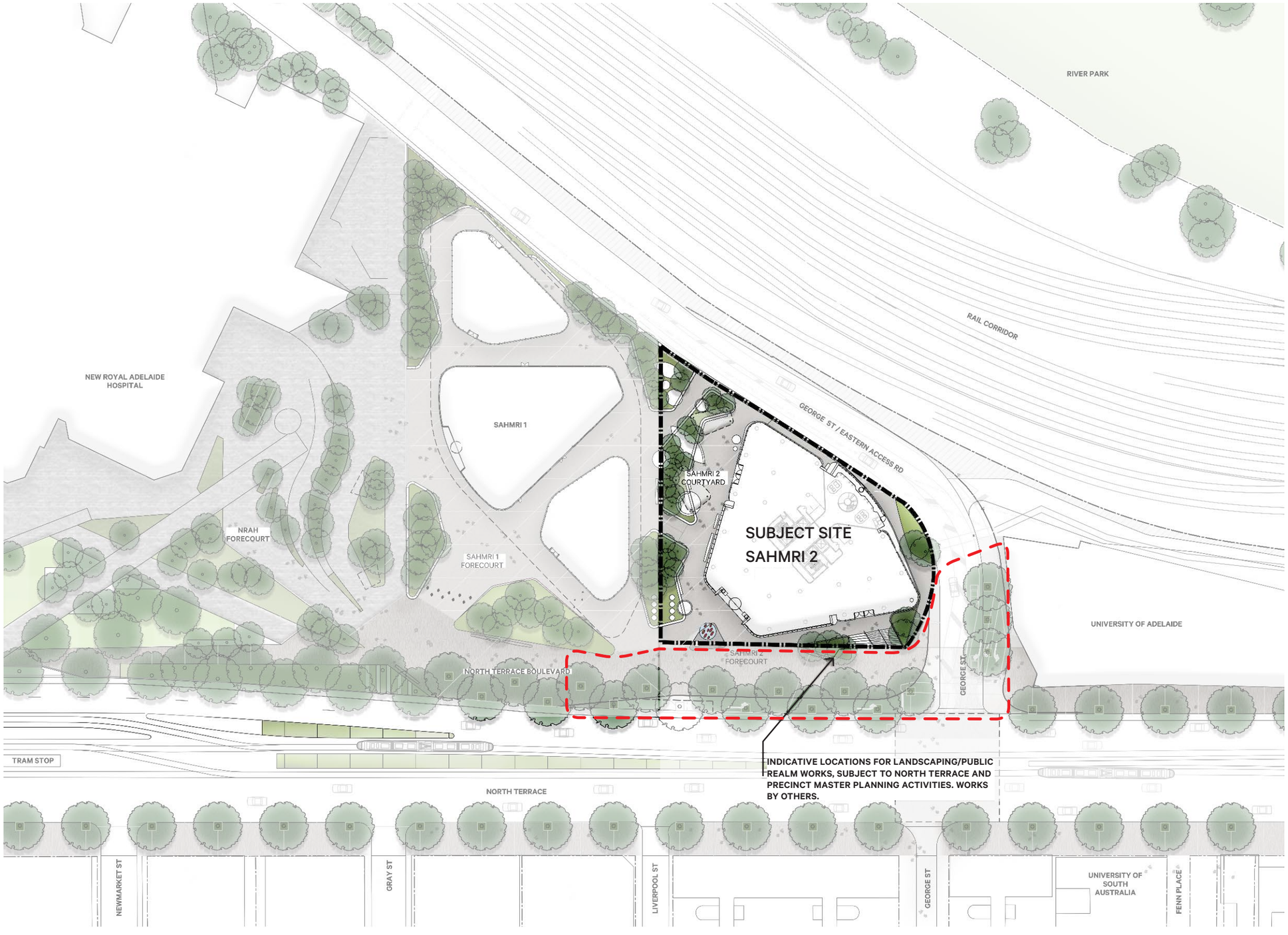
Integration with North Terrace
Within Light's Plan, the grid layout of the city was contained by the formal boulevards of North Terrace and West Terrace. North Terrace's formal character is well established and building scale and form well defined along its length.

In recognising North Terrace as a major vehicle, cycle and pedestrian boulevard, the height and scale of development positively responds to the formality and rhythm of the streetscape.

EXISTING SAHMRI 1 FROM
NORTH TERRACE

SUBJECT SITE
LOCATION PLAN

PUBLIC REALM PLAN



The Public Realm Plan for SAHRMI 2:

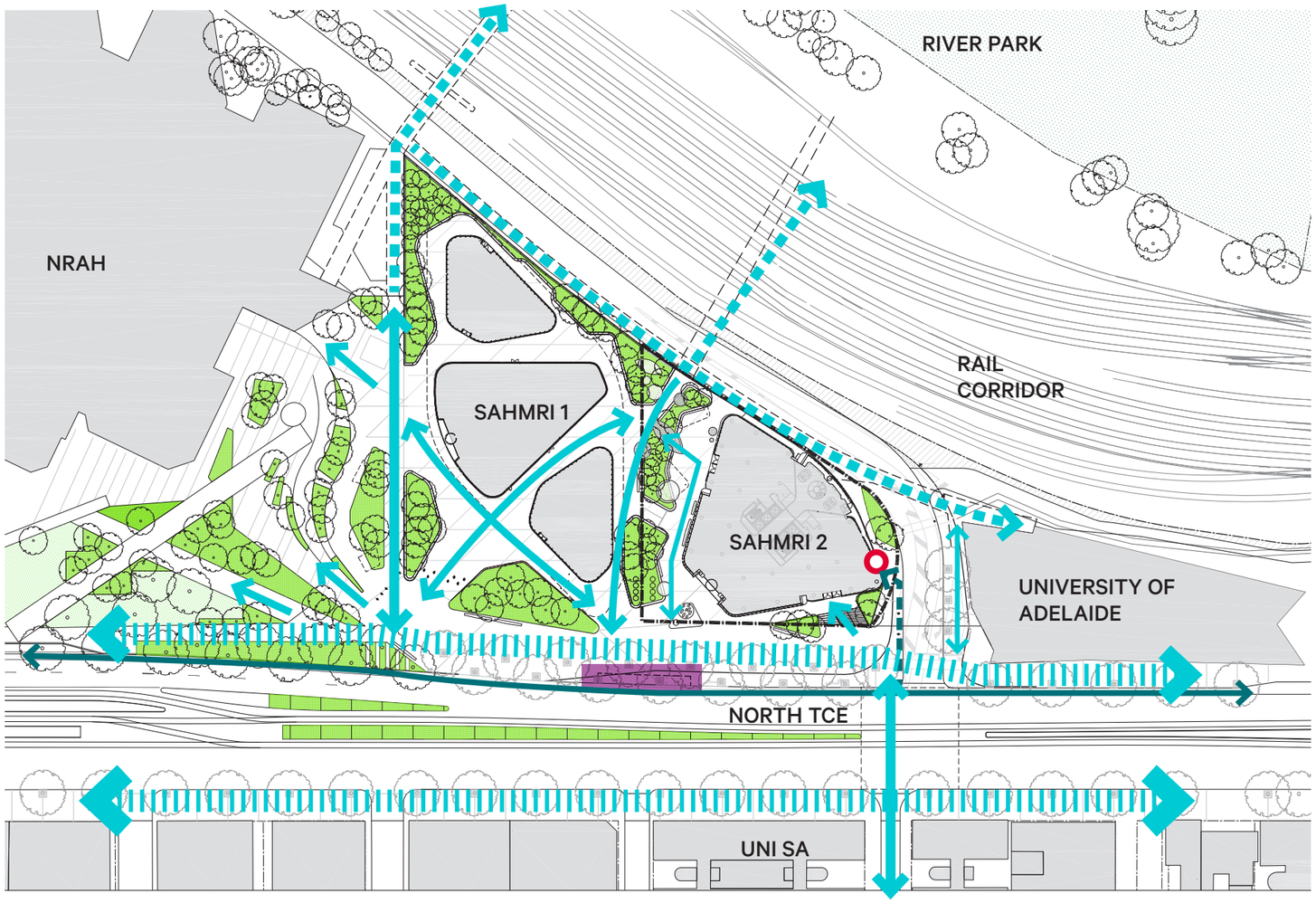
1. Creates a positive interface with North Terrace at the scale of pedestrians and in terms of respecting the building forms and masses on the southern side of the Terrace.
2. Creates a positive interface on the north side of the new building considering the access road to the NRAH and rail corridor behind.
3. Considers future positive connections across the rail corridor to the River Torrens Linear Park, integrating these with connections back to North Terrace.
4. Considers internal circulation through and under the building, as well as access to the building with connections to SAHMRI 1 within the Health and Biomedical Precinct, and future North Terrace redevelopment.
5. Creates a pedestrian plaza adjacent to North Terrace, linking into the wider City of Adelaide pedestrian network.
6. Achieves direct entry for pedestrians from North Terrace (not too far to walk) and clear access from public transport, including new tram stops along North Terrace.
7. Incorporates outdoor spaces with public uses at ground level including an active public realm that draws pedestrians from North Terrace into the building.
8. Focuses on pedestrian and cycle movements minimising road area where possible to prioritise pedestrians at intersections.
9. Achieves an environmentally sustainable public realm that provides a model for research facilities, including a focus on “wellness”.
10. Responds to the sense of place of the Adelaide Parklands and Heath and Biomedical Precinct in the architectural detail, articulation, modulation and selection of materials used in the building and ground level plazas.

SCALE

0 5 10 15 20m

N

PUBLIC REALM MOVEMENT



PEDESTRIAN & CYCLE MOVEMENT

CONNECTION AND ACCESS

— The arrangement of the public realm provides internal and external connections, allowing direct access from North Terrace and acknowledges future linkages with Adelaide's West End (Uni SA George Street / TAFE / Hindley Street).

— The public realm facilitates alignment of primary access paths/ entries with direct connection to North Terrace for pedestrian/cyclist movements including future improvements to these networks such as the North Terrace Redevelopment.

— Internal connections promote permeability across the site, providing provision for the future future connections part of the Health and Biomedical Precinct linking to the River Torrens corridor (River Park).

— Expansion and integration of public transport networks (Bus / Tram).

NORTH TCE BOULEVARD (SHARED PEDESTRIAN AND CYCLES)
PRIMARY PEDESTRIAN MOVEMENT
POSSIBLE FUTURE CONNECTION
ONROAD CYCLE FACILITY
SAHMRI 2 END OF TRIP FACILITIES
INDICATIVE DROP OFF LOCATION

NOTE:
NORTH TERRACE ALIGNMENT SHOWN AS PER CURRENT CONDITIONS

LANDSCAPE PLAN

LEGEND

- SAHMRI 2 SITE BOUNDARY
- NEW PLANTING BEDS
- PLANTING OUTSIDE OF SCOPE
- NEW TREES
- TREES OUTSIDE OF SCOPE

INDICATIVE PLANT LIST

TREES

Cercis canadensis 'Forest Pansy'
Lagerstroemia indica x L. fauriei 'Natchez'
Lagerstroemia indica x faurei `Biloxi'

MEDITERRANEAN PLANTING BEDS

Anemone pulsatilla
Aloe vera
Berberis vulgaris `Atropurpurea'
Correa reflexa
Grevillea 'robyn gordon'
Lamium album
Nepeta cataria
Nandina domestica murasaki `Flirt'
Olearia axillaris
Polygonum capitatum
Rosmarinus officinalis 'prostrate'
Russelia equisetiformis
Salvia officinalis
Santolina chamaecyparissus
Teucrium fruticans
Tradechanchia `Purple pallidus'
Thymus vulgaris
Westringia mundi

NATIVE PLANTING BEDS

Acacia acinacea
Acacia myrtifolia
Banksia `Roller Coaster'
Clematis microphylla
Correa pulchella prostrata
Cyperus vaginatus
Eremophila 'Amber Carpet'
Eremophila maculata compacta
Goodenia ovata `Gold Cover'
Kennedia prostrata
Mentha australis
Myporum pavifolium broad leaf form
Scaevola `Purple Fusion'

SUB-TROPICAL PLANTING BEDS

Clivia miniata
Hosta fortunei
Iris versicolor
Liriope muscari 'big blue'
Lomandra nyalla
Lomandra `Savannah Blue'
Lomandra 'Wingarra'

1:200 (A1), 1:400 (A3)
0 2 4 6 8 10m
N

LANDSCAPE AMENITY

ENVIRONMENT & AMENITY

— The integration of built form and landscape results in a variety of public and private open spaces which promote a flexible and healthy environment responding to the needs of staff, visitors and the general public.

— Landscaping is utilised to enhance the environmental performance of the development, in association with creating forecourts, courtyards and gardens for social use.

The Open Space for SAHMRI 2:

— Integrates landscape and open space with built form

— Creates a setting to benefit all of the community

— Creates a series of public, semi public and private open spaces

— Meets the needs and is attractive and comfortable for staff and visitors

— Has legible movement system with a series of linked walkways and courtyards

LANDSCAPE ELEMENTS & MATERIALS

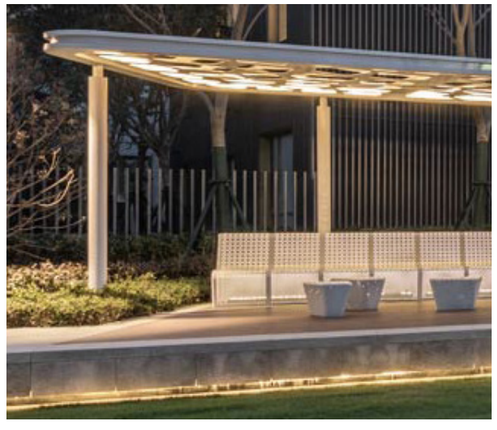
— Furniture provides amenity and contributes to the visual consistency of the public realm. The repetitive use of high quality precast sitting walls (to match SAHMRI 1) compliment a secondary set of furniture provided for comfort.

— Shade canopies are designed to complement the building and are orientated to provide comfort.









LANDSCAPE
CHARCTER

PLANTING

PLANTING PALETTE

— Throughout the precinct, species are chosen to contribute towards common, but also varied, themes.
— The planting supports an attractive and comfortable pedestrian environment.
— Trees are chosen to display seasonality, including the selection of deciduous trees in high use pedestrian areas to maintain winter sunlight.
— Shrubs and groundcovers are selected to manage all aspects of CPTED.
— Species recognise the limitations of maintenance and are selected for their ultimate form and horticultural characteristics, including pruning and habit over the medium to long term.

TREES

— Deciduous trees planted in copses, to create varies spaces and provide a backdrop

UNDERSTOREY

— Shrubs, groundcovers and grasses planted in thematic raised planting beds.

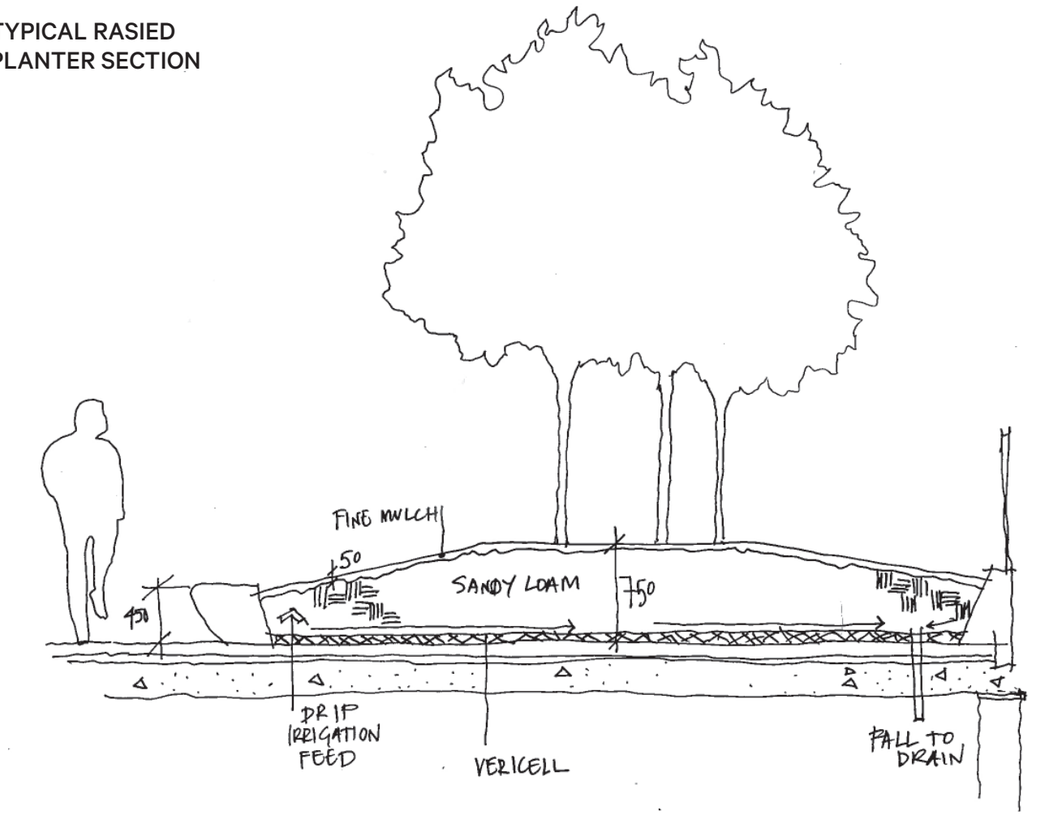
SAHMRI TYPOLOGIES & MICROCLIMATES

MEDITERRANEAN -
Native & Exotic Medicinal Plants, Mediterranean microclimate

NATIVE -
Indigenous Medicinal Plants

SUB TROPICAL -
Native & Exotic Medicinal Plants, Sub Tropical microclimate

TYPICAL RASIED PLANTER SECTION



EXISTING SAHMRI 1 PLANTING

MEDITERRANEAN PLANTING MIX

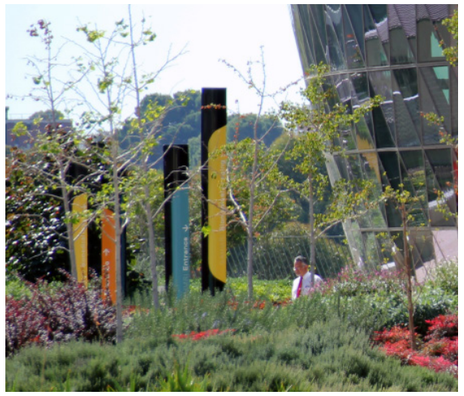
NATIVE PLANTING MIX

FLOWERING TREE AND SEASONAL TREE BACKDROP

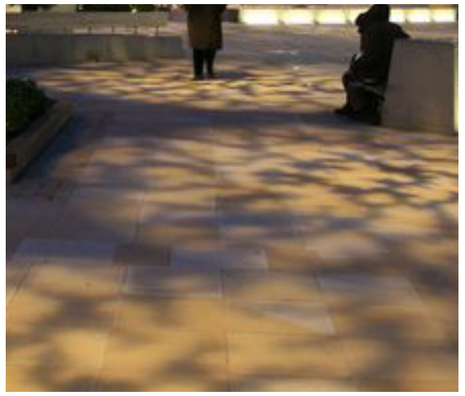
PLANTING TO CREATE SPACES

PUBLIC ART & INTERPRETATION

— An integrated approach to public art and interpretation is proposed as part of the development.
— This program extends to interpretation of the medicinal gardens, the design of furniture, feature lighting, and wayfinding.
— Any signage will be consistent and complimentary to signage totems within SAHMRI 1 and will be located to prevent ‘clutter’ of the public realm.



EXISTING SAHMRI 1
TOTEMS



LIGHTING OPPORTUNITY

PUBLIC ART
OPPORTUNITY

PUBLIC ART AT NORTH TERRACE
FORECOURT OPPORTUNITY

DEVELOPMENT APPLICATION FORM

COUNCIL: CITY OF ADELAIDE

APPLICANT: COMMERCIAL AND GENERAL

Postal Address: LEVEL 7, 2 KING WILLIAM STREET
ADELAIDE SA 5000

OWNER: MINISTER FOR TRANSPORT AND INFRASTRUCTURE

Postal Address: ADELAIDE SA 5000

BUILDER: COMMERCIAL AND GENERAL

Postal Address: LEVEL 7, 2 KING WILLIAM STREET ADELAIDE SA

Licence No:

CONTACT PERSON FOR FURTHER INFORMATION:

Name: GREG VINCENT - MASTERPLAN SA PTY LTD

Telephone: 8193 5600

Email: gregv@masterplan.com.au

Mobile: 0413 832 603

EXISTING USE:

DPTI RAIL CONTROL CENTRE

FOR OFFICE USE

Development No:

Previous Development No:

Assessment No:

☐ Complying	Application forwarded to DA
☐ Non-complying	Commission/Council on:
☐ Notification Cat 2	/ /
☐ Notification Cat 3	Decision:
☐ Referrals/Concurrence	Type:
☐ DA Commission	Date: / /

	Decision	Fees	Receipt No	Date
Planning:	YES			
Building:				
Land Division:				
Additional:				
Dev Approval:				

DESCRIPTION OF PROPOSED DEVELOPMENT: MULTI-STOREY HEALTH AND MEDICAL CLINICAL TREATMENT AND RESEARCH CENTRE INCLUDING PROTON THERAPY UNIT, GROUND FLOOR LOBBY, RECEPTION AND COMMERCIAL TENANCY, 11 LEVELS OF CLINICAL TRIAL, DRY LAB AND COMMERCIAL OFFICE FLOOR AREA

LOCATION OF PROPOSED DEVELOPMENT:

House No: Lot No: 20 Street: NORTH TERRACE Town/Suburb: ADELAIDE

Section No (full/part): DP 85645 Hundred: ADELAIDE Volume: 6083 Folio: 76

Section No (full/part): Hundred: Volume: Folio:

LAND DIVISION:

Site Area (m²): Reserve Area (m²): No of Existing Allotments:

Number of Additional Allotments - (Excluding Road and Reserve): Lease: YES: ☐ NO: ☐

BUILDING RULES CLASSIFICATION SOUGHT:

If Class 5, 6, 7, 8 or 9 classification is sought, state the proposed number of employees: Female: Male:

If Class 9a classification is sought, state the number of persons for whom accommodation is required:

If Class 9b classification is sought, state the proposed number of occupants of the various spaces at the premises:

DOES EITHER SCHEDULE 21 OR 22 OF THE DEVELOPMENT REGULATIONS 2008 APPLY? YES: ☐ NO: ☐

HAS THE CONSTRUCTION INDUSTRY TRAINING FUND ACT 1993 LEVY BEEN PAID? YES: ☐ NO: ☐

DEVELOPMENT COST (Do not include any fit-out costs): $124,370,000.00

I acknowledge that copies of this application and supporting documentation may be provided to interested persons in accordance with the Development Regulations 2008.

SIGNATURE: **Dated:** 11 APRIL 2018

CHARLIE SIMS FOR AND ON BEHALF OF COMMERICAL AND GENERAL

MASTERPLAN
TOWN + COUNTRY PLANNERS

13 April 2018

State Commission Assessment Panel
Level 5, 50 Flinders Street
ADELAIDE SA 5000

Attention: Gabrielle MacMahon

Dear Ms MacMahon

Re: Proposed Proton Therapy Unit and
Health and Medical Research Building (SAHMRI 2)

Please find enclosed herewith a development application prepared on behalf of Commercial & General for the construction of a multi-storey mixed-use building accommodating the first of its kind in Australia, Proton Therapy Unit, ground floor commercial tenancy and 11 building levels envisioned for health and medical research on North Terrace, Adelaide.

Enclosed with the application is the following documentation:

- a completed Development Application Form;
- a signed Office of Technical Regulator Power Line Clearance Declaration;
- Certificate of Title;
- digital copies of the following documents illustrating and describing the proposed development:
  - Schematic Design Architectural Report including the compendium of Architectural Plans prepared by Woods Bagot;
  - Landscape and Public Realm Report including a compendium of Landscape Plans prepared by Oxigen;
  - Services Statement including compendium of Services Spatial Layout Plans prepared by Aurecon;
  - Survey Plan prepare by FYFE; and

- digital copies of the following consultant reports assessing particular aspects of the proposed development:
    - Planning Report prepared by MasterPlan SA Pty Ltd;
    - Traffic Impact Assessment prepared by GTA Consultants;
    - Schematic Design ESD report prepared by Cundall;
    - Planning Stage Acoustic Report prepared by Resonate;
    - Waste Management Plan prepared by Rawtec Pty Ltd;
    - Stormwater Management Plan prepared by WGA;
    - Wind Impact Assessment prepared by Vipac Engineers and Scientists; and
    - Radiation Shielding Design and Air Emission Control Report prepared by Therapy Physics Inc.

Can you please advise on the required development application fees so that we can arrange for prompt payment from our client.

Please do not hesitate to contact the undersigned on 8193 5600 should you require any further information.

Yours sincerely

Greg Vincent
MasterPlan SA Pty Ltd

enc: Documents as Listed.
cc: Commercial & General, Att: Charlie Sims.

REAL PROPERTY ACT, 1886
South Australia

The Registrar-General certifies that this Title Register Search displays the records maintained in the Register Book and other notations at the time of searching.

Certificate of Title - Volume 6083 Folio 76

Parent Title(s) CT 6072/228

Creating Dealing(s) TG 11613356

Title Issued 02/09/2011 **Edition** 2 **Edition Issued** 22/01/2013

Estate Type

FEE SIMPLE

Registered Proprietor

MINISTER FOR TRANSPORT AND INFRASTRUCTURE
OF ADELAIDE SA 5000

Description of Land

ALLOTMENT 20 DEPOSITED PLAN 85645
IN THE AREA NAMED ADELAIDE
HUNDRED OF ADELAIDE

Easements

SUBJECT TO EASEMENT(S) OVER THE LAND MARKED N FOR THE TRANSMISSION OF ELECTRICITY BY UNDERGROUND CABLE (RTC 11497391)

SUBJECT TO EASEMENT(S) OVER THE LAND MARKED A AND B (TG 11613356)

SUBJECT TO EASEMENT(S) OVER THE LAND MARKED N FOR THE TRANSMISSION OF TELECOMMUNICATION SIGNALS BY UNDERGROUND CABLE (RTC 11497391)

TOGETHER WITH RIGHT(S) OF WAY ON FOOT WITH LIMITATIONS OVER THE LAND MARKED F (RTC 11497391)

TOGETHER WITH EASEMENT(S) OVER THE LAND MARKED P AND R FOR THE TRANSMISSION OF ELECTRICITY BY UNDERGROUND CABLE (RTC 11497391)

TOGETHER WITH EASEMENT(S) OVER THE LAND MARKED Q FOR DRAINAGE PURPOSES (RTC 11497391)

TOGETHER WITH EASEMENT(S) OVER THE LAND MARKED R FOR THE TRANSMISSION OF TELECOMMUNICATION SIGNALS BY UNDERGROUND CABLE (RTC 11497391)

TOGETHER WITH EASEMENT(S) OVER THE LAND MARKED S (RTC 11497391)

TOGETHER WITH FREE AND UNRESTRICTED RIGHT(S) OF WAY OVER THE LAND MARKED M (RTC 11497391)

Schedule of Dealings

Dealing Number	Description
12738724	APPLICATION PURSUANT TO SECTION 103P(2) OF THE ENVIRONMENT PROTECTION ACT 1993 NOTING THAT A SITE CONTAMINATION AUDIT REPORT HAS BEEN PREPARED IN RESPECT OF THE WITHIN LAND

Notations

Dealings Affecting Title NIL

Priority Notices NIL

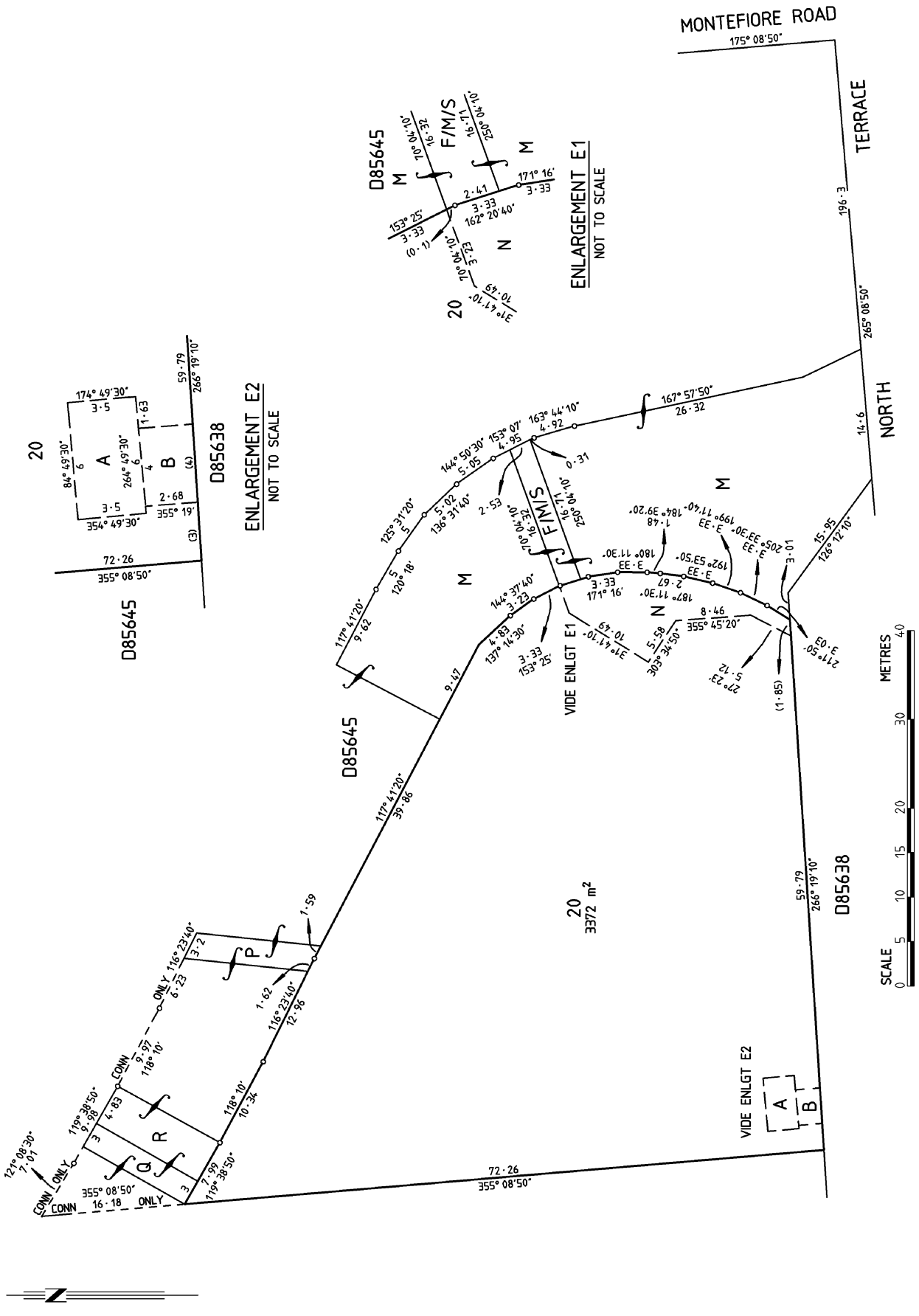
Notations on Plan NIL

Registrar-General's Notes

APPROVED G127/2006

Administrative Interests NIL

Product	Register Search (CT 6083/76)
Date/Time	21/11/2017 03:00PM
Customer Reference	CS - SAHMRI 2
Order ID	20171121009808
Cost	$28.25



LEGEND

These standard symbols will be found in the drawing.

- TELSTRA IP
- DRAINAGE GRATING
- SUMP POINT
- LIGHT
- LIGHT POLE
- ETSA INSPECTION COVER
- GAS IP
- SOLENOID VALVE
- SEWER INSPECTION POINT
- BOLLARD
- TRAFFIC LIGHT
- TRAFFIC SIGN
- MONITORING WELL
- HYDRANT PILLAR
- STOP VALVE
- TREE
- COMMUNICATION JUNCTION BOX
- SUMP
- ELECTRICAL PIT
- WATER PIT
- COMMUNICATIONS CABLE UNDERGROUND
- STORMWATER PIPE UNDERGROUND
- ELECTRICAL CABLE UNDERGROUND
- GAS PIPE UNDERGROUND
- WATER PIPE UNDERGROUND
- FENCE
- ROAD BARRIER
- SPOON DRAIN
- WATER TABLE
- ROAD LINEMARKING - WHITE
- ROAD LINEMARKING - YELLOW
- PERGOLA
- NATURAL SURFACE
- EASEMENT
- CONTOUR (0.5m INTERVAL)
- INDEX CONTOUR (1.0m INTERVAL)

31.71CE	INDICATES LEVEL
35.03INV	INDICATES INVERT LEVEL
28.12WT	INDICATES WATERTABLE LEVEL
28.15EB	INDICATES EDGE OF BITUMEN LEVEL
28.25TK	INDICATES TOP OF KERB LEVEL
28.03EC	INDICATES EDGE OF CONCRETE LEVEL
33.34RT	INDICATES RETAINING WALL TOP LEVEL
31.60RB	INDICATES RETAINING WALL BOTTOM LEVEL
31.54FFL	INDICATES FINISHED FLOOR LEVEL
31.71CE	INDICATES UNDERGROUND WALKWAY CEILING LEVEL
29.25BW	INDICATED BOTTOM OF WALL LEVEL
28.72CM	INDICATES DEPTHED UNDERGROUND COMMUNICATION SERVICE LEVEL
28.74EL	INDICATED DEPTHED UNDERGROUND ELECTRICAL SERVICE LEVEL

NOTES:

LOCATION OF GAS MAIN IN ACCESS ROAD IS APPROXIMATE ONLY AS NOT LOCATED IN THE FIELD AND IS SHOWN FOR INDICATIVE PURPOSES ONLY.

EASEMENT NOTES:

PORTION OF ALLOTMENT 20 MARKED 'A' & 'B' ARE SUBJECT TO AN EASEMENT.
PORTION OF ALLOTMENT 20 MARKED 'N' IS SUBJECT TO AN EASEMENT FOR TRANSMISSION OF TELECOMMUNICATIONS AND ELECTRICITY BY UNDERGROUND CABLE.

GAS MAIN POSITION APPROXIMATE ONLY (NOT FIELD VERIFIED)

PHOTO 1

PHOTO 2

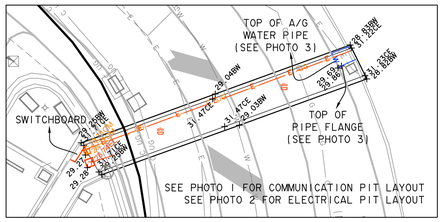
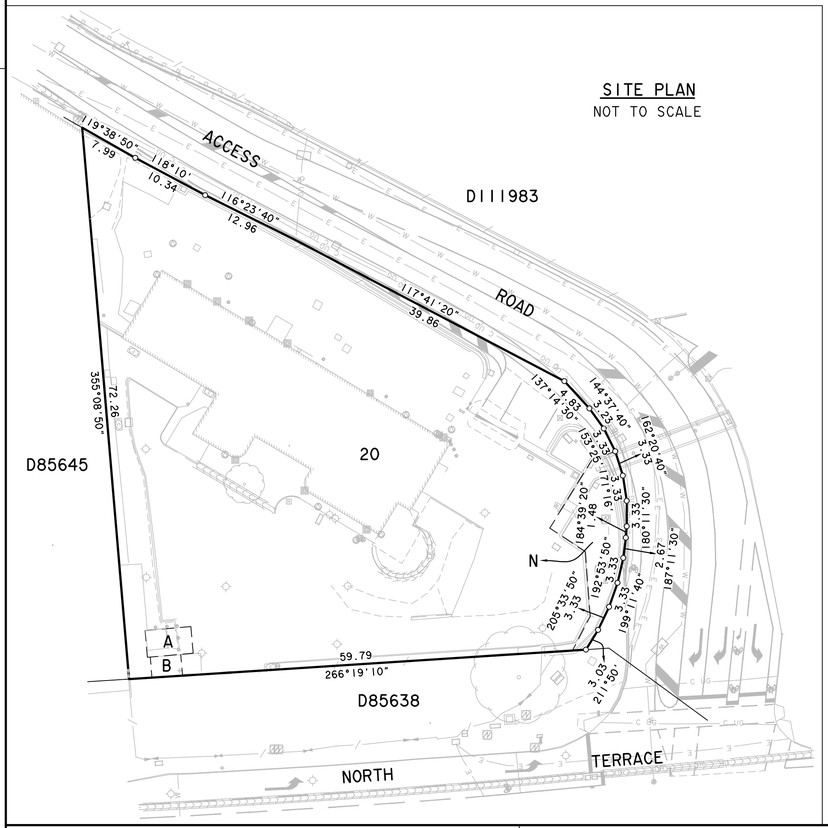
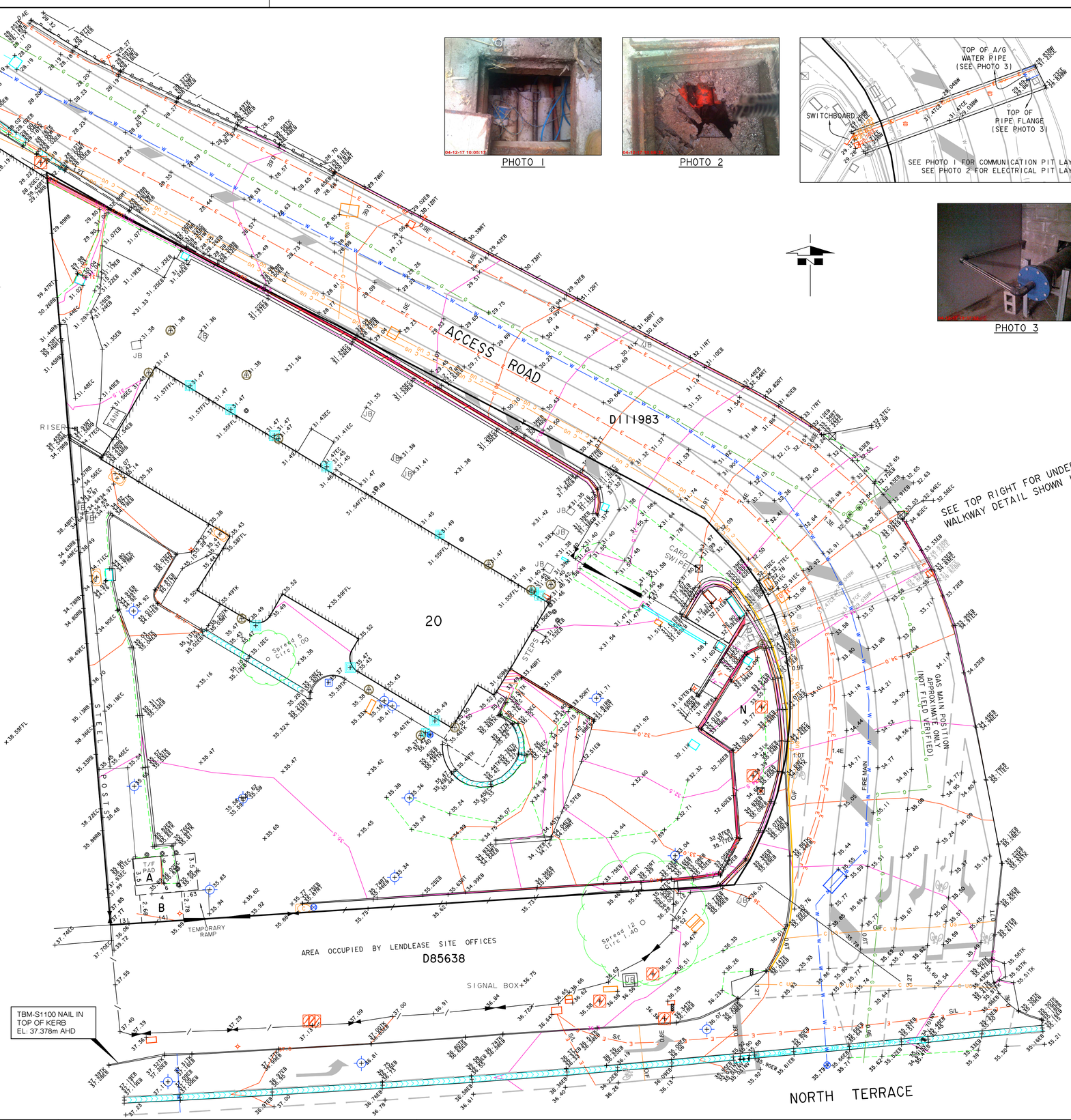


PHOTO 3

SEE TOP RIGHT FOR UNDERGROUND WALKWAY DETAIL SHOWN IN GREY

SITE PLAN
NOT TO SCALE





FYFE
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The title boundaries shown hereon were not marked at the time of survey and have been determined by plan and title dimensions only and not by field measurement. If the dimensions or description of the subject land are critical for the design of new structures or financial decisions, then we recommend that an identification survey or certified survey be undertaken.

PLAN DETAILS

COUNCIL :	ADELAIDE CITY COUNCIL
MAP SHEET :	6628-41-e
CT REFS :	CT 6083/76

SCALE 1: 200 (0 5 10 15 20)

LEVEL DATUM :	AHD 3rd ORDER
DATA FILE/S :	65130-2-1.CRD
LEVEL AUTHORITY :	PSM 6628/1405 EL 38.167m 26/08/1999
SURVEYOR:	RS
CO-ORD DATUM :	MGA94 PLANAR SYSTEM

NO.	REVISION	STAFF	CHECK	DATE
1	SURROUNDING ROAD DETAIL ADDED	AYW	RS	06/12/17
0	PREPARED FOR INFORMATION	AGM	RS	13/11/17

C & G COMMUNITIES

DETAIL AND LEVEL SURVEY
ALLOTMENT 20 in D85645
HUNDRED OF ADELAIDE
ADELAIDE

DRAWING 65130-2-1-SV-TO01-r1

INSTRUCTION :	65130/2/1
DATE	08/12/2017
SHEET	1 OF 1
REV.	1

ORIGINAL SIZE A1

PLANNING REPORT

Proposed Proton Therapy Unit and Health and Medical Research Building (SAHMRI 2)

North Terrace, Adelaide
For Commercial & General

Prepared by
MasterPlan SA Pty Ltd
ABN 30 007 755 277, ISO 9001:2015 Certified
33 Carrington Street, Adelaide SA 5000
Telephone: 8193 5600, masterplan.com.au

April 2018

Contents

1.0 INTRODUCTION

MasterPlan SA Pty Ltd has been engaged by Commercial & General to assist with the preparation of a development application for the construction of a multi-storey mixed-use building accommodating the first of its kind in Australia, Proton Therapy Unit, ground floor commercial tenancy and 11 building levels envisioned for health and medical research on North Terrace, Adelaide.

The Proton Therapy Unit (PTU) is accommodated over five building levels, three below the North Terrace finished ground level, a ground floor reception and mezzanine offices.

Strategically located at the heart of the largest health and biomedical precinct in the Southern Hemisphere, SAHMRI is working with its strategic partner, Commercial & General, to construct a building which will sit alongside the Royal Adelaide Hospital, SAHMRI, the University of Adelaide Health and Medical Sciences Building, and the University of South Australia's Health Innovation Building.

Whilst the building is yet to be formally named, it has become known as SAHMRI 2, with the PTU named the Australian Bragg Centre for Proton Therapy and Research.

This unique infrastructure represents South Australia's highest priority project for health, research and education, providing a focal point for research of international calibre into the most serious chronic illnesses. Unprecedented numbers of health care professionals will be trained here to address current and future capacity constraints and surging health care demands.

The building will comprise world-class facilities for cutting edge research by SAHMRI, and lab and office space for biomedical companies keen to be part of Adelaide's burgeoning biomed industry and educational institutions. The heart of the building sits at its bunker – a three-level research and treatment facility in next generation cancer treatment.

This report has been prepared in collaboration with Woods Bagot Architects and contains a description of the subject land, the locality and the proposed development, as well as our assessment of the proposed development against the relevant provisions of the Adelaide (City) Development Plan.

We have concluded from our detailed and balanced assessment of the proposed development that it sufficiently accords with the relevant provisions of the Adelaide City Development Plan for the reasons set out herein.

2.0 BACKGROUND AND PRE-LODGEMENT DISCUSSIONS

2.1 Pre-lodgement

The applicant, Commercial & General voluntarily participated in the State Planning Commission's (the Commission's) Pre-Lodgement Panel (PLP) Process, including the Design Review Panel (DRP) Process with the Office for Design and Architecture South Australia (ODASA).

The proposed development has been informed by the feedback received from key stakeholders during these processes, including commentary from:

- DPTI Planning Staff;
- Adelaide City Council staff;
- Environment Protection Authority staff; and
- ODASA Design Review Panel.

Commercial and General, through their project team, sought and obtained feedback from the key stakeholders which was then incorporated into the proposed development at the following Pre-Lodgement and ODASA Design Review meetings:

- Pre-Lodgement Panel Meeting #1, 19 December 2017; and
- Design Review #1, 21 February 2018.

Through the pre-lodgement process, general stakeholder support of the following elements in the design were noted:

- the proposed land use is highly envisaged;
- the proposed building height of 13 levels (plus Mezzanine) above North Terrace ground level and 96.35 metre AHD meets the Development Plan height and is an appropriate and complementary height to the existing built form context;
- the location of consolidated service access from the eastern access road; and
- the targeted LEED v4 Building Design and Construction Gold Rating.

It is acknowledged that the design requirements for the specialised Proton Therapy equipment, loading, construction, separation and clinical flow has a significant influence on the design of the building.

The critical elements identified by DPTI Staff and ODASA through the PLP and DRP process included:

- the integration of the ground floor plane to the interface with the public realm;

- the ability to accommodate shared drop off zone to Service both SAHMRI 1 and the proposed new building;
- clarification of the waste management facilities and shared service loading bay;
- clarification of the integrated movement strategy for pedestrians, cyclists and vehicles;
- clarification of management of medical waste;
- clarification of site decommissioning;
- examination of reconfiguring the ground floor land uses;
- consideration of the wind conditions between SAHRMI 1 and the proposed development;
- consideration of engagement through building levels;
- the location of the end of trip facilities;
- the opportunity to consider opening the skin/surface of the façade to allow for visibility of movement in the upper levels; and
- the extent of glazing at ground floor to ensure visual permeability and activation of the North Terrace frontage and forecourt plaza.

In the development of the final plans the above matters have been considered and where relevant amendments to the design have responded to the comments expressed.

In particular, the design team has considered the preliminary comments and a summary of the response is detailed below:

Ground Floor Interface with Public Realm

The ground floor (North Terrace Frontage) of the proposed development has been designed to balance the interface and interaction between the active North Terrace Public Realm, the level differences across the North Terrace frontage (approximately 1.7 metres fall from west to east), the adjacent forecourt plaza of the SAHMRI 1 building and the George Street signalised intersection.

The ground floor fronting North Terrace incorporates a clearly definable entry to the building, facing the North Terrace and orientated to link with the SAHMRI 1 building to the west. A commercial tenancy, suitable for a range of commercial, retail or food and hospitality uses occupies the primary frontage of the building to North Terrace in the south-eastern portion of the building resulting in an elevated ground floor due to the level differences across the site. The elevated ground floor is linked to the North Terrace public realm with a series of terraced steps while also incorporating a landscaped treatment to the corner, allowing the interface to provide a passive but actively visual interface while balancing the hostile nature of the intersection with the high number of vehicle movements along North Terrace.

The setback of the ground floor plane of the building allows for the establishment of pedestrian plaza around the building directly integrating with the North Terrace public realm and satisfying Principle of Development Control 5 of the Health Policy Area to *"incorporate landscaped forecourts and/or public meeting spaces as transition spaces between North Terrace and buildings within the Zone"*.

Shared Drop-off Zone

A shared drop-off zone on North Terrace between SAHMRI 1 and SAHMRI does not form part of the application. Dedicated patient drop-off area for the PTU is provided for the proposed development at Level 01 off the eastern access road and the Ground floor is designed and orientated to not preclude the opportunity for the development of a joint drop-off area on North Terrace subject to the design and implementation of the Adelaide City Council.

While we note, that there are no Development Plan provisions nor illustrated concept plans that require or envisage a set down or drop of area for vehicles on the North Terrace frontage of the site, Commercial & General has proactively engaged with the City of Adelaide, Renewal SA and the Department of Planning, Transport and Infrastructure (DPTI) in regards to a suitable drop-off area to support the precinct's requirements, outside of this formal submission. A potential location has been considered and highlighted on the Public Realm Movement Plan prepared by Oxigen (refer to Figure 1 below).

Waste Management Facilities

A dedicated waste management room has been provided at Level 01 of the building adjacent the service delivery, loading bay suitable to accommodate the projected waste generated by the users of the Building. RAWTEC have undertaken an assessment of the waste generation rates for the prospective users and consider the size of the waste room sufficient to accommodate the volume of waste generated.

The Waste room is conveniently located adjacent the building core at Level 01 and enables waste collection vehicles to collect waste without impacting on the free flow of domestic traffic associated with access of the patient set down/drop-off area.

Integrated Movement Strategy

The design of the proposed building has given every consideration to the integrated movement of pedestrians, cyclists and vehicles within the precinct and associated with the proposed development. It is noted that there are Riverbank wide master plans being developed for future pedestrian and cycling connections within the precinct. The proposed design does not preclude future connections to the north of the site through the establishment of a plaza and space between the SAHMRI 1 building and the proposed development as shown in the Public Realm Movement Plan which identifies existing and potential future linkages throughout the precinct.

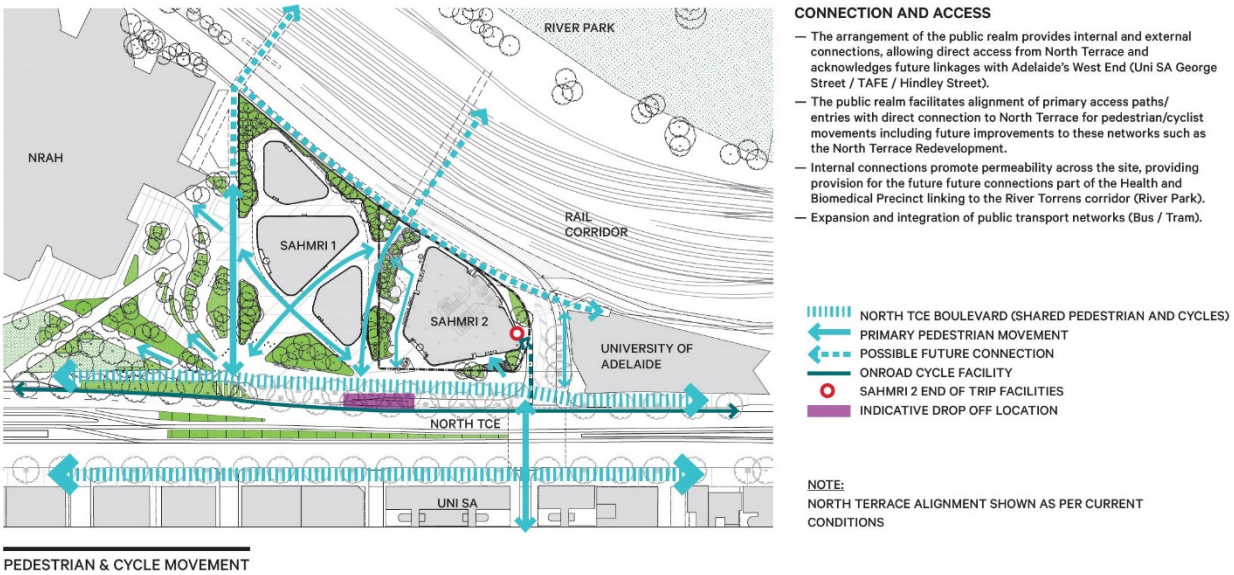


Figure 1: Public Realm Movement

When considered in the context of the Figure Rb/2 above, the proposed development is entirely consistent with the integrated movement strategy for the Precinct and the Riverbank Zone which envisages the primary pedestrian and cycling path along North Terrace and the future north south Pedestrian and Cycling link between Gray Street and the River Torrens located between the eastern end of the Royal Adelaide Hospital and the SAHMRI 1 building site.

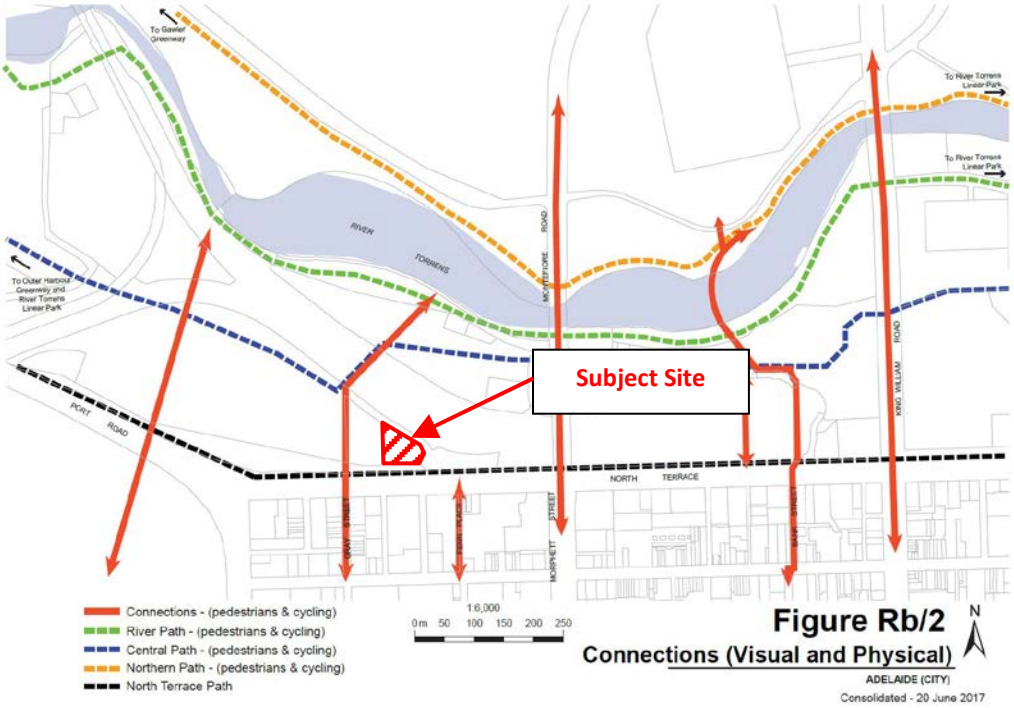


Figure 2: Connections (Visual and Physical) Concept Plan

The proposed development is therefore considered to satisfy Riverbank Zone Principle, of Development Control 12 by promoting Pedestrian movement based on a network of pedestrian access ways or thoroughfares, linking the surrounding Zones and giving a variety of north-south and east-west links, as indicated on Figure Rb/2.

Management of Medical Waste

The EPA's comments regarding the management of Medical waste are noted and have been considered in the overall waste management strategy prepared by RAWTEC which incorporates a secure zone within the waste storage room at Level 01 for collection.

Informing the medical waste generation and storage assessment, we note medical waste may be generated in the clinical trials (CT) (within the SAHRMI fitout levels only) and may include:

- needles, syringes with needles, possibly surgical instrument or other articles that are discarded in the course of CT;
- small amounts of human tissue or blood samples only depending on the CT phase;
- a vessel, bag or tube containing a liquid body substance may possibly be generated depending on the CT, this may include urine samples; and
- a specimen or culture may be discarded in the course of medical CT.

We also note that:

- no pathology activities will be conducted on site. Any pathology services required as part of any CT will be undertaken by an external consultancy; and
- no pharmacy activities will be conducted on site. It is envisaged that nRAH pharmacy will be undertaking CT pharmacy activities.

The following 'Clinical Trial Overview' is provided in support of the above medical waste assessment.

> *Many clinical trials to develop new interventions are conducted in phases. In the early phases, the new intervention is tested in a small number of participants to assess safety and effectiveness.*
>
> *If the intervention is promising, it may move to later phases of testing where the number of participants is increased to collect more information on effectiveness and possible side effects. Clinical trials of biomedical interventions typically proceed through the following phases.*

Phase 0 Clinical Trial

Phase 0 clinical trials researchers may conduct exploratory studies, sometimes referred to as 'pilot studies'. These come before Phase I trials and are used to test how the body responds to an experimental drug. In these studies, small doses of the new drug are given once or for a short time to a very limited number of people.

Clinical trials of diagnostic tests are sometimes divided into exploratory phases, challenge phases and advanced phases to see how effective and how accurate the tests are.

Phase I Clinical Trial

Phase I clinical trials are done to test a new biomedical intervention for the first time in a small group of people (e.g. 20-80) to evaluate safety (e.g. to determine a safe dosage range and identify side effects).

Phase II Clinical Trial

Phase II clinical trials are done to study an intervention in a larger group of people (several hundred) to determine efficacy (that is, whether it works as intended) and to further evaluate its safety.

Phase III Clinical Trial

Phase III studies are done to study the efficacy of an intervention in large groups of trial participants (from several hundred to several thousand) by comparing the intervention to other standard or experimental interventions (or to non-interventional standard care). Phase III studies are also used to monitor adverse effects and to collect information that will allow the intervention to be used safely.

Phase IV Clinical Trial

Phase IV studies are done after an intervention has been marketed. These studies are designed to monitor the effectiveness of the approved intervention in the general population and to collect information about any adverse effects associated with widespread use over longer periods of time. They may also be used to investigate the potential use of the intervention in a different condition, or in combination with other therapies

Site Decommissioning

Due to the nature of the Proton Therapy equipment as a radiation producing system, the design of the building must consider end-of-life decommissioning.

For example, steel reinforcement within the concrete bunkers may attain a low-level of radiation activation over the lifecycle of the building.

Appropriate analysis will be undertaken during the detailed design phase to incorporate decommissioning considerations, along with an appropriate decommissioning plan and methodology.

Configuration of Ground Floor Land Uses

In the consideration of the configuration and arrangement of the ground floor land uses the development plan actively seeks the activation of the public realm which in this instance is primarily the North Terrace frontage of the site, with the eastern access road being a secondary public realm. The landscaped plaza between SAHMRI 1 and the proposed development provides space between the buildings and while open to the public is located on private land and allows for the integrated movement of SAHMRI staff between the two buildings and a secondary more reclusive ground floor entry to the Proton Therapy Clinic.

The Development Plan does not identify the need for a pedestrian thoroughfare between SAHMRI 1 and the proposed development, as is shown between the Royal Adelaide Hospital and SAHMRI 1 on Figure Rb/2 – Connections (Visual and Physical) for the Riverbank Zone.

The preferred and discrete location for the ground floor reception located behind the North Terrace frontage to the site and elevated above the eastern access road has been identified as the preferred location by the operators. This combined with the development plans preference for an active frontage to the public realm (North Terrace) consistent with satisfying Riverbank Zone Principle of Development Control 8(a) by the development incorporating a commercial tenancy suitable for a range of retail or food and hospitality uses which will enhance the activation of North Terrace as the primary pedestrian orientated frontage of the development.

Accordingly, it is considered that the ground floor arrangement of land uses provides the appropriate balance of activation to the public realm and accommodation of the "refuge" needs associated with the specialised services afforded by and he physical and design constraints associated with the establishment of the Proton Therapy Unit.

Wind Impact on Forecourt Plaza

The potential wind impacts on the forecourt plaza and the building entrance adjacent North Terrace and the landscaped plaza between SAHMRI 1 and the proposed development have been considered by VIPAC in a desktop study. Based on their experience, VIPAC have concluded that the ground level of the building will not be affected by wind conditions that would exceed the identified comfort criterion for the identified purposes of the respective outdoor ground plane areas.

Engagement Between Building Levels

The proposed building has designated specific uses at different levels of the building together with identified tenant specific requirements.

Having regard to the ODASA comments, the design of the proposed development as incorporated vertical integration between the upper level floors to allow for engagement between the building levels.

The Proton Therapy Unit incorporates specific vertical integration between the Levels 00 being the clinic treatment facility and support areas, Level 01 accommodating the PTU plant and on-site patient drop-off, Level 03 accommodating the PTU Clinic reception area and the mezzanine floor for the PTU offices.

SAHMRI who will occupy Levels 04, 05 and 06 includes a dedicated ground floor entrance to the tenancy at the eastern end of the building beyond the lift core and is vertically integrated across Levels 03, 04, 05 and 06 with a void and stair case access between these levels.

The upper levels of the building incorporate voids in the eastern portion of the typical floor plates on Levels 08, 10, 11, 12 and 14 to provide flexible floor plates which can provide for vertical integration and engagement between the upper floor levels

Location of End of Trip Facilities

The unique nature of the site and levels adjacent the boundaries of the site facilitate the opportunity to incorporate easily accessible end of trip and bicycle storage facilities at Level 02 with direct access from the bicycle lane on the eastern access road.

Image 1: View of Site from Bike Lane on George Street (Eastern Access Lane)

The extent of floor area dedicated to bike storage and end of trip facilities is more appropriately located on a floor level other than the ground floor where easy access is obtainable, to enable the ground floor to provide a higher proportion of active and visually permeable floor area.

Accordingly, and on balance, it is considered more appropriate to accommodate the bike storage and EOT facilities on Level 02 rather than the ground floor noting that they are easily accessible to the user and do not detract from attaining a highly visible and active ground floor use.

Opening of Façade

The façade design has been the subject of extensive study and design development since the design review on the 21 February 2018, taking into consideration the need to balance:

- solar analysis (heat gain);
- internal experience (access to light and outlook); and
- user needs.

The curtain wall façade and integrated sun hoods allow for visibility of movement within the upper levels while balancing the need to control heat gain and providing a high level of internal experience without he need to 'open the skin' or surface of the façade through the incorporation of balconies.

Extent of Glazing to Ground Floor Plane

The proposed ground floor plane provides extensive glazing to in excess of 95 percent of the ground floor providing a high level of visual permeability and activation of the ground floor use.

It is only the structural columns and core that provide a solid mass in the ground floor plane, flowing from the design philosophy of the ground floor as a transparent and visual permeable mediator between the lower ground Proton Therapy Unit building levels and the upper level tower form of the building.

3.0 SUBJECT LAND AND LOCALITY

3.1 Subject Land

The subject land is located on the north-western corner of the intersection of North Terrace and George Street in Adelaide. The subject land is presently occupied by the Rail Operations Control Centre building and associated car parking, which will be demolished to accommodate the proposed development.

The site is located between the existing SAHMRI building and the University of Adelaide Health and Medical Sciences building.

The University of South Australia's 'City West' campus is located opposite the subject land, on the southern side of North Terrace, while the Adelaide Metro train yards are located to the north of the subject land, on the northern side of George Street.

The site, for the purpose of the proposed development is currently contained within a single land parcel:

CT VOLUME/FOLIO	PARCEL	PLAN
Volume 6083, Folio 76	Lot 20	Deposited Plan 85645

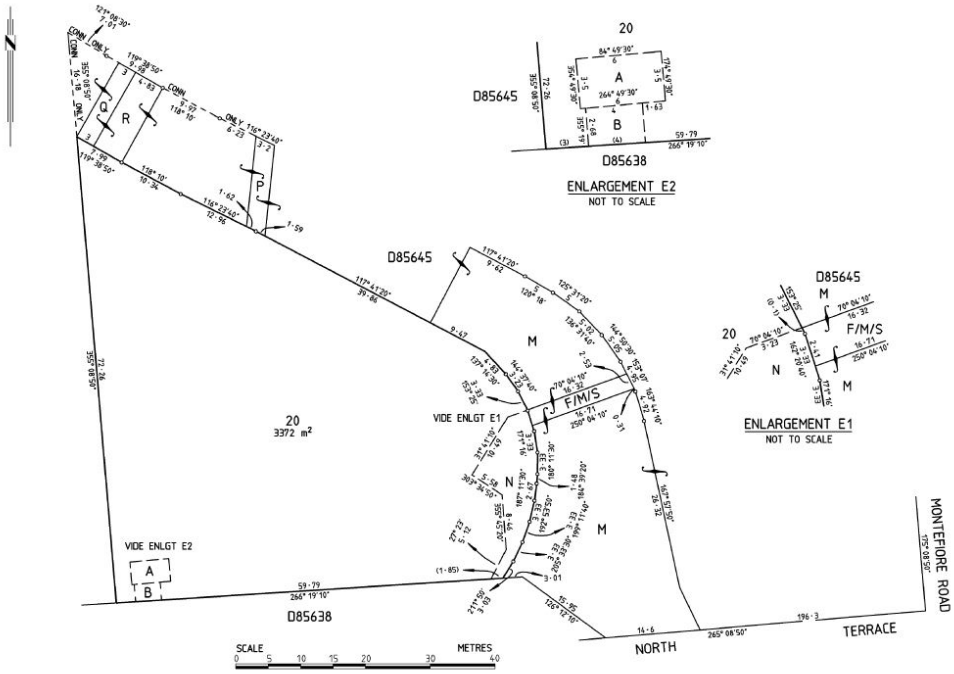


Figure 3: Lot 20, Volume 6083, Folio 76

The subject land has a site area of 3,372 square metres.

Current Easements over the Subject Land

- Underground electricity cables in favour of SA Power Networks (Marked 'N').
- An electricity transformer and associated infrastructure (Marked 'A' and 'B').

Current Easements Adjacent the Subject Land (in favour of the subject land)

- Right of way for pedestrian access (Marked 'F').
- Easement for access to underground electricity cables (Marked 'P' and 'R').
- Easement for drainage purposes (Marked 'Q').
- Easement for access to underground telecommunications infrastructure (Marked 'R').
- Easement for access to underground telecommunications infrastructure (Marked 'S').
- Free and unrestricted right of way over a portion of George Street (marked 'M').

It is also noted on the Title that a Site Contamination Audit Report has been prepared in respect of the subject land in accordance with the *Environment Protection Act 1993* (Dealing No. 12738724).

The subject land is fully serviced and where there are currently easements for underground electricity cables a transformer and associated infrastructure which provide constraints over the land, this infrastructure is to be relocated and the respective easements amended accordingly to reflect the relocated infrastructure.

The subject land enjoys a free and unrestricted land along only a portion of its frontage to George Street (Eastern Access Road), which has not been gazetted as a public road. As part of the ownership transaction between SAHMRI and the Department of Planning Transport and Infrastructure (DPTI) the rights of way over George Street (being part of Lot 102 in Deposited Plan 111983) are under discussion to be extended across the entire eastern boundary of Lot 20.

Additionally, the existing easements both over, and in favour of, the land that relate to services and functions that will become redundant upon vacation of the site by the Rail Operations Control Centre, are also under negotiation to be removed

No vehicular access to the land is provided from North Terrace.

3.2 Nature of the Locality

The locality is characterised by varying forms of institutional land uses and built form. The northern side of North Terrace is home to the new Royal Adelaide Hospital, the South Australian Health and Medical Research Institute (SAHMRI), the University of Adelaide's Health and Medical Sciences building, the Adelaide Convention Centre and the soon to be completed University of South Australia Health Innovation Building.

The south side of North Terrace is dominated by the University of South Australia's 'City West' campus, but also includes Hotels, a Church, a Museum, an Arts Centre, a private hospital and several offices.

The Adelaide Park Lands are located within close proximity of the subject land, with the Torrens Riverbank accessible via the Morphett Street bridge and Park 25 (Narnungga) located approximately 350 metres west of the subject land.

North Terrace is listed within the City of Adelaide's Development Plan as an arterial road, under the care and control of the Commissioner of Highways.

The site is well serviced by public transport. The Entertainment Centre to Glenelg Tram line travels along North Terrace, with the site located at the mid-point between the 'City West' and 'West Terrace' stops, each of which is located approximately 180 metres from the subject land. Work is underway to extend the tram network to include additional services along North Terrace and King William Street as the first stage of the 'East-link' service.

The Adelaide Train Station is located approximately 580 metres to the east of the subject land. The Adelaide Train Station provides direct access to all of metropolitan Adelaide's train lines and stations.

Several 'Adelaide Metro' bus services travel along Currie Street, which is conveniently located approximately 350 metres to the south of the subject land. Many more Adelaide Metro bus services travel along King William Street, with the nearest stops approximately 800 metres to the east of the subject land.

4.0 PROPOSED DEVELOPMENT

The proposed development comprises the construction of a multi-storey building accommodating:

- an Australian first Proton Therapy unit which will deliver the most technologically advanced, precision radiation therapy ever seen in the Southern Hemisphere and has the potential to be part of the cure for a significant number of cancers;
- a commercial tenancy on the ground floor suitable for retail, café or other commercial land use that would benefit from the high exposure to North Terrace;
- floor space on the 11 upper levels designed to facilitate clinical and dry lab research, with a minimum of three levels tenanted by SAHMRI to complement their existing research facilities in the adjoining building;
- the building levels below the North Terrace ground level will also accommodate building services, the specialised Proton Therapy Equipment, on site loading and unloading, patient drop-off facilities and end of trip facilities for cyclists including bicycle storage; and
- Level 15 at the top of the building within the roof space will accommodate plant and ancillary services.

The proposed development is described in detail below in the following sections and more fully illustrated in the compendium of plans accompany the application prepared by Woods Bagot identified in Table 1 – Drawing Schedule.

TABLE 1: ARCHITECTURAL DRAWING SCHEDULE

NO.	SHEET TITLE	REVISION	DATE
AR-SK1001	Site Plan	A	09.04.18
AR-SK1011	Demolition Plan	A	09.04.18
AR-SK2200	Floor Plan - Level 00	N	12.04.18
AR-SK2201	Floor Plan - Level 01	p	09.04.18
AR-SK2202	Floor Plan - Level 02	M	09.04.18
AR-SK2203	Floor Plan - Level 03 - Plaza	K	11.04.18
AR-SK2203M	Floor Plan - Level 03M - Mezanine	D	09.04.18
AR-SK2204	Floor Plan - Level 04 - SAHMRI Fitout	D	09.04.18
AR-SK2205	Floor Plan - Level 05 - SAHMRI Fitout	D	09.04.18
AR-SK2206	Floor Plan - Level 06 - SAHMRI Fitout	D	09.04.18
AR-SK2207	Floor Plan - Level 07 - Typical L7, L9, L11, L13	B	09.04.18
AR-SK2208	Floor Plan - Level 08 - Typical L8, L10, L12, L14	F	09.04.18
AR-SK2215	Floor Plan - Level 15 - Plant Room	D	09.04.18
AR-SK2216	Floor Plan - Roof	F	09.04.18
AR-SK3100	Elevation - North	D	09.04.18
AR-SK3101	Elevation - East	E	09.04.18
AR-SK3102	Elevation - South	F	11.04.18
AR-SK3103	Elevation - West	E	11.04.18
AR-SK3200	Section - East West	D	09.04.18
AR-SK3201	Section - North South	D	09.04.18
AR-SK3201	Section – Podium Study	D	11.04.18
AR-SK3203	Section - Atrium	A	09.04.18
AR-SK4110	Façade - Design Elements	A	12.04.18

Additional details accompanying the application to assist in more fully describing the nature of the application are included with the following reports:

- Schematic Design Architectural Report prepare by Woods Bagot dated April 2018;
- Landscaping and Public Realm Plan prepared by Oxigen dated April 2018;

TABLE 2: LANDSCAPE DRAWING SCHEDULE

NO.	SHEET TITLE	REVISION	DATE
17.074	Landscape and Public Realm Report	-	April 2018
17.074	SAHMRI 2 Landscape Plan (Within Report)	A	11.04.18
17.074	SAHMRI 2 Public Realm Plan (Within Report)	A	11.04.18

- Schematic Design ESD Report prepared by Cundall dated 29 March 2018;
- Storm Water Management Plan prepared by WGA dated 4 April 2018;
- Traffic Impact Statement prepared by GTA Consultants dated 12 April 2018;
- Acoustic Report prepared by Resonate dated 11 April 2018;
- Wind Impact Assessment prepared by VIPAC dated 10 April 2018;
- Service Report prepared by Aurecon dated 4 April 2018;

TABLE 3: SERVICES DRAWING SCHEDULE

NO.	SHEET TITLE	REVISION	DATE
-	Floor Plan - Level 00 (Transformer Room)	-	-
-	Floor Plan - Level 01 (Generators, Fire Booster, Gas Metre Room, Fire Control Room, Central Chiller Plant and Sewer Connection)	-	-
-	Floor Plan - Level 02 (Water Connections, Metres and Fire Main)	-	-
-	Floor Plan - Level 15 (Fire tank, Central Plant, Cooling Towers)	-	-
-	Roof Plan (Cooling Towers, Smoke Exhaust Fans, Hot Water Plant Flues)	-	-
-	East-west Section (Generator Flues)	-	-

- Waste Management Report prepared by RAWTEC dated 11 April 2018; and
- Radiation Protection and Control Report prepared by Therapy Physics Inc dated 10 April 2018.

4.1 Land Use

The Proton Therapy Unit provides a specialised technologically advanced, precision radiation therapy for the treatment of cancer patients and having regard to the land use definitions in Schedule 1 of the Development Regulations 2008 falls within the definition of consulting room, being a building or in this instance a part of a building used in the practice of a profession by medical practitioner for the provision of medical services.

> ***consulting room*** *means a building or part of a building (not being a hospital) used in the practice of a profession by a medical, veterinary or dental practitioner, or a practitioner in any curative science, in the provision of medical services, mental, moral or family guidance, but does not include a building or part of a building in which animals are kept for fee or reward.*

The specialised nature of the treatment requires technologically advanced equipment which while requiring extensive floor space is considered ancillary and subservient to the delivery of the medical services in the form of precision radio therapy.

Accordingly, the use of the building for consulting rooms associated with the Proton Therapy Unit, includes:

- the basement of 607 square metres accommodating part of the Proton Therapy Bunker Equipment Bunker (Level B1);
- Level 00 accommodating 1,724 square metres for the PTU Clinical treatment and support areas, and an additional 928 square metres of the Proton Therapy Bunker Equipment Bunker and Proton Therapy Treatment rooms;
- Level 01 accommodating additional 730 square metres of PTU Plant and technical equipment, building services and a dedicated car park for patient drop-off;
- 635 square metres of Level 03 or the North Terrace ground floor, accommodating the PTU clinic and reception; and
- Level 03 Mezzanine accommodating 469 square metres of office floor area for the PTU staff which is ancillary and subservient to the delivery of the medical services.

On the ground floor a commercial tenancy of 520 square metres is suitable of accommodating a range of land uses including office, consulting room, shop or restaurant.

SAHMRI will occupy 150 square metres of the ground floor (Level 03) and 4,869 square meters of net lettable area over Levels 04, 05 and 06 for clinical trials and dry lab research. The nature of the land use represents a mix of consulting rooms and offices, noting that the clinical trials can reasonably be considered to comprise the practice of a profession by medical practitioner for the provision of medical services, while the dry lab research is akin to an office being floor area used for administration or the practice of a profession that does not include consulting rooms.

> ***office*** *means any building used for administration or the practice of a profession, but does not include consulting rooms or premises where materials or goods are stored for sale or manufacture;*

Levels 7 through to 13 provide a total 13,460 square meters of net lettable commercial tenancy floor space for complimentary health and medical research or clinical practitioners and accordingly would provide for a mix of consulting room and office land uses across these building levels.

4.2 Built Form

4.2.1 Building Height

The Adelaide(City) Development Plan provides a definition of building level with schedule 1 of the Development Plan which defines a building level as:

> ***building level:*** *that portion of a building which is situated between the top of any floor and the top of the floor next above it and if there is no floor above, that portion between the top of the floor and the ceiling above it. It does not include a floor located more than 1.5 metres below the median natural or finished ground level or the roof top location of plant and mechanical equipment.*

Accordingly, the proposed built form comprises the construction of an 18 storey building comprising of 15 building levels above the median natural or finished ground level together with plant room above (Level 15), and two basement levels (Level 00 and Level B1) below the adjacent level of the eastern access road (George Street).

The building has a maximum building height of 59.55 metres (97.75 metres) above the North Terrace finished ground level.

4.2.2 Setbacks

Setbacks vary from the respective front side and rear boundaries of the site due the angled siting of the building to:

- accommodate the views and vistas from North Terrace to the Torrens linear park and beyond;
- maximise views from within the building;

- minimise the impact of building shadows; and
- promote opens spaces between adjacent buildings.

4.2.3 Architectural Design Statement

The architectural report prepared by Wood Bagot accompanying the lodgement documents provides a description of:

- Design Statement providing a summary of the project brief;
- Development Summary and building stacked components;
- Area Schedule;
- Site Context and Urban Principles;
- Streetscape massing in response to the state of existing development;
- Design Response addressing:
    - the integration of the existing SAHMRI design philosophy with the proposed new SAHMRI building;
    - the incorporation of a place of prospect and refuge across the ground floor plane and vertically within the building to accommodate the users of the different land uses;
    - the user journey and sense of arrival at the respective entrances of the building as a pedestrian, cyclist or by motor vehicle;
    - the form of the building to maintain space between buildings, minimise the impact of shadow and maintain the views;
    - the internal experience of the user through floor plate analysis; and
    - the façade design including solar impact (heat gain), outlook and general architectural expression.

4.2.4 Materials and Finishes

The palette of external materials and finishes is detailed on page 42 of the Schematic Design Architectural Report comprising:

- glass curtain wall façade;
- glass plaza pod façade;
- aluminium framing in the curtain wall and Plaza Pod;
- perforated aluminium sun hoods;

- a mix of metal framing and metal curtain to the plaza canopy;
- polished concrete Internal Flooring;
- concrete paving to the external plaza; and
- precast concrete plaza planters.

4.3 Traffic and Parking

Vehicle access for service delivery, waste collection and passenger drop off is provided for on site at Level 01 off the eastern access road (George Street).

On site manoeuvrability is accommodated to enable service delivery vehicles, waste collection and passenger vehicles to enter and existing the site on a forward direction.

An on-site loading bay is provided for sufficient to accommodate a large rigid vehicle.

Eight on-site car parking spaces (including three disabled parking spaces) are accommodated for short term passenger set down associated with the PTU and the clinical trials.

An additional loading bay and service access is provided for on Level 00 at the far northern corner of the site to enable servicing of the PTU plant and equipment.

152 secure on-site bicycle parking spaces are accommodated on Level 02 with direct access from the bike lane in the eastern access road (George Street). End of trip facilities including male and female toilets, showers change rooms and lockers are provided for directly adjacent the bicycle parking area with direct access to the lift core.

4.4 Waste Management

The details of the waste management strategy are outlined in the report prepared by RAWTEC.

In summary, the waste in the proposed development is proposed to be managed as follows:

- a waste storage room of 79 square metres is provided for at Level 01, sufficiently sized to accommodate the storage requirements for all waste streams and accommodating a secure area for medical waste;
- the waste storage room is located abutting the lift core and directly adjacent the service vehicle loading bay; and
- waste will be collected by private contractor and it is estimated that the volume of waste storage will generate approximately a total 12 collections per week.

In addition to the management of general waste streams, the specific nature of the proton therapy equipment has the potential to generate waste and the management of activated waste and components is discussed below.

It should be noted that the Normal use of the Proton Therapy Equipment does not generate any radioactive waste.

Activated waste is limited to cooling water used in the system, which may become irradiate although circulates in a closed loop. When cooling water is changed for maintenance reasons, the facility will be designed with a waste water storage tank (connected to the drainage infrastructure) to allow the water time to deactivate to an approved level and be measured before disposal.

Activated components are limited to patient specific immobilization devices which will become activated but only for a very short period of time. The facility is designed with dedicated storage closets for patient specific immobilization devices.

Patient specific beam refining devices are also used occasionally and will become activated. Patient specific beam refining devices will be stored in a dedicated, secure area inside the proton therapy vault. Once patient specific beam refining devices are deactivated to an approved level (approximately three months) and no longer needed for a patient, the material can be safely taken offsite to a surplus/scrap entity for reuse.

4.5 Emission Management

The Proton Therapy Equipment Bunker and Treatment Vaults have been designed to meet radiation safety standards to ensure that there is no waste or emissions likely to cause impact. The report prepared by Therapy Physics Inc details the design and compliance with the relevant regulations and protection guidelines.

While it is understood that proton facilities do not result in “Activated air” a precautionary approach has been undertaken to incorporate design features to manage the discharge of air from the patient rooms and shielded accelerator areas.

4.6 Services and Storm Water Management

Aurecon have undertaken an assessment of the spatial requirements for building services, which is detailed in statement of Services and associated services drawings. Their assessment considers mechanical, Electrical, Hydraulic and Fire Protection Services.

The services and location can be summarised as follows:

- electrical transformer room located at Level 00 with direct access to the eastern access road;
- generators are located over the Level 00 loading bay incorporating louvre air intakes flues discharging exhaust over the adjacent eastern access road;
- fire booster, gas meter room and fire control room located either side and adjacent the vehicle access on Level 01 fronting the eastern access road;
- central chiller plant located adjacent the North Terrace street one level below street level at Level 01 with access via the on-site passenger set down area;
- water meters set below ground in a cast iron box within the North Terrace footpath;
- cooling towers located within the roof form at Level 15;
- central plant for twin duct VAV air-conditioning system and hot water located within the roof form at Level 15 with outside air intakes;
- fire tank and fire pump room located within the roof form at Level 15; and
- cooling towers, smoke exhaust fans and flues for hot water heating penetrate the roof form.

The design for storm water management prepared by WGA incorporates:

- roof water runoff will be collected and drained via conventional drainage system to the underground system with a connection point in the eastern access road adjacent the University of Adelaide Health and Medical Sciences buildings;
- vertical wall runoff will be collected via grated inlet pits adjacent the building at ground level; and
- surface water from the plaza will be separated into two zones east and west. The western plaza surface water will be collected in grated inlet pits and discharged to the George Street infrastructure network. The Eastern catchment will be collected in grated inlet pits and discharged to the same point as the roof water discharge.

4.7 Landscaping and Public Realm

A detailed landscape plan has been prepared by Oxigen for the forecourt and outdoor courtyard areas surrounding the building. The landscape plan integrates with the existing landscaped plaza established as part of SAHMRI 1 incorporating:

- raised concrete planters with integrated seating;

- freestanding canopies and seating within the western courtyard;
- a Layered Planting Palette with an indicative selection of plant species including trees and understorey planting in the Planters; and
- an opportunity for an entry feature with integrated paving adjacent the entry forecourt.

The landscaping for the site has been designed to integrate with the existing landscape setting and the potential future redevelopment of the North Terrace Public Realm.

4.8 Staging

It is anticipated that the Builder, who will be responsible for the submission of the Building Rules Consent Packages for Development Approval, will stage these approvals. The likely separation of these packages is as follows:

- Demolition;
- Substructure and retention (including excavation);
- Superstructure; and
- Balance of works (architectural, services, finishes and fitout).

5.0 DEVELOPMENT PLAN ASSESSMENT

The relevant version of the Adelaide (City) Development Plan for procedural and assessment purposes was consolidated on 20 June 2017.

The subject land, under this version of the Adelaide (City) Development Plan, is situated entirely within the Riverbank Zone as shown on Adel/17 and more specifically Policy Area 27 (Health Policy Area) as shown on Map Adel/48.

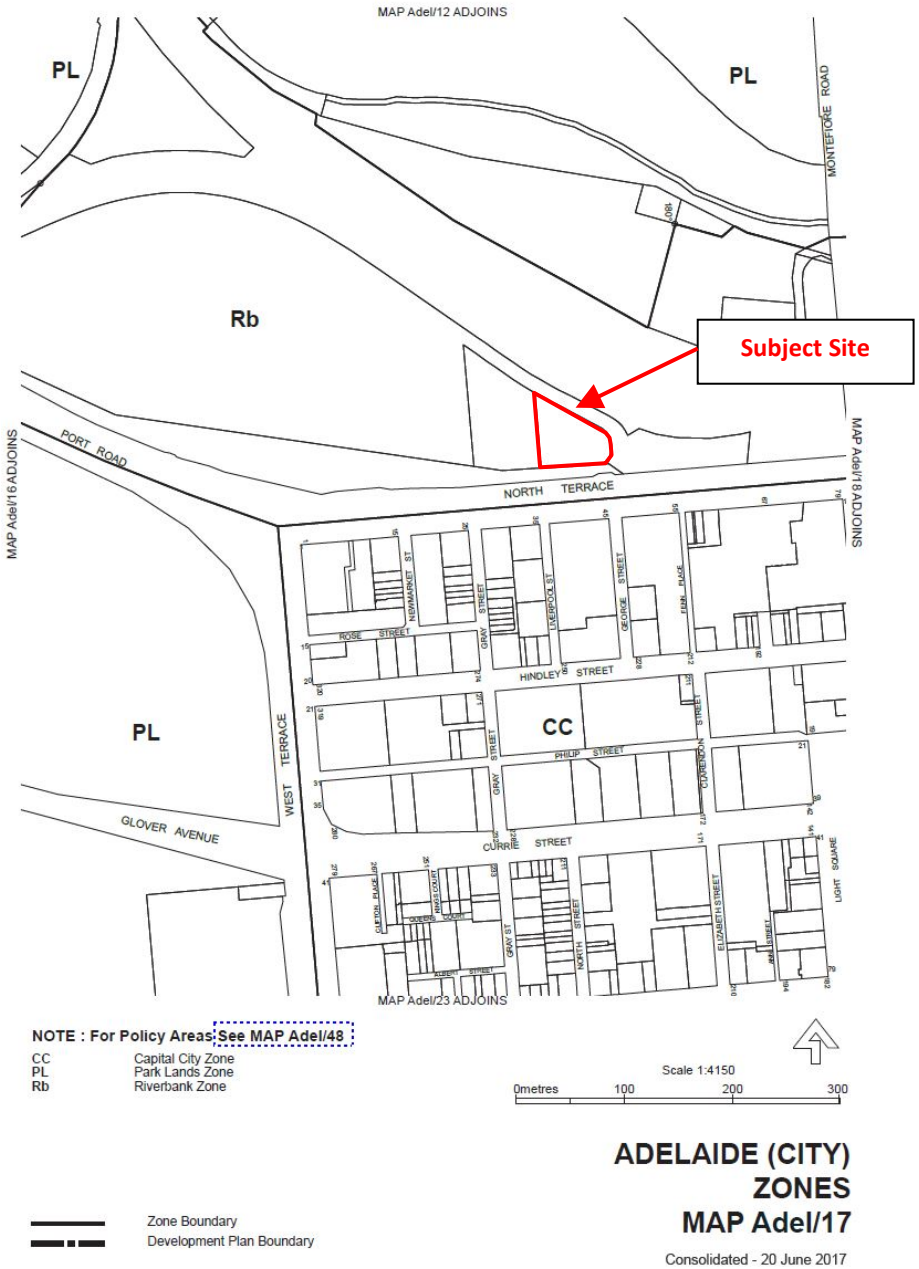


Figure 4: Zone Map Adel/17 Extract

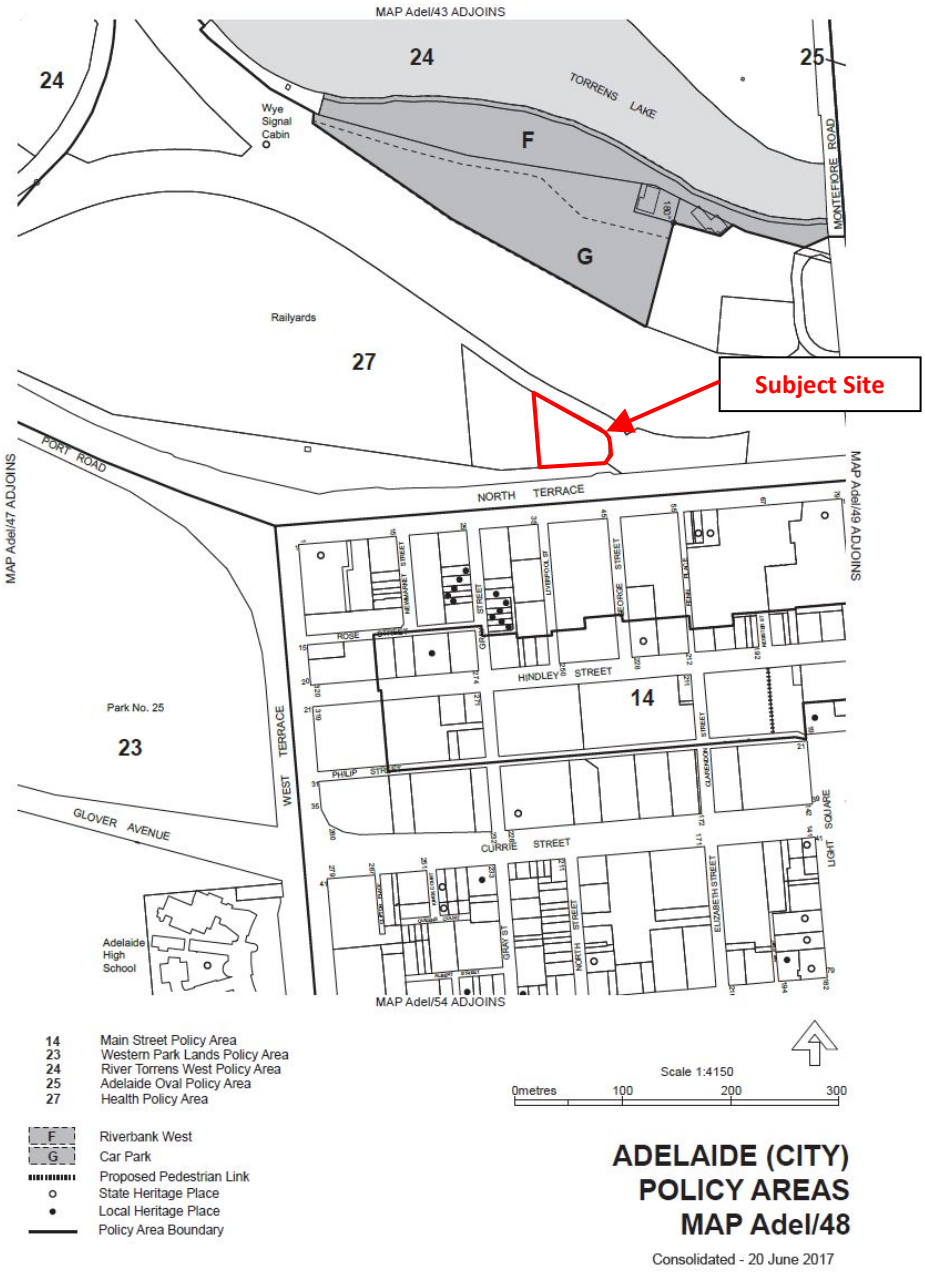


Figure 5: Policy Area Map Adel/48 Extract

5.1 Procedural Matters

5.1.1 Relevant Authority

The Relevant Authority for the purpose of the assessment of the application is the State Commission Assessment Panel (nee Development Assessment Commission) in accordance with Schedule 10 Part B which in accordance with Section 34 (1)(b) of the *Development Act, 1993* the Development Assessment Commission is constituted by the regulations as the relevant authority.

4B—City of Adelaide—developments over $10m

(1) Development in the area of The Corporation of the City of Adelaide where the total amount to be applied to any work, when all stages of the development are completed, exceeds $10 000 000.

(2) Subject to subclause (3), development— (a) under an application to vary a development authorisation given by the Development Assessment Commission under this clause; or (b) which, in the opinion of the Development Assessment Commission, is ancillary to or in association with a development the subject of an authorisation given by the Development Assessment Commission under this clause.

(3) Subclause (2) does not apply to development involving a building in relation to which a certificate of occupancy has been issued

The proposed development comprises the construction of a building with a Development Cost that exceeds $10 million in the City of Adelaide.

5.1.2 Nature of Development

The proposed development of a multistorey mixed use building is neither listed as Complying Development nor Non-complying Development under Riverbank Zone Principles 20 and 21 respectively and accordingly the application is required to be assessed on its merits.

5.1.3 Category of Development

Riverbank Zone Principle of Development Control 22 identifies those developments that are listed as Category 1 or Category 2 for the purpose of public notification in addition to those expressed in Schedule 9 of the *Development Regulations*.

All forms of development are listed as Category 1, except that classified as non-complying.

The proposed development is not listed as non-complying and accordingly would ordinarily be Category 1 for the purpose of Public Notification save and except regulation 32 (3) which assigns any development that involves, or is for the purposes of, a prescribed activity of environmental significance as defined by the *Environment Protection Act 1993* as Category 2.

32—Public notice categories

(1) This regulation assigns forms of development to categories for the purposes of section 38 of the Act.

Note— Section 38(2a) provides that an assignment cannot extend to a particular development if that development involves, or is for the purposes of, a prescribed activity of environmental significance as defined by the Environment Protection Act 1993.

(2) Subject to subregulation (3), a form of development specified in Schedule 9 Part 1 is assigned to Category 1.

(3) The following forms of development are assigned to Category 2:

(a) a form of development specified in Schedule 9 Part 1 that cannot be assigned to Category 1 because of section 38(2a) of the Act;

(b) a form of development that would be assigned to Category 1 by the relevant Development Plan but for section 38(2a) of the Act;

(c) a form of development specified in Schedule 9 Part 2.

The proposed development involves a prescribed activity of environmental significance in that it incorporates an activity producing listed wastes in the form of:

Medical waste consisting of—

(a) a needle, syringe with needle, surgical instrument or other article that is discarded in the course of medical research and has a sharp edge or point capable of inflicting a penetrating injury on a person who comes into contact with it; or

(b) human tissue, bone, organ, body part or foetus; or

(c) a vessel, bag or tube containing a liquid body substance; or

...

(e) a specimen or culture discarded in the course of medical research and any material that has come into contact with such a specimen or culture;

5.1.4 Statutory Referrals

The following agencies have been identified as requiring referrals under Section 37 of the *Development Act, 1993*:

- Government Architect or Associate Government Architect (ODASA):

24—Certain development in City of Adelaide

Development in the area of the Corporation of the City of Adelaide for which the Development Assessment Commission is the relevant authority under Schedule 10 clause 4B (excluding variations of applications—see clause 1(5a) of this Schedule).

- Commonwealth Secretary for the Department of Transport and Regional Services:

  9—Airports

  If the relevant Development Plan contains a map entitled Airport Building Heights, development within the area shown on the map which would exceed a height prescribed by the map.

- Environment Protection Authority:

  11—Activities of major environmental significance

  Development that involves, or is for the purposes of, an activity specified in Schedule 22 (including, where an activity is only relevant when a threshold level of capacity is reached, development with the capacity or potential to operate above the threshold level, and an alteration or expansion of an existing development (or existing use) where the alteration or expansion will have the effect of producing a total capacity exceeding the relevant threshold level).

5.2 Land Use

The proposed development involves the construction of a multi-storey building for the purposes health and medical treatment and research, including:

- an Australian first Proton Therapy Unit using specialised technologically advanced, precision radiation therapy for the treatment of cancer patients;
- SAHMRI clinical trials and dry research; and
- commercial tenancies for allied medical clinical and research tenants.

The buildings construction is facilitated by the Proton Therapy Unit and SAHMRI clinic trial and research design and floor space requirements.

The above activities comprise a mix of consulting room and office land uses as defined by the *Development Regulations 2008*.

The Desired Character for the Riverbank Zone acknowledges that the zone will be developed for a range of land uses including, Consulting rooms office and shops.

Riverbank Zone Principle of Development Control 1 lists consulting rooms, office and shops as envisaged land uses within the zone.

The Desired Character for the Health Policy Area expressly contemplates that:

> **The Health Policy Area will accommodate a range of medical and health facilities including a hospital, medical research, training and education as well as a range of ancillary land uses that provide services for staff, students, researchers, patients and visitors; including temporary accommodation.** (Emphasis My Own)

Objective 2 for the Policy Area reinforces the nature of land uses contemplated:

> **Objective 2:** **A Policy Area accommodating a hospital, clinical and health training, research and educational facilities and associated uses such as accommodation, cafes, small-scale shops selling convenience goods and helicopter landing areas.**

Principle of Development Control 1 for the Health Policy Area further reinforces the appropriateness of the land uses proposed within the building and envisages the development of the following land uses or combination thereof:

- clinical and health training, research, manufacturing and educational facilities;
- consulting room; and
- health centre.

The nature of the proposed land uses are considered to be entirely consistent with achieving the Desired Character for the Zone and Policy Area and are expressly listed in the objectives and Principles of development control as being envisaged.

The ground floor commercial tenancy fronting North Terrace is also expressly envisaged and delivers the opportunity for the development of a café or small scale shop create and active frontage adjacent the public realm can facilitate the provision of services to staff, students, researches, patients and visitors to the precinct.

5.3 Built Form

5.3.1 Design and Appearance

The following Development Plan provisions and extracts from the respective Desired Character of the Riverbank Zone and more specifically the Health Policy Area are relevant to the assessment of the application.

Zone Desired Character Extract

Buildings in the Zone will be exemplary in their design quality and will enhance their setting among landscaped public spaces, heritage buildings and culturally significant activities and not diminish their contribution and character. Buildings will contribute significantly and positively to the City skyline through contemporary and innovative design. Buildings will be significant in their own right but also complement existing development and allow the significance of the heritage buildings to continue to be appreciated from public areas. Development in this Zone will have an emphasis on sustainable design principles including energy efficiency and water sensitive urban design.

Objective 1: **High quality design with contemporary and innovative architecture that is respectful of the heritage buildings, parklands character and civic functions of the locality.**

7 **Buildings should be of a high design quality and provide contemporary architectural responses to their setting.**

8 **Development should:**

- **(a)** **contribute to the activation of the public realm by presenting an attractive human scaled pedestrian-oriented frontage at ground level that adds interest and vibrancy;**
- **(b)** **contribute to pedestrian comfort by minimising micro climatic impacts;**
- **(c)** **maintain a sense of openness to the sky for pedestrians and allow sunlight access to the public realm, particularly plaza areas during the Spring and Autumn; and**
- **(d)** **provide a clear sense of address to each building.**

9 **Development should be coordinated within the precinct to include a variety of pleasant and interesting landscaped spaces among and adjacent to buildings, ranging from those suitable for group meetings and social activities to those for quiet retreat and relaxation. These spaces, the pedestrian links between them, and internal access roads should be landscaped with trees and other plantings to create pleasant environments and soften the built form.**

Health Policy Desired Character Extract

Buildings along North Terrace will be designed to be viewed from all sides, promoting open spaces between adjacent buildings in contrast to the strong built form edge in the Capital City Zone.

5 **Development should incorporate landscaped forecourts and/or public meeting spaces as transition spaces between North Terrace and buildings within the Zone.**

The Schematic Design Architectural Report prepare by Woods Bagot accompanying the lodgement documents provides a detailed description of the Design Philosophy and the Contextual reference for the design.

Of particular note is the high-quality design of the building integrating with and complementing the established state of development within the Health Precinct. The setting of the building within landscaped forecourts continues the design intent established by the SAHMRI 1 building and expressly satisfies Health Policy PDC 2 by developing a building with transitional areas between North Terrace and the building itself.

The building, with its setback from the western side boundary and separation from other building within the zone across George Street enables the building to be viewed from all sides. The Architectural expression and design exhibits a consistent architectural facade treatment exhibiting the building in the round with no secondary elevational treatment.

The arrangement of land uses within the building, both across floor plates and vertically within the building using the North Terrace street level as a 'Mediator' incorporating reception for the PTU and a commercial tenancy as an active frontage appropriately separates the lower ground floors and the form of the tower above.

5.3.2 Building Height

The Health Policy Area for the Riverbank Zone provides for buildings to have a height generally up to 15 storeys subject to Commonwealth Airports (Protection of Airspace) Regulations as expressed in Policy Area Principle of Development Control (PDC) 2 repeated below for convenience.

> **2 Buildings fronting North Terrace should generally be up to 15 storeys in height, subject to compliance with the Commonwealth Airports (Protection of Airspace) Regulations, to reinforce the boulevard character of North Terrace and to have a relationship, appropriate in scale with buildings in the Policy Area and along the North Terrace edge of the Capital City Zone.**

Unlike the capital City zone which stipulates maximum building heights in metres the Riverbank zone expresses the maximum building height in storeys. A storey nor its height is not defined in the Development Plan or the Development Regulations. The Adelaide (City) Development Plan does however define a "Building Level", as discussed in Section 4.3.1 of this report.

PDC 2 references "buildings fronting North Terrace" which I interpret North Terrace as being the bench level for measuring the building height when assessing PDC 2. Furthermore, having regard to the definition of Building Levels, I have excluded the plant and equipment Level 15 which can reasonably be considered to form part of the integrated roof structure.

Accordingly, and not withstanding that the building has a technical height of 18 storeys including lower ground and plant room levels or 15 Building Levels as measured from the median finished ground level, the building exhibits a height of 13 storeys on North Terrace and therefore satisfies the height guideline expressed in PDC 2.

The building with a total AHD height of 97.75 metres extend beyond the Obstacle Limitation Surface of 80 metres AHD, but does not encroach beyond the 117 metre AHD Pan Ops Aircraft safety height in this location. We also note that the Building sits below the height of the adjacent Adelaide University Health and Medical Sciences Building which has a height of 100.04 metres.

Accordingly, it is understood that the proposed building height will comply with the Commonwealth Airports (Protection of Airspace) Regulations.

5.4 Transport and Access

The following Riverbank Zone Principles of Development control relating to Movement are considered most relevant.

12 **Pedestrian movement should be based on a network of pedestrian access ways or thoroughfares, linking the surrounding Zones and giving a variety of north-south and east-west links, as indicated on Map Adel/1 (Overlay 2A), Map Adel/49 and Figures Rb/1, 2 and 3.**

13 **Development should be designed to encourage pedestrian/bicycle circulation at the North Terrace level and create connections between North Terrace and the River Torrens linear park at key pedestrian focal points.**

14 **Pedestrian movement should be a priority within the Zone and designed to be free from vehicle conflict.**

15 **Development should provide the vast majority of car parking spaces in undercroft/basement areas.**

5.4.1 Vehicle Access

Vehicle access is proposed via the eastern access road (George Street) and accordingly does not result in an additional crossing place to north terrace. George Street has a signalised intersection with North Terrace providing for the safe and convenient access from North Terrace to the subject site.

5.4.2 Car Parking

Table Adel/7 does not specify a minimum or maximum provision of on-site car parking associated with development within the Riverbank Zone.

For convenience of patients of the Proton Therapy Unit and SAHMRI Clinical trials a limited number of eight short term parking spaces have been provided on Level 01 for passenger set down and drop-off.

The parking spaces are located below the North Terrace street level and accordingly is consistent with satisfying the Zone PDC 15 for the majority of car parking spaces to be located in undercroft or basement areas.

5.4.3 Bicycle Parking and Facilities

Council wide Principles of Development Control 234, 235 and 236 are most relevant for the assessment of on-site bicycle parking

234 **An adequate supply of on-site secure bicycle parking should be provided to meet the demand generated by the development within the site area of the development. Bicycle parking should be provided in accordance with the requirements set out in Table Adel/6.**

235 Onsite secure bicycle parking facilities for residents and employees (long stay) should be:

(a) located in a prominent place;
(b) located at ground floor level;
(c) located undercover;
(d) located where passive surveillance is possible, or covered by CCTV;
(e) well lit and well signed;
(f) close to well used entrances;
(g) accessible by cycling along a safe, well lit route;
(h) take the form of a secure cage with locking rails inside or individual bicycle lockers; and
(i) in the case of a cage have an access key/pass common to the building access key/pass.

236 Onsite secure bicycle parking facilities for short stay users (i.e. bicycle rails) should be:

(a) directly associated with the main entrance;
(b) located at ground floor level;
(c) located undercover;
(d) well lit and well signed;
(e) located where passive surveillance is possible, or covered by CCTV; and
(f) accessible by cycling along a safe, well lit route.

An assessment of the on-site bicycle parking demand has been undertaken by GTA who have identified that the proposed 152 secure biocycle parking spaces provides for an adequate supply of bicycle parking to meet the projected demand and satisfy Council-wide PDC 234.

In accordance with PDC 235 we note that the proposed secure long stay bicycle parking area:

- is located prominently at Level 02 with direct access from the adjacent eastern access road and with conveniently located adjacent the buildings lift core;
- while not located at the North Terrace Street Level, the access to the bicycle parking area is directly accessible from the adjacent street level;
- is located undercover within the building;
- direct external access via a highly visible entrance door is located adjacent an existing Bicycle Lane.
- individual lockable racks are provided within a secure room; and
- end of Trip facilities for male and female commuters are provided conveniently located between the Bicycle storage area and the Central lift core.

Opportunities for short stay visitor bicycle parking rails are available within the building forecourt area in order to satisfy Council-wide PDC 236.

5.4.4 Pedestrian Movement

An assessment of the pedestrian movement network for the precinct has been undertaken in the design of the building and its ground floor plane having regard to Zone Principles 12, 13 and 14.

Having regard to Figure Rb/2 the proposed building is conveniently located and orientated to the North Terrace Path being a primary pedestrian path across the frontage of the subject site.

The development of the site does not prohibit the attainment of the preferred north south pedestrian and cycling connections identified on Figure Rb/2.

It is also noted that additional pedestrian and cycling connections are being investigated and a discussion on these connections is contained in Section 2 of this report.

5.5 Waste Management

Waste Management has been carefully integrated into the design of the Building in a manner that is considered to satisfy the relevant Council-wide PDC's below.

Objective 28: **Development which supports high local environmental quality, promotes waste minimisation, re-use and recycling, encourages waste water, grey water and stormwater re-use and does not generate unacceptable levels of air, liquid or solid pollution.**

PRINCIPLES OF DEVELOPMENT CONTROL

101 **A dedicated area for on-site collection and sorting of recyclable materials and refuse should be provided within all new development.**

102 **A dedicated area for the collection and sorting of construction waste and the recycling of building materials during construction as appropriate to the size and nature of the development should be provided and screened from public view.**

103 **Development greater than 2 000 square metres of total floor area should manage waste by:**

- **(a)** **containing a dedicated area for the collection and sorting of construction waste and recyclable building materials;**
- **(b)** **on-site storage and management of waste;**
- **(c)** **disposal of non-recyclable waste; and**
- **(d)** **incorporating waste water and stormwater re-use including the treatment and re-use of grey water.**

104 **Development should not result in emission of atmospheric, liquid or other pollutants, or cause unacceptable levels of smell and odour which would detrimentally affect the amenity of adjacent properties or its locality. Land uses such as restaurants, shops, cafés or other uses that generate smell and odour should:**

- **(a)** **ensure extraction flues, ventilation and plant equipment are located in appropriate locations that will not detrimentally affect the amenity of adjacent occupiers in terms of noise, odours and the appearance of the equipment;**

(b) **ensure ventilation and extraction equipment and ducting have the capacity to clean and filter the air before being released into the atmosphere; and**

(c) **ensure the size of the ventilation and extraction equipment is suitable and has the capacity to adequately cater for the demand generated by the potential number of patrons.**

Design Technique (this is ONE WAY of meeting the above Principle)

104.1 ***Ventilation equipment built in accordance with Australian Standard 1668.2-2002: 'The Use of Ventilation and Airconditioning in Buildings - Ventilation Design for Indoor Air Contaminant Control'.***

A Waste Management Plan has been prepared by RATWEC which includes an assessment of the main stream waste generation and storage required for the building and has concluded that there is sufficient waste storage in a dedicated waste storage room at Level 01 inclusive of secure medical storage.

In addition, the building has been designed to ensure that building does not result in the not result in emission of atmospheric, liquid or other pollutants, or cause unacceptable levels of smell and odour which would detrimentally affect the amenity of adjacent properties or its locality (refer to the Report prepared by Therapy Physic Inc.).

5.6 Building Services

The proposed development has been informed by detailed services engineering advice regarding the positioning and spatial arrangements for building services.

Objective 40: **Minimisation of the visual impact of infrastructure facilities.**

Objective 41: **Provision of services and infrastructure that are appropriate for the intended development and the desired character of the Zone or Policy Area.**

PRINCIPLES OF DEVELOPMENT CONTROL

132 **Provision should be made for utility services to the site of a development, including provision for the supply of water, gas and electricity and for the satisfactory disposal and potential re-use of sewage and waste water, drainage and storm water from the site of the development.**

133 **Service structures, plant and equipment within a site should be designed to be an integral part of the development and should be suitably screened from public spaces or streets.**

The services infrastructure is located away from the primary street frontage and designed as an integral part of the building. Plant and Equipment is located within the integrated roof form screening the plant from public spaces and streets.

Accordingly the Council-wide Objectives and Principles of Development Control listed above relating to infrastructure are considered to be satisfied.

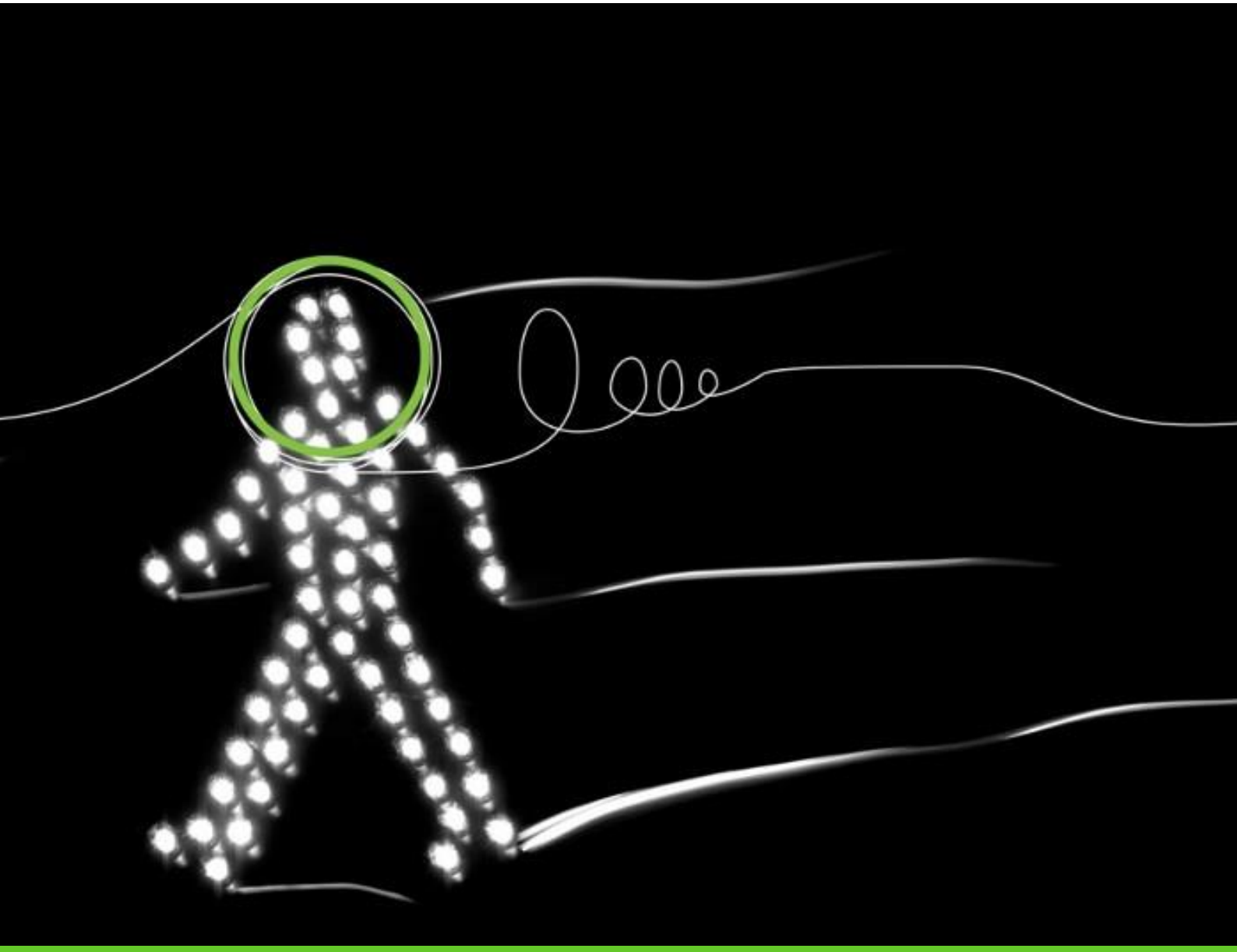
6.0 CONCLUSION

Having regard the relevant provisions of the Development Plan we find that the proposed development sufficiently accords with the Council-wide, Riverbank Zone and Health Policy Area provisions to warrant Development Plan Consent.

Greg Vincent MPIA
B/A in Planning

13 April 2018

GTAconsultants



Proposed Multi-Level Building North Terrace, Adelaide Transport Impact Assessment

Client // Commercial & General
Office // SA
Reference // S138680
Date // 13/04/2018

Proposed Multi-Level Building

North Terrace, Adelaide

Transport Impact Assessment

Issue: B 13/04/2018

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Reference: S138680
GTA Consultants Office: SA

Quality Record

Issue	Date	Description	Prepared By	Checked By	Approved By	Signed
A	13/04/18	Final	Richard Frimpong	Paul Morris	Paul Morris	PMO
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1. Introduction

1.1 Background

A new multi-storey mixed-use building accommodating the first of its kind in Australia, Proton Therapy Unit (PTU), is proposed to be built on the corner of North Terrace and George Street in Adelaide adjacent to the existing SAHMRI building.

GTA Consultants was commissioned by Commercial & General to undertake a transport impact assessment of the proposed development.

1.2 Purpose of this Report

This report sets out an assessment of the anticipated transport implications of the proposed development, including consideration of the following:

i existing traffic and parking conditions surrounding the site
ii parking demand likely to be generated by the proposed development
iii suitability of the proposed parking in terms of supply (quantum) and layout
iv traffic generation characteristics of the proposed development
v proposed access arrangements for the site
vi transport impact of the development proposal on the surrounding road network.

1.3 References

In preparing this report, reference has been made to the following:

- Adelaide (City) Development Plan (consolidated 20 June 2017)
- Australian Standard/ New Zealand Standard, Parking Facilities, Part 1: Off-Street Car Parking AS/NZS 2890.1:2004
- Australian Standard, Parking Facilities, Part 2: Off-Street Commercial Vehicle Facilities AS 2890.2:2002
- Australian Standard / New Zealand Standard, Parking Facilities, Part 6: Off-Street Parking for People with Disabilities AS/NZS 2890.6:2009
- plans for the proposed development prepared by Woods Bagot
- traffic and car parking surveys undertaken by GTA Consultants as referenced in the context of this report
- various technical data as referenced in this report
- an inspection of the site and its surrounds
- other documents as nominated.

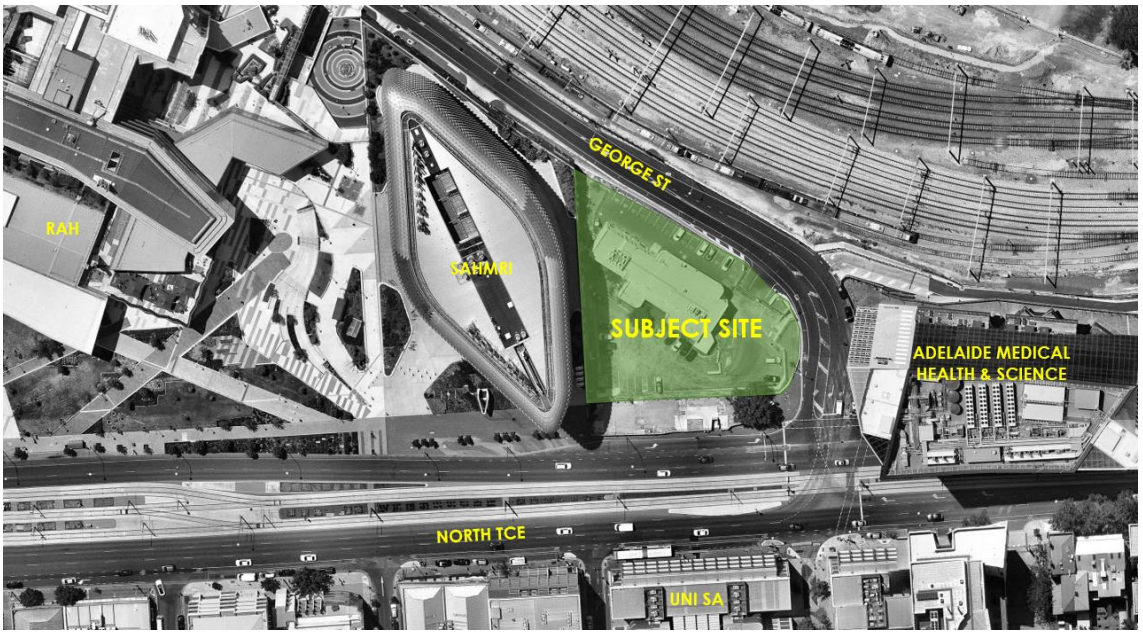
2. Existing Conditions

2.1 Subject Site

The subject site of 3,380 sq. m is located on the corner of North Terrace and George Street in Adelaide. The subject site is located within the Riverbank zone and surrounding properties include the existing SAHMRI building, the Adelaide Medical Health and Science Building and the University of South Australia (Uni SA) campus.

The location of the subject site and the surrounding environs is shown in Figure 2.1.

Figure 2.1: Subject Site and its Environs



(PhotoMap courtesy of NearMap Pty Ltd)

2.2 Road Network

2.2.1 Adjoining Roads

North Terrace

North Terrace functions as an arterial road and is managed and maintained by the Adelaide (City) Council. The road is two-way, aligned in an east-west direction and is configured with two traffic lanes, a bicycle lane and tram track in each direction. Adjacent the site, North Terrace has a carriageway width of 36 metres and is set within a 51-metre-wide road reserve (approx.). On-street car parking is available on North Terrace where nominated by traffic control signage.

North Terrace also accommodates the existing tram line which operates between Hindmarsh and Glenelg.

North Terrace carries approximately 27,700 vehicles per day[1].

[1] Based on the peak hour traffic counts undertaken by the Department of Planning, Transport and Infrastructure (DPTI).

George Street

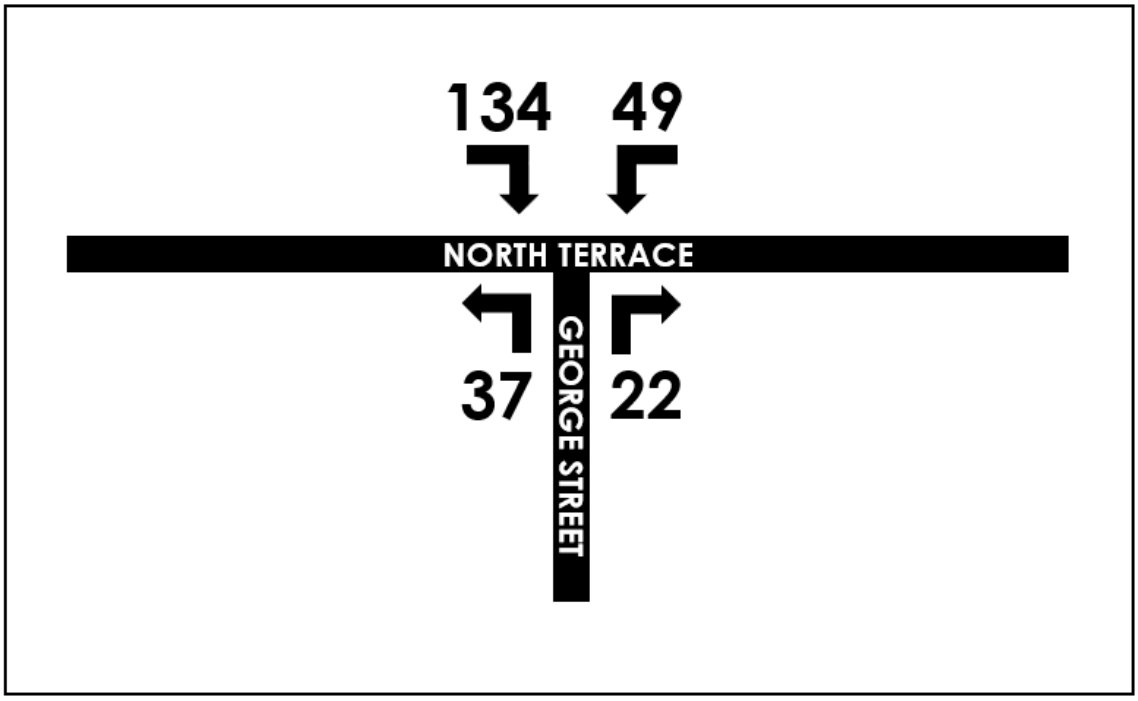
George Street is a road which provides service access for the Royal Adelaide Hospital precinct including the existing SAHMRI building. It is owned by the Department of Planning, Transport and Infrastructure (DPTI) and managed by SA Health Partnership. George Street links back to Port Road to the west, with traffic signals at each end of the street. George Street is a two-way road aligned in a northwest to southeast direction and configured with one (1) travel lane and a bicycle lane in each direction. Adjacent the site, George Street has a carriageway width of 13 metres set within a 13-metre-wide road reserve (approx.). On-street car parking at the eastern end of George Street is available where nominated.

George Street carries approximately 2,400 vehicles per day at North Terrace.[2]

2.2.2 Traffic Volumes

GTA Consultants undertook traffic movement counts at the North Terrace/George Street Intersection between 6:45am and 9:00am. 7:15am – 8:15am was identified as the AM peak hour, with turning volumes as shown in Figure 2.2.

Figure 2.2: Existing AM Peak Hour Turning Volumes



2.3 Sustainable Transport Infrastructure

2.3.1 Public Transport

The site is well connected to public transport with bus, tram and rail services in close proximity including:

- Tram stop within 200 metres (City West)
- Train Station within 600 metres (Adelaide Train Station)

[2] Based on traffic counts undertaken by GTA Consultants on 22 March 2018 and assuming a peak to daily ration of 10%.

- Buses on Currie Street within 400 metres
- Buses on King William Street within 800 metres

Based on the above, the site is located close to the tram, train and buses which provide extensive services across metropolitan Adelaide.

2.3.2 Pedestrian Infrastructure

Footpaths are located on both sides of North Terrace, with a signalised crossing facility located at the George Street/North Terrace Intersection.

2.3.3 Cycle Infrastructure

Dedicated bicycle lanes are located on both sides of North Terrace and George Street respectively.

3. Development Proposal

3.1 Land Uses

The development proposal comprises the construction of a multi-level building for a medical research hub. The building will incorporate approximately 22,170 sq. m of gross leasable total floor area, across 15 floors (comprising 3 lower floors, a main entry level and 11 upper tenancy floors).

3.2 Car Parking

Eight (8) car parking spaces has been proposed within Level 1, with three spaces allocated for people with disabilities and five (5) to be allocated for use by the PTU for short term parking.

A passenger pick-up and set down bay is also proposed within Level 1 close to the entrance doors.

3.3 Vehicle Access

Vehicle access to the Level 1 car park is proposed via George Street.

3.4 Bicycle Facilities

A provision of 152 bicycle parking spaces has been provided within the development with end of trip facilities.

3.5 Pedestrian Facilities

A ground level lobby has been proposed, which will allow safe pedestrian movement from the car park.

The building will also provide access to the footpath level on North Terrace.

3.6 Loading Areas

A loading area has been proposed with access in Level 1 from George Street. The loading zone will accommodate vehicles up to an 8.8 metre Medium Rigid Vehicle.

4. Car Parking & Access

4.1 Development Plan Parking Requirement

Parking rates are set out in TABLE Adel/7 of the Adelaide (City) Development Plan. However, parking rates are not specified for developments within the Riverbank Zone.

4.2 Review of Parking Supply

Eight (8) on-site car parking spaces (including three (3) disabled car parking spaces) are accommodated onsite for short term passenger set down associated with the PTU.

Staff and visitors to the building will be able to use alternative parking in public parking areas if required for private vehicle trips. There are various public parking stations in close proximity to the site including Adelaide Convention Centre and Royal Adelaide Hospital. There are other parking stations in the Adelaide CBD which would be accessible by longer walks or tram/bus services.

Public transport will also provide for many commuter trips by employees at the development, including bus, tram and rail services in close proximity.

There will also be ample opportunity for people to cycle to and from the site with end of trip facilities and 152 bicycle parking spaces to be provided.

4.3 Car Parking Layout

The car parking layout has been reviewed against the Australian Standard for Off-Street Parking (AS2890.1:2004), the Australian Standard for Parking for People with Disabilities (AS2890.6:2009) and the Australian Standard for Off-Street Commercial Vehicle Facilities (AS2890.2:2002). The finding has been outlined below.

- Standard car parking spaces are a nominal 2.5 metres wide x 5.4 metres long set within a 6.0-metre-wide aisle. This exceeds the Class 2 requirement (medium turnover).
- Disabled car parking spaces are 2.4 metres wide x 5.4 metres long and are complemented with a shared space as per the requirements.
- The entry grade within the car park will not exceed 1:20 (5%) across the first 6 metres into the site.
- Grade transitions within the ground level will not exceed 1:16 (6.25%), which is suitable for Medium Rigid Vehicle Access (MRV).
- Pedestrian sight lines have been provided at the entry and exit.

4.4 Sight Distance

In order to provide fundamental safety at the access points, adequate sight distances must be provided. Two categories of sight distances are:

- Safe Intersection Sight Distance (SISD) – sight distance of vehicle on approach to the intersection to observe obstruction in the road (i.e. stalled car), decide on course of action and react.
- Minimum Gap Sight Distance (MGSD) – sight distance of vehicles exiting the site to observe oncoming vehicles on the major road.

In this case, extended domain sight distance has been considered an appropriate measure given the existing site constraints.

It should be noted that 'Guide to Road Design-Part 4A: Unsignalised and Signalised Intersections' (Austroads, 2017, henceforth referred to as Austroads Guide) indicates that MGSD is the minimum requirement for property access points. However, GTA has also assessed SISD.

The sight distances above are influenced by the speed of vehicles along George Street and the gradient along the road. While the speed limit on George Street was 20 km/h, vehicles were observed to travel up to 30 km/h down the hill.

Based upon the formula provided within the Austroads Guides and assuming a critical gap and driver reaction of 5 seconds, the following sight distances are required as per Table 4.1:

Table 4.1: SISD & MGSD Requirements for the Park Terrace access point

Design Speed (km/h)	Safe Intersection Sight Distance (m)	Minimum Gap Sight Distance (m)
30 (10 % Grade Correction)	41	42 (5 seconds)

From on-site observations, the extended domain sight distance of 46 metres and the MGSD of 42 metres is considered suitable. These diagrams have been shown respectively in Figure 4.1 and Figure 4.2 respectively.

Figure 4.1: Extended Domain Sight Distance

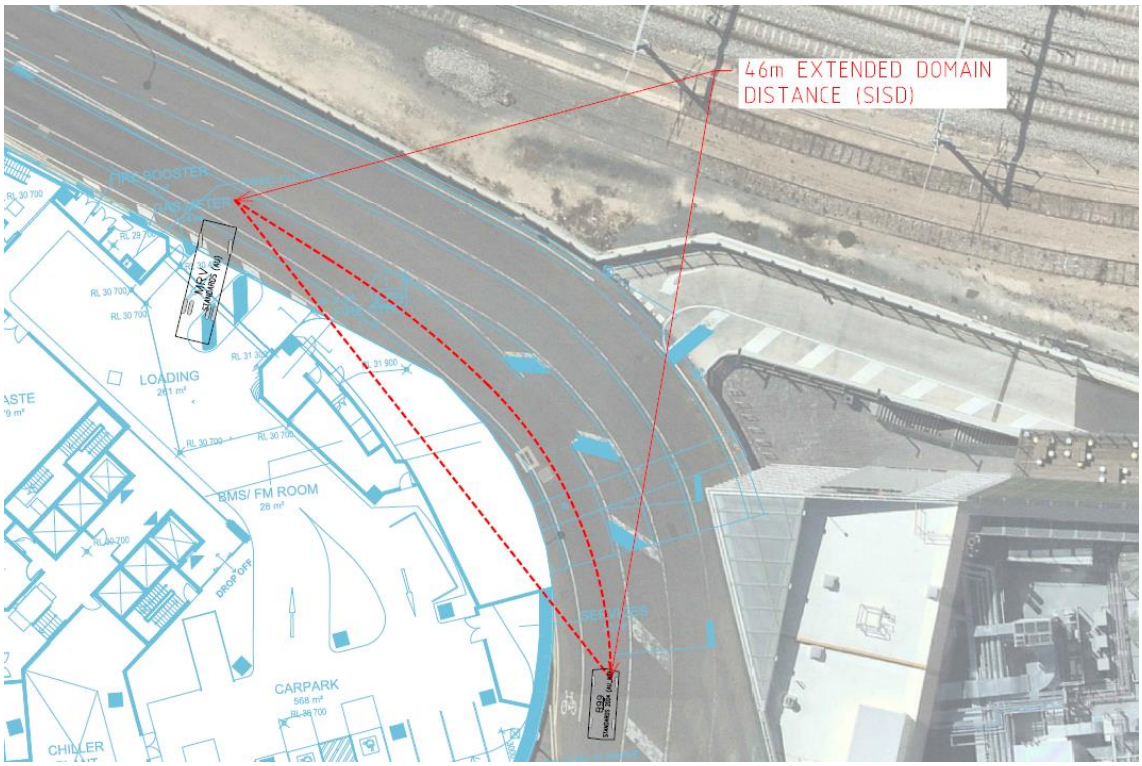
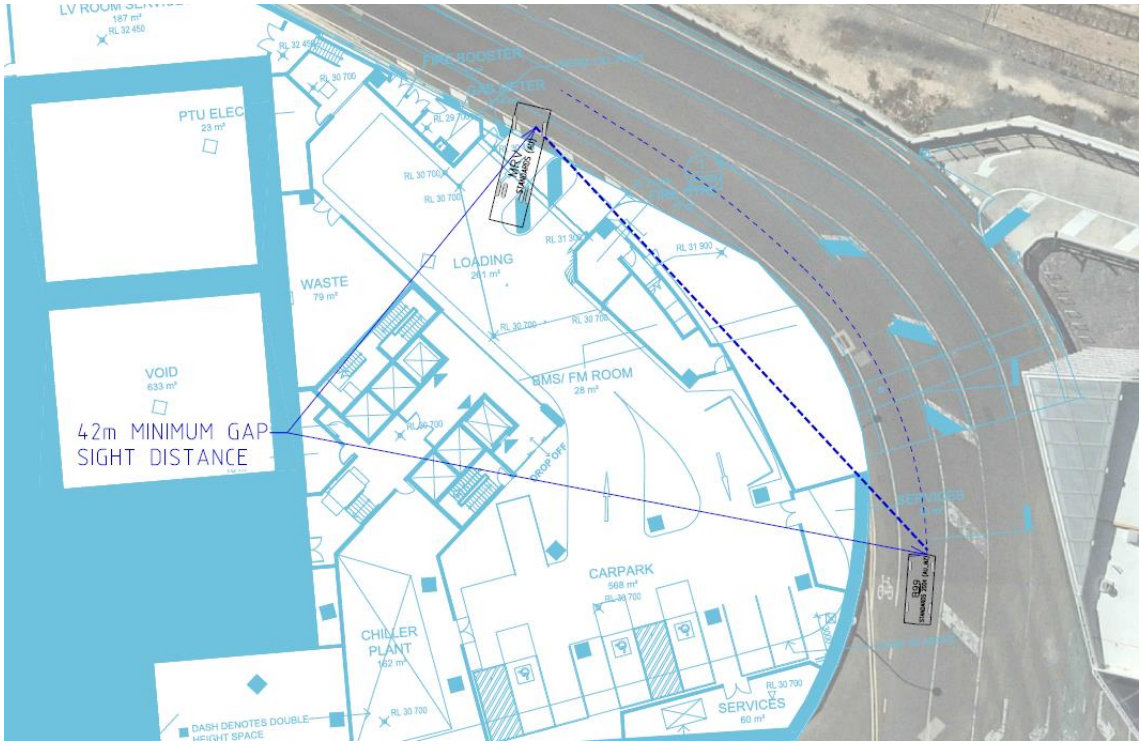


Figure 4.2: Minimum Gap Sight Distance



5. Sustainable Transport Infrastructure

5.1 Bicycle End of Trip Facilities

Bicycle parking rates are set out in Table ADEL/6 of the Adelaide (City) Development Plan. The rate most applicable to the development is as follows:

Office	
Employees	*1 space per 200 sq. m GLFA*
Visitors	*2 plus 1 space per 1000 sq. m GLFA*

The site of 22,170 sq. m GLFA will generate a development plan bicycle parking rate of 111 spaces for employees and 24 spaces for visitors. The provision of 152 bicycle parking spaces exceeds the development plan parking requirement.

5.2 Walking and Cycling Network

As outlined in Section 2.3.2, Section 3.4 and Section 3.5, the footpath on North Terrace is adequate and provides suitable access to the site. There are existing bicycle lanes on North Terrace and George Street, with end of trip bicycle facilities provided within the site.

A kerb ramp may be required for people to access the end of trip facilities from the bicycle lane on George Street. This can be determined detailed design to confirm a need and an acceptable location in conjunction with Council.

5.3 Public Transport

As discussed in Section 2.3.1, the site is located within walking distance to the City West Tram Stop, Adelaide Train Station and bus services on King William Street and Currie Street.

It is anticipated a high proportion of people working at the development will use public transport for commuter trips.

6. Loading Facilities

6.1 Proposed Loading Arrangements

A loading area is proposed within the ground level, with entry and exit via George Street. The loading area will facilitate deliveries and waste collection for vehicles up to a medium rigid vehicle (MRV). Figure 6.1 has been prepared to consider left turn entry into the site and access to the loading dock in a forward motion. The truck will then reverse back, without interfering with entering traffic, which will enable a left turn exit back onto George Street. This is shown in Figure 6.2. Deliveries will occur once per day and 12 waste collections are expected per week.

Figure 6.1: 8.8m MRV Entry

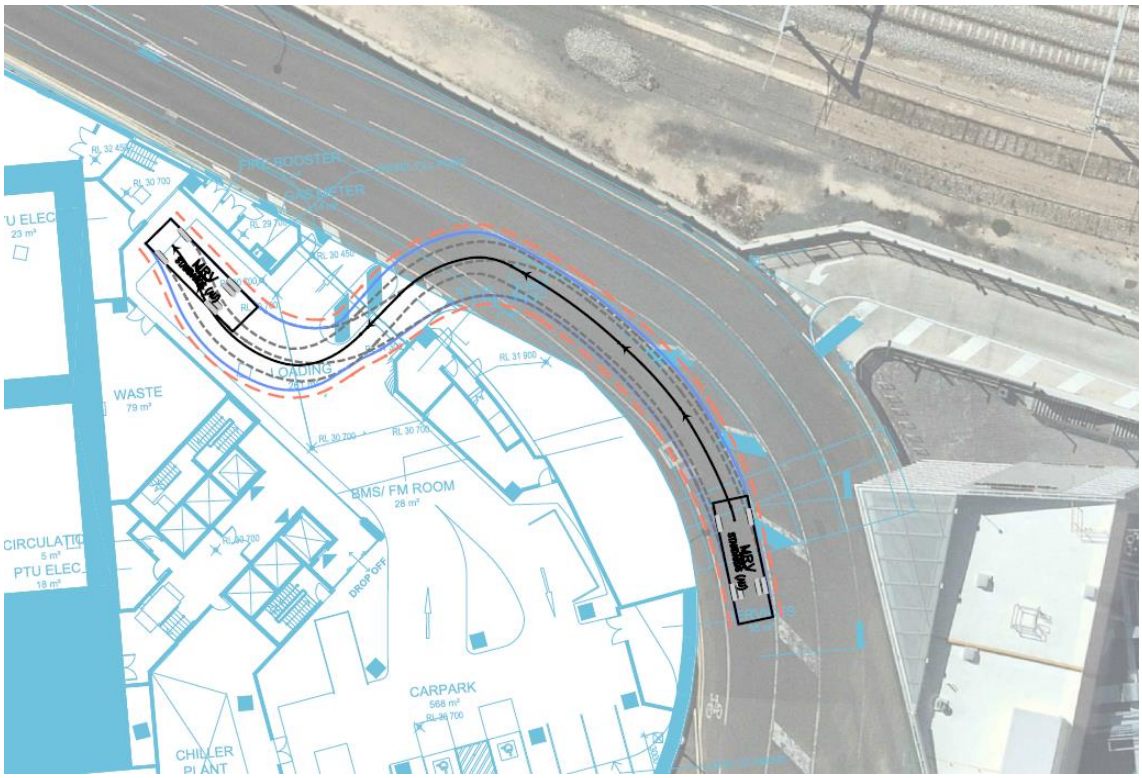
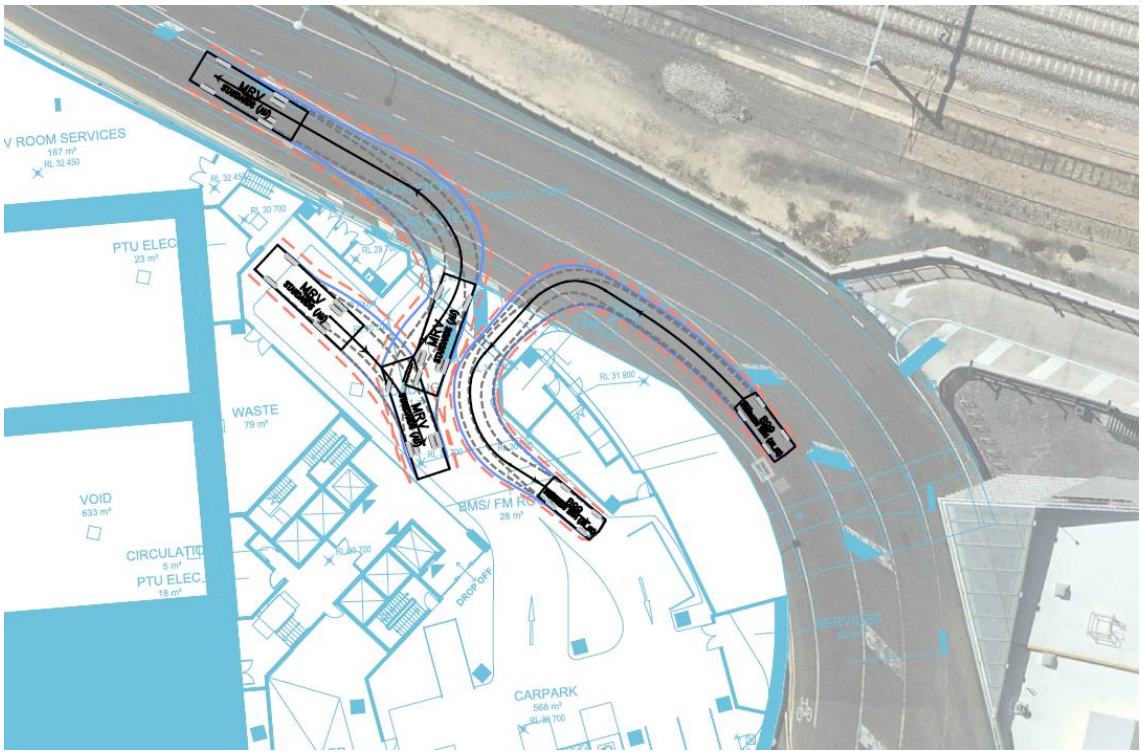


Figure 6.2: 8.8m MRV Exit



7. Traffic Impact Assessment

7.1 Traffic Impact

7.1.1 Design Rates

The provision of few parking spaces at the site will minimise the amount of traffic accessing the site each day. The proposed development will generate traffic associated with staff and visitors, but these trips will be displaced on the surrounding road network to and from other parking areas.

For the car park of eight (8) spaces, a turnover of one (1) vehicle per hour has been assumed over a 12-hour period (7:00am – 7:00pm).

Based on the above is anticipated that the development will generate up to 16 trips during the peak hour and 192 trips over the daily period onto George Street to and from the proposed car park.

7.2 Traffic Impact

Given North Terrace and George Street has a daily traffic volume of 27,400 and 2,420 trips, the addition of 16 trips during the peak hour and 192 trips over a daily period is considered low. Therefore, the additional traffic generated by the proposed development will not adversely impact on external road network.

8. Conclusion

Based on the analysis and discussions presented within this report, the following conclusions are made:

i A new multi-storey mixed-use building of 22,170 sq. m of Gross Leasable Floor Area for a Proton Therapy Unit (PTU), is proposed to be built on the corner of North Terrace and George Street in Adelaide adjacent to the existing SAHMRI building.

ii The proposed development will include eight (8) car parking spaces within Level 1 (including three (3) disabled spaces) with access via George Street from the rear of the site.

iii There are no parking requirements for the proposed development based on the Adelaide (City) Council Development Plan, within the Riverbank zone. Parking for staff and visitor vehicles will be available in nearby parking stations and parking areas where available, with trips occurring on the Adelaide CBD road network around the subject site.

iv It is anticipated that most commuter and visitor trips to and from the proposed development by staff and visitors are anticipated to be by public transport, walking or cycling.

v End of trip bicycle facilities and 152 bicycle parking spaces are proposed within the proposed development, with direct access for bicycle parking on George Street, which is appropriate based on anticipated demands and Development Plan requirements.

vi The car parking layout on Level 1 has been designed in accordance with AS2890.1:2004, AS2890.2:2002 and AS2890.6:2009.

vii Appropriate sight lines will be provided on George Street from the access for safe access in conjunction with the relatively low traffic volumes on George Street.

viii The loading facility within the Level 01 car park will accommodate vehicles up to an 8.8m Medium Rigid Vehicle (MRV). Deliveries and refuse collection will be managed with 5 to 7 and 12 services per week respectively.

ix The site is expected to generate approximately 200 vehicle movements per day in the proposed car park. The anticipated traffic generation of the proposed development will not impact the operation of George Street or North Terrace given the low volumes anticipated to and from the proposed car park.

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SAHMRI 2

Schematic Design ESD Report

For Commercial & General

Job No:	1016312
Doc Ref:	Schematic Design ESD Report
Revision:	—
Revision Date:	29 March 2018

Project title	SAHMRI 2	**Job Number**
Report title	Schematic Design ESD Report	1016312

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Contents

1.0 Introduction

1.1 Project Overview

The project involves the development of a new clinical and research facility in the Adelaide CBD, adjacent the existing SAHMRI building. SAHMRI 2 will provide a significant area of “Dry Lab” research space, which will allow suitable research functions to decant from the existing SAHMRI building to make better use of its inherent “wet lab” capability. The Dry Lab floors are also expected to accommodate 3rd party research, clinical and commercial tenants.

The project site is within the South Australian Health & Biomedical precinct located at the western end of North Terrace, which forms part of a wider “Riverbank precinct”. The new facility will incorporate a Proton Therapy Unit (PTU), which is intended to be the first in Australia, and is a significant commercial driver for the project.

1.2 LEED

The project has been registered with Green Business Certification Inc. (GBCI) under the U.S. Green Building Council’s (USGBC’s) Leadership in Energy and Environmental Design, New Construction (LEED NC) v4 rating tool and is targeting a certified Gold rating.

LEED is an international green building certification program that recognises best-in-class building strategies and practices by benchmarking overall environmental outcomes against the following categories:

- Location & Transport
- Sustainable Sites
- Water Efficiency
- Energy & Atmosphere
- Materials & Resources
- Indoor Environment Quality
- Innovation & Regional Priority

Within each of the categories, there are specific prerequisites and a variety of credits which can be targeted to earn points. The target LEED Gold rating requires a minimum 60 points to be achieved which is representative of the top 10% of projects registered with the GBCI.

1.2.1 Comparisons with Green Star and LEED v3

In Australia, LEED is commonly compared with the GBCA’s Green Star rating tools. The LEED v4 tool and Green Star Design and As-Built tools are broadly similar however there are several key differences. Points of note are summarised as follows:

- Both tools have broadly similar assessment categories for benchmarking environmental performance.
- Green Star is more commonly recognised within Australia while LEED is more recognised internationally. There are approximately 1,800 certified Green Star projects and over 100,000 LEED projects internationally.
- SAHMRI was the first LEED rated laboratory project in Australia, and its environmental credentials are generally well recognised.
- SAHMRI was certified under the previous version of LEED (v3) while SAHMRI 2 is registered under the latest version, LEED v4. The latest version is technically more stringent and therefore more difficult to achieve a LEED Gold rating when compared to the previous version. This is particularly evident in the building energy efficiency credit which requires approximately 25% greater savings compared to the previous tool to achieve the same points score.

2.0 Approach to ESD

2.1 Integrative Design Process

In line with the LEED rating target, ESD has been integrated into the design process with key design decisions being informed by early analysis and modelling of ESD performance.

Several iterations of energy and daylight models have been used throughout concept and schematic design to inform the design team of potential design challenges and opportunities in achieving the LEED target including the following key design decisions:

- The original architectural intent was to avoid the use of external shading while providing extensive access to the views through the north eastern façade. This was modelled and benchmarked against the LEED target. Modelling suggested that excessive levels of frit to the glazing would be required to achieve the LEED energy target which would compromise access to external views. This has driven a façade design which utilises an external shading system (where required) to ensure access to views can be maintained.
- Climate base daylight modelling has highlighted that while the building form and layout allow achieving the LEED daylight targets, the southern façade would need to be highly transparent. Double height perimeter atria along the north eastern façade were also shown to provide benefit to daylight performance however triple height perimeter atria provide negligible additional benefits.
- Energy modelling of the perimeter atria demonstrated a potential for natural ventilation to reduce cooling loads and associated mechanical services energy consumption which will be considered further during design development.
- The building is characterised by highly exposed north eastern facades while the other facades receive limited direct solar exposure by virtue of their orientation and/or shading of the adjacent SAHMRI and Adelaide University Buildings. The combination of daylight and energy modelling have driven a design response which uses a combination of frit and external shading in varying amounts which is responsive to the level of annual solar exposure.
- The constraints of the service core and varied thermal load profiles throughout the building suggested that a traditional variable air volume (VAV) system may be relatively inefficient due to potential for excessive reheat. An alternative proposal for a twin-duct VAV system was modelled and demonstrated to use approximately 5% less energy.

2.2 Sustainable Site Strategy

Sensitive site selection and development is fundamental to sustainable project outcomes. The project will:

- Create and implement an erosion and sediment control plan for all construction works to control soil erosion, waterway sedimentation and airborne dust generation.
- Assess the site for environmental contamination and remediate where contamination is found.
- Provide excellent access to the local public transport network.
- Provide end of trip bicycle facilities for 5% of full time building occupants.
- Minimise on-site car parking provisions and encourage alternative transport options where feasible.
- Maximise usable open space within site constraints and the context of the urban park.

2.3 Water Efficiency

Water scarcity is a serious issue facing Australia's major cities, especially Adelaide. The project will respond to this issue by:

- Utilising rooftop rainwater capture for reuse in toilet flushing
- Installing high efficiency hydraulic fitting and fixtures.
- Efficient building fabric and HVAC design to minimise demand on cooling tower water consumption.

2.4 Energy Efficiency

An energy efficient building is not the result of any one initiative or individual responsibility. Recognising this, the project will:

- Engage an independent commissioning authority to verify the project's energy consuming systems are installed, calibrated and are able to operate as designed.
- Demonstrate via a detailed energy model and simulation that the whole building has been designed to achieve a minimum 5% energy efficiency improvement over the ASHRAE 90.1-2010 standards. This equates to approximately 25% less energy than the previous ASHRAE 2007 benchmarks.
- Utilise on-site renewable energy generation such as solar PV. Preliminary allowance is for a 25kW solar PV array.

2.5 Materials and Resources

The project will adopt several key initiatives to address environmental concerns relating to materials selection, waste disposal and waste reduction including:

- Providing easily accessible and dedicated recycling waste storage areas. At a minimum the building will provide recycling facilities for paper, cardboard, glass, plastics and metals.
- Divert a minimum 75% of construction waste from landfill.
- Maximise use of locally sourced materials, particularly items that are associated with high transport emissions such as structural and reinforcing steel.

2.6 Indoor Environment Quality

The project will provide a healthy indoor environment which promotes occupant comfort, well-being and productivity through several key initiatives including:

- Prohibiting smoking anywhere within the site boundary.
- Outside air quantities to be provided at a minimum 50% above the Australian Standard requirements.
- Implementing a construction indoor air quality plan to reduce air quality problems associated with construction which can impact on the comfort and well-being of both building occupants and construction workers.
- Use of low-emitting (i.e. 'low VOC') adhesives and sealants, paints and floor coverings applied internally
- The HVAC system design will satisfy the ASHRAE 55-2010 thermal comfort conditions.
- Internal space planning will be undertaken to optimise occupant access to natural daylight and external views without compromising functional requirements.

3.0 LEED Targets

By taking a systematic and whole-of-life approach to building related environmental impacts and human benefits, a LEED target plan has been developed for the project. The LEED plan presented below is for reference purposes and is current at the time of writing only. The plan will be continually refined and updated over the life of the project. The current plan identifies a total of 66 target points (LEED Gold minimum 60).

		Avail.	Target
		111	66
Designation	**Credit Name**	**Avail.**	**Target**
Integrative Process		**1**	**1**
IP	Integrative Process	1	1
Location and Transportation		**18**	**11**
LTc1	Sensitive Land Protection	1	1
LTc2	High Priority Site	2	2
LTc3	Surrounding Density and Diverse Uses	6	2
LTc4	Access to Quality Transit	6	5
LTc5	Bicycle Facilities	1	1
LTc6	Reduced Parking Footprint	1	0
LTc7	Green Vehicles	1	0
Sustainable Sites		**11**	**7**
SSp1	Construction Activity Pollution Prevention	Required	Y
SSc1	Site Assessment	1	1
SSc2	Site Development - Protect or Restore Habitat	2	1
SSc3	Open Space	1	1
SSc4	Rainwater Management	3	0
SSc5	Heat Island Reduction	2	2
SSc6	Light Pollution Reduction	1	1
Water Efficiency		**11**	**6**
WEp1	Outdoor Water Use Reduction	Required	Y
WEp2	Indoor Water Use Reduction	Required	Y
WEp3	Building-Level Water Metering	Required	Y
WEc1	Outdoor Water Use Reduction	2	2
WEc2	Indoor Water Use Reduction	6	2
WEc3	Cooling Tower Water Use	2	1
WEc4	Water Metering	1	1
Energy and Atmosphere		**33**	**16**
EAp1	Fundamental Commissioning and Verification	Required	Y
EAp2	Minimum Energy Performance	Required	Y
EAp3	Building-Level Energy Metering	Required	Y
EAp4	Fundamental Refrigerant Management	Required	Y
EAc1	Enhanced Commissioning	6	6
EAc2	Optimize Energy Performance	18	4
EAc3	Advanced Energy Metering	1	1
EAc4	Demand Response	2	1
EAc5	Renewable Energy Production	3	1
EAc6	Enhanced Refrigerant Management	1	1
EAc7	Green Power and Carbon Offsets	2	2
Materials and Resources		**14**	**6**
MRp1	Storage and Collection of Recyclables	Required	Y
MRp2	Construction and Demolition Waste Management Planning	Required	Y
MRc1	Building Life-Cycle Impact Reduction	6	3
MRc2	Building Product Disclosure and Optimization - Environmental Product Declarations	2	1
MRc3	Building Product Disclosure and Optimization - Sourcing of Raw Materials	2	0
MRc4	Building Product Disclosure and Optimization - Material Ingredients	2	0
MRc5	Construction and Demolition Waste Management	2	2
Indoor Environmental Quality		**13**	**12**
EQp1	Minimum Indoor Air Quality Performance	Required	Y
EQp2	Environmental Tobacco Smoke Control	Required	Y
EQc1	Enhanced Indoor Air Quality Strategies	2	2
EQc2	Low-Emitting Materials	3	3
EQc3	Construction Indoor Air Quality Management Plan	1	1
EQc4	Indoor Air Quality Assessment	2	2
EQc7	Daylight	3	2
EQc8	Quality Views	1	1
EQc9	Acoustic Performance	1	1

		Avail.	Target
		111	66
Designation	**Credit Name**	**Avail.**	**Target**
Innovation		**6**	**3**
ID1	Innovation	5	2
ID2	LEED Accredited Professional	1	1
Regional Priority		**4**	**4**
RP1	Regional Priority: Specific Credit	4	4

3.1 Rating Assurance and Risk Management

It is a project briefed requirement to achieve a certified LEED Gold Rating and project funding is contingent upon achieving the certified LEED rating.

Cundall have been engaged to provide ESD consultancy services specifically in relation to delivery of the LEED Gold rating. However, all LEED credits are associated with a degree of certification risk. Accordingly, Cundall's team which includes LEED accredited professionals, are working with the design team to provide input into the design process, review of documentation and managing contractor coaching to ensure all parties are aware of their responsibilities and to minimise risks associated with LEED certification non-compliance. Common risks relate to:

- LEED points available for some credits cannot be refined to a high degree of certainty until later stages of detailed design (i.e. 'Optimise Energy Performance' credit which requires a detailed energy model of the project based on construction issue documentation);
- Budget or operational requirements taking precedence over credit compliance requirements during detailed design;
- Contractor non-conformances. In some instances, rectification works cannot be undertaken (i.e. failure to implement pre-occupancy requirements of an indoor air quality plan or commissioning plan).

To account for the necessary assumptions required to develop the LEED target plan, the current targets include a 10% contingency over the minimum requirements to achieve a LEED Gold rating. This level of contingency is typical at the schematic design stage.

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WALLBRIDGE GILBERT AZTEC

Commercial & General

SAHMRI 2

STORMWATER MANAGEMENT REPORT

Job No. ADL171056 / Rev A
04 April 2018

Revision History

Rev	Date	Issue	Originator	Checker	Approver
A	04/04/18	Planning Submission to Council	JS	SA	

CONTENTS

Appendices

1 INTRODUCTION

This report summarises the proposed stormwater management strategy and measures being considered for a Council planning approval submission.

The stormwater management strategy represents a high level sketch design that is intended to demonstrate the overall approach. Further design and coordination will be necessary to confirm the stormwater layout, pit and pipe sizes/types and treatment systems required. This information is provided for planning purposes and will guide the subsequent design development process.

Design criteria to be considered as part of the proposed strategy include;

1) Site stormwater management practices in accordance with AS 3500.

2) Criteria detailed within the SAHMRI 2 Project Facility Requirements (PFR) document.

3) Rainwater management criteria associated with the following LEED requirements:

   – In a manner best replicating natural site hydrology processes, manage on site the runoff from the developed site for the 95th percentile of regional or local rainfall events using low-impact development (LID) and green infrastructure.

The stormwater management approach has been adopted based on correspondence with Council's Stormwater/Asset engineer and Cundall.

2 REFERENCE DOCUMENTS AND STANDARDS

The stormwater management approach has been developed to encompass design practices in accordance with the following recognised references:

- Australian Rainfall and Runoff (1999)
- Australian Rainfall and Runoff (2016)
- Storm Drainage Design in Small Urban Catchments: A Handbook for Australian Practice, Issue 34, J. Argue, (1985),
- Australian Runoff Quality, A Guide to Water Sensitive Urban Design, Engineers Australia (2006).
- LEED Reference Guide for Building Design and Construction (2018)

These handbooks and guidelines are considered as Australian and South Australian standards and cover all aspects of stormwater management. The stormwater management strategy will adopt the design standards, principles and practices where practicable.

3 STORMWATER AND SITE MANAGEMENT STRATEGY

The SAHMRI 2 development will be assessed against the US Green Building Council's LEED certification criteria. The project aims to achieve a 'Gold' environmental accreditation rating using the LEED Criteria, with the stormwater and site management strategy to consider the 'Rainwater Management' aspects of the criterion. Based on the current landscape design and site characteristics it is unlikely that these points can be achieved.

The site boundary extends along North Terrace to George Street, directly adjacent to the existing SAHMRI 1 building. The overall site area is approximately 3,400m^2, including the building, plaza and existing roadway/footpath areas. As the majority of the site is existing hardstand area, it is anticipated that there will be minimal or no increase in flows from the site as a result of the development. Therefore, no further stormwater detention is required to restrict post-development runoff to pre-development levels.

The new facility will predominantly be roof runoff, with some plaza, raised planters and vertical building face runoff. Stormwater connections within ground will be designed to discharge up to a 1 in 20 Year Average Recurrence Interval (ARI) storm event, with overflow systems designed to accommodate a 1 in 100 year ARI event.

Given the roof and plaza stormwater flows are relatively clean; a Gross Pollutant Trap (GPT) is not envisaged to treat site runoff.

The existing overland flow route along North Terrace flows west to east, across the junction with George Street. The crest (high point) in North Terrace is located approximately 150m west of George Street. Furthermore, the crest in George Street near the road junction is approximately 200-300mm higher than the adjacent spoon drain. Therefore, based on the small upstream catchment we do not expect any overland flows from the junction into George Street.

According to flood mapping undertaken by the City of Adelaide Council the proposed development is outside of the 1 in 100 Year ARI flood area. As such, no specific external flood management is necessary for this development.

Further detail is provided herein.

Roof Stormwater Runoff

The SAHMRI 2 roof is an area of approximately 1,800m^2. As per *AS3500.3*, there will be additional vertical catchment area as a result of the height of the proposed multi-storey building, increasing the catchment area to approximately 3,600m^2.

Assuming a 100% impervious percentage for roof run off, the design flows for the roof area are approximately 90 L/s and 136 L/s for the 20 and 100 year ARI storm events. Stormwater runoff from the building can be conveyed by using either a conventional drainage system or syphonic system (determined by hydraulic engineers) whilst vertical wall runoff will likely be collected via Grated Inlets Pits (GIPs) and/or grated trench drain adjacent to the building.

Runoff captured within the underground system will be conveyed to a proposed connection point in the new roadway adjacent the University of Adelaide Health & Medical Services Building. The downstream pipework was designed to allow up to 150 L/s of additional flow from the SAHMRI 2 site. All additional overflow not captured by the underground system will be conveyed as surface flow to George Street and will flow westwards towards existing side entry pits (SEPs) located adjacent SAHMRI 1 and confirmation of the overland flow path across the rail tracks will need to be investigated with further survey information.

Service engineers will consider roof rainwater harvesting via a tank for non-potable water uses such as toilet flushing, due to its constant demand. This will maximise use of roof stormwater and minimise flows off site for small rain events.

Plaza Drainage Design

Runoff from the plaza area will likely be separated into two zones; the western catchment and the eastern catchment subject to detailed design. Refer to the stormwater catchment plan in Appendix A.

Western Catchment

The larger western catchment is approximately 1,200 m^2 in size and will be intercepted by a combination of GIP's, trench drainage systems and planter boxes. These systems will collect and convey stormwater runoff generated from the surfaces, before discharging to the existing stormwater infrastructure network along George Street. All additional overflow not captured by the underground system will be conveyed as surface flow to George Street. Some extension to existing pipework may be required subject to services investigations.

Assuming a 90% impervious percentage for the surface runoff, the design flows for the western catchment are approximately 37 L/s and 56 L/s for the 20 and 100 year ARI storm events.

Council has advised that seepage water from raised planter boxes which may contain through the soil profile that could discharge to the stormwater system which is not acceptable. Whilst the area and risks are both small, further discussions with Council are still required. At worst the seepage water from planters will be collected within a sump, stored and re-irrigated through the planter boxes in order to improve water quality before ultimately discharging to the receiving stormwater network. However, given the small volumes compared to the overall site volumes this approach provides negligible overall improvement in discharged water quality.

Eastern Catchment

The eastern catchment is approximately 400 m^2 in size, and will be captured by a network of GIP's near the eastern site boundary. The stormwater will then be conveyed via pipe to the connection point adjacent to the University of Adelaide Health & Medical Services Building, as per the roof runoff. Should the total flows exceed the 150 L/s capacity of the existing system, the stormwater will surcharge to the surface in George Street and flow westward towards existing SEPs located adjacent SAHMRI 1. Further pipework and pits may be required depending on existing system capacity.

Assuming a 90% impervious percentage for the surface runoff, the design flows for the western catchment are approximately 13 L/s and 19 L/s for the 20 and 100 year ARI storm events.

The proposed stormwater layout sketch and associated calculations are attached in Appendix B and C respectively.

APPENDIX A

STORMWATER CATCHMENT PLAN

WGA

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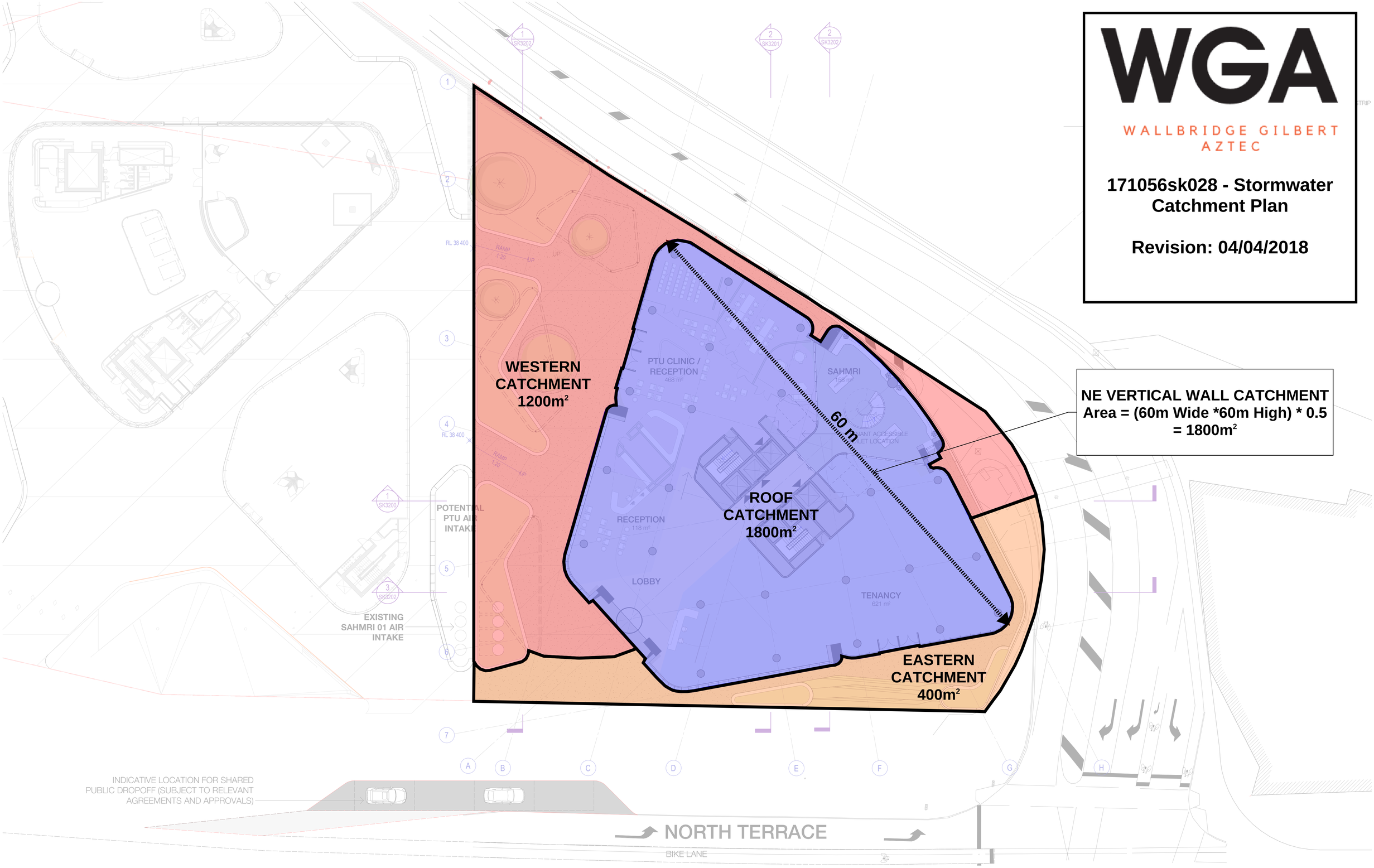
171056sk028 - Stormwater Catchment Plan

Revision: 04/04/2018



WOODS BAGOT

Client	Project	Sheet title	Project number	Scale	Sheet size	© Woods Bagot
Commercial & General	SAHMRI 2	FLOOR PLAN - LEVEL 03	140290	As indicated	A1	
			Sheet number AR-SK2203	Revision G	Date 20.03.18	

APPENDIX B

STORMWATER LAYOUT SKETCH

LEGEND:

- Grated Inlet Pit
- Grated Trench Drain
- Stormwater Pipe
- Flow Direction

CONNECT TO EXISTING STORMWATER INFRASTRUCTURE

SUMP FOR REUSE (TBC)

ROOF & NE VERTICAL WALL FACE FLOW

CONNECT TO EXISTING UNIVERSITY OF ADELAIDE CONNECTION

POTENTIAL PTU AIR INTAKE

EXISTING SAHMRI 01 AIR INTAKE

PTU CLINIC / RECEPTION 468 m²

SAHMRI 158 m²

TENANT ACCESSIBLE TOILET LOCATION

RECEPTION 118 m²

LOBBY

TENANCY 621 m²

INDICATIVE LOCATION FOR SHARED PUBLIC DROPOFF (SUBJECT TO RELEVANT AGREEMENTS AND APPROVALS)

NORTH TERRACE

BIKE LANE

WGA

WALLBRIDGE GILBERT AZTEC

171056sk029 - Stormwater Layout Sketch

Revision: 04/04/2018

WOODS BAGOT

Client: **Commercial & General**

Project: **SAHMRI 2**

Sheet title: **FLOOR PLAN - LEVEL 03**

Project number: **140290**

Scale: **As indicated**

Sheet size: **A1**

Sheet number: **AR-SK2203**

Revision: **G**

Date: **20.03.18**

APPENDIX C

STORMWATER CALCULATIONS

CATCHMENT ANALYSIS

Job Number: 171056
Job Description: SAHMRI 2
Engineer: JS
Date: 4/04/2018

WGA
WALLBRIDGE GILBERT AZTEC

Roof Catchment

Region	Runoff Coefficient	Area	C x A	C weighted average		I	I	Q	Q
		m2	*m2*			*mm/hr*	*m/s*	*m3/s*	*l/s*
Roof	1	1,800	1,800	0.500	**1 in 5**	60.9	1.69122E-05	**0.06**	**60.88**
Vertical Wall	1	1,800	1,800	0.500	**1 in 10**	72.9	2.02571E-05	**0.07**	**72.93**
			-	0.000	**1 in 20**	89.3	2.48118E-05	**0.09**	**89.32**
			-	0.000	**1 in 100**	135.2	3.75433E-05	**0.14**	**135.16**
		3,600	**3,600**	**1.000**					

Time of Concentration / IFD Flows

tc	10		tc	10.0	mins	tc	10.0	mins	tc	10.0	mins
1 in 5	**60.9**		1 in 10	**72.9**	mm/hr	1 in 20	**89.3**	mm/hr	1 in 100	**135.2**	mm/hr

Plaza - Western Catchment

Region	Runoff Coefficient	Area	C x A	C weighted average		I	I	Q	Q
		m2	*m2*			*mm/hr*	*m/s*	*m3/s*	*l/s*
Plaza	0.9	800	720	0.667	**1 in 5**	81.9	2.27496E-05	**0.02**	**24.57**
Landscape	0.9	400	360	0.333	**1 in 10**	98.5	2.73503E-05	**0.03**	**29.54**
			-	0.000	**1 in 20**	121.1	3.36289E-05	**0.04**	**36.32**
			-	0.000	**1 in 100**	184.6	5.12831E-05	**0.06**	**55.39**
		1,200	**1,080**	**0.900**					

Time of Concentration / IFD Flows

tc	5		tc	5.0	mins	tc	5.0	mins	tc	5.0	mins
1 in 5	**81.9**		1 in 10	**98.5**	mm/hr	1 in 20	**121.1**	mm/hr	1 in 100	**184.6**	mm/hr

Plaza - Eastern Catchment

Region	Runoff Coefficient	Area	C x A	C weighted average		I	I	Q	Q
		m2	*m2*			*mm/hr*	*m/s*	*m3/s*	*l/s*
Plaza	0.9	400	360	1.000	**1 in 5**	81.9	2.27496E-05	**0.01**	**8.19**
			-	0.000	**1 in 10**	98.5	2.73503E-05	**0.01**	**9.85**
			-	0.000	**1 in 20**	121.1	3.36289E-05	**0.01**	**12.11**
			-	0.000	**1 in 100**	184.6	5.12831E-05	**0.02**	**18.46**
		400	**360**	**0.900**					

Time of Concentration / IFD Flows

tc	5		tc	5.0	mins	tc	5.0	mins	tc	5.0	mins
1 in 5	**81.9**		1 in 10	**98.5**	mm/hr	1 in 20	**121.1**	mm/hr	1 in 100	**184.6**	mm/hr

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Resonate

SAHMRI 2 - Acoustics

Planning Stage Acoustic Report

A17777RP1 Revision B

Wednesday, 11 April 2018

Document Information

Project	SAHMRI 2 - Acoustics	
Client	Commercial & General	
Report title	Planning Stage Acoustic Report	
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Reviewed by	Matthew Stead / Deb James	

Revision Table

Report revision	Date	Comments
0	31 January 2018	First Issue
A	3 April 2018	Updated report
B	11 April 2018	Updated minor changes

Glossary

A-weighting	A spectrum adaption that is applied to measured noise levels to represent human hearing. A-weighted levels are used as human hearing does not respond equally at all frequencies.
Characteristic	Associated with a noise source, means a tonal, impulsive, low frequency or modulating characteristic of the noise that is determined in accordance with the Guidelines for the use of the Environment Protection (Noise) Policy (Noise EPP) to be fundamental to the nature and impact of the noise.
Continuous noise level	A-weighted noise level of a continuous steady sound that, for the period over which the measurement is taken using fast time weighting, has the same mean square sound pressure as the noise level which varies over time when measured in relation to a noise source and noise-affected premises in accordance with the Noise EPP
Day	Between 7 am and 10 pm as defined in the Noise EPP
dB	Decibel—a unit of measurement used to express sound level. It is based on a logarithmic scale which means a sound that is 3 dB higher has twice as much energy. We typically perceive a 10 dB increase in sound as a doubling of loudness.
dB(A)	Units of the A-weighted sound level.
Frequency (Hz)	The number of times a vibrating object oscillates (moves back and forth) in one second. Fast movements produce high frequency sound (high pitch/tone), but slow movements mean the frequency (pitch/tone) is low. 1 Hz is equal to 1 cycle per second.
Indicative noise level	Indicative noise level determined under clause 5 of the Noise EPP.
L_{90}	Noise level exceeded for 90 % of the measurement time. The L_{90} level is commonly referred to as the background noise level.
L_{eq}	Equivalent Noise Level—Energy averaged noise level over the measurement time.
L_{max}	The maximum instantaneous noise level.
Night	Between 10 p.m. on one day and 7 a.m. on the following day as defined in the Noise EPP
Noise source	Premises or a place at which an activity is undertaken, or a machine or device is operated, resulting in the emission of noise

Table of Contents

1 Introduction

1.1 General

Resonate have been engaged to provide acoustic consultancy services for the proposed SAHMRI 2 building to be located on North Terrace, Adelaide. This report provides planning stage acoustic advice for the proposed development. This assessment has been conducted with consideration for the Principles of Development Control of the Adelaide City Council Development Plan and the requirements of the South Australian Environmental (Noise) Protection Policy 2007.

1.2 Project appreciation

The proposed SAHMRI 2 building will complement the existing SAHMRI building and support the surrounding Health services within the Adelaide City Council's Health Policy Area. SAHMRI 2 will house a Proton Therapy Unit and associated clinical therapy suites. In addition, the development is expected to support SAHMRI staff as well as other commercial tenants.

1.3 Key acoustic issues

It is expected that the main source of noise emission from the proposed development will be from building services plant. Noise sources are likely to include chillers, cooling towers, condenser units and a standby generator. The development also has the potential to be adversely impacted by existing sources of noise within the vicinity. The main sources of noise expected to impact on the proposed development are road traffic noise, tram noise, rail noise and noise from rooftop plant on SAHMRI 1 and University of Adelaide Health and Medical Sciences building.

2 Proposed development

2.1 Site locality

The proposed site of the new SAMHRI 2 building is located to the immediate east of the existing SAMHRI building on North Terrace, Adelaide. The subject site is located within the Adelaide City Council Riverbank zone, Health Policy Area 27. Currently located at the subject site is the Train Operations Control Centre. The subject site is surrounded by the following adjacencies:

- To the north; George Street and beyond that the Adelaide Station rail yard.
- To the south; North Terrace and the tram line.
- To the east; the University of Adelaide's Health and Medical Sciences building.
- To the west; the existing SAMHRI building.

A satellite image of the subject site is presented in Figure 1.

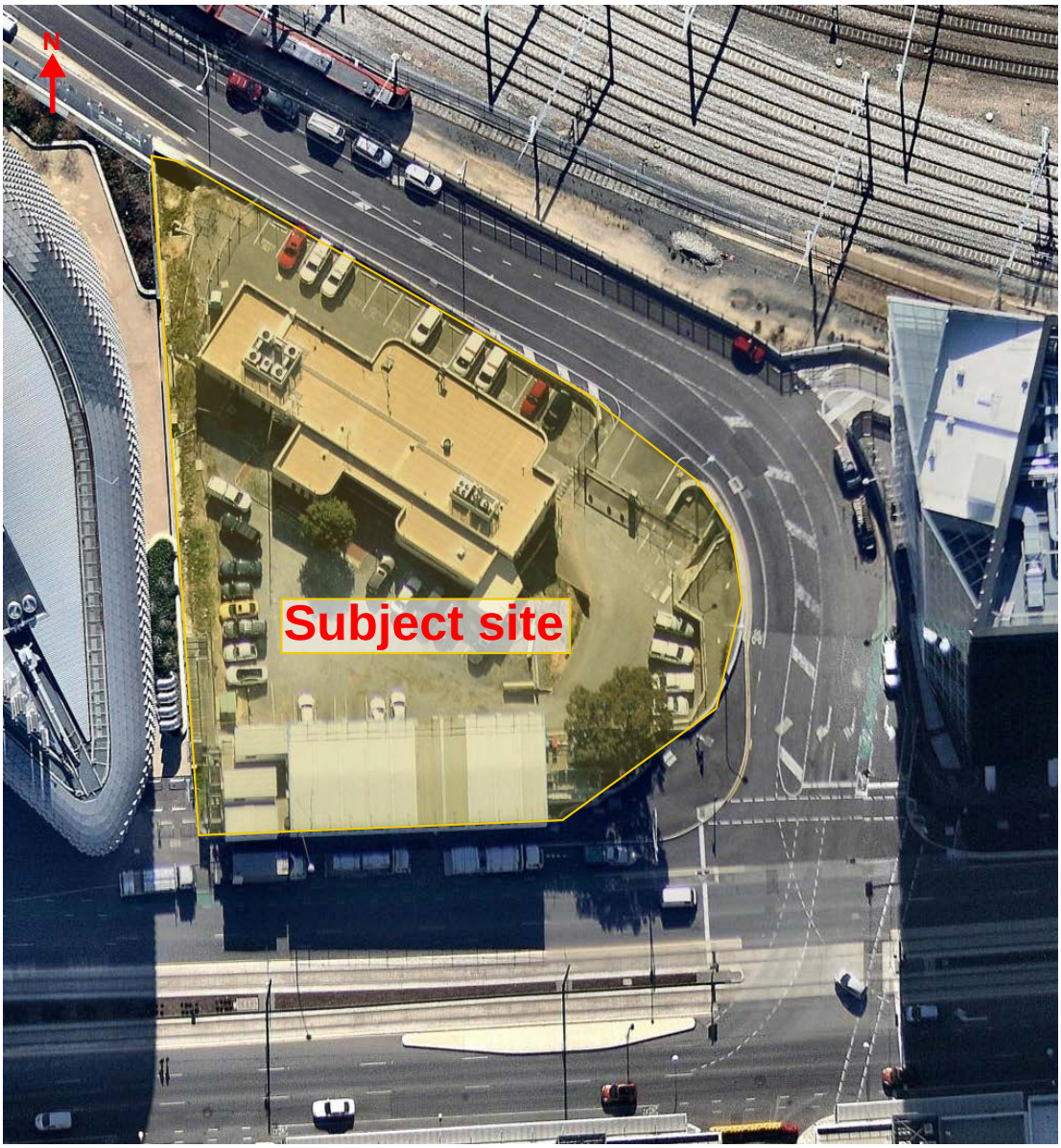


Figure 1 Subject site (Nearmap 2017)

2.2 Existing acoustic environment

The subject site is currently impacted by several sources of noise. The most significant sources of noise are:

- Railcar movements to the north in the Adelaide station rail yard.
- Tram movements to the south along North Terrace.
- Road vehicle traffic along North Terrace and George Street.
- Mechanical plant noise from adjacent buildings along North terrace (SAHMRI 1 and University of Adelaide's Health and Medical Sciences building).

2.3 Nearest noise sensitive receiver

A noise sensitive development is defined by the Adelaide City Council Development Plan as "*development that may be adversely affected by noise such as residential, health care, aged care and educational activities*." The nearest existing noise sensitive receivers are the existing SAHMRI building and the University of Adelaide's Health and Medical Sciences building. An additional noise sensitive receiver considered is the Riviera Hotel located at 31 – 34 North terrace, approximately 40 m south of the subject site boundary.

2.4 Proposed built form

The proposed development will comprise of a total of 18 levels; three subterraneous levels, 15 levels including the ground level and above and a roof level. An extract of the Project Facilities Requirements report that shows the east-west section of the building is presented in Figure 3. It is expected that the form of the building will complement the existing SAHMRI buildings and other buildings within the Adelaide City Council Health Policy area. Key layout aspects of the proposed facility include the Proton Therapy Unit (PTU), SAHMRI occupation up to level 6 of the building, other related commercial tenancies occupying the remainder of the building and plant located on level 15 and the roof level.

It is understood that the proposed development will be set back approximately 10 m from North Terrace kerb approximately in line with the existing SAHMRI building. An extract of the architectural layout that shows the floor plan of level 03 is presented in Figure 2.

Figure 2 Extract, architectural layout, Floor Plan – Level 03

Figure 3 Extract of SAHMRI 2 Project Facilities Requirements report, east - west section

3 Noise criteria

3.1 Adelaide City Council Development Plan

The Adelaide City Council Development Plan (consolidated 20 June 2017) outlines Council Wide Objectives and Principles of Development Control (PDC) in addition to Policy Area specific objectives and PDCs. Council Wide PDCs relevant to noise emissions from the proposed development are presented in Figure 4. The proposed development is not expected to be a source of music noise and hence PDCs relating to music noise are not applicable.

Noise Sources

89 Development with potential to emit significant noise (including licensed entertainment premises and licensed premises) should incorporate appropriate noise attenuation measures in to their design to prevent noise from causing unreasonable interference with the amenity and desired character of the locality, as contemplated in the relevant Zone and Policy Area.

93 Mechanical plant or equipment should be designed, sited and screened to minimise noise impact on adjacent premises or properties. The noise level associated with the combined operation of plant and equipment such as air conditioning, ventilation and refrigeration systems when assessed at the nearest existing or envisaged noise sensitive location in or adjacent to the site should not exceed

(a) 55 dB(A) during daytime (7.00am to 10.00pm) and 45 dB(A) during night time (10.00pm to 7.00am) when measured and adjusted in accordance with the relevant environmental noise legislation except where it can be demonstrated that a high background noise exists.

(b) 50 dB(A) during daytime (7.00am to 10.00pm) and 40 dB(A) during night time (10.00pm to 7.00am) in or adjacent to a City Living Zone, the Adelaide Historic (Conservation) Zone, the North Adelaide Historic (Conservation) Zone or the Park Lands Zone when measured and adjusted in accordance with the relevant environmental noise legislation except where it can be demonstrated that a high background noise exists.

94 To ensure minimal disturbance to residents:

(a) ancillary activities such as deliveries, collection, movement of private waste bins, goods, empty bottles and the like should not occur:

(i) after 10.00pm; and

(ii) before 7.00am Monday to Saturday or before 9.00am on a Sunday or Public Holiday.

(b) typical activity within any car park area including vehicles being started, doors closing and vehicles moving away from the premises should not result in sleep disturbance when proposed for use after 10.00pm as defined by the limits recommended by the World Health Organisation.

Figure 4 Extract of Adelaide City Council Development plan – Council Wide Principles of Development Control (Noise Sources)

The Council Wide PDCs relevant to noise receivers is presented in Figure 5. The proposed development contains health care facilities that are considered noise sensitive as defined by the Adelaide City Council Development Plan. The proposed development however does not contain bedrooms and therefore PDCs relating to noise intrusion into bedrooms and sleep disturbance are not applicable. The proposed development is located outside of the ANEF 20 contour and therefore PDCs relating to aircraft noise intrusion are also not applicable. The proposed development is

exposed to transportation noise from road, rail, tram and building services noise. Compliance with PDC 95 may be demonstrated through achieving compliance with AS/NZS 2107:2016.

Noise Receivers

95 Noise sensitive development should incorporate adequate noise attenuation measures into their design and construction to provide occupants with reasonable amenity when exposed to noise sources such as major transport corridors (road, rail, tram and aircraft), commercial centres, entertainment premises and the like, and from activities and land uses contemplated in the relevant Zone and Policy Area provisions.

96 Noise sensitive development in mixed use areas should not unreasonably interfere with the operation of surrounding non-residential uses that generate noise levels that are commensurate with the envisaged amenity of the locality.

Figure 5 Extract of Adelaide City Council Development plan – Council Wide Principles of Development Control (Noise Receivers)

The proposed development is located in Health Policy Area 27 within the Riverbank zone of the Adelaide City Council. Policy area 27 specific PDCs are presented in Figure 6.

7 Development should provide for a satisfactory interface to roads and railways by addressing issues of access, safety, security, noise, air emissions and vibration so that:

(a) the effective and efficient operation of the road system and rail service adjacent to the Zone is not detrimentally affected; and

(b) the potential for adverse impacts on hospital occupants and activities as a result of road traffic and the operation of rail services adjacent to the Zone is minimised.

Figure 6 Extract of Adelaide City Council Development plan – Health Policy area 27 specific Principles of Development Control

Planning maps relevant to the proposed development are presented in Appendix A.

3.2 Environmental (Noise) Protection Policy 2007

Environmental noise emissions from the proposed development should comply with the *Environment Protection (Noise) Policy* 2007 (Noise EPP) and is a complimentary requirement in addition to that of the ACC Development Plan.

The noise goals in the Noise EPP are based on the zoning of the development and the closest noise affected premises in the relevant development plan. The land uses primarily promoted by the zones are used to determine the environmental noise criteria with the indicative noise factors shown in Table 1.

Table 1 Excerpt from Noise EPP—Table 2(subclause(1)(b))

Land use category	Indicative noise factor dB(A)	
	Day (7 am to 10 pm)	Night (10 pm to 7 am)
Rural living	47	40
Residential	52	45
Rural industry	57	50
Light industry	57	50
Commercial	62	55
General industry	65	55
Special industry	70	60

The proposed development and it's nearest noise sensitive receivers (SAHMRI 1 and University of Adelaide's Health and Medical Sciences building) are located within the Adelaide City Council's Health Policy Area 27 (Riverbank zone). Within this zone mixed usage is primarily promoted.

In accordance with Part 5 of the Noise EPP, the relevant criteria for this development is the relevant indicative noise factors less 5 dB(A). The application of Part 5 results in the following environmental noise criteria:

- 52 dB(A) during the day, 7 am to 10 pm
- 45 dB(A) at night, 10 pm to 7 am.

With respect to mechanical services noise the requirements of the Adelaide City Council are more onerous (Day: 50dB(A); Night: 40 dB(A)) than those of the EPP 2007. Therefore achieving compliance with the requirements of the Adelaide City Council will imply compliance with the EPP 2007. Higher objective noise criteria may be applicable if it is demonstrated that a high background noise exists.

Penalties can also be applied to a noise source for a variety of characteristics, such as impulsive, low frequency, modulating or tonal characters. For a characteristic penalty to be applied to a noise source it must be fundamental to the impact of the noise and dominate the overall noise impact.

We note that under Part 5, Clause 20(6) of the Noise EPP, exceedence of the recommended criterion does not necessarily mean that the development will be non-compliant. Some of the following matters should be considered when considering compliance:

- the amount by which the criterion is exceeded (in dB(A))
- the frequency and duration for which the criterion is exceeded
- the ambient noise that has a noise level similar to the predicted noise level
- the times of occurrence of the noise source
- the number of persons likely to be adversely affected by the noise source and whether there is any special need for quiet.

3.3 AS/NZS 2107:2016 *Acoustics—Recommended design sound levels and reverberation times for building interiors*

Internal noise levels and reverberation time criteria are based on the requirements of Australian/New Zealand Standard (AS/NZS) 2107:2016.[1] The design internal noise level range and mid-frequency reverberation criteria relevant to the proposed development are presented in Table 2.

Table 2 AS/NZS 2107 internal noise and reverberation time criteria—Health Buildings

Type of occupancy/activity	Recommended Design Sound Level L_{eq} dB(A)	Recommended Reverberation Time (T), s(1)
Corridors and lobby spaces	40 – 50	0.4 – 0.6
Consulting rooms	40 – 45	0.4 – 0.6
Kitchens, sterilising and service areas	50 – 55	0.6 – 0.8
Laboratories	45 – 50	0.4 – 0.7
Office areas	40 – 45	0.4 – 0.7
Waiting rooms, reception areas	40 – 50	0.4 – 0.7

Note: (1) Mid-frequency reverberation refers to the reverberation time at the medium frequencies, that is at 500 Hz or 1000 Hz.

[1] Australian/New Zealand Standard 2107:2016 *Acoustics—Recommended design sound levels and reverberation times for building interiors.*

4 Noise measurements

4.1 General

To gain a comprehensive understanding of the existing acoustic environment Resonate conducted noise measurements within the vicinity of the proposed development. Noise measurements were conducted on the 9th of November 2017. Noise measurements were conducted at L1 (1 m from existing building facade), L2 (free field) and L3 (free field) as annotated on Figure 7.

Additionally, vibration measurements were conducted for the purpose of comparison with performance specifications of the vibration sensitive Proton Therapy Unit. These are beyond the scope of this acoustic planning report and therefore have not been included in this report. Notwithstanding, the vibration measurements conducted indicate that the subject site is not exposed to any unreasonable levels of vibration.

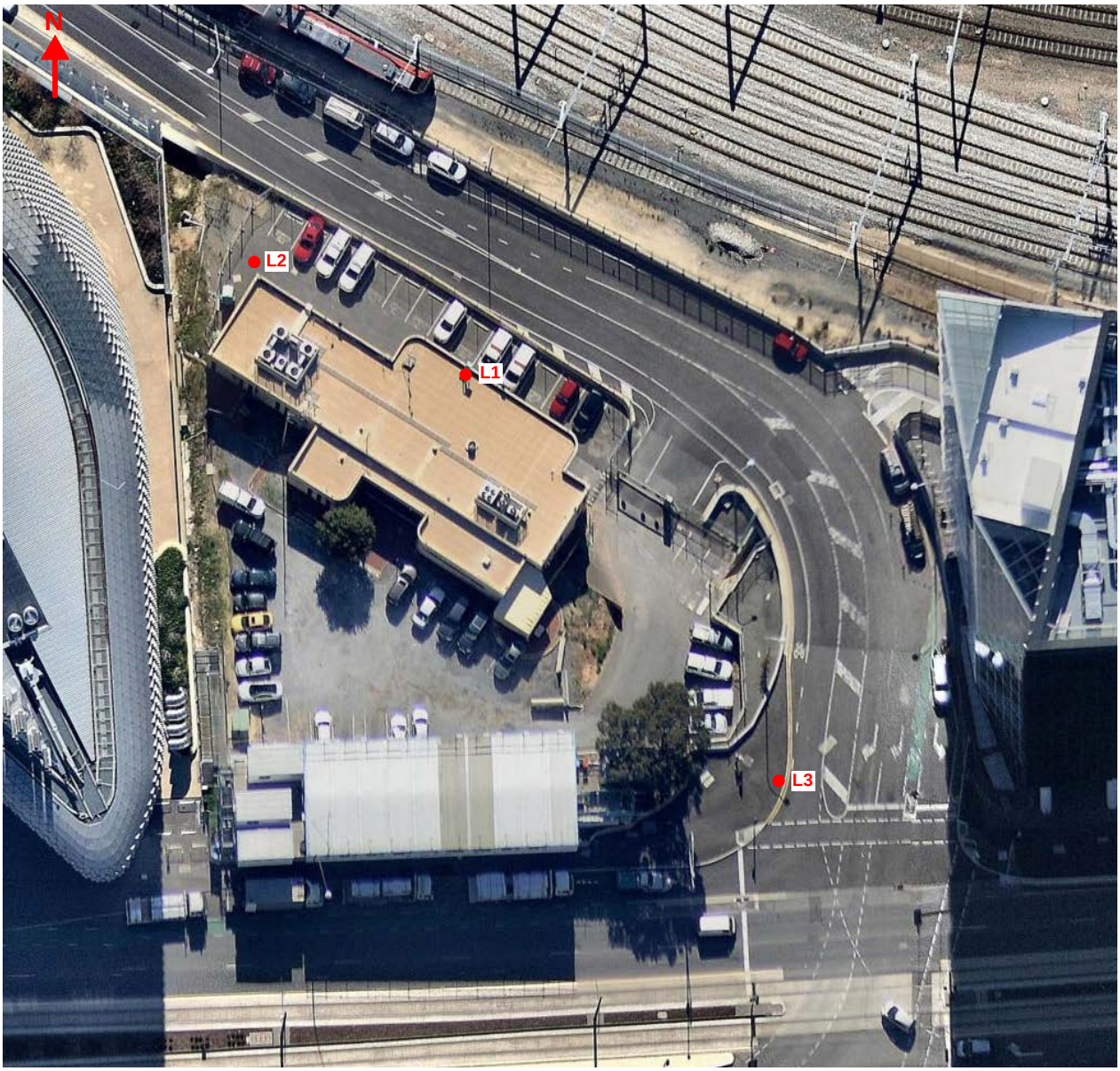


Figure 7 Measurement locations (Nearmap 2017)

4.2 Instrumentation

The noise measurements were taken with a calibrated Brüel & Kjær 2250 sound level meter (SN: 3001238), which is a Type 1 instrument suitable for field and laboratory use. The sound level meter was calibrated both before and after the measurements using a Type 1 Brüel & Kjær 4231 sound level calibrator (SN: 2385016), and the calibration was found to have not drifted. Both the sound level meter and calibrator carry current calibration certificates from a NATA accredited laboratory. Copies of the calibration certificates are available on request.

4.3 Procedure

Noise measurements were undertaken in accordance with the following:

- The microphone of the sound level meter was at a height of approximately 1.2 metres above the ground.
- The axis of maximum sensitivity of the microphone of the sound level meter was directed towards the noise source.
- A wind shield was used during all measurements, and the measurements were undertaken during a calm weather conditions.
- Care was taken to avoid any effect on the measurement of extraneous noise, acoustic vibration or electrical interference.
- Noise measurements were undertaken for a period of 5 – 10 minutes.

4.4 Results

The measured noise levels and descriptions are presented in Table 3. Road traffic noise along north terrace was the most dominant noise source that impacted on the subject site.

Table 3 Measured noise levels

Measurement start time	Location	Measured sound pressure level, dB (re 20 µPa)				Noise Description
		L_{AFMax}	L_{Aeq}	L_{A10}	L_{A90}	
11:19:53 am	L1	71	56	58	54	Constant distant mechanical plant noise constant from various sources. Electric train pass-by on down track ~ 58dB(A). Train horn ~ 71dB(A).
11:26:40 am	L1	67	57	61	53	Constant distant mechanical plant noise constant from various sources. Distant construction noise audible from UniSA HIB. Aircraft (B737-800) flyover ~ 61dB(A). Diesel locomotive pass-by on down track with significant wheel squeal ~ 66dB(A).
12:33:47 pm	L2	78	58	59	55	Constant distant mechanical plant noise constant from various sources. Train horn ~ 78dB(A). Electric train pass-by on down track ~ 59dB(A). Electric train pass-by on up track ~ 60dB(A) slight flanging noise noted.
12:59:38 pm	L2	69	57	59	54	Constant distant mechanical plant noise constant from various sources. Electric train pass-by on up track ~ 60dB(A) slight flanging noise noted. Diesel locomotive pass-by on down track with significant wheel squeal ~ 65dB(A). Diesel locomotive pass-by on up track with significant wheel squeal ~ 67dB(A). Aircraft (B737-800) flyover ~ 58dB(A).

Measurement start time	Location	Measured sound pressure level, dB (re 20 µPa)				Noise Description
		L_{AFMax}	L_{Aeq}	L_{A10}	L_{A90}	
3:15:30 pm	L3	81	64	67	58	Constant road traffic noise along North terrace and frequent traffic along George Street. Car horn ~ 81dB(A). Tram eastbound ~72dB(A). Harley motorcycle westbound ~72dB(A). Tram westbound ~70dB(A).
3:23:50 pm	L3	76	64	67	56	Constant road traffic noise along North terrace and frequent traffic along George Street. Bus eastbound ~72dB(A). Tram eastbound ~ 68dB(A).

Based on the results of the noise measurements it is demonstrated that the subject site is exposed to a relatively high noise environment.

5 Recommendations

Based on our assessment we provide the following recommendations for the design of the façade and mechanical services. Note that acoustic requirements will be incorporated into the design as it proceeds.

5.1 Facade design

Based on our assessment a minimum of 6.38 mm laminated and sealed glazing system is required to achieve the recommended internal noise levels outlined by AS/NZS 2107:2016. This is predicted to achieve the requirements of AS/NZS 2107:2016 at the most noise impacted point of the facade. This is the minimum glazing recommended to comply with the acoustic requirements of the Adelaide City Council Development Plan. Thicker glazing / additional layers may be necessary for thermal purposes, to satisfy the requirements of LEED or to satisfy other engineering requirements.

The required facade acoustic design performance is not considered to be onerous and can utilise traditional construction techniques. Detailed design of the facade will be determined during the design phase.

5.2 Building services noise impact

Details of building services are not yet available at this early planning stage. It is however expected that building services requirements of the proposed development will be similar to that of adjacent developments; existing SAHMRI building to the west and the University of Adelaide, Adelaide Health & Medical Sciences building to the east. It is understood that the majority of building services plant will be located on level 15 and 16 in addition to a generator and other plant located on level 1.

The design of building services will be required to achieve compliance with the Adelaide City Council, Council Wide Principle of Development Control 93(a) (See Figure 4) and the Noise EPP. Compliance may be achieved through design techniques including:

- Using the built form to provide acoustic shielding
- Appropriate plant selection (selecting low noise plant where appropriate)
- Use of acoustic attenuators and acoustic louvers where necessary

Details of building services plant should be reviewed at the detailed design phase by a suitably qualified acoustic consultant to the affect that compliance may be achieved.

Traditional acoustic treatments will be employed to suitably attenuate noise and acoustic criteria are anticipated to be met without difficulty.

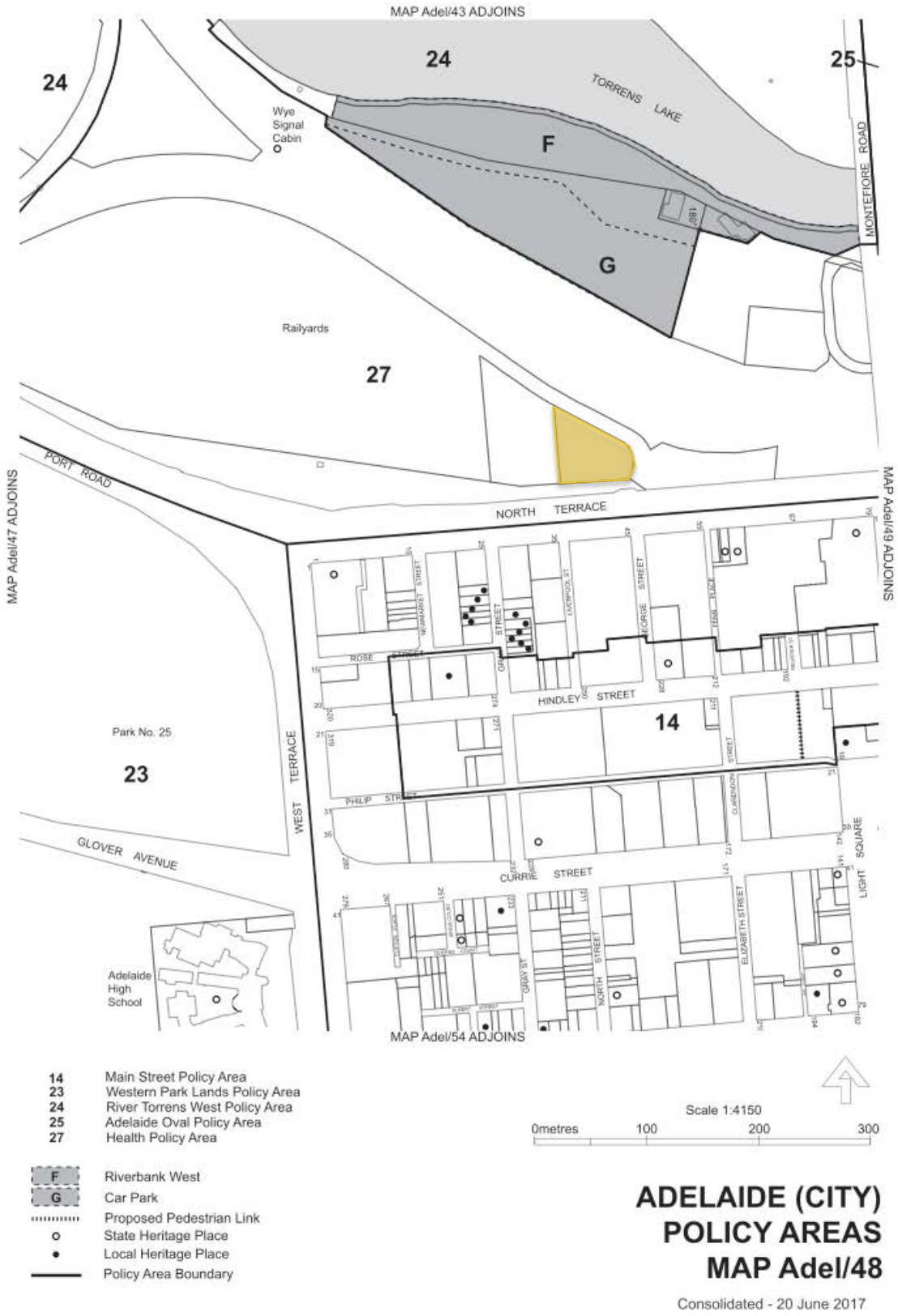
6 Conclusions

An acoustic assessment of proposed SAHMRI 2 development on North Terrace has been conducted by Resonate. Resonate conducted site measurements to gain a comprehensive understanding of the existing acoustic environment. This acoustic planning report has been assessed against the requirements of the Adelaide City Council Development Plan and the South Australian Environmental (Noise) Protection Policy 2007.

Based on our assessments the recommendations provided within Section 5 should be adopted and we have shown compliance can easily be met with traditional acoustic design techniques.

SAHMRI 2 will be impacted by road, rail, tram and building services noise. The final facade design will be dependant on several other factors however it is expected that as a minimum it will comply with the relevant noise criteria. The main noise sources emitted from SAHMRI 2 will be from building services plant. At this stage of the development details regarding plant requirements and plant noise data are not available. During the detailed design phase noise emissions will be assessed and noise mitigation adopted to achieve compliance with the relevant noise criteria.

Appendix A – Adelaide City Council Maps



NOTE : For Policy Areas See MAP Adel/48

CC	Capital City Zone
PL	Park Lands Zone
Rb	Riverbank Zone

Scale 1:4150

0metres 100 200 300

Zone Boundary

Development Plan Boundary

ADELAIDE (CITY) ZONES MAP Adel/17

Consolidated - 20 June 2017

Commercial & General

SAHMRI II

Waste Management Plan

April 2018

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- IMPORTANT NOTES-

Document verification

Date	Version	Title	Prepared by	Approved by
23/02/2018	Draft	SAHMRI II Waste Management Plan	Kristian Le Gallou & Jarvis Webb	Mark Rawson
04/04/2018	Final	SAHMRI II Waste Management Plan	Kristian Le Gallou & Jarvis Webb	Mark Rawson
11/04/04	Updated Final	SAHMRI II Waste Management Plan	Kristian Le Gallou & Jarvis Webb	Mark Rawson

Table of Contents

1. Introduction

1.1 About This WMP and the Proposed Development

This document provides a waste management plan (WMP), for the proposed development identified in Table 1 below. This WMP will be included with building plans for the development lodged to obtain Development Approval. The WMP outlines the proposed Waste Management System (WMS) for the development at high-level, which demonstrate that successful management of waste can be achieved at the site.

Table 1: Proposed development's details

Site Location	North Terrace, Adelaide
Development Project	SAHMRI II
Client	Commercial & General
Project Architect	Woods Bagot
Traffic Consultant	GTA

1.2 Purpose and Scope Of WMP

This WMP has been developed for the planning stage of this development. It provides a preliminary design for the WMS for this site and is intended to demonstrate that successful management of waste can be achieved at the development.

The WMP has been prepared with the policy and requirements for waste management identified in Appendix 1, and in conjunction with the Project Managers, Project Architects, and Traffic Consultant, who have indicated the intended site uses of the development, occupancy data, and requirements for how waste should be managed. If future land uses and waste management arrangements for the development are altered, the WMP may need to be updated.

The suggested arrangements in this WMP are preliminary and reflect one possible configuration for the waste management system at this site. These arrangements could evolve and be refined (during detailed building design) before the construction takes place. This may affect the WMP for the site, which should be updated accordingly.

What This WMP Contains

Section 2 – Description of Development	Provides details of the development relevant to the WMP preparation and indicates the waste and recycling collection services proposed for the development.
Section 3 – Outcomes from the Analysis on Waste and Recycling Requirements at the Development	Provides estimates of the waste and recycling volumes likely to be generated at the site which will require storage, collection and disposal. This includes the recommended size and layout of the development waste and recycling storage locations.
Section 4 – Proposed Waste Management System (WMS)	Provides an overview of the proposed WMS for the development, including the main elements and important design requirements, and how these systems should operate. The WMS outlines how waste would be stored, transferred and collected at the site.
Section 5 – Collection Vehicle Requirements	Includes relevant information on collection requirements, including number of collections per week and provision for access and manoeuvrability for waste collection vehicles.
Appendix 1 – Policy, Design and Operational Waste Management Requirements	This Appendix identifies the policy, design, and/or operational requirements for waste management that have been used in relation to the development of the WMP.
Appendix 2 – Additional Waste Management Design Considerations	This Appendix provides better practice design advice and other waste management design considerations for the development, based on the South Australia Better Practice Waste Management Guide for Residential and Mixed-Use Developments and other applicable documents.

2. Description of the Development

2.1 Land Uses and Occupancy Data

The Project Manager has provided Rawtec with a description of the development and plans showing the proposed layout of the site, buildings and land uses. A breakdown of the land use and tenancy assumptions used for estimating waste and recycling volumes for the development, can be found in Table 2 below.

Table 2: Land use and occupancy overview

Floor	*Tenancy according to plans*	*Waste & Recycling Generating Rate Land Use*[1]	m²
Level 0	PTU Clinic/Support	*Offices or Consulting Rooms*	1,549
Level 1	Building Services	*NA*	-
	PTU Plant	*Activated Waste – Managed and stored separately by specialist contractor***	
Level 2	Building Services	*NA*	-
Level 3	Reception	*Offices or Consulting Rooms*	364
	Administration	*Offices or Consulting Rooms*	409
	Retail*	*Café/Restaurant*	192.5
		Retail (>100m²)	192.5
Mezzanine	Administration	*Offices or Consulting Rooms*	196

*As no land use has been assigned to this area at this stage, we have assumed 50% of the area would be café/restaurant tenancy and 50% would be dry (merchandise) style tenancy (e.g. book store/newsagent)

** Activated Waste Generation is managed separately be specialist contractor and does not fall within this Waste Management Plan.

[1] Waste and recycling generation rate land use categories are based on the SA Better Practice Guide – Waste Management in Residential or Mixed Use Developments (Green Industries SA, 2014).

3. Waste and Recycling Service Requirement

3.1 Site Waste Management Requirements

The following waste management and operational arrangements, identified as preferred for the site by the Client and Project Architect (Table 3 overleaf), have been considered when developing the design of the proposed waste management system.

Table 3: Site requirement summary

Waste Management Requirement	Description
Waste Storage	• Waste would be stored in the Waste Room located on Level 1. • Activated waste would be stored in the PTU Bunker • A key activity within the development will be Clinical Trials (Outlined in Appendix 3). Soiled linen and medical waste will be another waste stream to be included in the waste room.
Movement of Waste throughout the Development	• Staff from the Retail tenancy • Cleaners and building management • PTU Clinic operators
Waste management at the site and collection services	• Collection would be conducted by a commercial waste collector.
Collection point	• Commercial collection of the waste would take place from the Loading Dock, Level 1 at the rear of the development.

3.2 Recommended Waste and Recycling Services

To achieve effective waste and recycling management at the site, Table 4 below outlines the recommended waste and recycling services that should be collected from the development as outlined in the *SA Better Practice Guide – Waste Management in Residential or Mixed-Use Developments* (Green Industries SA, 2014).

Table 4: Proposed waste recycling services for the development per identified land uses[2]

	Required/Desired Waste and Recycling Collection Services					
	Land Use	**Commercial**	**Commercial**	**Commercial**	**Commercial**	**Commercial**
Service type	**Development Land Uses** / **Wast/Recycling Streams**	**PTU Clinic/Support**	**Administration**	**Reception**	**Retail**	**Retail (Dry)**
Routine collection (e.g. rear-lift collection)	**General Waste**	X	X	X	X	X
	Co-mingled Recycling	X	X	X	X	X
	Organics (Food) Recycling	X	X	X	X	X
	Cardboard Recycling	NS	NS	NS	X	X
	Paper Recycling	X	X	X	NS	NS
	Confidential Paper Recycling	X	X	X	NS	NS
***On-call collection** (pick-up by contractor)/ **External drop-off** (by building services)	**Hard Waste**	X	X	X	X	X
	E-waste	X	X	X	X	X
	CFL/Lighting	X	X	X	X	X
	Printer Cartridges	X	X	X	X	X
	Batteries	X	X	X	X	X

X = Required/Desired

NS = Not serviced as not required/desired

3.3 Waste and Recycling Service Details Not Covered In This WMP

The following waste and recycling streams are not included in this WMP:

3.3.1 E-waste

E-waste (batteries and printer cartridges, lighting etc.) – These waste streams would be temporarily stored within land uses (e.g. offices) before being dropped off at an appropriate external location (e.g. local recycling depot or office supply store) or collected by an appropriate collection company. Some items may be managed through an external collection contractor (e.g. for carpark lighting replacement).

[2] 'X' indicates required/desired as per The SA Better Practice Guide – Waste Management in Residential or Mixed Use Developments (Green Industries SA, 2014), Industry Experience or other Development Approval Documents

3.3.2 Hard waste

Hard waste (e.g. during tenancy fit out) – hard waste would be temporarily stored within tenancies and be managed via a pull-in/pull-out collection service during retrofitting or maintenance activities. This would be arranged by the tenants in conjunction with building services, to ensure that collection via the on-property loading area, is undertaken at an appropriate time.

3.3.3 Activated Materials from the Proton Therapy Unit

The Waste Room does not accommodate the storage of Activated Materials produced from the Proton Therapy Unit (PTU). Activated materials should not be stored with the regular waste streams. It is understood that these would be stored within the PTU bunker until a time where they are deemed safe, and then PTU Operators would be responsible for arranging the removal and disposal of these items.

Details on the handling, storage and transport of Activated Materials will be provided by the relevant PTU specialist.

3.3.4 Medical and Clinical Trial Waste (Including Soiled Linen)

Medical waste may be generated at the site during medical procedures and/or clinical trials. Volumes of medical waste and soiled linen have not been estimated due to the unknown variables of day to day procedures and clinical trial frequency and size. However, Considerations for some bin storage and collection frequency have been incorporated into the design and sizing of the development's waste room, based on the details provided to Rawtec on medical waste and clinical trials identified in Appendix 3. The ability to adjust services and service frequency as required is available within this area (e.g. with space to accommodate more bins if needed).

It is recommended that medical waste and soiled linen be located behind a security screen to ensure security of these bins and the safety of retail tenants who may have access to the Waste Room. This consideration has been illustrated in Figure 1 in Section 4.3.

The processes for the collection, storage and transportation of medical waste within clinical areas and to and from the waste room will be developed by the operators of the site during the buildings commissioning, in order to meet their preferred procedures and guidelines for such wastes.

4. Outcomes from the Analysis

4.1 Estimated Waste & Recycling Volumes

Table 5 identifies the estimated volumes of waste generated at the development per week.

Table 5: Estimated waste and recycling volumes by land development[3]

Estimated Waste Generation Volumes (Litres Per Week) by Land Use & Waste Stream (All Land Uses)							
Land Use Type		**Commercial**	**Commercial**	**Commercial**	**Commercial**	**Commercial**	**Totals (Litres Per Week)**
Development Land Use		***PTU Clinic/Support***	***Administration***	***Reception***	***Retail***	***Retail***	
WRGR Classification		*Offices or Consulting Rooms*	*Offices or Consulting Rooms*	*Offices or Consulting Rooms*	*Café/Restaurant*	*Retail (Greater than 100m2)*	
Waste Stream	**General Waste**	2,300	900	500	4,000	800	**8,500**
	Co-mingled Recycling	1,000	400	200	700	200	**2,500**
	Organics (Food) Recycling	400	200	90	5,400	40	**6,100**
	Cardboard Recycling	NE	NE	NE	2,000	600	**2,600**
	Paper Recycling	1,200	500	300	NE	NE	**2,000**
	Confidential Paper Recycling	100	50	30	NE	NE	**180**
Total Site Volume (Litres per Week)		**5,000**	**2,100**	**1,100**	**12,100**	**1,600**	**21,900**

**Note: Totals have been rounded to better reflect estimates and may not equate*

NE = Not Estimated as Not Required

Additional, non-routine waste generation streams to be generated within the building have been identified, including:

- Clinical Trial Waste
  - Medical waste (Outlined in Appendix 3)
  - Soiled Linen
- Gas bottles
- Activated materials produced by the Proton Therapy Unity

The overall waste generation rates for the clinical waste has not been calculated due to variances in trial size and frequency. However, bin requirements have been estimated (and visualised in Figure 1) with further space available for more bins if needed.

It is understood Activated Waste will not be stored in the Waste Room. This waste stream has not been accounted for in this analysis and will require the input of a specialist to ensure its appropriate handling and storage.

[3] Estimated volumes based on: The proposed land use data; Waste generation metrics found in the South Australian Better Guide Practice Guide – Waste Management in Residential or Mixed-Use Developments (Green Industries SA (previously Zero Waste SA), 2014); Waste and recycling metrics developed by Rawtec, which are based on industry knowledge and experience.

4.2 Waste and Recycling Stream Volumes, Bin Sizes and Collection Details

Table 6 below identifies the:

- estimated waste and recycling volumes generated at the development;
- nominated bin sizes for each waste stream and number of bins required;
- proposed collection frequency;
- proposed waste collection service provider and location of collection.

The data in the table below assumes the waste collection service provider would be the same for all land uses generating waste within the building. The further waste streams identified (medical waste, line and gas bottles) are not included in the table below. The frequency of collection required would impact on the number of truck movements.

Table 6: Estimates of waste and recycling volumes (litres/week) with proposed services and collection frequency

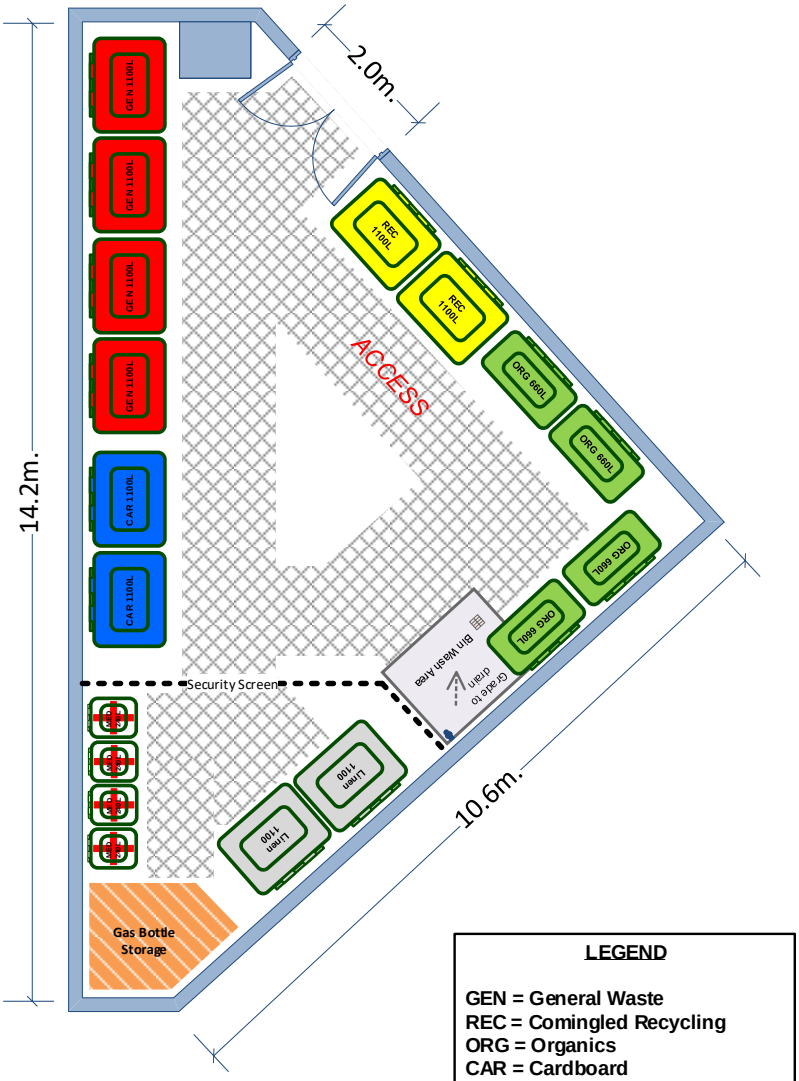
Proposed Services						
Waste stream	**Est. Volume (L Week) ***	***Bin Size (L)***	**Collection Frequency**	**Est. no. of bins required**	**Proposed waste collection service provider**	**Presentation location of bins/ waste for collection**
General Waste	8,500	*1100*	2	4	Commercial Collection	Waste Room
Comingled Recycling	2,500	*1100*	2	2		
Organics (Food) Recycling	6,100	*660*	3	4		
Cardboard Recycling	2,600	*1100*	2	2		
Paper Recycling	2,000	*240*	2	5		
Confidential Paper Recycling	180	*240*	1 per fortnight	2		
Medical Waste	-	*240*	-	4		
Linen	-	*1100*	-	2		
Totals	**21,900**	**-**	***12***	**25**		

**Note: Totals have been rounded to better reflect estimation of the volumes and may not equate*

4.3 Waste Storage Area and Considerations for the Development

The current estimated volumes of waste generated confirms that the development can accommodate the estimated number of bins required in the area provided (based on the collection frequency proposed in Table 6). Should further services or bins be required, there is space available to accommodate these. An indicative drawing of the development's waste collection room on Level One is outlined in Figure 1 overleaf. Additional design advice and other considerations can be found in Appendix 2.

Figure 1: Preliminary drawing showing the estimated required size and possible layout of the Level One waste room storage and number of bins



Note: These bin sizes are for **illustration purpose only** and are based on the standard MASTEC Australia bin sizes (http://www.mastec.com.au). Bin sizes and shapes may differ depending on manufacturer, collection contractor or local waste authority. Please allow extra room (e.g. >10%) for differences in bin sizes, bin access, opening and closing and manoeuvring etc.

5. Proposed Waste Management System

5.1 Overview of the WMS

To effectively manage the waste generated at the site, an appropriate Waste Management System (WMS) is required. The WMS consists of:

- User storage of waste
- Waste transfer to common disposal area
- Aggregation and storage of this waste
- Waste/bin collection.

The tables below provide an outline of the waste management system for each land use within the building. This is based on the waste management steps recommended in the Guide, summarised in Appendix 2.

5.2 Consulting Rooms/Offices Waste Management System

Table 7 below provides details on the WMS for the consulting rooms/office land uses.

Table 7: WMS for the Office/Consulting Rooms.

WMS Step	WMS Notes
	Storage, transfer pathways and collection details for: • General Waste • Comingled Recycling • Organics (Food) Recycling • Cardboard Recycling • Medical Waste • Soiled Linen

Step 1 – User storage	**Routine Waste**
	• Each office area would have small to medium bins with bags, if necessary to sort, dispose and store waste. The bins provided should correspond to the services provided in the waste room, for example:
	  ○ A 20-40 litre general waste bin (with bin liner),
	  ○ A 20-40 litre commingled recycling bin,
	  ○ A 7-10 litre bench top organics caddy or 30 litre pedal bin for organics recycling (with compostable liners in office kitchens)
	• It is also recommended that each level has a required number of 140/240 litre paper recycling and 140L/240 litre confidential paper bins.
	
	Clinical Waste
	• Soiled Linen and Medical waste bins should be provided in the Clinical Trial precincts. They should also enable easy transfer for staff/cleaners to the aggregated storage bins in the waste room.

Step 2 – Transfer pathways	• Cleaners would move the waste from the tenancies to the Waste Room via the lifts.
Step 3 – Aggregation and Storage	• Cleaners/Building Services would aggregate the waste and recycling into the bulk bins provided in the Waste room.

Step 4 – Bin collection	• A Commercial Waste Contractor would collect waste on a regular basis. The collection process may operate as follows:
	  ○ The collection vehicle would enter the development and reverse into the designated loading dock.
	  ○ The contractor would pull out the bulk bins from the Waste room to the rear of the truck, empty the bins, and return to the waste room.
	  ○ For confidential paper and paper bins the waste services provider would pull the bins from each floor and replace these with empty bins.
	  ○ The collection vehicle would exit the development in a forward direction.
	  ○ It is recommended a Traffic Consultant independently confirm swept paths and access for collection vehicles. See Section 6 for further details.
	• It's important to ensure that all waste transfer pathways are free of obstructions and steps, at least 1.25m wide and a slope of no more than 1:10.

5.3 Retail Tenancy Waste Management System

Table 8 below details provides details on the WMS for the retail land uses.

Table 8: WMS for the Retail Tenancies

WMS Step	WMS Notes
	Storage, transfer pathways and collection details for: • General Waste • Comingled Recycling • Organics (Food) Recycling • Cardboard Recycling
Step 1 – User storage	• Tenants would store waste in bins (e.g. 60 – 120L) within the tenancy space. • The bins provided should correspond to the services provided in the bin room and include general waste, commingled recycling and organics recycling (with compostable liners) and cardboard. • Bulkier items such as large cardboard boxes could be taken directly to the bulk bins in the ground floor waste room.
Step 2 – Transfer pathways	• Tenancy staff/cleaners would move the waste from the tenancies to the Waste Room via the lifts.
Step 3 – Aggregation and Storage	• Cleaners/Building Services would aggregate the waste and recycling into the bulk bins provided in the Waste room.

Step 4 – Bin collection	• Collection would take place by a Commercial Waste Contractor on a regular basis via loading dock at the rear of the development. The collection process may operate as follows:
	  ○ The collection vehicle would enter the development and reverse into the designated loading dock.
	  ○ The contractor would pull out the bulk bins from the Waste room to the rear of the truck, empty the bins, and return to the waste room.
	  ○ For confidential paper and paper bins, the waste services provider would pull the bins from each floor and replace these with empty bins.
	  ○ The collection vehicle would exit the development in a forward direction.
	  ○ It is recommended a Traffic Consultant independently confirm swept paths and access for collection vehicles. See Section 6 for further details.
	• It's important to ensure that all waste transfer pathways are free of obstructions and steps, at least 1.25m wide and a slope of no more than 1:10.

6. Collection Vehicle Requirements

6.1 Collection Vehicle Requirements

The collection vehicles expected for waste collection at this development would generally be:

- Rear-lift trucks – for collection of general waste, comingled recycling and organics and cardboard;
- Pan-tech or flat-bed trucks – for collection of at-call waste streams, if required.

Examples of the likely truck dimensions are provided in Table 9 below to assist the Traffic Engineer/Consultant in ensuring that the loading zone can accommodate the waste and recycling collection vehicles, and that vehicles can enter and exit the area safely. In addition to the truck length, the parking area will need to accommodate at least 2m behind collection vehicles for waste bin loading for the rear-lift trucks.

Collection vehicle dimensions and operating requirements vary between waste collection contractors. The Client would be required to ensure that the collection vehicle used by the waste collection contractor servicing the development is able to accommodate for the Loading Zone and other requirements before collection can begin.

Table 9: Likely dimensions and turning circles of waste collection vehicles that would be required to access the site[4]

Likely minimum dimensions and turning circles of waste collection trucks		
Vehicle Type	*Rear-lift waste trucks (to collect bins up to 1100L)*	*Pan-tech/flat bed* (to collect hard waste/e-waste)*
Dimensions	*Up to 4.5m (h) x 2.5m (w) x 8.8m (l)*	*Up to 4.5m (h) x 2.5m (w) x 8.8m (l)*
Space at the rear to load bins	*2m*	*-*
Vehicle height in operation	*Up to 4m*	*Up to 4.5m*
Vehicle turning circle	*18-25m*	*10m*

6.2 Estimated Number of Waste Vehicle Movements Per Week

We have estimated that there would be 12 collection vehicle movements per week at the site. This is based on the estimated waste and recycling volumes and service frequency described above. These estimated vehicle movements do not include on-call or infrequent services such as hard waste and E-waste collection.

[4]Vehicle dimensions are based on Australian MRV standard specifications - AS 2890.2-2002. Vehicle length and heights are based on common collection vehicles currently operating in the SA market. However, it should be noted that waste and recycling collection vehicles are custom designed and may differ from these specifications.

Appendix 1 – Policy, Design and Operational Waste Management Requirements

This WMP has been prepared with the following policy, design, and/or operational requirements for waste management in mind:

- *The South Australian Environment Protection (Waste to Resources) Policy 2010 (W2REPP) (Government of South Australia, 2011):*
  - This Policy requires that waste is subject to resource recovery processes, which can include source separation, before disposal to landfill.
- *South Australian Better Practice Guide – Waste Management in Residential or Mixed-Use Developments (Green Industries SA (previously Zero Waste SA), 2014):*
  - Identifies need for areas to store waste and recyclable materials, appropriate to the size and type of development, screened from public, which minimises disturbance to residents and provides for service vehicle access.
  - Provides guidance on design of waste management systems for medium to high density residential and mixed use developments.
- *The City of Adelaide Operating Guideline – Waste & Recycling Services (The City of Adelaide, previously Adelaide City Council, 2014)*
  - Set outs Council's proposed basic and enhanced services for collection of waste and recycling from high density and mixed use developments and businesses.
- *Adelaide (City) Development Plan (Department of Planning, Transport & Infrastructure, 2017).*
  - Objectives and principles of development control regarding waste management, specifically:
    - OBJ 28: Development which supports high local environmental quality, promotes waste minimisation, re-use and recycling, encourages waste water, grey water and stormwater re-use and does not generate unacceptable levels of air, liquid or solid pollution.
    - PDC 101: A dedicated area for on-site collection and sorting of recyclable materials and refuse should be provided within all new development.
    - PDC 102: A dedicated area for the collection and sorting of construction waste and the recycling of building materials during construction as appropriate to the size and nature of the development should be provided and screened from public view.
    - PDC 103: Development greater than 2 000 square metres of total floor area should manage waste by:

a) containing a dedicated area for the collection and sorting of construction waste and recyclable building materials;
b) on-site storage and management of waste;
c) disposal of non-recyclable waste; and
d) incorporating waste water and stormwater re-use including the treatment and re-use of grey water.

The estimation of waste and recycling volumes contained in this waste management plan, is based on:

- The proposed land use data;
- Client and regulatory expected services for different development land uses; and
- Waste generation metrics found in:
    - The *South Australian Better Guide Practice Guide – Waste Management in Residential or Mixed Use Developments* (Green Industries SA (previously Zero Waste SA), 2014)
    - Waste and recycling metrics developed by Rawtec, which are based on industry knowledge and experience.

Appendix 2 – Additional Waste Management Design Advice

The below table provides design advice and other considerations based on the *South Australia Better Practice Waste Management Guide for Residential and Mixed Use Developments*. For further recommendations and information from this guide, please visit the Green Industries SA website.

Table 10: Additional waste management design advice and other considerations

Area	Recommendation/ Consideration
Bin transfer routes	• The Better Practice Guide recommends transfer routes be free of obstructions and steps, at least 1.25m wide and a slope of no more than 1:10.
Hard waste	• It is recommended that an aggregation point for hard waste be provided in a space that is easy to access for collection vehicles.

Bin washing	• It is recommended that a bin wash area be installed and that it:
	  ◦ Is sloped to a drain leading to the sewer;
	  ◦ Has an installed tap with mains supply and a hose nearby;
	  ◦ Is at least 2m x 2m; and
	  ◦ Is slip resistant to prevent slippage during washing.
	• Note that line marking and bunding is not required around the bin wash area, and bins can be stored on top of the bin wash area in the waste room. During washing, other bins can be placed outside the waste collection room while bins are washed in the waste room. Alternatively, the bin wash area can be installed outside the waste room. It may also be possible for the waste contractor to be contracted to provide this service (either on-site or off-site).

Appendix 3 – PTU Clinic Medical Waste Considerations

This appendix outlines guidance provided to Rawtec in relation to the likely use and subsequent medical waste generated from the SAHMRI II development in its operational phase.

Clinical Trials Overview

Many clinical trials are conducted in phases. In the early phases, the new intervention is tested in a small number of participants to assess safety and effectiveness. If the intervention is promising, it may move to later phases of testing where the number of participants is increased. Typically, studies conducted in the Clinic Rooms are not always trials; many are other study designs. Most trials that would use the clinic rooms would be phase 3 or phase 4 CT's:

Phase III Clinical Trial

Large groups of trial participants (from several hundred to several thousand) by comparing the intervention to other standard or experimental interventions (or to non-interventional standard care).

Phase IV Clinical Trial

Phase IV studies are done after an intervention has been marketed. These studies are designed to monitor the effectiveness of the approved intervention in the general population and to collect information about any adverse effects associated with widespread use over longer periods of time.

It has been proposed that medical waste generated at the development will consist of:

- Needles, syringes with needles and possibly surgical instrument or other articles.
- Possibly small amounts of human tissue, blood samples, liquid body samples which may include urine samples.
- Possible discarded specimens or culture .

Medical and clinical procedures activities identified as being included in the development include:

- No dental or veterinary practice is envisaged.
- No pathology activities will be conducted on site. Any pathology services required as part of any CT will be undertaken by an external consultancy.
- No pharmacy activities will be conducted on site. It is envisaged that nRAH pharmacy will be undertaking CT pharmacy activities.

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Services

To	**Tony Perrin**	From	**Fahad Islam**
Copy	**Simon Williams**	Reference	**501289**
Date	**4 April 2018**	Pages (including this page)	**8**
Subject	**SAHMRI 2 Services Report**		

1 Introduction

The aim of this report is to provide a high-level summary of the service design proposed at the SAHMRI 2 development.

2 Mechanical Services

The Dry Lab accommodation will be served by multiple chilled and heating hot water air handling units (AHUs) located on Level 15. Each AHU will be capable of operation with full outside air economizer mode of operation and associated controls to make use of available "free cooling" when outside ambient conditions are suitable.

A central water-cooled chiller plant installation is located on Level 01. This system reticulates chilled water throughout the facility for air-conditioning purposes. The system will be configured and designed to minimise energy consumption in support of the NABERs and LEED energy targets.

A central heat rejection plant consisting of cooling towers on Level 15 will be provided to facilitate heat rejection from the chillers, generators and tenant installed equipment.

A central gas fired heating hot water plant installation is located on Level 15. This system reticulates heating hot water throughout the facility for air-conditioning purposes. Flues will discharge at roof level.

The building will also be provided with a code compliant smoke control system and ventilation where required will be provided to NCC requirements or where relevant to authority specific requirements.

Air intake and exhaust from Level 00, L01 & L02 will be predominantly over the Eastern Access Road. Louvres will be appropriately separated to ensure compliance with code.

3 Electrical Services

SAPN HV transformer room is located on Level 00 with access from Eastern Access Road. This is directly below the LV Switchroom located on Level 01 which provides power to the entire building.

The generator room is located on L01 adjacent the LV Switchroom. The generators are proposed to be water cooled via the building cooling towers. Generator flues are proposed to be discharged under Level 4 above the Eastern Access Road. Combustion air for the diesel generators will be via louvres.

There are two incoming communication carrier entry pathways, one is located off the Eastern Access Road and the other off North Terrace.

4 Hydraulics Services

Gas meter room is located at Level 01 off the Eastern Access Road. Reticulated natural gas will run to the Level 15 plantroom to serve the Domestic Hot Water (DHW) plant and the central mechanical heating hot water plant. A separate retail gas connection will be provided to the retail tenancy.

SA Water sewer connection is located end of Eastern Access Road, behind the Adelaide Medical and Nursing School development.

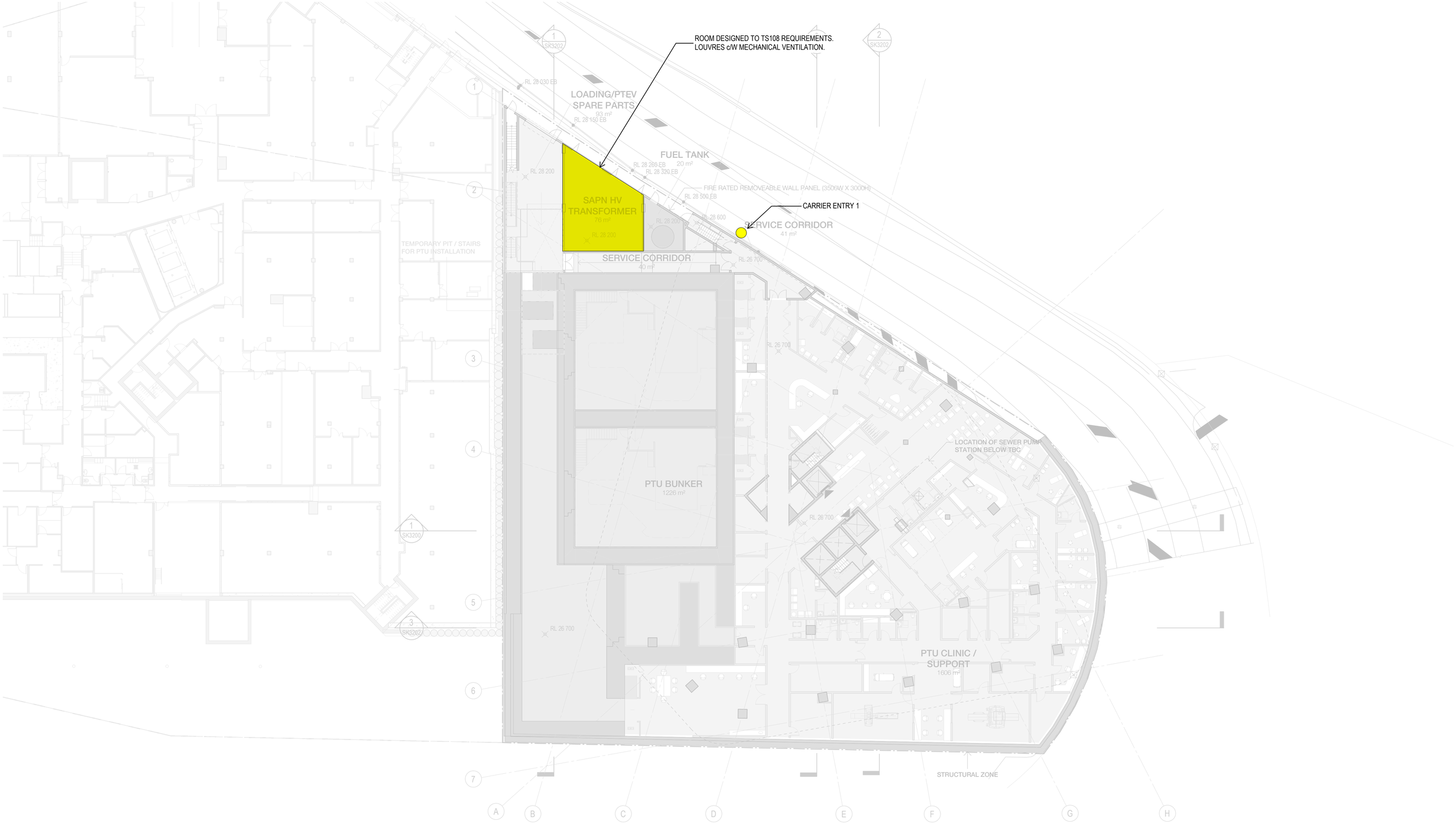
SA Water mains water connection is located below North Terrace footpath.

5 Fire Protection Services

Fire Town main connection is proposed from North Terrace. Town main will be reticulated within the building to the fire booster located on Level 01 adjacent the Eastern Access Road.

Fire control room is located on Level 01 accessible off Eastern Access Road.

The fire tanks and fire pump room are located on Level 15.



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Client
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Project
SAHMRI 2

Sheet title
FLOOR PLAN - LEVEL 00

Project number
140290

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Sheet number
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20.03.18

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Project
SAHMRI 2

Sheet title
FLOOR PLAN - LEVEL 01

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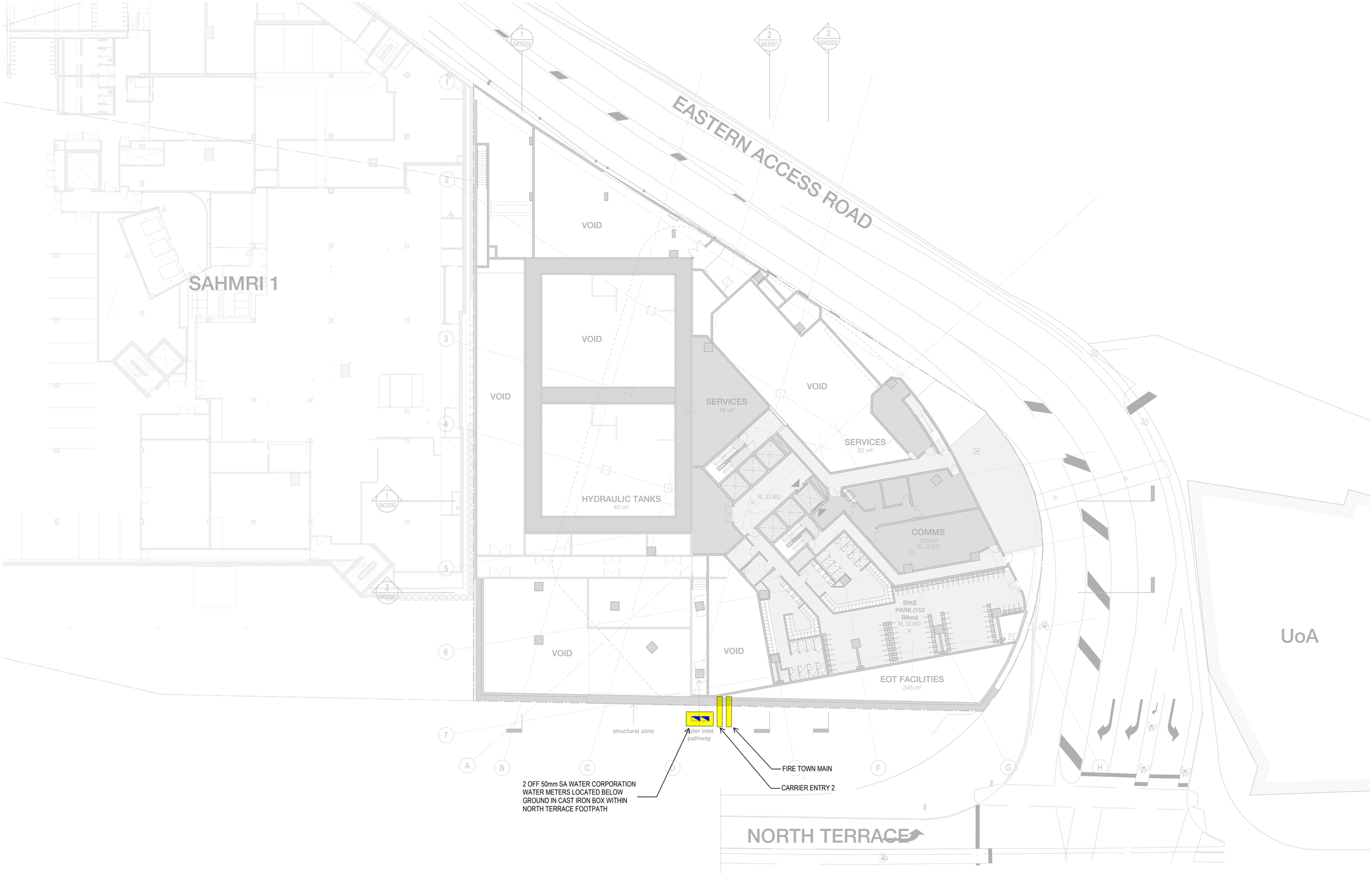

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Project
SAHMRI 2

Sheet title
FLOOR PLAN - LEVEL 02

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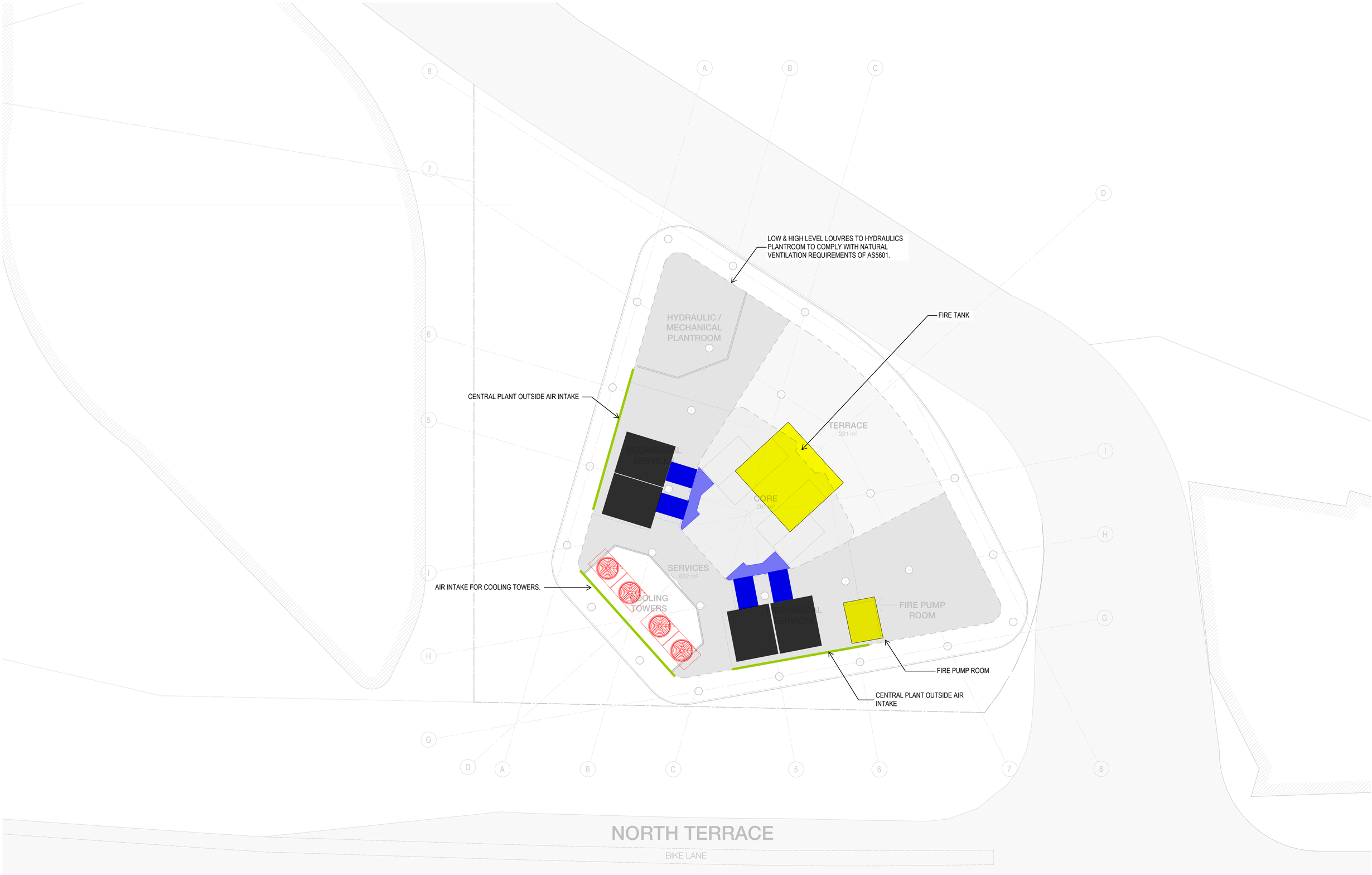

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Project
SAHMRI 2

Sheet title
FLOOR PLAN - LEVEL 15

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140290

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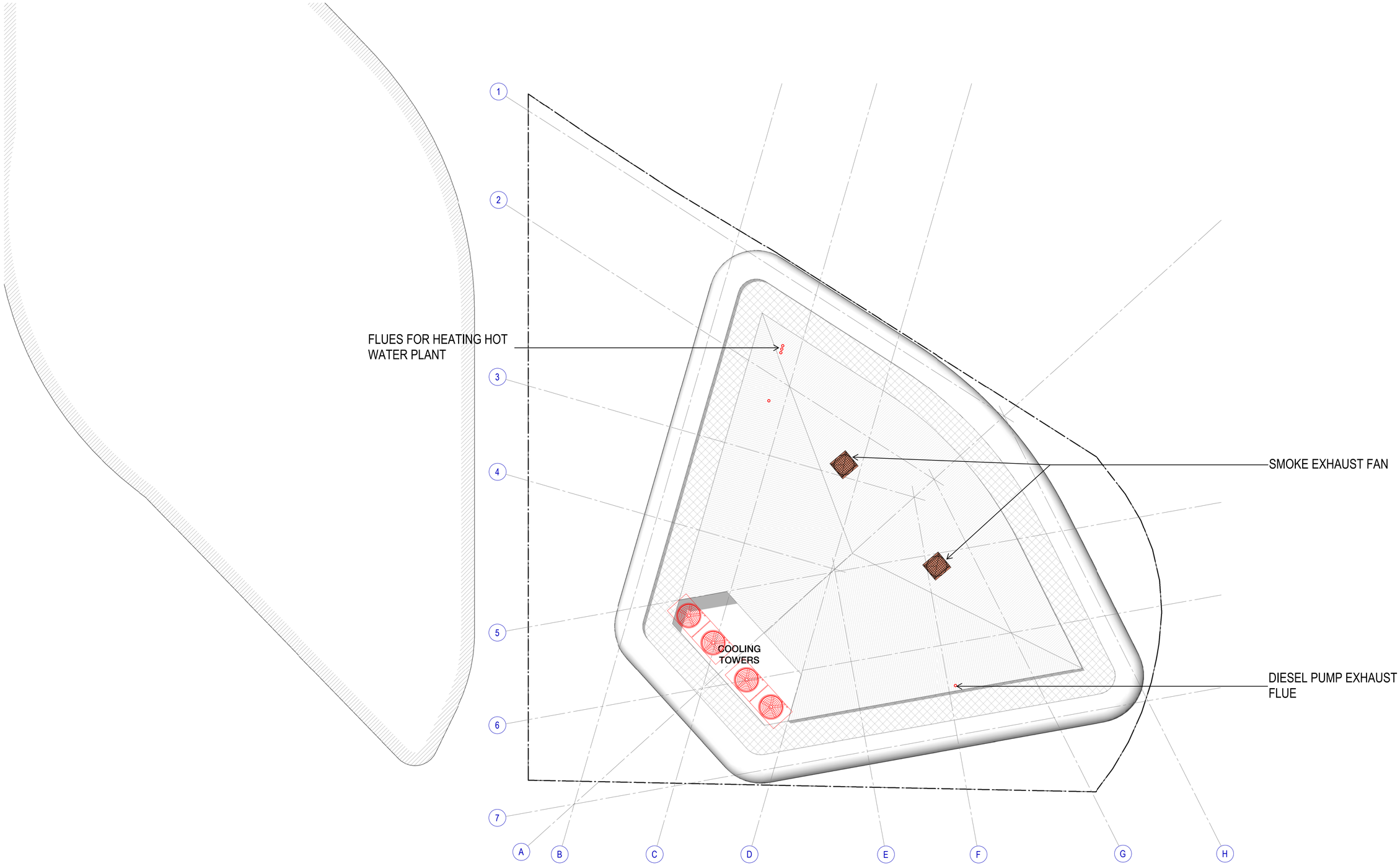

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ROOF PLAN

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Client
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Project
SAHMRI 2

Sheet title
EAST - WEST SECTION

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AR-SK3200

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C

Date
01.02.18

Therapy Physics, Inc.

Diagnostic Radiology Physics Services
Radiation Protection Shielding Design
Radiation Oncology Physics Services

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Shielding Design Philosophy

The shielding design will be constrained to meet the radiation safety regulations as published in the Ionizing Radiation Regulations of South Australia. Specifically the regulations as published in Version 21.1, 2016, Radiation Protection and Control (Ionizing Radiation) Regulations 2015 will be met. The most challenging provision to be met will be the instantaneous dose rate provisions as stated in section 104 of the aforementioned document. In addition to these provisions, the radiation protection guidelines of the IAEA will be met with the most conservative guidelines between the two sources being used. This applies to instantaneous dose rate, dose rate averaged over an hour and dose per 40 hour work week.

As the beam current in the various rooms is adjustable by the operations staff and the clinically used beam current is well below the levels that can be achieved in the room by the operations staff, the "1/2 maximum beam current" stipulation of the Australian regulations for instantaneous dose rate will be met with a beam current equaling the maximum current anticipated to be used in clinical practice.

All of the clinical radiation areas are designed with the most challenging conditions assumed for all patients. Specifically tumors requiring the maximum number of protons will be assumed for all patients and all protons will be assumed to have the maximum energy used clinically. Thus any treatment plan that uses a variety of energies will produce less penetrating and fewer neutrons than the assumed design assumptions. The number of patients treated per hour will be four and this exceeds the current clinical experience of three existing well established

proton facilities. Each treatment room will be assumed to treat four patients per hour and do so for 8 hours per day, five days per week. The clinical dose is assumed to be 2 Gray per patient.

The accelerator areas will be designed to allow each patient treatment area to meet the above clinical work load and the beam current instantaneous dose rate provision of "1/2 the maximum beam current". The synchrotron vault will be met using the manufacturer's stated design maximum current.

Exhaust Air Considerations

The experience of the proton facilities in the USA is that there is not an "activated air" concern in the proton facilities and normal hospital air flow design systems have been used in the proton facilities. However should concerns exist, they are being addressed by implementing some simple design features. Listed below are a few of them.

1. The fresh air for the treatment rooms is filtered prior to entrance into the radiation areas to eliminate any dust that might subsequently be activated in the room. The air itself is subject to activation of the Argon in it and produces trace amounts of Ar-41 which has a half-life of less than 2 hours. The USA NRC has no inhalation standard for Ar-41 and a very modest "total emersion" level.

2. The air from the treatment rooms is exhausted into the shielded accelerator areas and from there up to the roof in a dedicated exhaust duct. The use of high velocity and directed exhaust flow in the upward direction enhances the height of the discharge above ground level. Dispersion and radioactive decay preclude any total emersion radiation safety problems.

3. The exhaust stack can be monitored for radiation levels on a continuous basis and verify the adequacy of the design features.

4. The quantity of supply air introduced into the patient treatment rooms is consistent with applicable patient care codes, generally 6-8 air changes per hour. Additional ventilation air is also introduced into the accelerator

equipment area; this quantity is generally 3-4 air changes per hour. The combined supply air is then pulled through the equipment zones (gantry and beam line) and exhausted at the opposite end of the beam line. This creates a constant flushing of the air throughout the proton equipment zones and none of the air is returned to the house air handling system.

James B. Smathers, Ph.D., DABR, FACR
Melissa C. Martin, M.S., DABR, FACR

April 10, 2018

OFFICE FOR
DESIGN +
ARCHITECTURE SA

File No:
2014/11234/01

Ref No:
12678526

16 May 2018

Ms Gabrielle McMahon
Principal Planner
Strategic Development Assessment
Planning and Development
Department of Planning, Transport and Infrastructure
Level 5, 50 Flinders Street
Adelaide SA 5000

email: gabrielle.mcmahon@sa.gov.au

For the attention of the State Commission Assessment Panel

SAHMRI 2, North Terrace, Adelaide

Further to the referral 020/A035/18 received 26 April 2018 pertaining to the development application at the above address and in my capacity as a statutory referral in the State Commission Assessment Panel, I am pleased to provide the following comments informed by the Design Review process for your consideration.

The proposal was presented to the Design Review panel on one occasion.

I support the proposal for a development on this site that comprises a Proton Therapy Unit (PTU) and medical and health commercial facilities. I also support the ambition of the project team to create an integrated precinct and rich user experience. Development of this site presents a rare opportunity due to the site's central location within the Biomedical precinct. I am of the opinion that any development on this site has a responsibility to deliver a high quality design outcome particularly in terms of the architectural expression, materiality, contribution to the public realm and fostering connections to ensure an integrated precinct in the current and future context.

SAHMRI 2 is proposed on the site of the former Adelaide metropolitan rail operations control centre located on the north side of North Terrace and south of the existing railway lines. The site is located west of the Morphett Street bridge, on the west side of Eastern Access Road at its intersection with North Terrace. Eastern Access Road slopes from North Terrace approximately 9.5 metres to a lower level service entry (level 00) and provides rear access to the new Royal Adelaide Hospital (RAH) located further west. Adjacent the site to the immediate west is the existing ten storey SAHMRI 1 'wet research' building. To the east of Eastern Access Road are the recently completed University of Adelaide Integrated Clinical School and UniSA Health Innovation Building. Gray Street located south of North Terrace, connects to the plaza space between SAHMRI 1 and the RAH and has been collectively identified as a key north south connection through the city to the river.

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2014/11234/01

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The subject land is located within the 'Riverbank Zone' of the Development Plan. The 'Health Policy Area' is envisaged to accommodate a range of medical and health facilities including a hospital, medical research, training and education as well as a range of ancillary land uses that provide services for staff, students, researchers, patients and visitors; including temporary accommodation.

SAHMRI 2 proposes 30,871 square metres of gross floor area within a built form of 17 levels including three basement levels and roof top plant. SAHMRI 2 will include the first Proton Therapy Unit (PTU) in Australia named the Australian Bragg Centre. The PTU is proposed to be located across three levels (levels 00, 01 and 02) below North Terrace level and will be designed around the requirements of services and loading, equipment, construction separation and clinical flow. The proposal is for a building of approximately 59.55 metres tall (97.75 AHD) and 14 storeys above ground floor/plaza level. The design intent is for the building to be a 'mediator' in height between the University of Adelaide Integrated Clinical School and SAHMRI 1. I support the height and massing of the building as in my view the proposal is an appropriate and complementary scale to the existing built form context.

The design intent at ground floor level is to provide a landscaped forecourt plaza between SAHMRI 1 and SAHMRI 2. The ground floor level (level 03) includes the PTU reception to the north and west of the site adjacent the forecourt plaza, and commercial reception and a tenancy located at the south of the site. I acknowledge the design requirements to accommodate the proton therapy equipment have influenced the location of the core and structure of the building and the design intent to provide a more discrete reception entry to the PTU. However, I have concerns regarding the ground floor configuration and interfaces with North Terrace and SAHMRI 1. I acknowledge the design intent to provide a commercial tenancy to assist with activation of the North Terrace frontage. I also acknowledge amendments to the proposal to address the building level challenges at the south east corner of the site, including new stair access and planter boxes. However I remain concerned by the proposed location of the commercial space due to the lack of solar access. In my view, the opportunity exists to provide a commercial space at the north west corner of the building to assist with activating the forecourt plaza and providing a publicly accessible space with northern aspect. I am also concerned the design intent of creating a discrete ground level entry to the PTU is inconsistent with the intent to deliver an activated forecourt plaza in its current configuration. I recommend further consideration of the ground floor site configuration to ensure the design intent for an active forecourt plaza between SAHMRI 1 and SAHMRI 2, and separated/discrete entry for the PTU reception entry is realised, and northern aspect for the commercial space is provided. In my view, a holistic approach to the pedestrian and bicycle movement strategy and linkages for the precinct is critical to the success of the project. To that end I encourage ongoing discussions with Renewal SA and the Riverbank Authority to review the precinct wide strategies, including envisaged connections to the immediate north of the site between the University buildings, the new RAH and Linear Park to ensure futureproofing of the site and precinct. I also recommend further consideration of opportunities to provide additional curtilage to the north side at the base/level three of the building to ensure future connectivity and useable public space with northern aspect.

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File No:
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The design intent for the forecourt plaza between SAHMRI 1 and SAHMRI 2 is to be an active space with raised planter boxes and integrated seating to match SAHMRI 2, and canopy structures that provide shade and refuge, which I support. However I note the wind consultant's report indicates the plaza forecourt has a recommendation of walking comfort criteria only. I support the wind consultant's recommendation that a scaled wind tunnel test be conducted at the detail design stage and recommend further design development of the plaza area to ensure maximum future flexibility and usability of the forecourt plaza with high amenity for both seated and walking uses.

Above ground floor are three levels (total of 5,007 square metres net lettable area) for the SAHMRI 2 'dry lab' for research and office functions, and eight levels for multiple commercial tenancies (total of 13,680 square metres NLA) for health and medical 'dry lab' research and offices. I acknowledge ongoing design investigations regarding the workplace fitouts and design intent to provide a high amenity to occupants through access to light and views. I support the inclusion of stair connections and voids that support communication and engagement through the building levels.

Pedestrian access is proposed from North Terrace through the ground floor plaza. Although not included as part of this application, the proposal indicates four drop off spaces to North Terrace adjacent the slip road access to Eastern Access Road. I understand a number of drop off spaces are required to be provided on the SAHRMI 2 site, however I have concerns regarding the location of the drop off spaces on North Terrace due to safety concerns and their adjacency to the existing slip and bicycle lanes. As the design develops, I encourage ongoing discussions with Adelaide City Council and Renewal SA with a view to achieving a mutually appropriate outcome for the public realm, informed by pedestrian and transport access and movement patterns, and landscaping strategies to ensure a high quality, safe and connected public space for all users.

Eastern Access Road provides access for ambulances, loading and waste collection, a discrete patient drop off area and on site car parking spaces proposed on lower level 01. Bicycle access is also proposed from Eastern Access Road to the rear/west side of the building to End of Trip (EOT) facilities located on level 02. I acknowledge the challenges of the site with regards to access and levels and support the location for consolidated service access from Eastern Access Road. However, I recommend further consideration of the location of the EOT facilities with the view to provide safe and convenient access to facilities at ground level for all users.

The architectural expression for SAHMRI 2 is described as an 'elevated' singular form with a modular glazed facade system, with a consistency of architectural expression to SAMHRI 1, however I acknowledge the differing budget and commercial arrangements. In my view, the new building has an important civic function to provide engagement and visual openness while also performing its commercial and clinical functions. The tower facade is currently in concept design phase, with indications of a glazing system with fritted glass and spandrel panels above 2700mm on each level. The roof top plant level is currently proposed with metal roof similar to SAHMRI 1. Solar shading has been proposed through perforated aluminium sunhoods that respond to the differing environmental conditions for each facade which I support. The proposal targets LEED v4 Building Design and Construction and Gold level rating which is also

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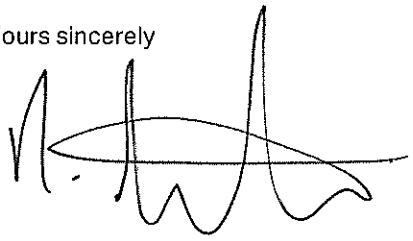
supported. In my view, the detailing of the facade and solar shading is critical to delivery of a successful design outcome, the ESD and LEED rating ambitions of the project, and commensurate with the distinctive location within the Biomedical precinct. I acknowledge and support the proposal's intention to provide glazing to the ground floor level in excess of 95% with the view to ensuring visual permeability and activation of the forecourt plaza. My support is contingent on a continued commitment and delivery of the design intent as presented.

To ensure the most successful design outcome is achieved the State Commission Assessment Panel may like to consider particular aspects of the project, which would benefit from protection as part of the planning permission, such as:

- Review of the ground floor site configuration to ensure the design intent for an active forecourt plaza between SAHMRI 1 and SAHMRI 2, and separated/discrete entry for the PTU reception entry is realised, and northern aspect for the commercial space is provided.
- Review of opportunities to provide additional curtilage to the north side at the base/level 3 of the building to ensure future connectivity and usable public space with northern aspect.
- Further design development of the plaza area and provision of a scaled wind tunnel test to ensure maximum future flexibility and usability of the forecourt plaza with high amenity for both seated and walking uses.
- Review of the location of the EOT facilities with the view to provide safe and convenient access to facilities at ground level for all users.
- A high quality of external materials supported by the provision of a materials samples board.

Yours sincerely



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Government of South Australia

Environment Protection Authority
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Country areas 1800 623 445

EPA Reference: 34345

19 June 2018

Ms Gabrielle McMahon
Chief Planning Officer
State Commission Assessment Panel
L5
50 FLINDERS Street
ADELAIDE SA 5000

Dear Ms McMahon

DIRECTION - Activities of Major Environmental Significance

Development Application No.	020/A035/18
Applicant	Commercial and General (MasterPlan SA Pty Ltd)
Location	A20 DP85645, Hundred Adelaide, North Terrace, Adelaide SA 5000.
Activity of Environmental Significance	Schedule 8 Item 11; Schedule 22 Part A Activities, Item 22-3(4)
Proposal	Demolition of existing structures and the construction of a mixed use building accommodating a Proton Therapy Unit and associated uses in basement levels, ground floor commercial tenancy, 11 levels of health and medical research, a plant level, associated car parking and infrastructure.

Decision Notification	A copy of the decision notification must be forwarded to: Client Services Officer Environment Protection Authority GPO Box 2607 ADELAIDE SA 5001

I refer to the above development application forwarded to the Environment Protection Authority (EPA) in accordance with Section 37 of the *Development Act 1993*. The proposed development involves an activity of major environmental significance as described above.

The following response is provided in accordance with Section 37(4)(b)(ii) of the *Development*

Act 1993 and Schedule 8 Item 11 of the *Development Regulations 2008.*

In determining this response the EPA had regard to and sought to further the objects of the *Environment Protection Act 1993*, and also had regard to:

- the General Environmental Duty, as defined in Part 4, Section 25 (1) of the Act; and
- relevant Environment Protection Policies made under Part 5 of the Act.

Please direct all queries relating to the contents of this correspondence to Melissa Chrystal on telephone (08) 8204 1318 or facsimile (08) 8124 4673 or email Melissa.Chrystal@epa.sa.gov.au.

THE PROPOSAL

This Development Application (DA) proposes the construction of a multi-storey mixed-use building accommodating a Proton Therapy Unit (PTU) designed to provide cancer treatment and commercial tenancies envisioned for health and medical research.

SITE DESCRIPTION

The site of the proposed development is A20 DP85645 on North Terrace, Adelaide.

The subject site is located between the existing South Australian Health & Medical Research Institute (SAHMRI) building and the University of Adelaide Health and Medical Sciences building. The site is located in the Riverbank Zone of the Adelaide (City) Development Plan.

The site is presently occupied by the Rail Operations Control Centre.

The site has not been inspected during the EPA's consideration of this DA but has been viewed using mapping information available to the EPA, including recent aerial imagery, and considered according to existing knowledge of the site and the locality.

CONSIDERATION

Advice in this letter includes consideration of the location with respect to existing land uses and is aimed at protecting the environment and avoiding potential adverse impacts upon the locality.

In assessing this proposed development, the EPA considered the plans and specifications supplied in the application, including the following documents:

- *Planning Report - Proposed Proton Therapy Unit and Health and Medical Research Building (SAHMRI 2)*, prepared by MasterPlan and dated April 2018
- *Shielding Design Philosophy*, prepared by Therapy Physics Inc and dated 10 April 2018, and
- *SAHMRI II Waste Management Plan*, prepared by Rawtec Pty Ltd and dated April 2018.

When assessing DAs referred to the EPA in accordance with the requirements of the Development Act, section 57 of the Environment Protection Act ('the EP Act') states that the

EPA must have regard to, and seek to further, the objects of the EP Act and have regard to the general environmental duty, any relevant environment protection policies and the waste strategy for the State adopted under the *Zero Waste SA Act 2004* (now the *Green Industries SA Act 2004*).

This response does not provide an assessment against the provisions of the *Radiation Protection and Control Act 1982* ('the RP&C Act') as it is not required by section 57 of the EP Act. Notwithstanding, the owner of the PTU must apply for a facilities licence pursuant to the RP&C Act prior to preparing a site for, or constructing, establishing, controlling, operating, managing, decommissioning, disposing of or abandoning, a radiation facility.

When considering this DA, the EPA has not undertaken an assessment of the suitability of the design of the Proton Therapy Unit and associated building components nor the management and disposal of radioactive substances. This assessment would be undertaken by the EPA when the owner makes an application for a facilities licence pursuant to the RP&C Act.

ENVIRONMENTAL ISSUES

Waste Management

The DA documentation states that medical waste generated at the development would consist of:

- needles, syringes with needles and possibly surgical instrument or other articles
- possibly small amounts of human tissue, blood samples, liquid body samples which may include urine samples, and
- potentially discarded specimens or culture.

The DA documentation also states that the following activities would not occur within the development:

- dental or veterinary practice, or
- pathology services, or
- pharmaceutical supply activities.

Waste is proposed to be stored in a common Waste Room located on Level 1. Medical waste would be stored separately within a secure area of the proposed Waste Room and collected by an appropriately licensed waste contractor.

This is acceptable to the EPA. Any operational issues arising would be dealt with by the required EPA licence.

Environmental Authorisation

The EP Act requires the issue of an environmental authorisation (EPA licence) prior to conducting an activity producing listed wastes.

A note to this effect is recommended below.

CONCLUSION

The EPA is satisfied that the proposed activities producing listed waste onsite can be designed and operated in a manner that would result in a low risk of environmental harm. Any operational issues arising could be managed through the EPA licence.

DIRECTION

No conditions are directed however the following notes provide important information for the benefit of the applicant and are requested to be included in any approval:

- The applicant is reminded of its general environmental duty, as required by section 25 of the *Environment Protection Act 1993*, to take all reasonable and practicable measures to ensure that the activities on the whole site, including during construction, do not pollute the environment in a way which causes or may cause environmental harm. Reasonable and practicable measures may include implementing mitigation measures that would be undertaken in the event of a waste spill.
- Further guidance about the storage, handling and disposal of medical waste can be found in the EPA publication *Medical waste - storage, transport and disposal* https://www.epa.sa.gov.au/files/4771338_guide_medical.pdf
- An environmental authorisation in the form of a licence is required for the operation of this development. The applicant is required to contact the Environment Protection Authority before acting on this approval to ascertain licensing requirements. Information on applying for a licence (including licence application forms) can be accessed here: http://www.epa.sa.gov.au/business_and_industry/applying_for_a_licence
- The applicant is reminded that the EPA holds site contamination records in relation to subject site. Any work undertaken onsite should be compatible with recommendations of site contamination consultants and/or auditors. For further information about investigating and managing onsite contamination, refer to the following EPA publications: https://www.epa.sa.gov.au/files/4771800_guidelines_sc_audit.pdf and https://www.epa.sa.gov.au/files/4771282_info_sc_implement.pdf
- EPA information sheets, guidelines documents, codes of practice, technical bulletins etc can be accessed on the following web site: http://www.epa.sa.gov.au

Yours faithfully

Hayley Riggs
Delegate
ENVIRONMENT PROTECTION AUTHORITY

4 May 2018

Gabrielle McMahon
Department of Planning, Transport & Infrastructure
GPO Box 1815
ADELAIDE SA 5001

Dear Gabrielle,

DEVELOPMENT NUMBER: **020/A035/18**
APPLICANT: **Commercial and General co Masterplan SA Pty Ltd**
NATURE OF DEVELOPMENT: **C**onstruction of a mixed use building, 11 levels of health and medical research.

SUBJECT LAND: **Lot 20 North Terrace, ADELAIDE, SOUTH AUSTRALIA, 5000**

The application has been assessed and at a height of RL 97.750m AHD the application **will** penetrate the Adelaide Airport Obstacle Limitation surfaces (OLS) which is protected airspace for aircraft operations.

The application will require approval in accordance with the Airports Act 1996 and the Airports (Protection of Airspace) Regulations 1996 and therefore will be forwarded to the Department of Infrastructure and Regional Development for their approval.

The developments will penetrate the OLS by approximately 19.7 metres.

Any further proposed addition to the structure, including aerials, masts and vent/exhaust stacks, must be subject to a separate assessment.

If the development is approved by the Department of Infrastructure and Regional Development any associated lighting would also need to conform to the airport lighting restrictions and shielded from aircraft flight paths.

Crane operations associated with construction, if approved, will also be subject to a separate application.

Should you require any additional information or wish to discuss this matter further please contact the undersigned on 8308 9245.

Yours sincerely,

Brett Eaton
Airside Operations Manager

Adelaide Airport

Adelaide Airport Limited
1 James Schofield Drive
Adelaide Airport
South Australia 5950

T +61 8 8308 9211
F +61 8 8308 9311
adelaideairport.com.au
ABN 78 075 176 653

In reply please quote 2018/01867, Process ID: 515247
Enquiries to Reece Loughron
Telephone (08) 8226 8386
E-mail dpti.luc@sa.gov.au

Government of South Australia
Department of Planning, Transport and Infrastructure

DEVELOPMENT DIVISION
Transport Assessment and Policy Reform

GPO Box 1533
Adelaide SA 5001

Telephone: 61 8 8226 8222
Facsimile: 61 8 8226 8330

ABN 92 366 288 135

19/06/2018

State Commission Assessment Panel
C/- Ms Gabrielle McMahon
GPO Box 1815
ADELAIDE SA 5001

Dear Gabrielle,

CONSULTATION ADVICE

Development No.	020/A035/18
Applicant	Commercial and General
Location	Lot 20 in DP 85645 North Terrace (corner George Street) Adelaide
Proposal	Demolition of existing structures and the construction of a mixed use building accommodating a Proton Therapy Unit and associated uses in basement levels, ground floor commercial tenancy, 11 levels of health and medical research, a plant level, associated car parking and infrastructure (multi-storey health and medical treatment and research centre)

I refer to the above development application forwarded to the Commissioner of Highways requesting informal comment. The following report is provided to assist the State Commission Assessment Panel (SCAP) with its decision.

THE PROPOSAL

The development involves the construction of a mixed use multi-storey health and medical treatment and research centre, with associated car parking and infrastructure.

CONSIDERATION

The subject site abuts North Terrace, a local road under the care, control and management of Adelaide City Council and an adjacent access road (George Street) serving the Royal Adelaide Hospital precinct. The adjacent section of North Terrace carries approximately 27,700 vehicles per day (5% commercial) and has a default speed limit of 50km/h. Based on the GTA report, the adjacent section of George Street carries approximately 2,400 vehicles per day and is speed zoned at 20km/h.

GTA consultants have undertaken a Traffic Impact Assessment (Reference: S138680, Issue B, dated 13/04/18) for the subject development.

Traffic Analysis, Delivery Vehicles and Car Parking

The GTA report indicates that the proposed access to George Street will cater for eight parking spaces, a passenger pick-up and set-down bay and a loading area to accommodate vehicles up to an 8.8 metres Medium Rigid Vehicle. GTA has projected that the development will generate up to 16 trips during the peak hour and 192 trips over the daily period. Accordingly, given the existing volumes on George Street and North Terrace, the additional traffic generated by the proposed development is not expected to adversely impact the adjacent road network.

With respect to the access location, GTA has assessed the location of the proposed access in accordance with Safe Intersection Sight Distance (SISD) and Minimum Gap Sight Distance (MGSD) and concluded that appropriate sight lines will be provided from the access for safe access in conjunction with the relatively low traffic volumes on George Street. However, it is noted that the sight lines just meet the minimum requirements. DPTI is concerned about right turn out movements due to the limited sight distance around the bend and the steep grade of George Street and recommends that all exiting vehicles turn left onto George Street (i.e. movements be restricted to left turn in, left turn out and right turn in).

The GTA reports indicates that a delivery vehicle (8.8 metres Medium Rigid Vehicle) can turn left into the site, access the loading dock in a forward direction, reverse back without interfering with entering traffic and then undertake a left turn exit back onto George Street (Figures 6.1 and 6.2). This is acceptable to DPTI. The internal manoeuvring areas should be designed in accordance with *AS 2890.2-2002.*

The GTA report states that parking rates are not specified for developments within the Riverbank Zone. However, SCAP should be satisfied with the level of car parking is appropriate given the various public parking stations near the site, the nearby bus, tram and rails services and the provision of 152 bicycle parking spaces and end of trip facilities. All car parking areas should be designed in accordance with *AS/NZS 2890.1:2004* and *AS/NZS 2890.6:2009.* Bicycle parking areas should be designed in accordance with *AS 2890.3:2015* and the relevant Austroads Guides (including Cycling Aspects of Austroads Guides).

CONCLUSION

In-principle, no objection is raised to the proposed development subject to conditions.

ADVICE

The planning authority is advised to attach the following conditions to any approval:

1. Access to George Street shall be designed in general accordance with Woods Bagot Floor Plan – Level 01, Project number 140290, Sheet number AR-SK2201, Revision P, dated 12.04.18.

2. All vehicles shall enter and exit the site in a forward direction.

3. When exiting the site, all vehicles shall turn left onto George Street. Appropriate on-site signage shall be provided to direct drivers to turn left.

4. All car parking areas shall be designed in accordance with *AS/NZS 2890.1:2004* and *AS/NZS 2890.6:2009.*

5. The largest vehicle permitted on-site shall be restricted to an 8.8 metres Medium Rigid Vehicle and the delivery area shall be designed in accordance with *AS 2890.2-2002*.

6. All bicycle parking areas shall be designed in accordance with *AS 2890.3:2015* and the relevant Austroads Guides (including Cycling Aspects of Austroads Guides).

7. All stormwater run-off shall be collected on-site and discharged without jeopardising the integrity and safety of the adjacent roads. Any alterations to the drainage infrastructure required to facilitate this shall be at the applicant's cost.

Yours sincerely,

for **MANAGER, TRANSPORT ASSESSMENT AND POLICY REFORM**

for **COMMISSIONER OF HIGHWAYS**

A copy of the decision notification form should be forwarded to dpti.developmentapplications@sa.gov.au

CITY OF ADELAIDE

25 Pirie Street, Adelaide
GPO Box 2252 Adelaide
South Australia 5001

T (08) 8203 7203
F (08) 8203 7575
W cityofadelaide.com.au

ABN 20 903 762 572

Enquiries: Helen Dand 8203 7380
Reference: S10/23/2018 (SCAP ref: DA 020/A035/18)

23 May 2018

045

State Commission Assessment Panel
GPO Box 1815
Adelaide SA 5001

Attention: State Commission Assessment Panel

Dear Sir/Madam

Application: S10/23/2018 - (SCAP ref: DA 020/A035/18)
Applicant: COMMERCIAL & GENERAL CONSTRUCTION P/L
Address: North Terrace, ADELAIDE SA 5000
Description: Construct a multi-level health/medical clinical treatment and research centre including proton therapy unit, ground floor lobby, reception and commercial tenancy, 11 levels of clinical trial, dry lab and commercial office floor area (SAHMRI II)

Council has the following comment(s) to make on the above application:

TECHNICAL COMMENTS

ROADS / FOOTPATHS ENGINEERING

There are no traffic/transport related objections to this development, subject to the following matter/s being addressed:

- Any damage caused to Council's road, footpath and kerbing infrastructure during development will be the responsibility of the developer to rectify to a standard that equals or improves the pre-development condition.
- Council will inspect the works after completion for standards and specification compliance.
- Any pavement reinstatements associated with works will need to match surrounding pavements.
- Existing boundary (back of path) levels must not be modified. Finished floor levels should be based around retaining the existing back of path levels, subject to the following:
    - If the level difference between top of kerb and back of path is less than 50 mm
    - If the existing cross fall(s) exceed 4% (1:25)

  If any of the above conditions exist for any footpath infrastructure that service the perimeter of the site boundary, then please contact the Lead Asset Consultant Streets prior to setting finished floor levels.

- All new crossovers or alterations to existing crossovers require Council approval outside of the DA process. These need to be to Council's standards and specifications via the City Works Guidelines.

TORRENS & STORM WATER

There are no storm water related objections to this development, subject to the following matter/s being addressed:

- Stormwater runoff from the proposed medical building must be retained within the property boundaries, collected and discharged to stormwater infrastructure located in the easement for "drainage purposes" marked "Q". As George Street is not a Council road reserve, Council cannot approve stormwater discharge to George Street. It is understood from installation of stormwater drainage infrastructure associated with the new Royal Adelaide Hospital that SAHMRI Stage 2 would discharge all stormwater runoff to the easement drain constructed along the railway corridor.
- Council's stormwater management system has been designed to manage gravitational flows only, therefore any proposed roof siphonic drainage systems must limit discharge of stormwater runoff to equivalent gravitational flows.
- Collected seepage water from the proposed PTU/Clinic Support basement area must be either discharged to sewer or a property recycled water reuse system.
- Collected irrigation "seepage water" from the proposed landscaped areas located in the Plaza area must be either discharged to sewer or a property recycled water reuse system. "Seepage" water does not include stormwater runoff from landscaped areas which can be discharged to the property stormwater system.
- Council encourages the collection, storage and reuse of recycled stormwater and wastewater for irrigation and toilet flushing purposes.

LIGHTING / ELECTRICAL / CCTV

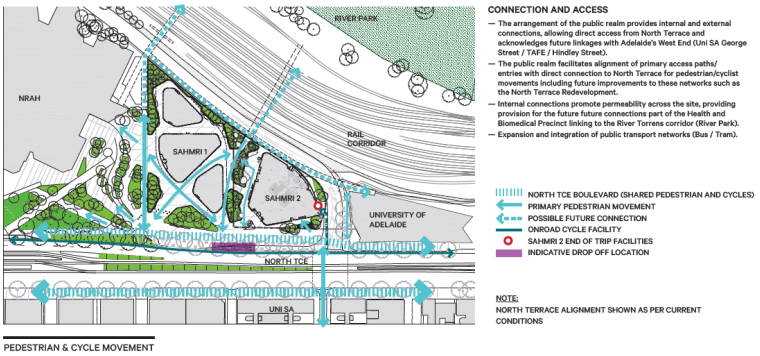
There are no lighting related objections to this development, subject to the following matter/s being addressed:

- The proposed development works may impact on the public lighting within the proximity of the development site. The existing street lighting on North Terrace is owned and maintained by City of Adelaide and consists of lighting columns with lights attached, and underground electrical cabling and associated electrical pits. The road to the east of the project is not a City of Adelaide road and we understand that the public lighting along there is owned and maintained by DPTI.
- All works undertaken should be fit for purpose in the public realm.
- All modifications requiring temporary removal/relocation/provision of temporary lighting/reinstatement of existing Council and/or SA Power Network's public lighting (including associated infrastructure such as cabling etc.) shall meet Council's requirements. The works shall be carried out to meet Council's requirements and all costs borne directly by the developer.
- If temporary hoarding or site works require modification of existing Council and/or SA Power Network's public lighting (including associated infrastructure such as cabling etc.) works shall meet Council's requirements and all costs borne directly by the developer.

- Obtrusive Lighting – Lighting design and installation to be fully compliant with Australian Standard - AS 4282 – 1997 Control of the obtrusive effects of outdoor lighting. Sign off by a consultant is required to confirm compliance. In addition, the applicant should provide the relevant lighting calculation grid, detailing property boundary lines for Council's review and records.
- If new canopies are to be constructed as part of these works, then lighting to meet Council's under verandah requirements shall be installed.
- Existing underground services shall be identified and marked in the locality prior to undertaking any excavation works.
- All damage to Council's infrastructure, including damage to public lighting and underground ducting etc. caused by project's works or loading of site crane onto pathways will be repaired to meet Council's requirements and will be at the cost of the developer.
- If building mounted lit signage is to be installed onto the building, further review and approvals will be required by City of Adelaide.
- For any modifications to CCTV camera owned and maintained by Council, contact the City of Adelaide for further advice on the process. SAPOL monitor these cameras and will also be required to be consulted with for their approval.
- All assets to be handed over to Council to own and maintain shall be constructed to Council's requirements and applicable legislative standards and requirements. All equipment gifted shall be to Council's standards and applicable requirements.

TRAFFIC / TRANSPORT

- The oxigen report notes a drop off area on North Terrace. This is not supported by the current Council-endorsed Masterplan for North Terrace west. Any temporary pick up/drop off point on North Terrace will be removed at the completion of SAHMRI 2, as per the agreement with SAHMRI. Once removed, all pick up and drop off movements are expected to be accommodated within the SAHMRI sites, outside of the public realm, as per the agreement with SAHMRI.



S10/23/2018

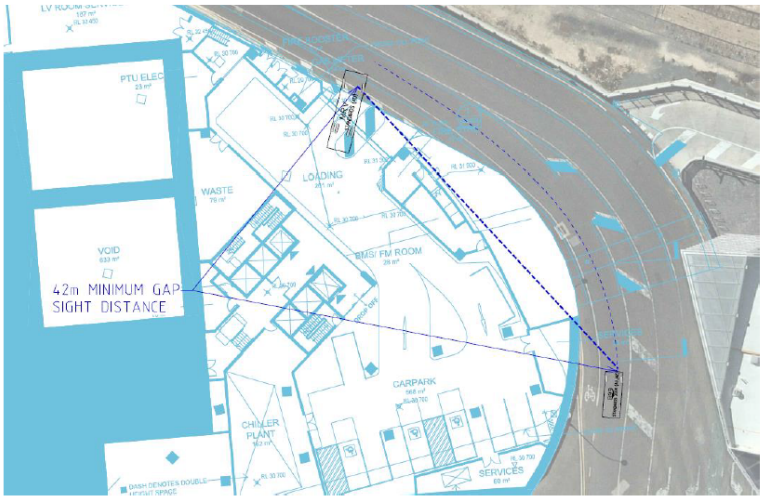
oxigen SAHMRI 2 LANDSCAPE & PUBLIC REALM For Information - 12/04/18 oxigen.net.au

The current proposal should include improved wayfinding features for people with vision impairment travelling east-west past the site.

It is unclear from the ground floor plans covering the parking area how pedestrians are catered for, particularly with regard to linkage from the disability permit spaces to the lift area.

The critical area for sight distance to/from the loading and car park area should be kept clear of impediment. Sight distance assessment appears to show the critical line of sight running through the corner walled section, which therefore appears to require amendment. Care will also be required around any landscaping in this space to ensure sight lines are maintained.

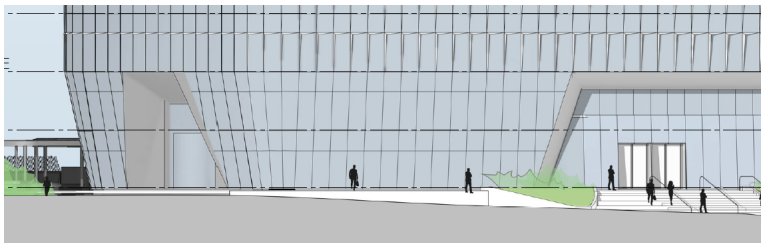
Figure 4.2: Minimum Gap Sight Distance

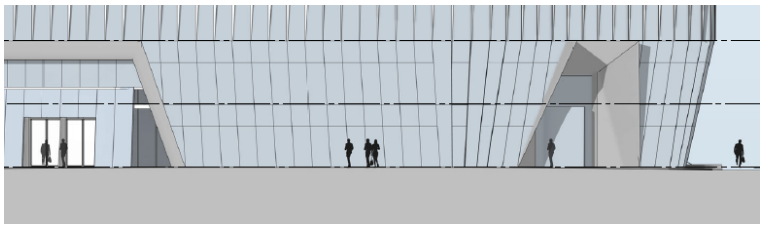


Traffic/car parking signs and line marking shall comply with the requirements of AS2890 and AS1742 series. Selection of pavement materials within the car park should be cognisant of contrasts for line marking, luminance contrast, as well and slip and skid requirements.

Care should be taken to ensure lifts are large enough to transport bikes to and from the storeroom without unduly impacting on other lift patrons or requiring bike users to lift the bike. Vertical bike storage will not be an option for all users (with some not able to lift or store the bike in this arrangement) and some ground level storage should be provided as an alternative.

There are multiple sloped walls that would require amendment or remedial treatment in accordance with AS1428.4.1. A screen shot of some of these and relevant extracts from the Standard follow below, which recommends shielding t hazard as the primary remedial measure, with Tactile Ground Surface Indicators (TGSIs) only to be used if shielding is not possible.





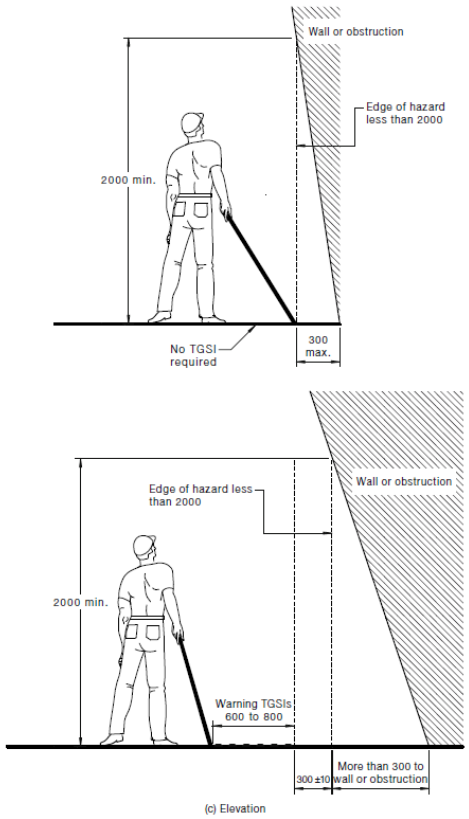
2.6 WARNING OF HAZARDS WITHIN THE CIRCULATION SPACE, OR ADJACENT TO A CONTINUOUS ACCESSIBLE PATH OF TRAVEL

Where there are impediments or hazards with less than 2000 mm height clearance in an accessible open public space with no clearly defined continuous accessible path of travel (e.g., areas under a stairway, escalator or moving walkway), contact with overhead hazard shall be prevented by a suitable barrier such as—

(a) enclosing the area; or

(b) providing handrails with kerbs or kerb rails in accordance with AS 1428.1, [see Figures 2.6(A)].

In the absence of a suitable barrier, TGSIs shall be installed as shown in Figures 2.6(B).



(c) Elevation

DIMENSIONS IN MILLIMETRES

FIGURE 2.6(B) (in part) TACTILE INDICATORS WARNING OF A HAZARD IN A CIRCULATION SPACE

WASTE From review of the waste management plan there are no waste related concerns with the proposed development.

Yours faithfully

Rebecca Rutschack
MANAGER - PLANNING ASSESSMENT

SOUTH AUSTRALIAN DEVELOPMENT ACT, 1993
REPRESENTATION ON APPLICATION – CATEGORY 2

Applicant:	Commercial and General
Development Number:	020/A035/18
Nature of Development:	Demolition of existing structures and the construction of a mixed use building accommodating a Proton Therapy Unit and associated uses in basement levels, ground floor commercial tenancy, 11 levels of health and medical research, a plant level, associated car parking and infrastructure (identified as SAHMRI 2)
Type of development:	Merit
Zone / Policy Area:	Riverbank Zone: Health Policy Area 27 in the Adelaide (City) Development Plan
Subject Land:	North Terrace, Adelaide (adjacent existing SAHMRI 1)
Contact Officer:	Gabrielle McMahon
Phone Number:	(08) 71097060
Close Date:	2 July 2018

My name: Nicholas Economos

My phone number: 0408 606 552

PRIMARY METHOD(s) OF CONTACT: Email address: nick@econogroup.com.au

Postal address: Suite G61 33 Pirie St

Adelaide SA Postcode 5000

You may be contacted via your nominated PRIMARY METHOD(s) OF CONTACT if you indicate below that you wish to be heard in support of your submission.

My interests are:

- [x] owner of local property
- [ ] occupier of local property
- [ ] a representative of a company/other organisation affected by the proposal
- [ ] a private citizen

The address of the property affected is 31-34 North Terrace Postcode 5000

The specific aspects of the application to which I make comment on are:

Concerned about after hours disruptive noise, and dust affecting house guest at the Adelaide Riviera Hotel. across the road of the proposed SAMRI 2.

Should the State Commission Assessment Panel conduct a public hearing for this Development Application:

I

- [ ] **wish to be heard in support of my submission**
- [x] **do not wish to be heard in support of my submission**

(Please tick one)

By

- [ ] **appearing personally**
- [ ] **being represented by the following person:**

(Please tick one)

Date 28/6/18 Signature

Return Address: The Secretary, State Commission Assessment Panel, GPO Box 1815, Adelaide SA 5001 or scapadmin@sa.gov.au.

#12789478

THE UNIVERSITY
of ADELAIDE

Gabrielle McMahon
Prinicpal Planner
Inner Metropolitan Development Assessment
STATE COMMISSION ASESSMENT PANEL
GPO Box 1815
ADELAIDE SA 5001

2 July 2018

Dear Ms G McMahon,

Proposed Development – Demolition of existing structures and the construction of a mixed use building accommodating a Proton Therapy Unit and associated uses in basement levels, ground floor commercial tenancy, 11 levels of health and medical research, a plant level, associated car parking and infrastructure (identified as SAHMRI 2) #12789476

Thank you for your 14 June 2018 correspondence and invitation to view the details of the proposed application and make comment 14 June 2018.

The University of Adelaide's representation on the proposed Category 2 application is attached.

Yours sincerely,

per 2/7/2018

Virginia Deegan
Director Infrastructure

Division of University Operations / Infrastructure Office
Level 6 Kenneth Wills Building, The University of Adelaide SA 5005 AUSTRALIA
Tel: +61 8 8313 6120 **Email:** Virginia.deegan@adelaide.edu.au **www.adelaide.edu.au**
CRICOS provider number 00123M

SOUTH AUSTRALIAN DEVELOPMENT ACT, 1993 REPRESENTATION ON APPLICATION - CATEGORY 2

Applicant:	Commercial and General
Development Number:	020/A035/18
Nature of Development:	Demolition of existing structures and the construction of a mixed use building accommodating a Proton Therapy Unit and associated uses in basement levels, ground floor commercial tenancy, 11 levels of health and medical research, a plant level, associated car parking and infrastructure (identified as SAHMRI 2)
Type of development:	Merit
Zone/ Policy Area:	Riverbank Zone: Health Policy Area 27 in the Adelaide (City) Development Plan
Subject Land:	North Terrace, Adelaide (adjacent existing SAHMRI 1)
Contact Officer:	Gabrielle McMahon
Phone Number:	(08) 71097060
Close Date:	2 July 2018

My name: Director Infrastructure - Virginia Deegan

My phone number: 08 8313

PRIMARY METHOD(s) OF CONTACT: Email address:

Postal address: University of Adelaide North Terrace,

Postcode 5006

You may be contacted via your nominated PRIMARY METHOD(sl OF CONTACT if you indicate below that you wish to be heard in support of your submission.

My interests are:

- representative of owner of local property
- representative occupier of local property

The address of the property affected is

Adelaide Health and Medical Sciences - Lot 100 Corner George Street and North Terrace, Adelaide SA 5000

The specific aspects of the application to which I make comment on are:

Operational issues: -

1. The University is in the process of establishing an Animal House facility in the recently completed AHMS building, Animals are sensitive and we have experienced in the past breeding and other impacts from adjacent construction in other similar facilities. We seek confirmation that any Development Approval ensures all programmed construction activities that have the ability to cause vibration or excessive noise is addresses appropriately to ensure research and breeding activities are not impacted during construction.

2. Maintenance of clear access on Eastern access road.
We seek confirmation that any Development Approval ensures George Street is maintained clean and serviceable at all times (free of construction activity generated dust /debris) as all vehicles exiting / coming off the Northern access road are required to traverse over George Street, Adelaide. Additionally the SAMFS require unimpeded access to the AHMS Fire Booster Cabinet by their attending trucks in an emergency which is also from George Street.

3. Dilapidation Report
We seek confirmation that any Development Approval ensures a dilapidation report is prepared and provided by the applicant for the AHMS inclusive of vibration monitoring results during any piling activities.

4. Contractor Management
We seek confirmation that any Development Approval will ensure contractor induction for workers entering and leaving the construction site includes expectations around interactions with adjoining building occupants (staff and students).

5. Services Interruptions
We seek confirmation that any Development Approval will ensure notification periods of all services interruptions be consulted with the University with a view to minimising impacts on our activities and ensuring business continuity.

THE UNIVERSITY
of ADELAIDE

Gabrielle McMahon
Prinicpal Planner
Inner Metropolitan Development Assessment
STATE COMMISSION ASESSMENT PANEL
GPO Box 1815
ADELAIDE SA 5001

2 July 2018

Dear Ms G McMahon,

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Yours sincerely,

per 2/7/2018

Virginia Deegan
Director Infrastructure

Division of University Operations / Infrastructure Office
Level 6 Kenneth Wills Building, The University of Adelaide SA 5005 AUSTRALIA
Tel: +61 8 8313 6120 **Email:** Virginia.deegan@adelaide.edu.au **www.adelaide.edu.au**

SOUTH AUSTRALIAN DEVELOPMENT ACT, 1993 REPRESENTATION ON APPLICATION - CATEGORY 2

Applicant:	Commercial and General
Development Number:	020/A035/18
Nature of Development:	Demolition of existing structures and the construction of a mixed use building accommodating a Proton Therapy Unit and associated uses in basement levels, ground floor commercial tenancy, 11 levels of health and medical research, a plant level, associated car parking and infrastructure (identified as SAHMRI 2)
Type of development:	Merit
Zone/ Policy Area:	Riverbank Zone: Health Policy Area 27 in the Adelaide (City) Development Plan
Subject Land:	North Terrace, Adelaide (adjacent existing SAHMRI 1)
Contact Officer:	Gabrielle McMahon
Phone Number:	(08) 71097060
Close Date:	2 July 2018

My name: Director Infrastructure - Virginia Deegan

My phone number: 08 8313

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Postal address: University of Adelaide North Terrace,

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4. Contractor Management
We seek confirmation that any Development Approval will ensure contractor induction for workers entering and leaving the construction site includes expectations around interactions with adjoining building occupants (staff and students).

5. Services Interruptions
We seek confirmation that any Development Approval will ensure notification periods of all services interruptions be consulted with the University with a view to minimising impacts on our activities and ensuring business continuity.

6. Façade Cleaning

We seek confirmation that any Development Approval will ensure the applicant contribute to the cleaning of the façade of AHMS should construction activities adversely impact the performance of the building.

Design Issues: -

1. Common Development Framework (CDF) - Copy attached.

   The design statement does not appear to reference the Common Development Framework entered into by UoA, UniSA, SAHMRI and Renewal SA. It talks about links to the Precinct rather than this development being an integral element within a precinct. Overall the "Proposed Application" appears to look at the precinct as SAHMRI and SAHMRi 2 rather than the broader Biomed precinct.

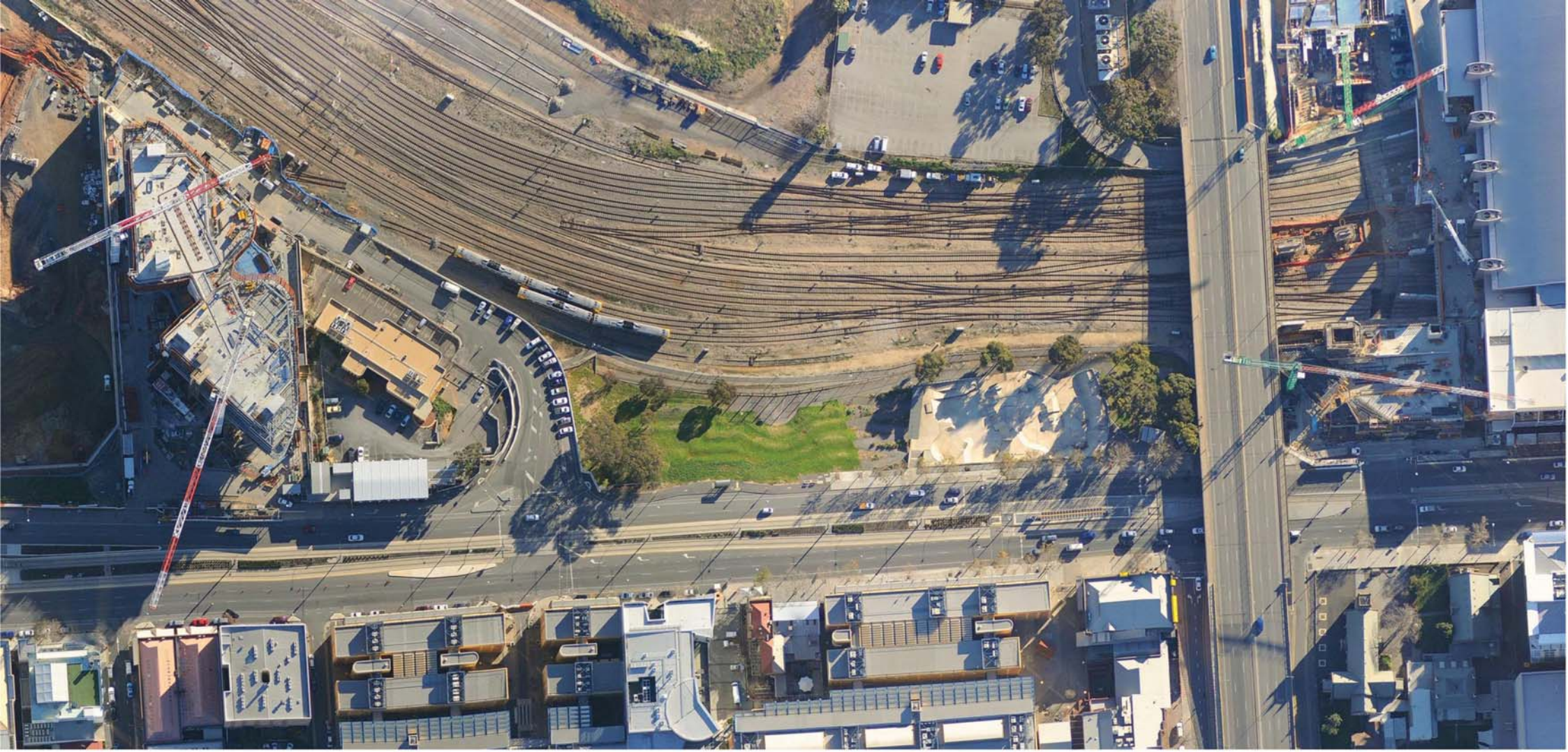
   The ground plane does not appear to address the principals of the Common Development Framework and directs pedestrians to use the main North Terrace Boulevard. The Common Development Framework looked to develop links to the North of the precinct for pedestrians and cyclists along the Northern walk which connected to the Morphett Street Bridge.

The University does not wish to be heard in support of their submission.

Return Address: The Secretary, State Commission Assessment Panel, GPO Box 1815, Adelaide SA 5001 or scapadmin@sa.gov .au.

#12789478

Date 2/7/2018 Signature per



Prepared by
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W www.lyonsarch.com.au

SAHMRI
SOUTH AUSTRALIAN HEALTH AND MEDICAL RESEARCH INSTITUTE

THE UNIVERSITY of ADELAIDE

University of South Australia

SOUTH AUSTRALIA

Government of South Australia

July 2013

COMMON DEVELOPMENT FRAMEWORK

COMMON DEVELOPMENT FRAMEWORK

CONTENTS

PREAMBLE

This Common Development Framework document (CDF) provides a pre-agreed position in relation to a range of common technical and aspirational outcomes for development of the South Australian Health and Biomedical Precinct.

Located on the north-western edge of the Adelaide city grid, the Precinct comprises of three independent sites that are proposed to be separately developed and occupied by the South Australian Health and Medical Research Institute; University of Adelaide and the University of South Australia.

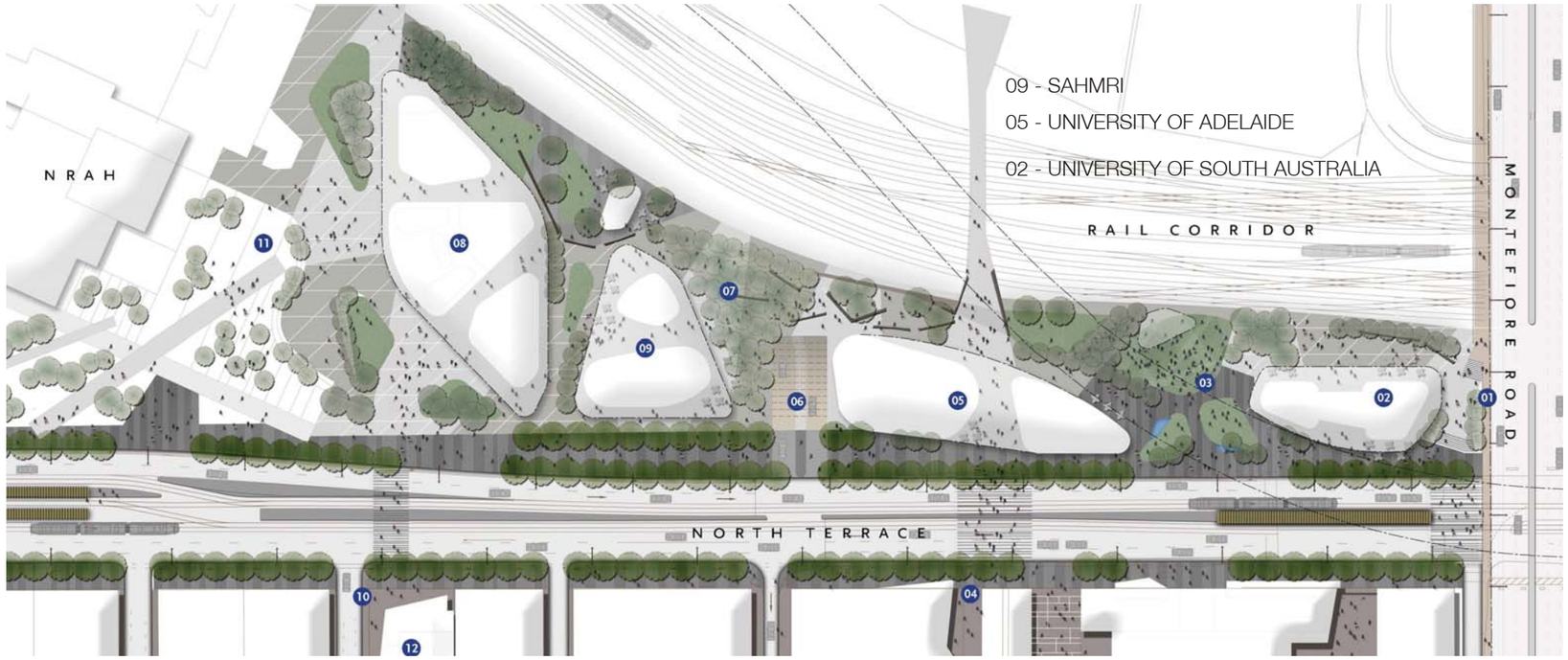
The key objective of the CDF is to ensure that each separate site development within the South Australian Health and Biomedical Precinct is consistent with the objectives of the Greater Riverbank Precinct and Biomedical Precinct Masterplan (Woods Bagot) (Renewal SA), and that a strategic and joint approach has been developed in relation to shared technical issues such as vehicular access and storm water.

The resolution of the CDF is the result of a collaborative process facilitated through a series of workshops led by Lyons (Architects) in which the following key stakeholders to the South Australian Health and Biomedical Precinct participated:

- South Australian Health and Medical Research Institute;
- University of Adelaide;
- University of South Australia;
- South Australian Department of Premier & Cabinet;
- Renewal SA;
- South Australian Government Architect (Integrated Design Commission SA);
- South Australian Department of Transport Planning and Infrastructure (DPTI);
- SA Health

The above stakeholders were represented throughout the process or from time to time during the process. A total of six workshops were held between April and June 2013.

The consultant team contributing to both the workshop process and this CDF document included: Lyons (Architects) – lead consultants; W&G engineers (traffic & stormwater) and Masterplan (planning).



BIOMEDICAL PRECINCT MASTERPLAN - ZONE OF CDF INFLUENCE


SAHMRI STAGE 2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INTRODUCTION

The CDF underpins the key aspects of the design rationale pertaining to the attached Development Application. The scope of this document identifies principles which have been agreed (by the above stakeholders) as common to the successful development of the Precinct. The CDF should be read in conjunction with all other documents submitted and attached to this Development Application.

The CDF consists of three Sections summarised as follows:

Planning Context

This Section provides an overview of the planning controls and zoning types that apply to the South Australian Health and Biomedical Precinct including the key planning considerations that are addressed in the DA submission.

Common Design Principles

The Common Design Principles define the fundamental urban design strategies for the South Australian Health and Biomedical Precinct and this Development Application. They were jointly agreed by the Precinct Partners to allow flexibility in each separate development within the Precinct in relation to site issues, program and aesthetics.

The following common urban design concepts have been addressed in this DA: Urban Connection Nodes; Urban Park; Street Extensions; Urban Form; Pavilions in the Park; Activation Zones; Pedestrian Paths; Vehicular Access & Loading

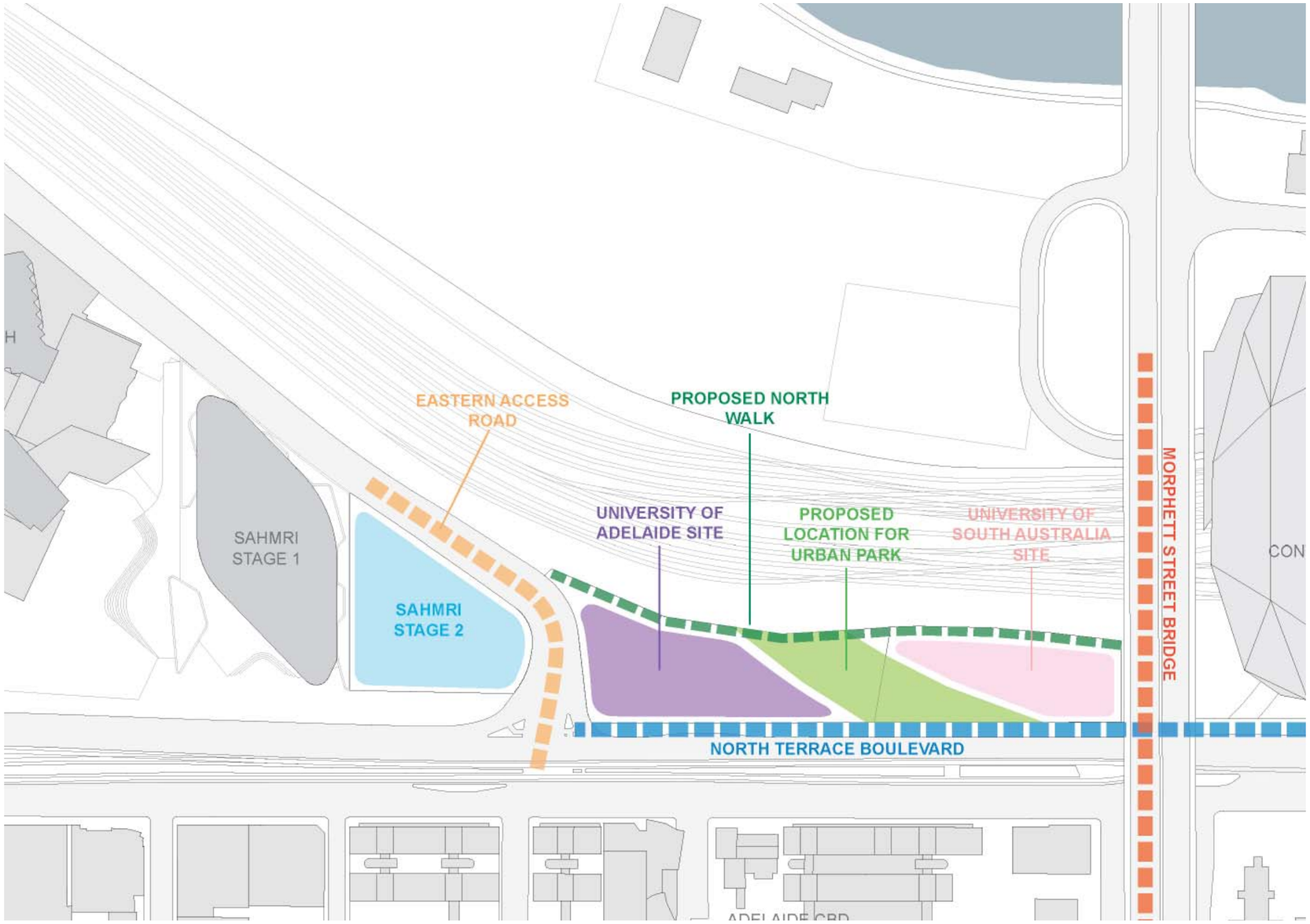
Common Technical Parameters

The Common Technical Parameters specifically relate to infrastructure that is shared between sites in the South Australian Health and Biomedical Precinct. These items have been resolved and agreed by the Precinct stakeholders to ensure certainty in relation to functional planning and reticulation of engineering services.

Terms of Reference

The following Terms of Reference are applicable to the Common Development Framework:

- Bio Medical Precinct Masterplan
- Riverbank Masterplan – Renewal SA
- City of Adelaide Development Plan – Adelaide City Council
- North Terrace Masterplan - Adelaide City Council
- New Royal Adelaide Hospital Development and landscape strategy
- SAHMRI stage 1 development and landscape strategy
- Adelaide Airport Limited (AAL) – OLS



1.0 PLANNING CONTEXT

1.1 GENERAL

The subject land for this Common Development Framework (CDF) is located within the City of Adelaide local government area. The City of Adelaide has a Development Plan, which is a document outlining the applicable zones and planning controls for all land within its boundaries.

1.2 PLANNING CONSIDERATIONS

A number of key planning considerations have been identified through:

- the workshop process described above;
- a review of current zoning constraints;
- discussions with planning referral authorities including the SA Government Architect.

These planning considerations include:

- Ground floor uses that are orientated to North Terrace are expected to include high pedestrian-generating land uses (such as cafes, restaurants and local shops selling convenience goods), thereby encouraging active building frontages.
- Development is expected to comprise large scale building(s) to accommodate the various functional requirements of a major metropolitan hospital. Nevertheless, buildings will reflect the locality's urban context and have regard to the orientation, front setbacks and spaces between buildings along the northern side of North Terrace and the height of buildings within the locality.
- Buildings located to the east of the West Terrace alignment should encourage pedestrian/bicycle circulation at the North Terrace level and provide opportunities for connections between North Terrace and the River Torrens linear park. These connections may be achieved via one or more elements in building design such as creating a passageway through a building.
- The design and arrangement of land uses, buildings, structures and open spaces will promote safe and convenient access and connectivity with North Terrace, the Park Lands and the River Torrens linear park.
- Buildings and structures should be sited and designed to:
  - create a gateway-like entrance to, and reinforce the grand boulevard character of, North Terrace
  - encourage pedestrian/bicycle circulation at the North Terrace level and create connections between North Terrace and the River Torrens linear park at key pedestrian focal points
  - incorporate forecourts and/or public meeting spaces as transition spaces between North Terrace and buildings within the Zone
  - promote North Terrace as the focus of activity by ensuring the main entrances to individual buildings face North Terrace
  - avoid large blank facades facing North Terrace, the Park Lands and the River Torrens linear park.

1.3 BUILDING HEIGHTS - OBSTACLE LIMITATION SURFACE (OLS)

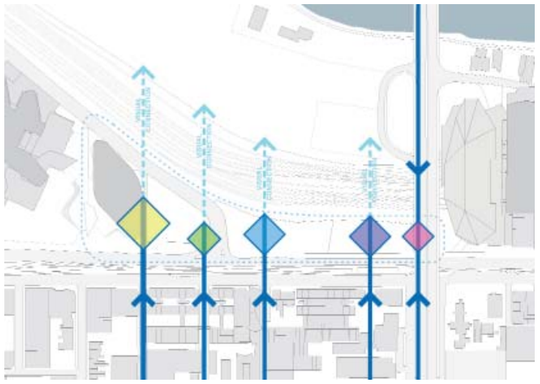
Building heights within this part of the city are not directly regulated by planning controls, rather only by the operational requirements of the Adelaide Airport. Referral to the Department of Transport and Regional Services through Adelaide Airport Limited is required where a development would exceed the Obstacle Limitation Surface (OLS) contours which along this section of North Terrace range from approximately 75-90 metres Australian Height Datum.

The key requirements set by Adelaide Airport Limited (AAL) which are common to the South Australian Health and Biomedical Precinct are as follows:

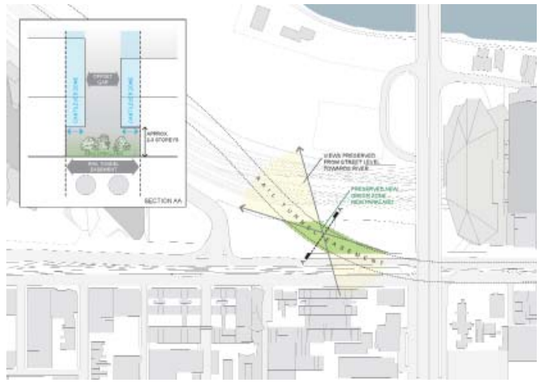
- The OLS is approximately 75-90m AHD (West to East) over the South Australian Health and Biomedical Precinct.
- The height of the chimneys needs to be considered as well as chimney exhaust velocity. The measured breach height for a building is taken at the point above the chimney where the exhaust velocity is 4.3metres per second or less.
- The PANS-OPS height over the South Australian Health and Biomedical Precinct is approximately 150m AHD.
- Whilst some structures are permitted to breach the OLS, no penetrations of the PANS-OPS are permitted.
- AAL has been consulted as part of the development of the CDF and opportunity has been identified to breach the OLS in this location. Each building will require site specific liaison with AAL during the Development Application stage.

2.0 DESIGN PRINCIPLES

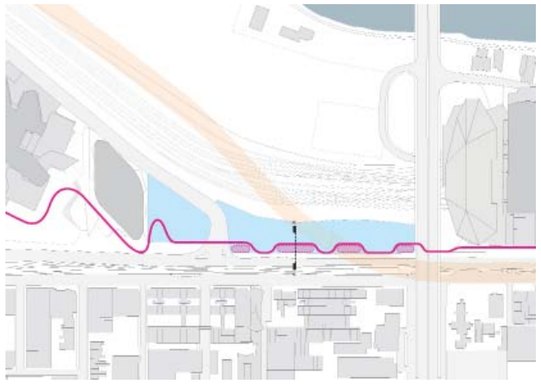
The Common Design Principles define the fundamental urban design strategies for the South Australian Health and Biomedical Precinct and this Development Application. The images below graphically summarise the agreed Precinct strategies that have been adopted in the attached building proposal. These strategies have been described in more detail in Sections 2.1 - 2.9.



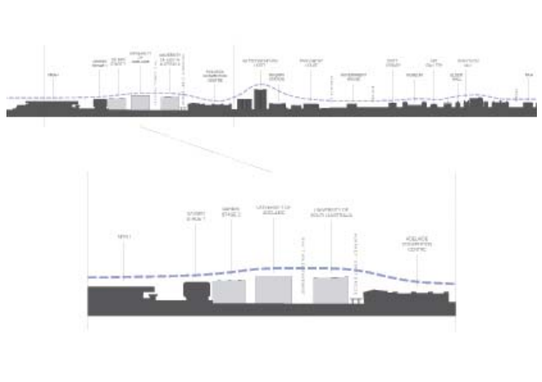
2.1 Urban Connection Nodes



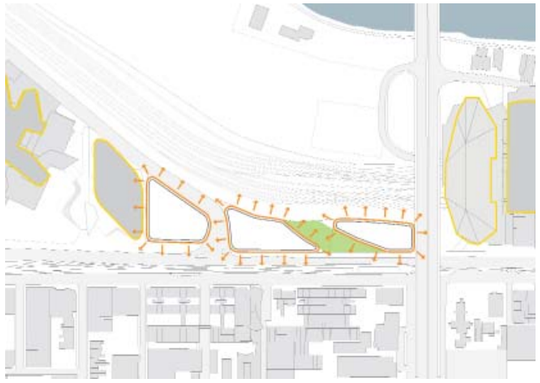
2.2 Urban Park



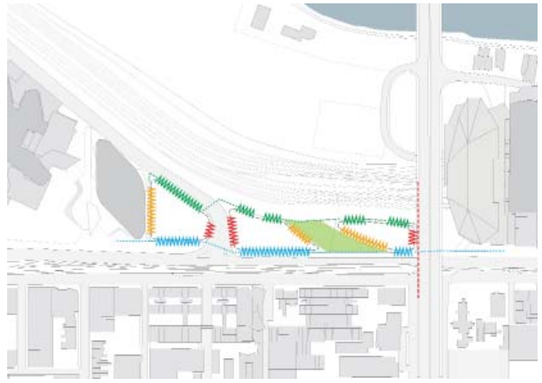
2.3 Street Extensions



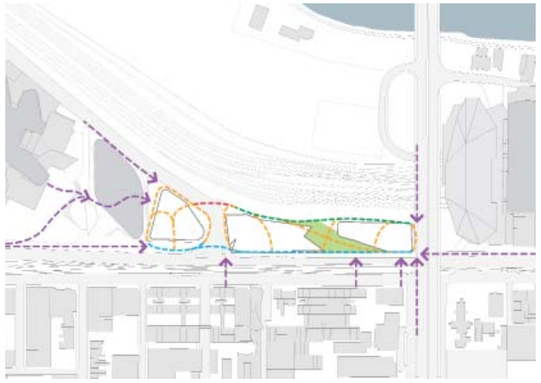
2.4 Urban Form



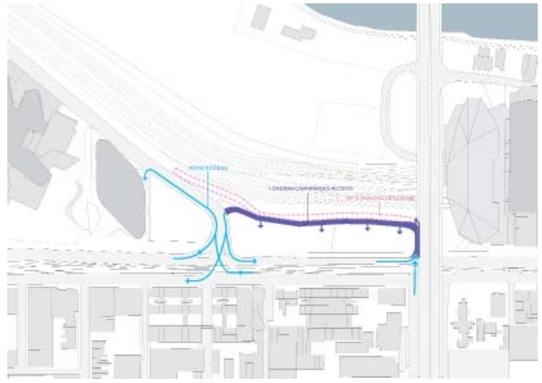
2.5 Pavillions in the Park



2.6 Activation Zones



2.7 Pedestrian Paths



2.8 Vehicular Access & Loading

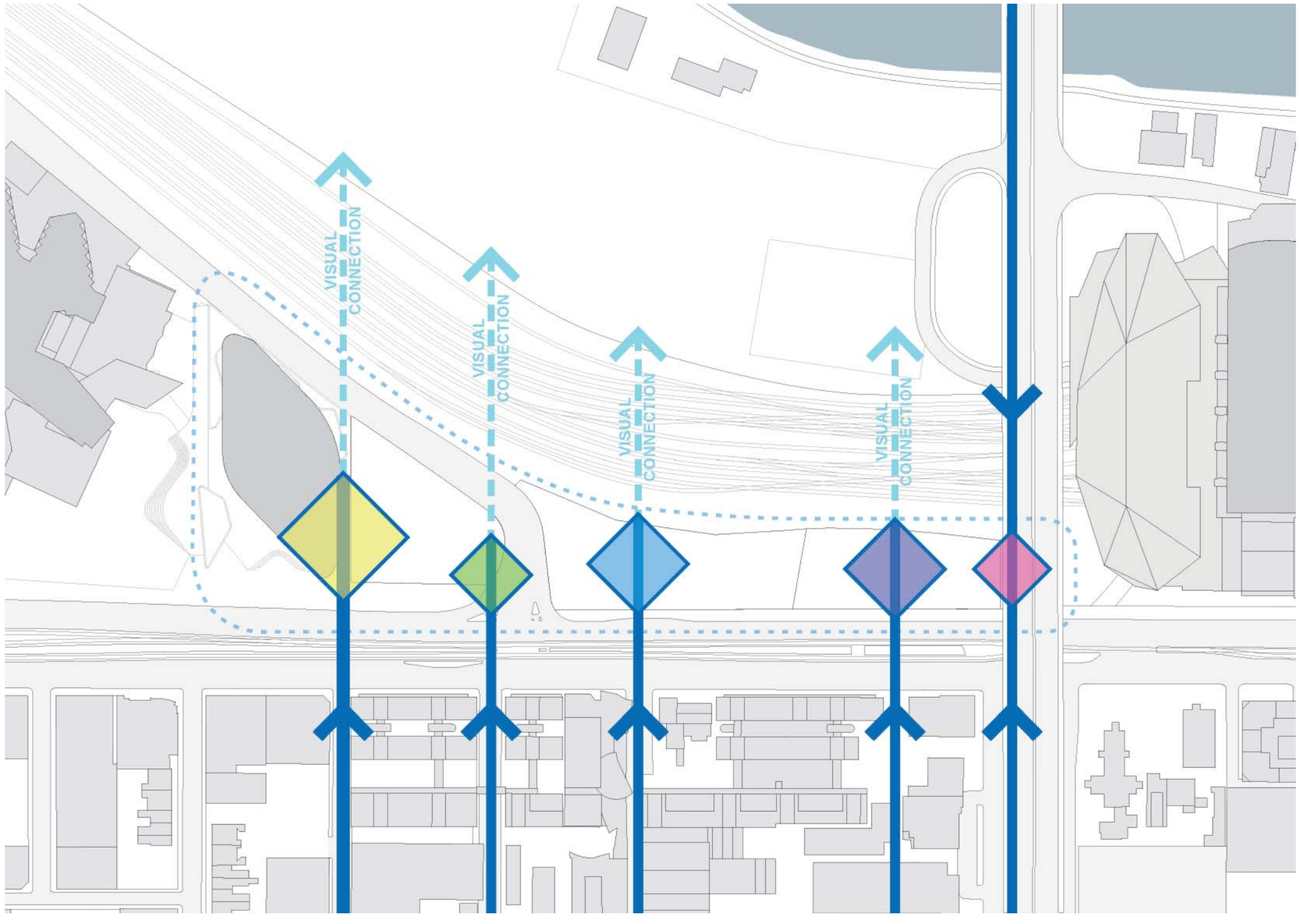
2.1 URBAN CONNECTION NODES

2.2 Intent:

To create an urban space that is connected with the streetscape of the lower levels of the proposed building which reinforces and registers the alignment of the Adelaide city streets and lanes adjacent to the South Australian Health and Biomedical Precinct.

Design Objectives:

- to create a 'significant' or important public focused space/s of the building;
- facilitate and promote visual and or physical transparency between North Terrace and the River / rail;
- create vantage points for views to the Riverbank;
- actively engage with pedestrian movement on North Terrace;
- not preclude future pedestrian access to the river through future development(s).



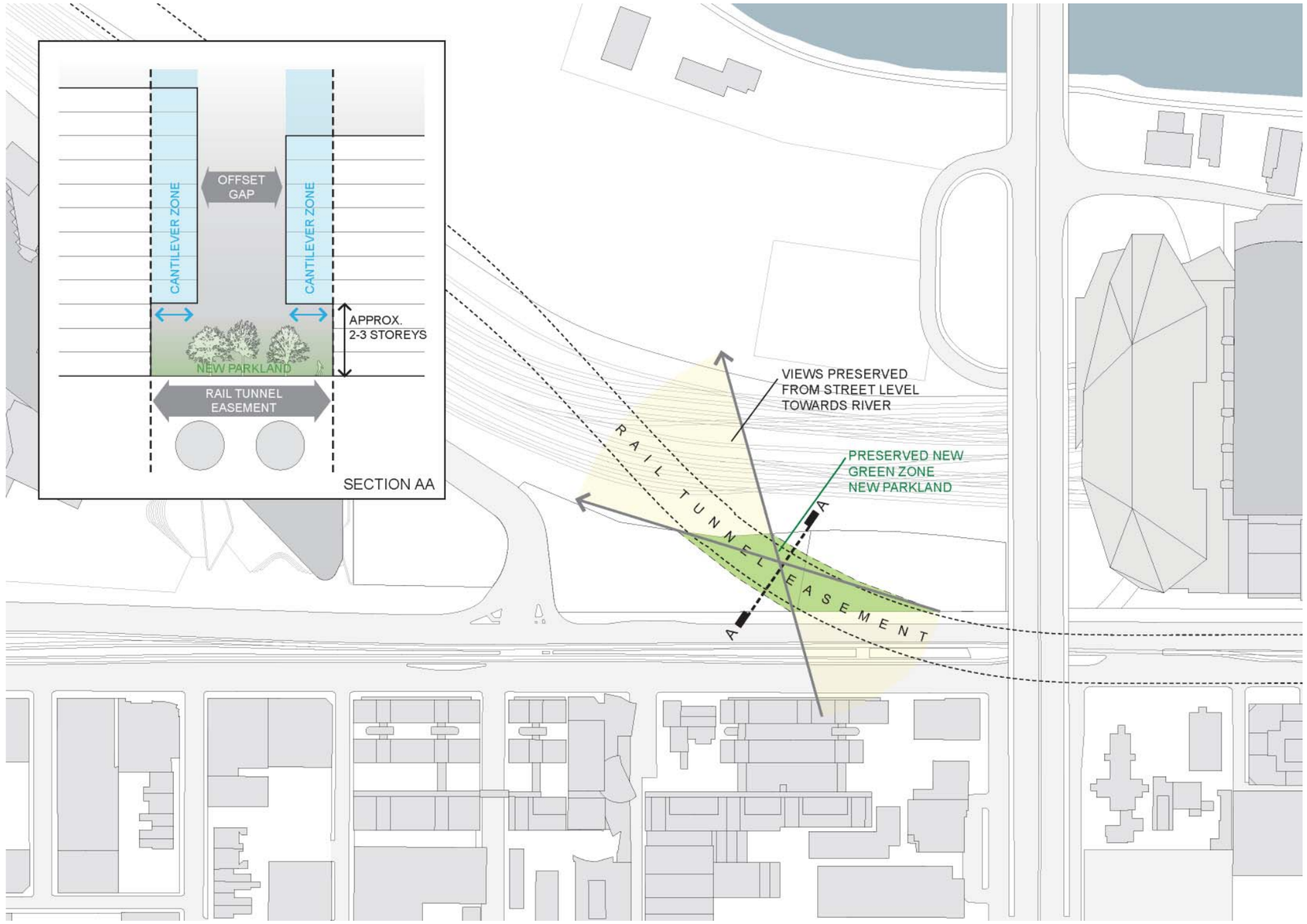
2.3 URBAN PARK

Intent:

Capitalise on the easement space required by DPTI for a future underground metro railway tunnel to provide a civic, urban landscape zone that transitions the city edge with the railway and Riverbank Precinct.

Design Objectives:

- contribute to the active engagement of North Terrace by providing landscape relief;
- create spaces that are focused on providing public amenity to the precinct and the broader city;
- comprise soft and hard landscaping including – trees, shrubs , seating, shade and shelter;
- be complimentary to the landscaping strategies for North Terrace already established by nRAH and SAHMRI;
- facilitate and promote the visual and physical accessibility between North Terrace and the rail corridor / riverbank, along with a newly proposed 'North Walk'.



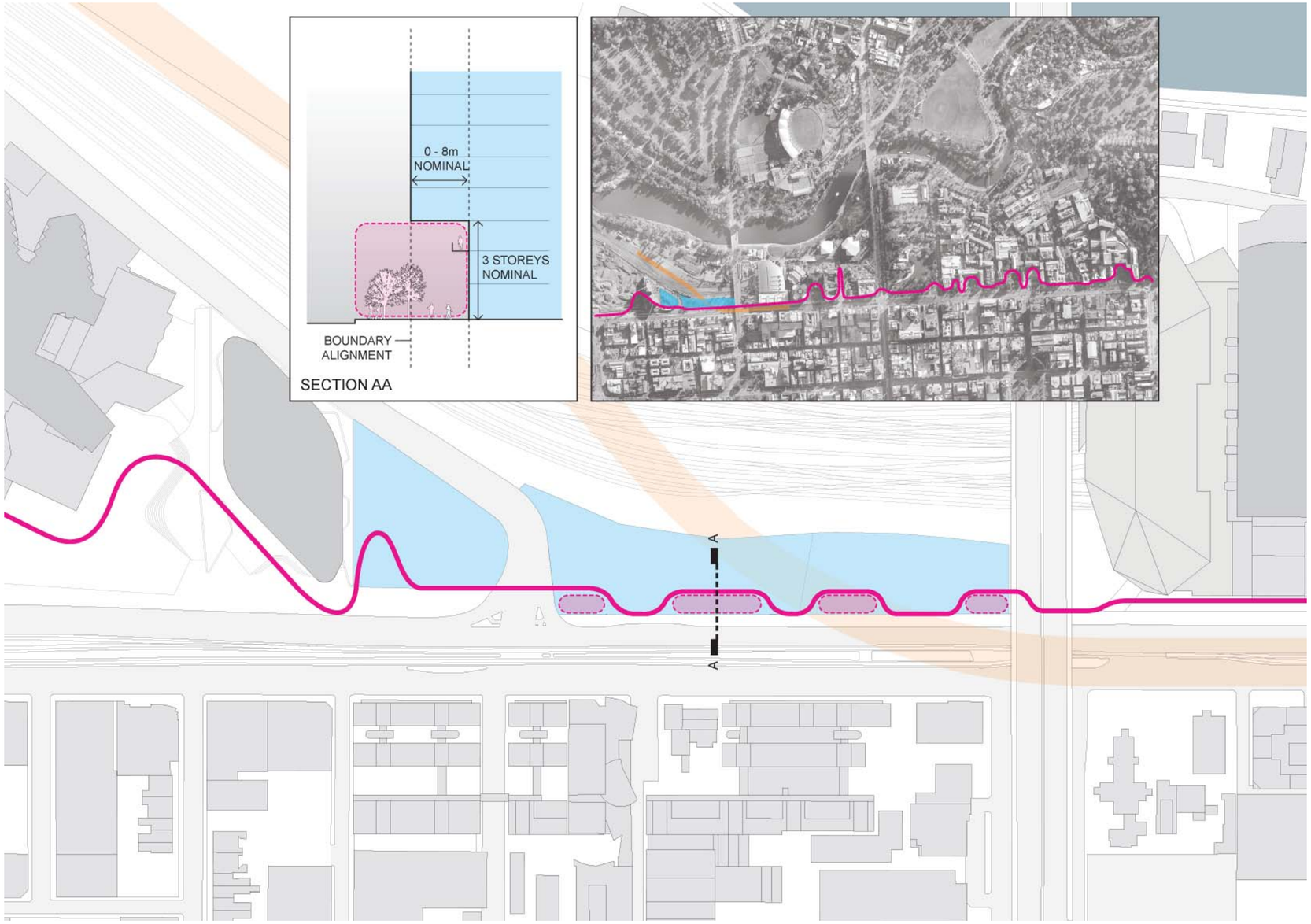
2.4 STREET EXTENSIONS

Intent:

Provide civic scale public spaces that enhance and extend the pedestrian and visual experience of North Terrace Boulevard, the South Australian Health and Biomedical Precinct and the Riverbank Masterplan.

Design Objectives:

- seamlessly extend the space of North Terrace as a pedestrian boulevard within the footprint / site area;
- provide space/s of a civic scale that are volumetrically substantial, with an approximate height 2 to 3 storeys;
- continue and register the rhythm of ‘castellated urban spaces’ that currently characterise North Terrace;
- provide a means to showcase and feature key activities of the South Australian Health and Biomedical Precinct to engage with and activate North Terrace;
- create streetscape engagement that is specific to the pedestrian experience of the lower levels of the proposed building;
- comprise landscaping (hard and soft) consistent with that already established by nRAH and SAHMRI landscapes and contribute to the development of North Terrace as an ‘urban boulevard’ including street trees, places for seating and areas for shelter and shade;
- provide spatial opportunities for future public street art;



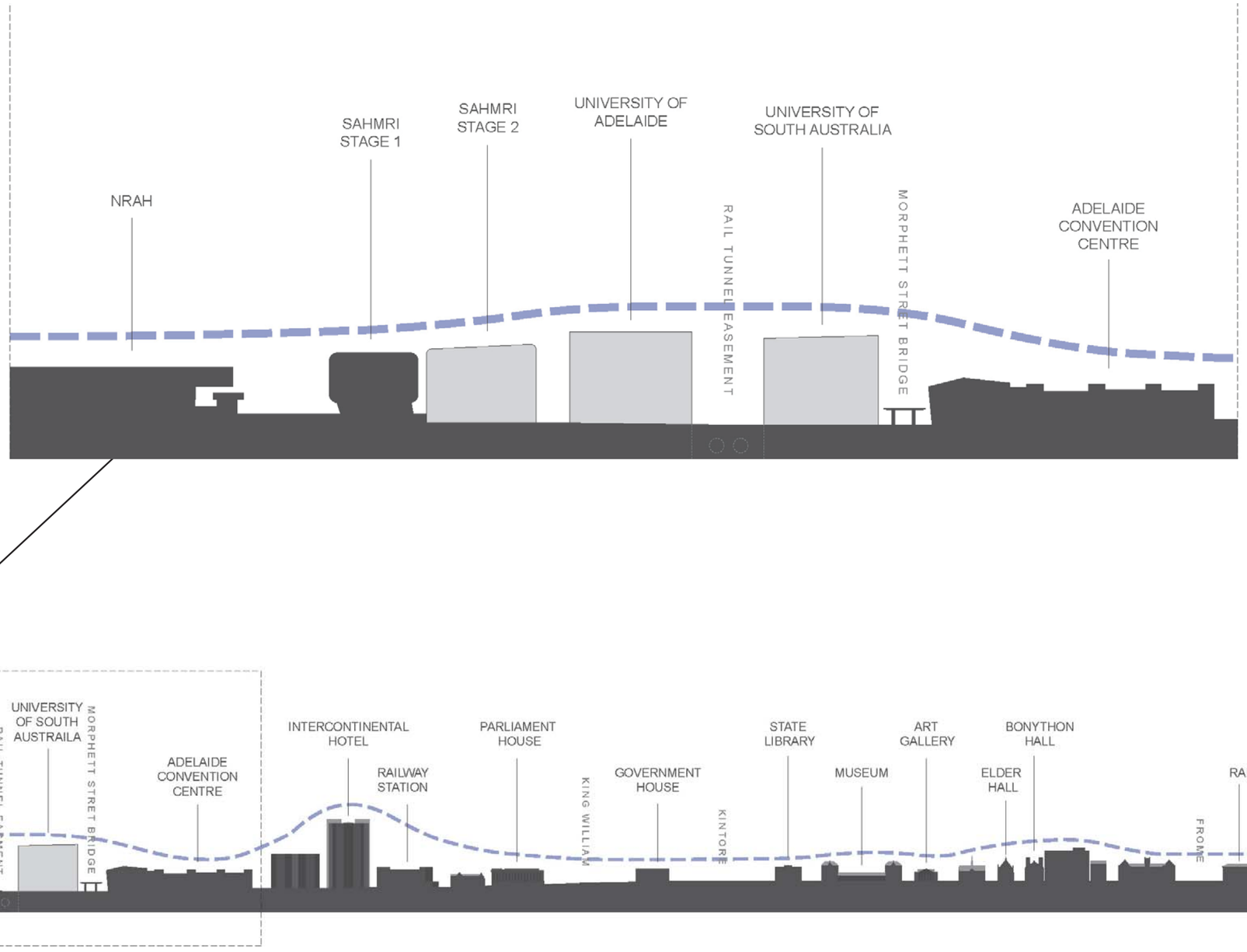
2.5 URBAN FORM

Intent:

To create an urban building form which is complimentary to the newly established streetscape scales on the riverbank side of North Terrace including nRAH, SAHMRI Stage 1 and the Adelaide Convention Centre that will also make a positive contribution to Adelaide's city skyline.

Design Objectives:

- use the building form to mediate and define the edge of the city;
- create transparency in the building form where possible;
- contribute to the sense of layering and profiling of the city skyline;
- contribute to the sense of city entry and procession



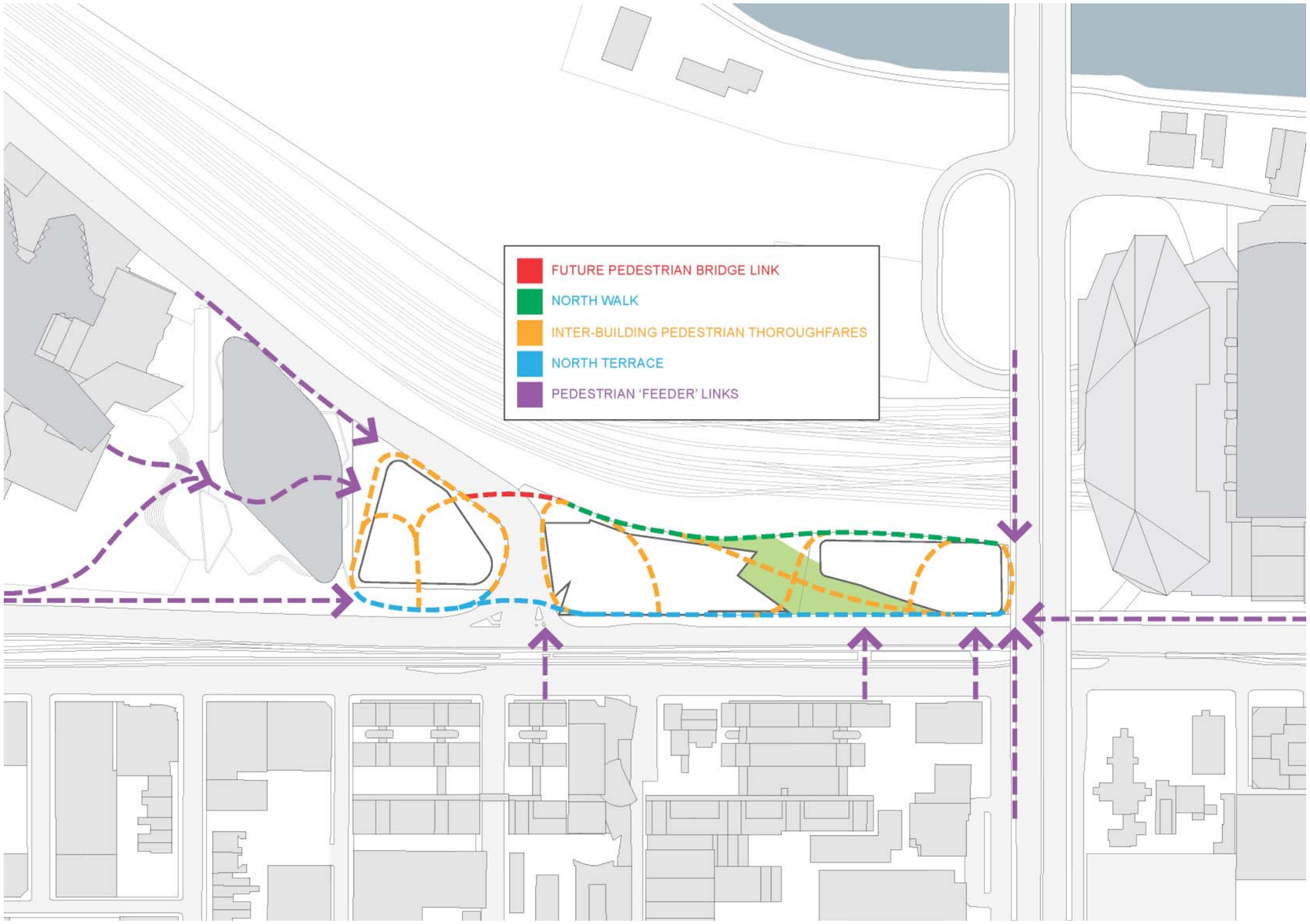
2.6 PEDESTRIAN PATHS

Intent:

To seamlessly connect North Terrace with all sides of the building, such that the public space of North Terrace extends around the proposed building.

Design Objectives:

- facilitate safe and 'accessible' pedestrian movements between all public zones in the South Australian Health and Biomedical Precinct;
- create multiple opportunities for pedestrian connections through and around the building;
- connect North Terrace with 'North Walk';
- connect Morphett Street Bridge with 'North Walk';
- connect pedestrian movement with all 'Activation Zones';



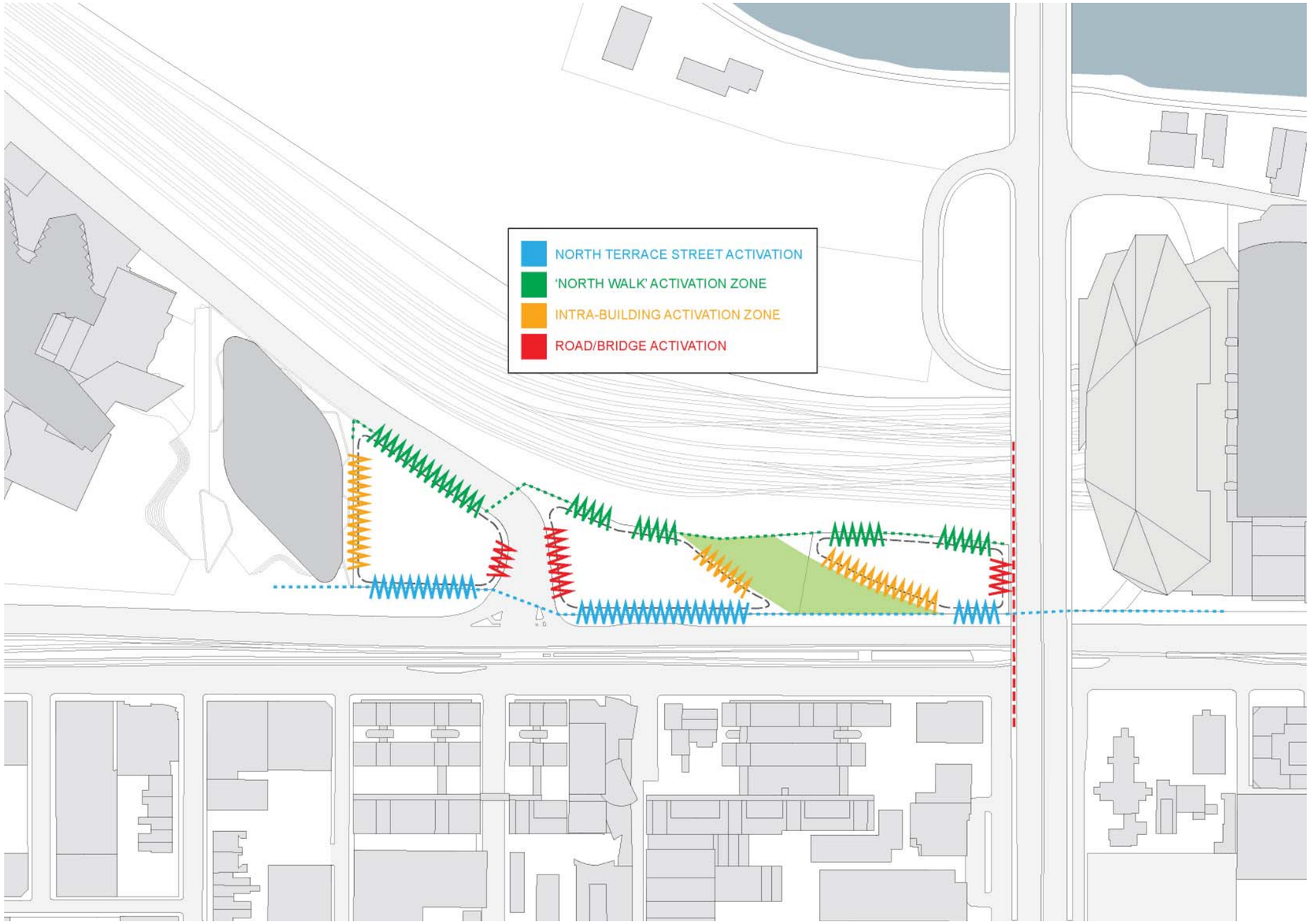
2.7 ACTIVATION ZONES

Intent:

To create a hierarchy of active public building frontages to each side of the building, that specifically engage and address the differing contextual ground level aspects and characteristics.

Design Objectives:

- define North terrace as a unique publically activated space of the city;
- define, engage and activate the ‘Urban Park’ and interstitial building zones;
- define, engage and activate the proposed ‘North Walk’ pedestrian zone;
- define, engage and activate the Eastern Access Road and the Morphett Street Bridge;
- facilitate a range of retail offerings that not only connect with the needs of the proposed building but also create a desirable destination within the immediate surrounds of the South Australian Health and Biomedical Precinct;
- create opportunities for food and beverage tenancies to engage the external spaces of the building / precinct with outdoor seating;
- use transparency to display internal activity and show case functions within the building;



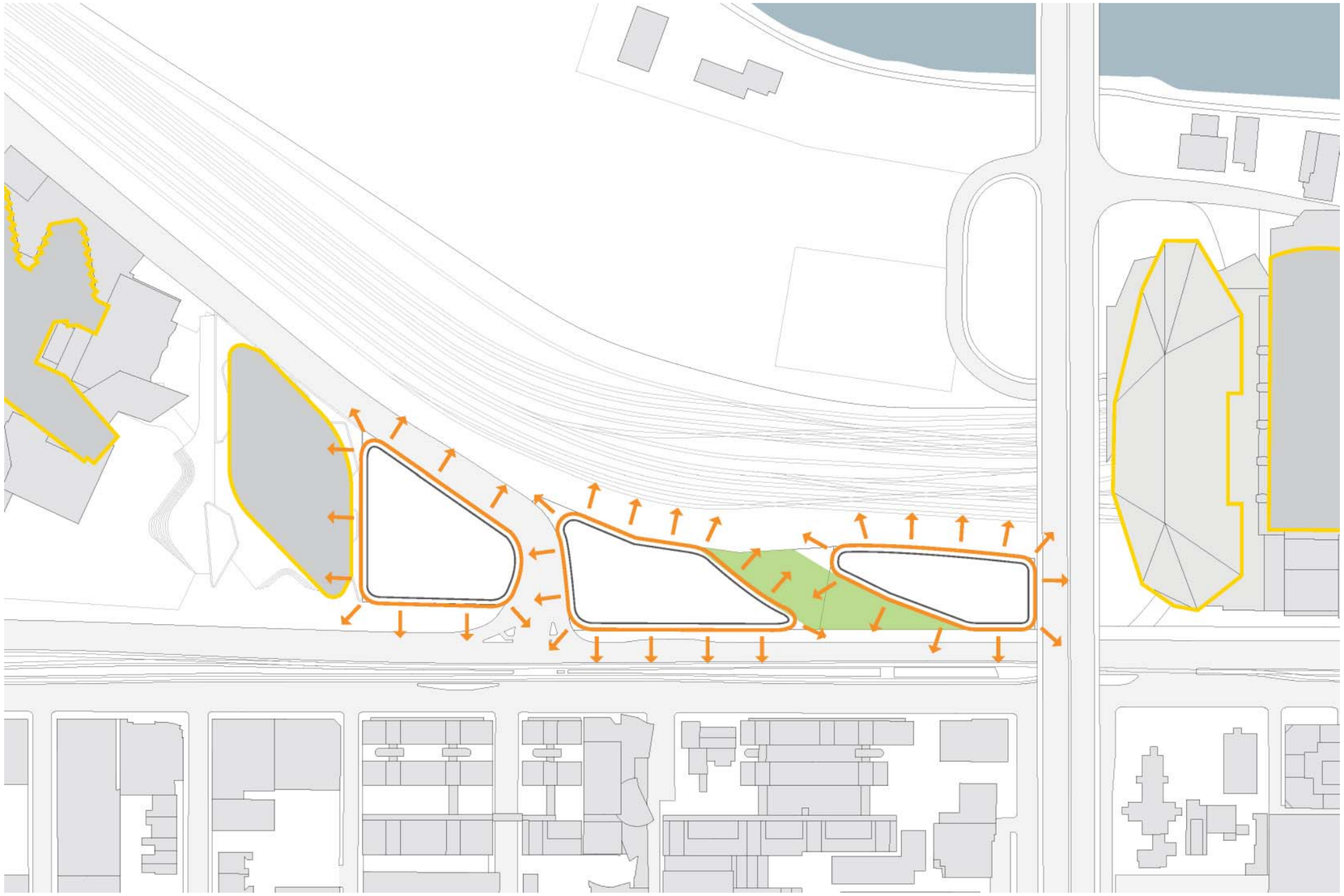
2.8 PAVILIONS IN THE PARK

Intent:

Create a series of separated singular urban buildings that are designed “in the round” to address their dual relationship between the city and the Park Land zone of the Adelaide city edge.

Design Objectives:

- define a singular urban form that relates to the ground plane like a ‘pavilion in the park’ through relief and physical porosity;
- architecturally engage with North Terrace, the city, the Torrens /Riverbank, nRAH, SAHMRI Stage 1 and the Convention Centre;
- define and characterise the proposed buildings as an expression of the parklands context of the city edge, which is different to that which defines buildings within the constraints of the city grid;



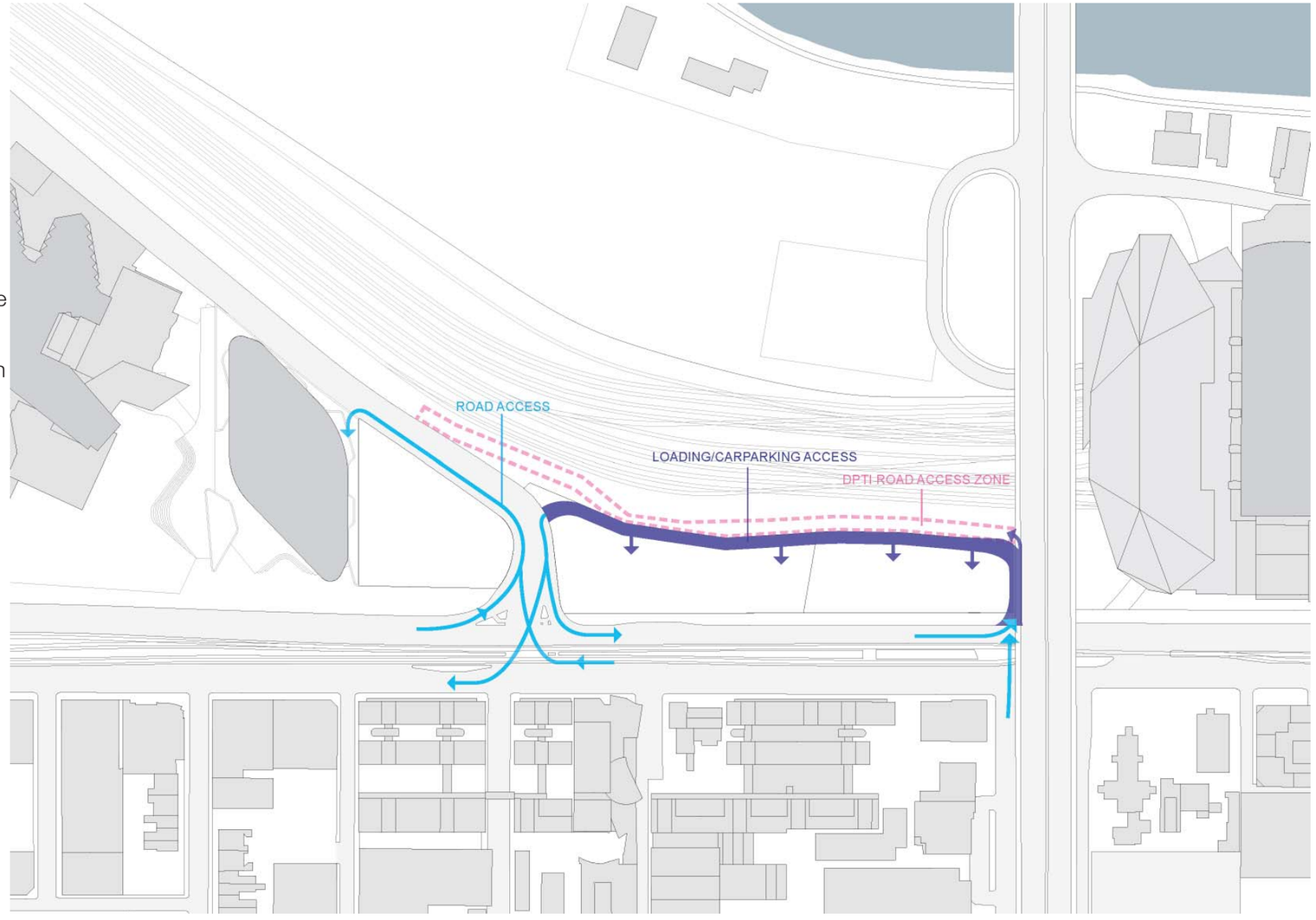
2.9 VEHICULAR ACCESS & LOADING

Intent:

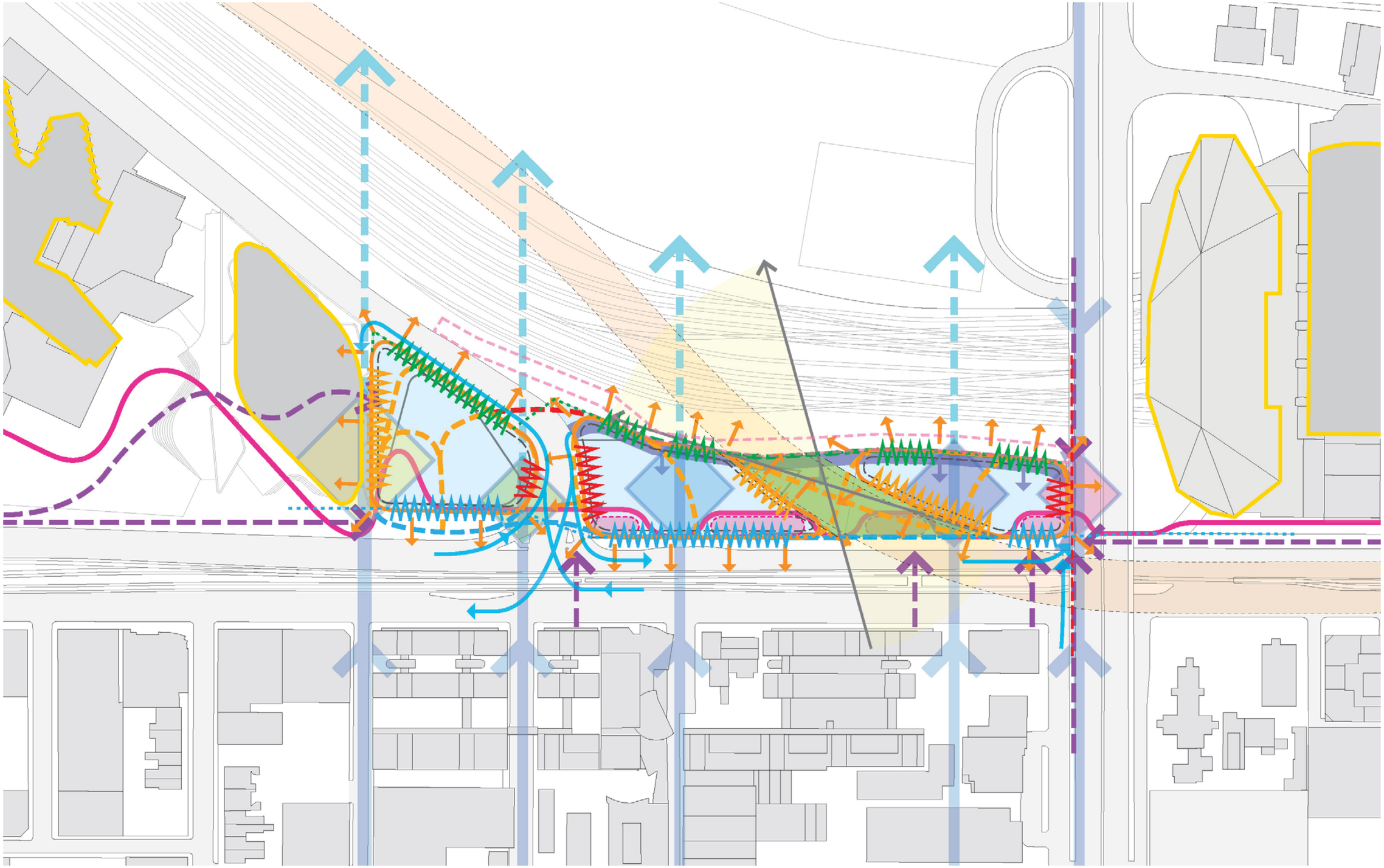
Provide a private roadway for access to the University of Adelaide and University of South Australia sites for the purposes of car parking, drop-off, loading, upgrade/maintenance and deliveries.

Design Objectives:

- provide an access road that is separated from the pedestrian focused access of the 'North Walk' zone and 'Urban Park';
- provide one way access (left turn only) from North Terrace under Morphett Street Bridge;
- provide one way (left turn only) exit into the nRAH Eastern Access Road;
- provide an access from which purpose designed loading and entry zones into University of Adelaide's and University of South Australia's respective sites can be achieved;
- design for provision so that the road can be shared with DPTI for access to the rail corridor as required.



2.10 DESIGN PRINCIPLES OVERLAID



3.0 COMMON TECHNICAL PARAMETERS

The Common Technical Parameters specifically relate to infrastructure that is shared between sites in the South Australian Health and Biomedical Precinct. These items have been resolved and agreed by the Precinct stakeholders to ensure certainty in relation to functional planning and reticulation of engineering services.

3.1 REDEFINED SOUTH AUSTRALIAN HEALTH AND BIOMEDICAL PRECINCT TITLE BOUNDARIES

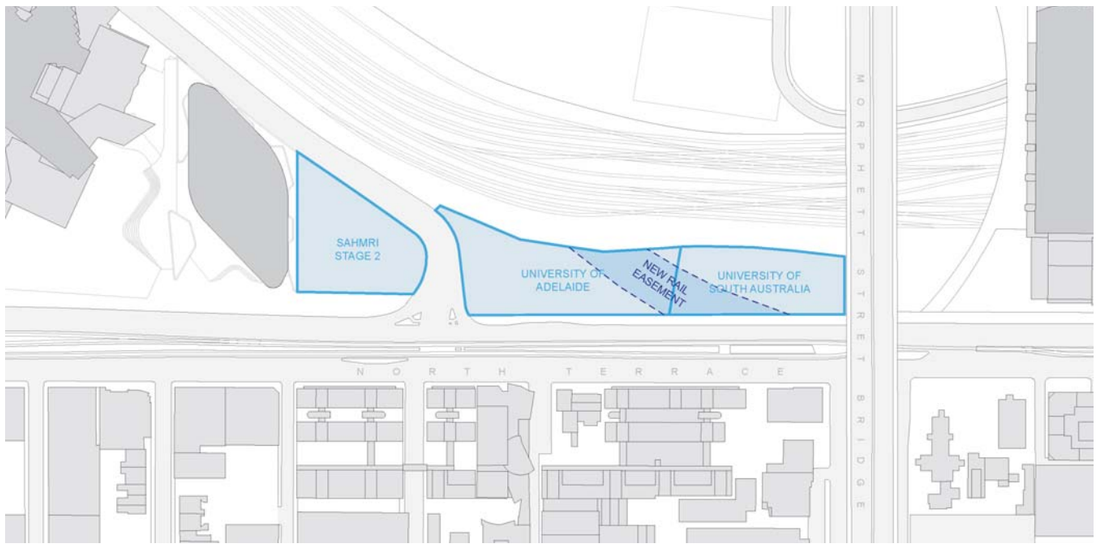
The title boundaries for the sites relating to University of Adelaide and the University of South Australia have been redefined as a result of;

1. Constraints associated with DPTI rail corridor easements.
2. No existing title for the University of South Australia site.
3. Integration of right-of-way easements for vehicular access.

The title boundary adjustments were made in consultation with the following stakeholders:

- Department of Premier & Cabinet
- Adelaide City Council
- Department of Planning, Transport and Infrastructure
- SA Health
- SAHMRI
- University of Adelaide
- University of South Australia

The titles now integrate the necessary DPTI rail easement (noted as 'M' on the title) and right-of-way (noted as 'X' on the title) to ensure the provision of surrounding landholder access requirements and 'through' traffic requirements of the South Australian Health and Biomedical Precinct partners. The title also incorporates and easement for new precinct stormwater infrastructure to be integrated under the existing RAH Eastern Access road (which is currently private) and for a right-of-way into this road for the South Australian Health and Biomedical Precinct Partners to flow traffic into.



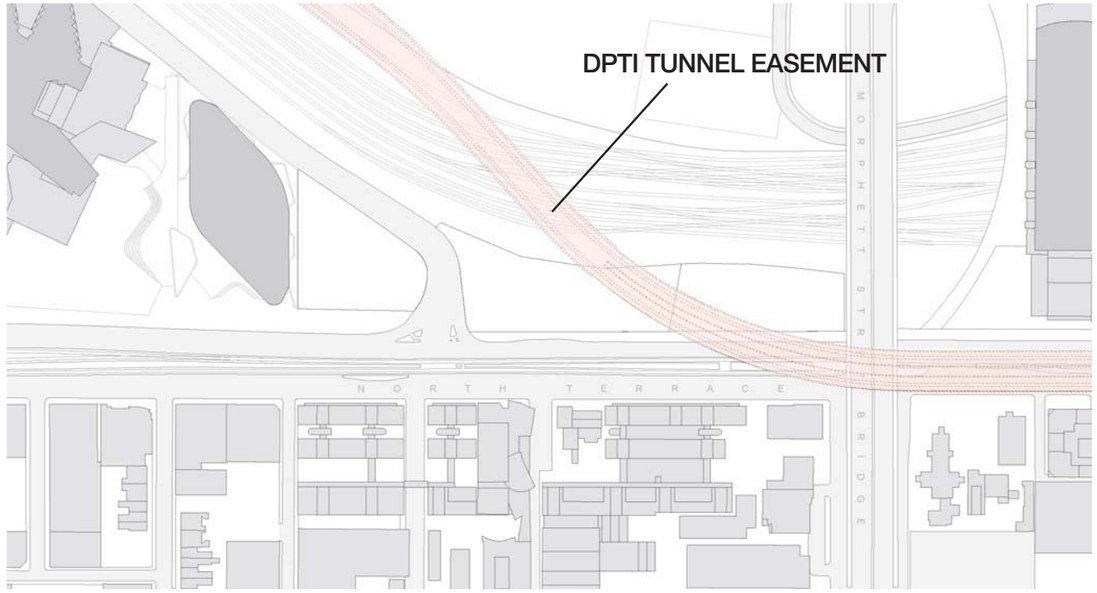
3.2 DPTI RAIL TUNNEL EASEMENT

An easement has been established within the Biomedical Precinct for the proposed future rail tunnel. The easement crosses the boundaries of the sites associated with the University of Adelaide and University of South Australia.

This easement places restrictions relating to underground structures in the zone nominated 'M' on the titles to allow for a future dual rail tunnel system to be developed. It applies below ground through the affected titles, limits the loading capacity and states that all structures are to be built above 21.00 level relative to AHD.

The effective consequence of this easement is to restrict large structures from resting on this portion of the site, to limit the loading on future capacity to construct and maintain viability for a future underground rail tunnel.

The easement zone has been utilised by both the University of Adelaide and the University of South Australia as an opportunity by the affected Biomedical Precinct sites to create an 'Urban Park' and connective landscape over a one level basement structure; meeting both the needs of DPTI and enhancing the Design Principles stated earlier in this framework.



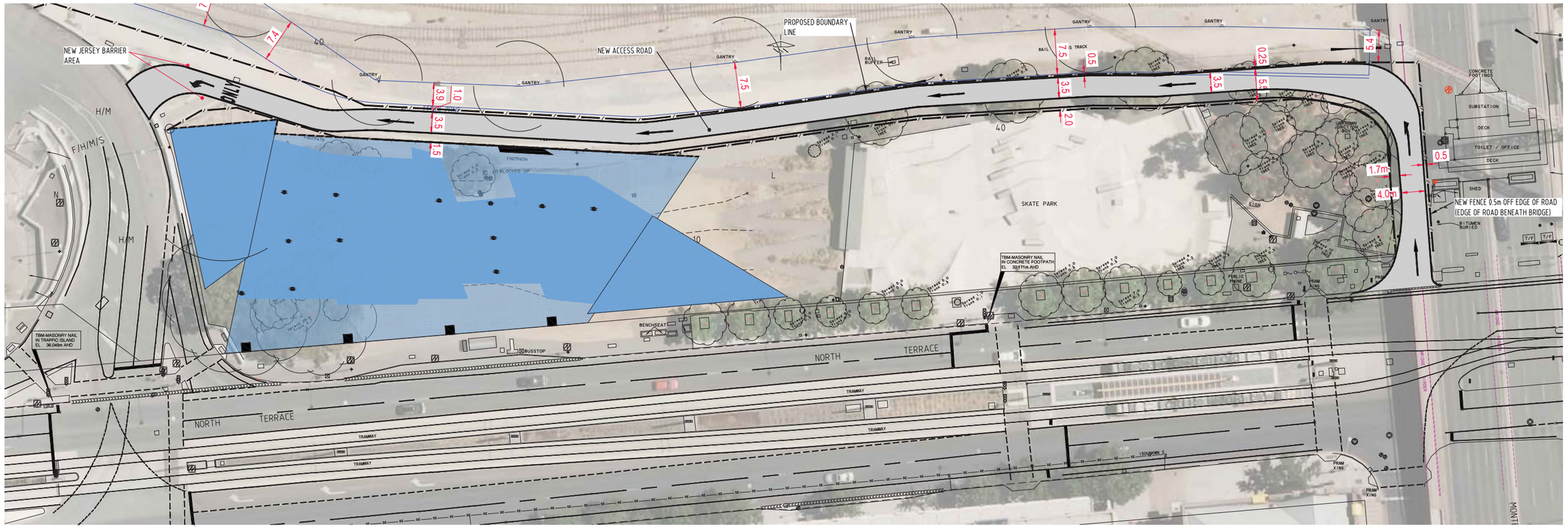
3.3 TRAFFIC STRATEGY

The strategic arrangement for traffic in the Biomedical Precinct is based on the following key initiatives:

- access to the SAHMRI 2 site is via the Eastern Access Road off North Terrace
- the development of a one way private road running parallel with the railway corridor connecting the University of Adelaide and University of South Australia sites. The private road will consist of a single lane one way perimeter roadway that connects North terrace with the private Eastern Access Road;
- entry to both sites from North Terrace will be via an existing argmented DPTI road access from North Terrace on the western side of the Morphett Street Bridge;
- the one-way private road will typical comprise a 0.5m buffer to the northern boundary fence line, a 3.5m kerb to kerb lane and a 1.5m pedestrian pathway. The overall width of 5.5m enables traffic flow to continue in the event of vehicle breaking down and partially obstructing the roadway;
- exiting the private road will be via a left turn only movement onto the new Royal Adelaide Hospital's Eastern Access Road, which connects to North Terrace via a signalised junction. This signalised junction allows vehicles to exit west or east along North Terrace;
- in the event of a train derailment a portion of the northern boundary fence line on the University of Adelaide site can be easily and quickly removed by DPTI, and crane access accommodated through use of both the rail access road and one way perimeter roadway;

The following right of ways will apply along the one way perimeter roadway:

- the eastern section beneath the Morphett Street will be owned and maintained by DPTI, with right of way provided to the University of South Australia and the University of Adelaide;
- the roadway within the University of South Australia site will be owned and maintained by the University of South Australia, with right of way provided to the University of Adelaide;
- the portion of roadway within the University of Adelaide site will be owned and maintained by the University of Adelaide, with right of way provided to the University of South Australia



3.4 STORMWATER STRATEGY

Existing Infrastructure

Two major stormwater systems applicable to the Biomedical Precinct cross North terrace and discharge to Torrens Lake in reasonable vicinity to the site. Other minor street drainage exists along North Terrace. As the site falls away from North Terrace, these have little benefit due to the higher levels to enable gravity drainage.

The first option for discharge is a 1200mm diameter stormwater pipe passing through the new Royal Adelaide hospital (nRAH) site. This was diverted westward thorough the site to avoid the new building footprint. This pipe collects stormwater from the Adelaide City Council (ACC) catchment of 41ha, nRAH and SAHMRI stage 1 site. The pipe is at hydraulic capacity.

This pipe has across pollutant trap (GPT), immediately north of North Terrace.

The second option is the ACC stormwater pipe located immediately west of the Morphett Street bridge. This collects stormwater from a 35ha catchment. The pipe size based on infomation received from council is 1350¢.

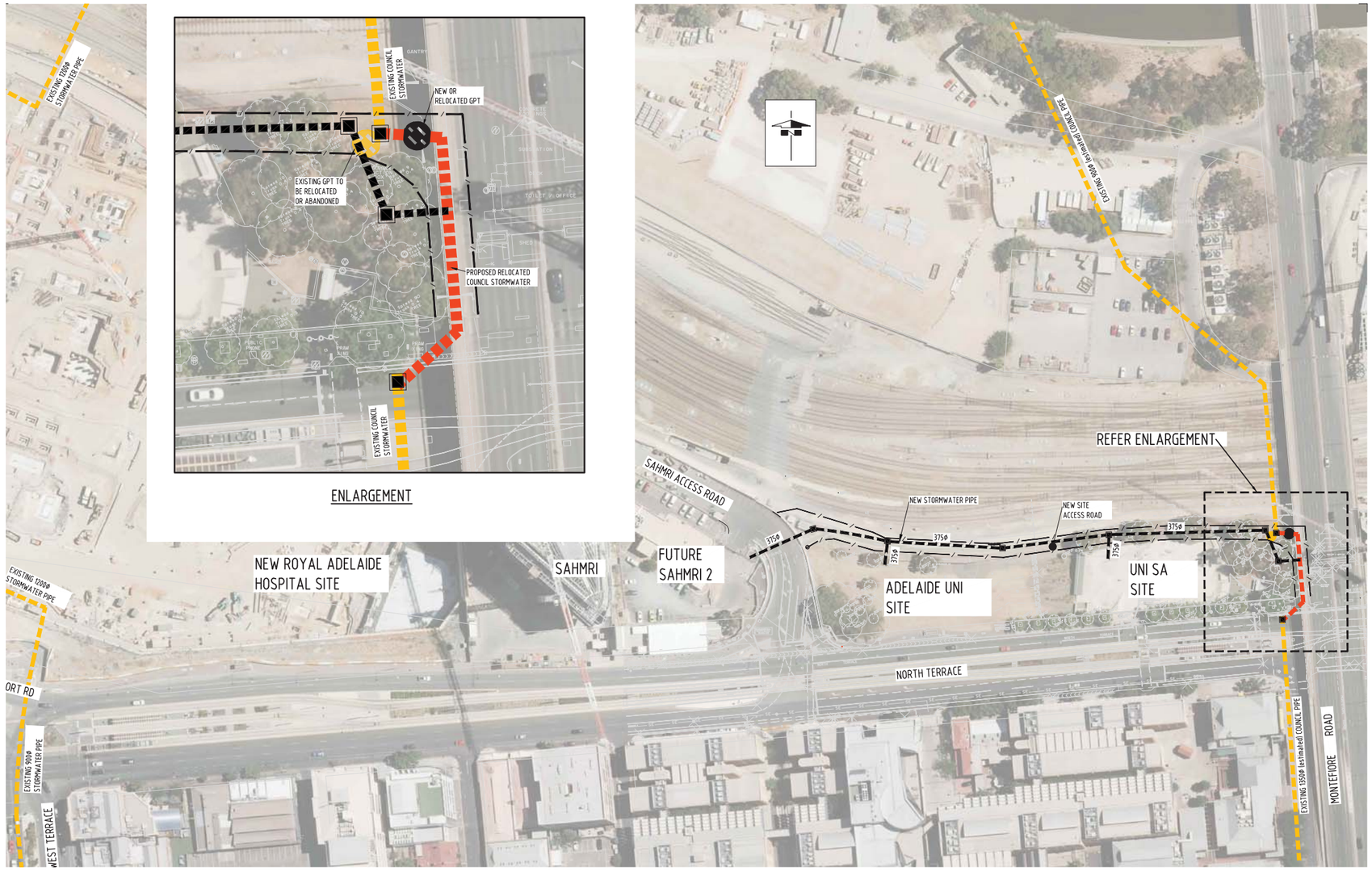
A GPT does exist on the pipe near the northern eastern boundary of the Precinct.

Proposed Strategy

The second option is the most favourable due to its close proximity and likely sufficient capacity. The time of concentration from the 35ha catchment is likely to be at least 30 minutes. Hence, it would be beneficial to discharge site stormwater quickly before the peak flow arrives and detention is not warranted.

On this basis a new proposed stormwater pipe will be constructed along the northern side of the site to collect stormwater from the three sites - SAHMRI 2, University of South Australia and University of Adelaide. Stormwater from SAHMRI 2 requires construction under the existing SAHMRI access road. The existing stormwater looks to encroach upon the proposed building line. Consideration should be given to relocating the 1350 dia pipe and GPT slightly eastward to maximise building area. Council will require a easemount over this infrastructure. The proposed stormwater could link to the diverted pipe and utilise the one GPT.

Stormwater collection will be predominately from roof catchment areas with a small contribution from the landscape zones. Collected reuse water may be utilised for a range of building uses including: toilet flushing and building chillers/reticulation systems.



MASTERPLAN
TOWN + COUNTRY PLANNERS

4 July 2018

Ms Gabrielle McMahon
Principal Planner
Inner Metropolitan Development Assessment
State Commission Assessment Panel
GPO BOX 1815
ADELAIDE SA 5001

By email: Gabrielle.McMahon@sa.gov.au

Dear Ms McMahon

Re: DA 020/A035/18 SAHMRI 2

We refer to the above application and notification of two representations. We provide the following as formal response to those representations. We provide details of the representor, the property affected and the issues raised which, in paraphrased terms, are shown in bold print. Our response to these representations follows each issue.

We note that these representations do not oppose the development but rather seek to control operational activities primarily during construction with one matter only dealing with design. These operational matters are the purview of building and construction management plans for which strict guidelines for construction and environmental management apply.

Representor: *Nicholas Economos*

Property Affected: *31-34 North Terrace – Adelaide Riviera Hotel*

Representation: **After hours disruptive noise and dust**

Response: The development of sites such as that proposed is inevitable. The construction will be undertaken in accordance with all relevant construction management and environmental management standards, specifications, processes and practices, such as those required by the Environmental Protection Authority (EPA). This includes, but is not limited to, hours of operation, dust and air quality and acoustic environment.

Representor: *University of Adelaide*

We note that the representation divides the commentary under two headings, the first is operational issues and the second Design issues. This distinction is identified below.

Property Affected: *Lot 100 Corner George Street and North Terrace – Adelaide Health and Medical Sciences*

Operation

Representation: **Need to address vibration or excessive noise to ensure research and breeding activities are not affected**

Response: The development of the land is required to meet all relevant construction management and environmental management standards, specifications, processes and practices, such as those required by the Environmental Protection Authority (EPA). This includes but is not limited to hours of operation, vibration, dust and air quality and acoustic environment.

Representation: **Maintenance of access on eastern access road**

Response: It is proposed to maintain access along the "eastern Access Road" George Street. Any proposals that affect this would be subject to the relevant approval processes and in consultation with the land owner and interested parties of the eastern access road.

Representation: **Dilapidation Report**

Response: A dilapidation report will be prepared.

Representation: **Contractor Management to ensure induction of workers including interaction with neighbouring staff and students**

Response: This is standard practice in Construction Management Plans.

Representation: **Services interruption to be notified.**

Response: Where and if necessary, notification will be provided where such activity is in the control of the SAHMRI development.

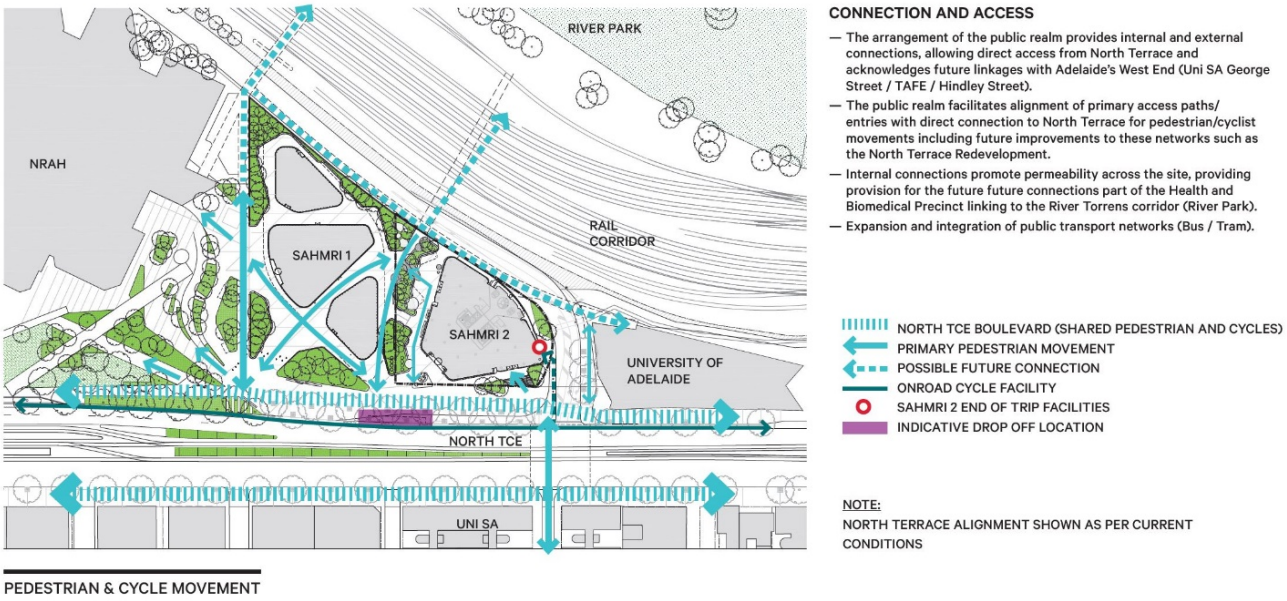
Representation: **AHMS Façade cleaning**

Response: Normal processes will be followed to ensure no unreasonable impacts occur as a consequence of construction activities. No commitment will be made as to the cleaning of the façade of the university building as there are many factors that influence the air quality in this environment.

Design

Representation: **The design statement does not reference the Common Development Framework (CDF) and promotes links to the north along the northern walkway to Morphett Street Bridge.**

Response: The design reflects the broad CDF desired outcomes. We acknowledge that the CDF has been referenced in the consideration of development proposals in this precinct. The Planning report on pages 4, 5 and 6 addresses the requirements of the Development Plan for connections as depicted in the Pedestrian and Cycle Movement Figure below. This Figure shows the way the proposal relates to the connections in the immediate locality. The linkages and connections created by the proposal allows connection with the proposed northern walk via George Street. However, it does not preclude the opportunity for a bridge connection by others from the plaza area between SAHMRI 1 and SAHMRI 2 which could also link the north side of George Street from the Plaza level. This could serve the facilities to the east and west of the Plaza and create a direct and more visible and prominent connection from North Terrace.



PEDESTRIAN & CYCLE MOVEMENT

If the connection was placed along the northern face of SAHMRI 2 its location and degree of accessibility would be obscured from those on North Terrace.

The CDF is a guiding document only with no statutory function. In the alternative, the links that are depicted on the Figure above will provide better future possible connections thus refining and informing the CDF concept.

Due to the land profile, the footpath and bike path are located along the western edge of George Street and are readily connected to the end of trip facilities and the pathways along North Terrace. This is a most appropriate design response. The Development Plan on Figure Rb/2 depicts a northern connector further to the west on the western side of SAHMRI 1.

The proposal satisfies Principles of Development Control 12, 13 and 14 as it encourages pedestrian and cycle links and circulation with minimal vehicle conflict. We refer also to the commentary on page 4 of the planning report which states:

The proposal does not prejudice the Development Plan with particular reference to PDC's 12, 13 and 14 and Figure Rb/2 and provides a development that integrates and connects with the features and facilities in the precinct.

Conclusion

The submissions made in relation to operational matters are relevant to the building and construction phases of the development and not relevant to the land use, form and function considerations as set out in the Development Plan.

The representations can be adequately accommodated through the normal construction and environmental management standards for this type of development.

The proposal as detailed in the development application and associated documents satisfies the provisions of the Development Plan, the detail of which is annunciated in the MasterPlan Planning Report dated April 2018.

We respectfully request that the Planning Authority agree with our conclusion that the project satisfies the Development Plan and therefore warrants approval.

Yours sincerely

Simon Tonkin
MasterPlan SA Pty Ltd

ATTACHMENT A – RELEVANT POLICIES

Adelaide (City) Development Plan Policies – 20 June 2017 (DPA gazetted 19 December 2017)

RELEVANT DEVELOPMENT PLAN PROVISIONS

The Objectives and Principles of Development Control in the Development Plan most relevant to the assessment of the application are outlined as follows. These are contained in the Adelaide (City) Development Plan

RIVERBANK ZONE

Introduction

The Desired Character, Objectives and Principles of Development Control that follow apply in the whole of the Riverbank Zone shown on Maps Adel/12, 16, 17 and 18 and Figures Rb/1, 2 and 3. They are additional to those expressed for the whole of the Council area and in cases of apparent conflict, take precedence over the more general provisions. In the assessment of development, the greatest weight is to be applied to satisfying the Desired Character for the Zone.

DESIRED CHARACTER

This Zone is part of Adelaide's great park. The Zone punctuates the change from the high intensity and defined edge of the City Centre, to the natural environment of the Torrens Valley. The Zone connects the City to the Park Lands and provides an active edge to the River Torrens that enhances its use for recreation and leisure activities.

The Zone will accommodate a range of land uses including parliamentary and administrative activities, cultural facilities, entertainment venues, conference facilities, offices, shops, hotels, serviced apartments, tourist accommodation, consulting rooms, public transport hubs, public open spaces, reserves and pedestrian and cycling networks.

Buildings in the Zone will be exemplary in their design quality and will enhance their setting among landscaped public spaces, heritage buildings and culturally significant activities and not diminish their contribution and character. Buildings will contribute significantly and positively to the City skyline through contemporary and innovative design. Buildings will be significant in their own right but also complement existing development and allow the significance of the heritage buildings to continue to be appreciated from public areas. Development in this Zone will have an emphasis on sustainable design principles including energy efficiency and water sensitive urban design.

There will be a general transition in height through the Zone with taller buildings closer to North Terrace and along Montefiore Road (between North Terrace and the central pathway shown in Figures Rb/2 and 3) and lower buildings at the interface with the River Torrens.

The ground floors of buildings will be visually interesting, active, allow views into and out of the buildings, well lit, of human scale and provide opportunities for passive surveillance.

Well defined and accessible public spaces will provide civic entries to the Zone and include active and visually permeable frontages to create a sense of address, destination and identity at the pedestrian level. Key physical and visual connections through the Zone and views of heritage buildings including those depicted in Figures Rb/2 and 3 will be maintained and respected.

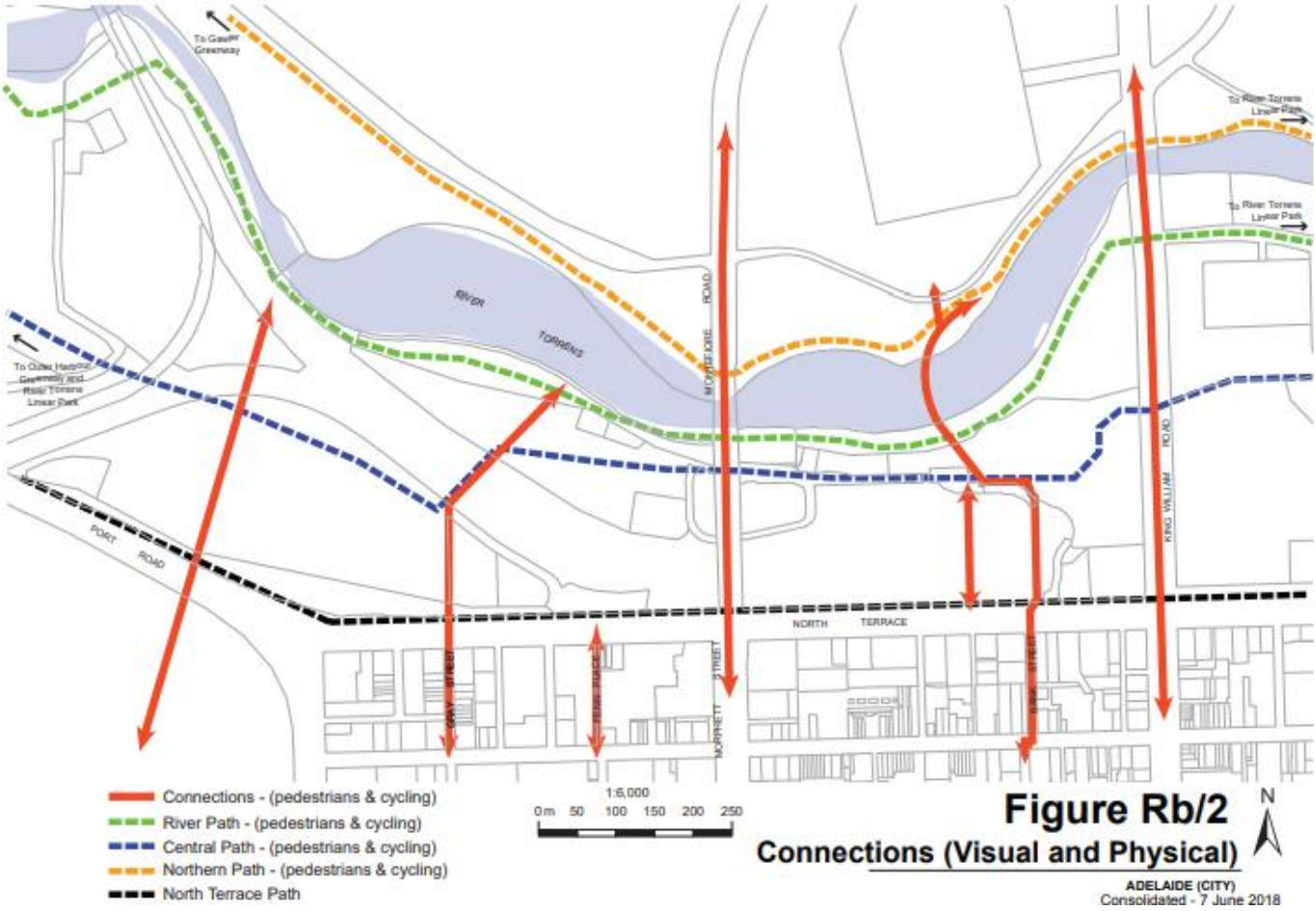
Public spaces will be responsive to the local climate and include features that provide both shade and solar access at appropriate times. Public art, landscaping, surfaces and materials will be exemplary in quality and appearance and inviting for the public to visit and remain comfortable for extended periods of time.

The formal avenue planting along North Terrace and King William Road will be maintained and reinforced, while elsewhere in the Zone the informal planting character on the edge of the Torrens Valley along Festival Drive will be further developed and extended.

Pedestrian and cycling access and permeability are paramount to the successful activation and vibrancy of the Zone and will be separated from vehicle movement. Existing pedestrian and cycling connections, including the Gawler Greenway, Outer Harbor Greenway and River Torrens Linear Park trail, should not be compromised particularly those connections shown on Figures Rb/2 and 3. These connections will link the Zone with the city and the River Torrens. A central pathway will allow people to walk and ride through and within the Zone from East to West and connect with the North to South pathways. The central pathway will be a single plane surface designed primarily for pedestrians and will link key buildings and public areas within the Zone.

Service roads, loading areas vehicle entry points to car parking areas will give priority to and not obstruct the movement of pedestrian and cyclists throughout the Zone.

Parts of the Zone are known to be contaminated and may require further assessment as part of development proposals particularly where it involves sensitive uses.



Objective 1: High quality design with contemporary and innovative architecture that is respectful of the heritage buildings, parklands character and civic functions of the locality.

Objective 2: A fine grained precinct with a quality public realm that is inviting and comfortable for pedestrians.

Objective 3: Strong visual and physical connections between important buildings, public spaces and the River Torrens and Park Lands.

Land use

1 The following types of development, or combination thereof, are envisaged in the Zone:

Accommodation including temporary accommodation
Child care facility
Cafe
Consulting room
Hotel
Motel
Office
Open space
Restaurant
Passenger rail facility
Passenger tram facility
Serviced apartments
Shop
Stormwater and rainwater capture, storage, treatment and re-use
Tourist accommodation

2 Development at ground level should include active uses such as cafes, restaurants and shops that contribute to the vibrancy of the public realm.

Form and character
3 Development should be consistent with the desired character for the Zone.

4 Development should be designed to respect the landscape setting and biodiversity provided by the Torrens Valley and Adelaide Park Lands.

5 Development should be compatible with the topography of the site and change in character from a strong city edge on the southern side of North Terrace to the landscaped setting provided by the River Torrens and Adelaide Park Lands.

6 Development should reinforce the grand boulevard character of North Terrace and King William Road.

Design and appearance
7 Buildings should be of a high design quality and provide contemporary architectural responses to their setting.

8 Development should:
(a) contribute to the activation of the public realm by presenting an attractive human scaled pedestrian-oriented frontage at ground level that adds interest and vibrancy;
(b) contribute to pedestrian comfort by minimising micro climatic impacts;
(c) maintain a sense of openness to the sky for pedestrians and allow sunlight access to the public realm, particularly plaza areas during the Spring and Autumn; and
(d) provide a clear sense of address to each building.

9 Development should be coordinated within the precinct to include a variety of pleasant and interesting landscaped spaces among and adjacent to buildings, ranging from those suitable for group meetings and social activities to those for quiet retreat and relaxation. These spaces, the pedestrian links between them, and internal access roads should be landscaped with trees and other plantings to create pleasant environments and soften the built form.

10 Pedestrian shelter should be achieved through a combination of trees and canopies attached to buildings. Any free-standing form of pedestrian shelter should be designed as an integral part of open space and landscaping.

11 Development should provide a safe night-time environment along streetscapes, pedestrian and cycle paths and building surrounds by the arrangement of buildings and active building frontages that enhance casual surveillance and provide appropriate lighting and clear lines of sight.

Movement
12 Pedestrian movement should be based on a network of pedestrian access ways or thoroughfares, linking the surrounding Zones and giving a variety of north-south and east-west links, as indicated on Map Adel/1 (Overlay 2A), Map Adel/49 and Figures Rb/1, 2 and 3.

13 Development should be designed to encourage pedestrian/bicycle circulation at the North Terrace level and create connections between North Terrace and the River Torrens linear park at key pedestrian focal points.

14 Pedestrian movement should be a priority within the Zone and designed to be free from vehicle conflict.

15 Development should provide the vast majority of car parking spaces in undercroft/basement areas.

16 Where vehicle parking is provided at ground level or above, it should be designed to:
(a) minimise the extent of parking that is visible from public areas to that which is required for emergency service vehicles, temporary event parking and set down (drop off) functions;
(b) not be located at ground floor street frontages or detract from the provision of active street frontages; and
(c) incorporate façade treatments along major street frontages that are sufficiently enclosed and detailed to complement neighbouring buildings and screen vehicle parking from view from public areas and other buildings.

Stormwater
17 Development should incorporate a range of water sensitive urban design measures that minimise water quality impacts on the River Torrens, such as stormwater treatment, harvesting and reuse.

Advertising
18 Advertisements should be designed to achieve an overall consistency of appearance and be of a type, scale and image that complement the zone.

19 Temporary banners and illuminated advertisings are appropriate in the Zone.

HEALTH POLICY AREA 27

Introduction
The Objectives and Principles of Development Control that follow apply to the Policy Area as shown on Maps Adel/43, 47, 48 and 49. They are additional to those expressed for the Zone and, in cases of apparent conflict, take precedence over the Zone provisions. In the assessment of development, the greatest weight is to be applied to satisfying the Desire Character for the Policy Area

DESIRED CHARACTER
The Health Policy Area will accommodate a range of medical and health facilities including a hospital, medical research, training and education as well as a range of ancillary land uses that provide services for staff, students, researchers, patients and visitors; including temporary accommodation.

Buildings along North Terrace will be designed to be viewed from all sides, promoting open spaces between adjacent buildings in contrast to the strong built form edge in the Capital City Zone.

Buildings along Montefiore Road (between North Terrace and the central pathway shown in Figures Rb/2 and 3) will contain a range of uses that are complementary to both the Health Policy Area and the adjoining Entertainment Policy Area and will include temporary accommodation, tourist accommodation, conference facilities, hotels and serviced apartments and be designed to integrate and activate the street frontage and provide direct pedestrian access from Montefiore Road, Festival Drive and North Terrace.

OBJECTIVES
Objective 1: A health precinct that creates an identifiable and unified city precinct with strong connections to the Torrens River, North Terrace, the Royal Adelaide Hospital and wider city.

Objective 2: A Policy Area accommodating a hospital, clinical and health training, research and educational facilities and associated uses such as accommodation, cafes, small-scale shops selling convenience goods and helicopter landing areas.

PRINCIPLES OF DEVELOPMENT CONTROL

Land use
1 The following types of development or combination thereof, are envisaged in the Policy Area and are additional to those envisaged for the Zone:

Clinical and health training,
research,
manufacturing and educational facilities
Consulting room Educational establishment Health centre
Helicopter landing areas, lighting for night operations and associated communication equipment
Hospital

Form and character
2 Buildings fronting North Terrace should generally be up to 15 storeys in height, subject to compliance with the Commonwealth Airports (Protection of Airspace) Regulations, to reinforce the boulevard character of North Terrace and to have a relationship, appropriate in scale with buildings in the Policy Area and along the North Terrace edge of the Capital City Zone.

3 Buildings taller than 15 storeys may be contemplated where design excellence can be demonstrated and the Commonwealth Airports (Protection of Airspace) Regulations can be met.

4 Buildings north of the central pathway should be designed to provide an active edge to the River Torrens and should be of a low scale commensurate with the landscape setting.

5 Development should incorporate landscaped forecourts and/or public meeting spaces as transition spaces between North Terrace and buildings within the Zone.

6 Development should be serviced by vehicular access points from North Terrace and Port Road that provide for convenient, safe and legible controlled access for ambulances, emergency dropoff for the public and general goods and services vehicles, as well as vehicle access for patient drop-off, and visitor and staff parking.

7 Development should provide for a satisfactory interface to roads and railways by addressing issues of access, safety, security, noise, air emissions and vibration so that:
(a) the effective and efficient operation of the road system and rail service adjacent to the Zone is not detrimentally affected; and
(b) the potential for adverse impacts on hospital occupants and activities as a result of road traffic and the operation of rail services adjacent to the Zone is minimised.

8 Development should be sited and designed to enable the continued operation of rail and road services within and adjacent to the Zone.

COUNCIL WIDE

Living Culture

Objective 1: The City of Adelaide as the prime meeting place and cultural focus for the people of metropolitan Adelaide and the State.

Objective 2: The City of Adelaide as a major focus for tourism, conventions, leisure, entertainment, sport and recreation, education, cultural development and the arts.

Objective 3: Development that enhances the public environment and provides interest at street level.

1 Development should, where appropriate, integrate public art into the design of new or refurbished building sites in a manner which is integrated with and commensurate in scale with, the new or refurbished buildings. For the purpose of enhancing the public environment, public art should:
(a) demonstrate artistic excellence and innovation in design;
(b) be made of high quality materials;
(c) enhance the setting of new development;
(d) be integrated into the design of the building and the surrounding environment;
(e) consider any existing public art works; and
(f) not hinder sight lines or create entrapment spots.

Built Form and Townscape

Objective 46: Reinforcement of the city's grid pattern of streets through:
(a) high rise development framing city boulevards, the Squares and Park Lands
(b) vibrant main streets of a more intimate scale that help bring the city to life
(c) unique and interesting laneways that provide a sense of enclosure and intimacy

Objective 47: Buildings should be designed to:
(a) reinforce the desired character of the area as contemplated by the minimum and maximum building heights in the Zone and Policy Area provisions;
(b) maintain a sense of openness to the sky and daylight to public spaces, open space areas and existing buildings;
(c) contribute to pedestrian safety and comfort; and
(d) provide for a transition of building heights between Zone and Policy Areas where building height guidelines differ.

Objective 48: Development which incorporates a high level of design excellence in terms of scale, bulk, massing, materials, finishes, colours and architectural treatment.

Height, Bulk and Scale

168 Development should be of a high standard of design and should reinforce the grid layout and distinctive urban character of the City by maintaining a clear distinction between the following:
(a) the intense urban development and built-form of the town acres in the Capital City, Main Street, City Frame and Residential Zones;
(b) the less intense and more informal groupings of buildings set within the landscaped environment of the Institutional Zones;
(c) The historic character of the North Adelaide Historic (Conservation) Zone; and
(d) the open landscape of the Park Lands Zone.

169 The height and scale of development and the type of land use should reflect and respond to the role of the street it fronts as illustrated on Map Adel/1 (Overlay 1).

170 The height, scale and massing of buildings should reinforce:
(a) the desired character, built form, public environment and scale of the streetscape as contemplated within the Zone and Policy Area, and have regard to:
(i) maintaining consistent parapet lines, floor levels, height and massing with existing buildings consistent with the areas desired character;
(ii) reflecting the prevailing pattern of visual sub-division of neighbouring building frontages where frontages display a character pattern of vertical and horizontal sub-divisions; and
(iii) avoiding massive unbroken facades.
(b) a comfortable proportion of human scale at street level by:
(i) building ground level to the street frontage where zero set-backs prevail;
(ii) breaking up the building facade into distinct elements;
(iii) incorporating art work and wall and window detailing; and
(iv) including attractive planting, seating and pedestrian shelter.

171 Where possible, large sites should incorporate pedestrian links and combine them with publicly accessible open space.

172 Buildings and structures should not adversely affect by way of their height and location the longterm operational, safety and commercial requirements of Adelaide International Airport. Buildings and structures which exceed the heights shown in Map Adel/1 (Overlay 5) and which penetrate the Obstacle Limitation Surfaces (OLS) should be designed, marked or lit to ensure the safe operation of aircraft within the airspace around the Adelaide International Airport.

Composition and Proportion

180 Development should respect the composition and proportion of architectural elements of building facades that form an important pattern which contributes to the streetscape's distinctive character in a manner consistent with the desired character of a locality by:
(a) establishing visual links with neighbouring buildings by reflecting and reinforcing the prevailing pattern of visual sub-division in building facades where a pattern of vertical and/or horizontal sub-divisions is evident and desirable, for example, there may be strong horizontal lines of verandahs, masonry courses, podia or openings, or there may be vertical proportions in the divisions of facades or windows; and
(b) clearly defining ground, middle and roof top levels.

181 Where there is little or no established building pattern, new buildings should create new features which contribute to an areas desired character and the way the urban environment is understood by:
(a) frontages creating clearly defined edges;
(b) generating new compositions and points of interest;
(c) introducing elements for future neighbouring buildings; and
(d) emphasising the importance of the building according to the street hierarchy.

Articulation and Modelling

182 Building facades fronting street frontages, access ways, driveways or public spaces should be composed with an appropriate scale, rhythm and proportion which responds to the use of the building, the desired character of the locality and the modelling and proportions of adjacent buildings

186 Building services such as drainage pipes together with security grills/screens, ventilation louvers and car park entry doors, should be coordinated and integrated with the overall facade design.

Materials, Colours and Finishes

187 The design, external materials, colours and finishes of buildings should have regard to their surrounding townscape context, built form and public environment, consistent with the desired character of the relevant Zone and Policy Area.

188 Development should be finished with materials that are sympathetic to the design and setting of the new building and which incorporate recycled or low embodied energy materials. The form, colour, texture and quality of materials should be of high quality, durable and contribute to the desired character of the locality. Materials, colours and finishes should not necessarily imitate materials and colours of an existing streetscape.

189 Materials and finishes that are easily maintained and do not readily stain, discolour or deteriorate should be utilised.

190 Development should avoid the use of large expanses of highly reflective materials and large areas of monotonous, sheer materials (such as polished granite and curtained wall glazing).

Corner Sites

191 New development on major corner sites should define and reinforce the townscape importance of these sites with appropriately scaled buildings that:
(a) establish an architectural form on the corner;
(b) abut the street frontage; and
(c) address all street frontages.

Sky and Roof Lines

Objective 49: Innovative and interesting skylines which contribute to the overall design and performance of the building.

192 Where a prevailing pattern of roof form assists in establishing the desired character of the locality, new roof forms should be complementary to the shape, pitch, angle and materials of adjacent building roofs.

193 Buildings should be designed to incorporate well designed roof tops that:
(a) reinforce the desired character of the locality, as expressed in the relevant Zone or Policy Area;
(b) enhance the skyline and local views;
(c) contribute to the architectural quality of the building;
(d) provide a compositional relationship between the upper-most levels and the lower portions of the building;
(e) provide an expression of identity;
(f) articulate the roof, breaking down its massing on large buildings to minimise apparent bulk;
(g) respond to the orientation of the site; and
(h) create minimal glare.

194 Roof top plant and ancillary equipment that projects above the ceiling of the top storey should:
(a) be designed to minimise the visual impact; and
(b) be screened from view, including the potential view looking down or across from existing or possible higher buildings, or be included in a decorative roof form that is integrated into the design of the building.

195 Roof design should facilitate future use for sustainable functions such as:
(a) rainwater tanks for water conservation;
(b) roof surfaces orientated, angled and of suitable material for photovoltaic applications; and/or
(c) “green” roofs (ie roof top gardens structurally capable of supporting vegetation) or water features.

Active Street Frontages

Objective 50: Development that enhances the public environment and, where appropriate provides activity and interest at street level, reinforcing a locality's desired character.

Objective 51: Development designed to promote pedestrian activity and provide a high quality experience for City residents, workers and visitors by:
(a) enlivening building edges;
(b) creating welcoming, safe and vibrant spaces;
(c) improving perceptions of public safety through passive surveillance; and
(d) creating interesting and lively pedestrian environments.

196 Development should be designed to create active street frontages that provide activity and interest to passing pedestrians and contribute to the liveliness, vitality and security of the public realm.

197 Retail frontages should be designed to provide interest to passing pedestrians at street level and relief to building mass.

DEMOLITION

Objective 53: Where demolition of an existing building is proposed, the replacement building is designed and sited to achieve the purposes of the relevant Zone and Policy Area and to provide for quality urban design.

203 The demolition of any building should not occur unless Development Approval for a replacement development has been granted. Exceptions may only be granted:
(a) for documented reasons of public health or safety agreed by the planning authority or alternatively agreed by a statutory order; or
(b) where located within the Park Lands Zone.

Should the replacement development not commence within 12 months of the granting of Development Approval, then landscaping of the site should be undertaken.

Environmental

Crime Prevention Through Urban Design

Objective 24: A safe and secure, crime resistant environment that:
(a) ensures that land uses are integrated and designed to facilitate natural surveillance;
(b) promotes building and site security; and
(c) promotes visibility through the incorporation of clear lines of sight and appropriate lighting.

82 Development should promote the safety and security of the community in the public realm and within development. Development should:
(a) promote natural surveillance of the public realm, including open space, car parks, pedestrian routes, service lanes, public transport stops and residential areas, through the design and location of physical features, electrical and mechanical devices, activities and people to maximise visibility by:
(i) orientating windows, doors and building entrances towards the street, open spaces, car parks, pedestrian routes and public transport stops;
(ii) avoiding high walls, blank facades, carports and landscaping that obscures direct views to public areas
(iii) arranging living areas, windows, pedestrian paths and balconies to overlook recreation areas, entrances and car parks;
(iv) positioning recreational and public space areas so they are bound by roads on at least two road frontages or overlooked by development;

(v) creating a complementary mix of day and night-time activities, such as residential, commercial, recreational and community uses, that extend the duration and level of intensity of public activity;
(vi) locating public toilets, telephones and other public facilities with direct access and good visibility from well-trafficked public spaces;
(vii) ensuring that rear service areas and access lanes are either secured or exposed to surveillance; and
(viii) ensuring the surveillance of isolated locations through the use of audio monitors, emergency telephones or alarms, video cameras or staff eg by surveillance of lift and toilet areas within car parks.

(b) provide access control by facilitating communication, escape and path finding within development through legible design by:
(i) incorporating clear directional devices;
(ii) avoiding opportunities for concealment near well travelled routes;
(iii) closing off or locking areas during off-peak hours, such as stairwells, to concentrate access/exit points to a particular route;
(iv) use of devices such as stainless steel mirrors where a passage has a bend;
(v) locating main entrances and exits at the front of a site and in view of a street;
(vi) providing open space and pedestrian routes which are clearly defined and have clear and direct sightlines for the users; and
(vii) locating elevators and stairwells where they can be viewed by a maximum number of people, near the edge of buildings where there is a glass wall at the entrance.

(c) promote territoriality or sense of ownership through physical features that express ownership and control over the environment and provide a clear delineation of public and private space by:
(i) clear delineation of boundaries marking public, private and semi-private space, such as by paving, lighting, walls and planting;
(ii) dividing large development sites into territorial zones to create a sense of ownership of common space by smaller groups of dwellings; and
(iii) locating main entrances and exits at the front of a site and in view of a street.

(d) provide awareness through design of what is around and what is ahead so that legitimate users and observers can make an accurate assessment of the safety of a locality and site and plan their behaviour accordingly by:
(i) avoiding blind sharp corners, pillars, tall solid fences and a sudden change in grade of pathways, stairs or corridors so that movement can be predicted;
(ii) using devices such as convex security mirrors or reflective surfaces where lines of sight are impeded;
(iii) ensuring barriers along pathways such as landscaping, fencing and walls are permeable;
(iv) planting shrubs that have a mature height less than one metre and trees with a canopy that begins at two metres;
(v) adequate and consistent lighting of open spaces, building entrances, parking and pedestrian areas to avoid the creation of shadowed areas; and
(vi) use of robust and durable design features to discourage vandalism.

85 Security features should be incorporated within the design of shop fronts to complement the design of the frontage and allow window shopping out of hours. If security grilles are provided, these should:
(a) be transparent and illuminated to complement the appearance of the frontage;
(b) provide for window shopping; and
(c) allow for the spill of light from the shop front onto the street.

Solid shutters with less than 75 percent permeability are not acceptable.

Noise Emissions

Objective 26: Development that does not unreasonably interfere with the desired character of the locality by generating unduly annoying or disturbing noise.

Objective 27: Noise sensitive development designed to protect its occupants from existing noise sources and from noise sources contemplated within the relevant Zone or Policy Area and that does not unreasonably interfere with the operation of non-residential uses contemplated within the relevant Zone or Policy Area.

Noise Sources

89 Development with potential to emit significant noise (including licensed entertainment premises and licensed premises) should incorporate appropriate noise attenuation measures in to their design to prevent noise from causing unreasonable interference with the amenity and desired character of the locality, as contemplated in the relevant Zone and Policy Area.

90 Development of licensed premises or licensed entertainment premises or similar in the Capital City, Main Street and City Frame Zones should include noise attenuation measures to achieve the following when assessed at:

(a) the nearest existing noise sensitive location in or adjacent to that Zone:

(i) music noise (L10, 15 min) less than 8 dB above the level of background noise

(L90,15 min) in any octave band of the sound spectrum; and (ii) music noise (LA10, 15 min) less than 5 dB(A) above the level of background noise (LA90,15 min) for the overall (sum of all octave bands) A-weighted levels; or

(b) the nearest envisaged future noise sensitive location in or adjacent to that Zone:

(i) music noise (L10, 15 min) less than 8dB above the level of background noise (L90,15 min) in any octave band of the sound spectrum and music noise (L10, 15 min) less than 5dB(A) above the level of background noise (LA90,15 min) for the overall (sum of all octave bands) A-weighted levels; or

(ii) music noise (L10, 15 min) less than 60dB(Lin) in any octave band of the sound spectrum and the overall (LA10,15 min) noise level is less than 55 dB(A).

92 Speakers should not be placed on the fascias of premises or on the pavement adjacent to the premises to ensure development does not diminish the enjoyment of other land in the locality.

93 Mechanical plant or equipment, should be designed, sited and screened to minimise noise impact on adjacent premises or properties. The noise level associated with the combined operation of plant and equipment such as air conditioning, ventilation and refrigeration systems when assessed at the nearest existing or envisaged noise sensitive location in or adjacent to the site should not exceed:

(a) N/A

(b) 50 dB(A) during daytime (7.00am to 10.00pm) and 40 dB(A) during night time (10.00pm to 7.00am) in or adjacent to a Residential Zone, the North Adelaide Historic (Conservation) Zone or the Park Lands Zone when measured and adjusted in accordance with the relevant environmental noise legislation except where it can be demonstrated that a high background noise exists.

94 To ensure minimal disturbance to residents:

(a) ancillary activities such as deliveries, collection, movement of private waste bins, goods, empty bottles and the like should not occur:
  (i) after 10.00pm; and
  (ii) before 7.00am Monday to Saturday or before 9.00am on a Sunday or Public Holiday.

(b) typical activity within any car park area including vehicles being started, doors closing and vehicles moving away from the premises should not result in sleep disturbance when proposed for use after 10.00pm as defined by the limits recommended by the World Health Organisation.

Noise Receivers

95 Noise sensitive development should incorporate adequate noise attenuation measures into their design and construction to provide occupants with reasonable amenity when exposed to noise sources such as major transport corridors (road, rail, tram and aircraft), commercial centres, entertainment premises and the like, and from activities and land uses contemplated in the relevant Zone and Policy Area provisions.

96 Noise sensitive development in mixed use areas should not unreasonably interfere with the operation of surrounding non-residential uses that generate noise levels that are commensurate with the envisaged amenity of the locality.

97 Noise sensitive development adjacent to noise sources should include noise attenuation measures to achieve the following:

(a) satisfaction of the sleep disturbance criteria in the bedrooms or sleeping areas of the development as defined by the limits recommended by the World Health Organisation;

(b) the maximum satisfactory levels in any habitable room for development near major roads, as provided in the Australian/New Zealand Standard AS/NZS 2107:2000 - 'Acoustics - Recommended Design Sound Levels and Reverberation Times for Building Interiors'; and

(c) noise level in any bedroom, when exposed to music noise (L10) from existing entertainment premises, being:
  (i) less than 8 dB above the level of background noise (L90,15 min) in any octave band
  of the sound spectrum; and
  (ii) less than 5 dB(A) above the level of background noise (LA90,15 min) for the overall
  (sum of all octave bands) A-weighted levels.

Background noise within the habitable room can be taken to be that expected in a typical residential/apartment development of the type proposed, that is inclusive of internal noise sources such as air conditioning systems, refrigerators and the like as deemed appropriate.

Unless otherwise demonstrated, the minimum background noise to be used will be:

Octave Band Centre Frequency(Hz)	Minimum Background Noise Level (LA90, 15) dB (A)
63	10
125	12
250	14
500	14
1000	12
2000	10
4000	8
Overall Sum	21

on the basis of the windows being closed for the noise sensitive development and any existing entertainment premises complying with the relevant legislation relating to noise emission

Waste Management

Objective 28: Development which supports high local environmental quality, promotes waste minimisation, re-use and recycling, encourages waste water, grey water and stormwater re-use and does not generate unacceptable levels of air, liquid or solid pollution.

101 A dedicated area for on-site collection and sorting of recyclable materials and refuse should be provided within all new development.

102 A dedicated area for the collection and sorting of construction waste and the recycling of building materials during construction as appropriate to the size and nature of the development should be provided and screened from public view.

103 Development greater than 2,000 square metres of total floor area should manage waste by:

(a) containing a dedicated area for the collection and sorting of construction waste and recyclable building materials;
(b) on-site storage and management of waste;
(c) disposal of non-recyclable waste; and
(d) incorporating waste water and stormwater re-use including the treatment and re-use of grey water.

104 Development should not result in emission of atmospheric, liquid or other pollutants, or cause unacceptable levels of smell and odour which would detrimentally affect the amenity of adjacent properties or its locality. Land uses such as restaurants, shops, cafés or other uses that generate smell and odour should:

(a) ensure extraction flues, ventilation and plant equipment are located in appropriate locations that will not detrimentally affect the amenity of adjacent occupiers in terms of noise, odours and the appearance of the equipment;
(b) ensure ventilation and extraction equipment and ducting have the capacity to clean and filter the air before being released into the atmosphere; and
(c) ensure the size of the ventilation and extraction equipment is suitable and has the capacity to adequately cater for the demand generated by the potential number of patrons.

Contaminated Sites

Objective 29: A safe and healthy living and working environment.

105 Where there is evidence of, or reasonable suspicion that land, buildings and/or water, including underground water, may have been contaminated, or there is evidence of past potentially contaminating activity/ies, development should only occur where it is demonstrated that the land, buildings and/or water can be made suitable for its intended use prior to commencement of that use.

Note: Information of the suitability of land for the proposed land use should be provided as part of the development application and should include:
(a) the provision of a report of the land use history and condition of the site;
(b) where the report reveals that contamination is suspected or identified, a detailed site assessment report that determines whether site contamination poses an actual or potential risk to human health and the environment, either on or off the site, of sufficient magnitude to warrant remediation appropriate to the proposed land use;
(c) where remediation is warranted, a remediation and/or management strategy prepared in consultation with an independent Environmental Auditor, Contaminated Land, endorsed by the EPA;
(d) a site audit report, prepared by an independent Environmental Auditor, Contaminated Land, endorsed by the EPA, that states that in the opinion of the Auditor, the site is suitable for the intended uses(s), or for certain stated uses(s) and also states any conditions pertaining to the use(s).

Energy Efficiency

Objective 30: Development which is compatible with the long term sustainability of the environment, minimises consumption of non-renewable resources and utilises alternative energy generation systems.

All Development

106 Buildings should provide adequate thermal comfort for occupants and minimise the need for energy use for heating, cooling and lighting by:

(a) providing an internal day living area with a north-facing window, other than for minor additions*, by:
  (i) arranging and concentrating main activity areas of a building to the north for solar penetration; and
  (ii) placing buildings on east-west allotments against or close to the southern boundary to maximise northern solar access and separation to other buildings to the north.
(b) efficient layout, such as zoning house layout to enable main living areas to be separately heated and cooled, other than for minor additions;
(c) locating, sizing and shading windows to reduce summer heat loads and permit entry of winter sun;
(d) allowing for natural cross ventilation to enable cooling breezes to reduce internal temperatures in summer;
(e) including thermal insulation of roof, walls, floors and ceilings and by draught proofing doors, windows and openings;
(f) ensuring light colours are applied to external surfaces that receive a high degree of sun exposure, but not to an extent that will cause glare which produces discomfort or danger to pedestrians, occupants of adjacent buildings and users of vehicles;
(g) providing an external clothes line for residential development; and
(h) use of landscaping.

107 All development should be designed to promote naturally ventilated and day lit buildings to minimise the need for mechanical ventilation and lighting systems.

108 Energy reductions should, where possible, be achieved by the following:

(a) appropriate orientation of the building by:
  (i) maximising north/south facing facades;
  (ii) designing and locating the building so the north facade receives good direct solar radiation;
  (iii) minimising east/west facades to protect the building from summer sun and winter winds;
  (iv) narrow floor plates to maximise the amount of floor area receiving good daylight; and/or
  (v) minimising the ratio of wall surface to floor area.
(b) window orientation and shading;
(c) adequate thermal mass including night time purging to cool thermal mass;
(d) appropriate insulation by:
  (i) insulating windows, walls, floors and roofs; and
  (ii) sealing of external openings to minimise infiltration.
(e) maximising natural ventilation including the provision of openable windows;
(f) appropriate selection of materials, colours and finishes; and
(g) introduction of efficient energy use technologies such as geo-exchange and embedded, distributed energy generation systems such as cogeneration*, wind power, fuel cells and solar photovoltaic panels that supplement the energy needs of the building and in some cases, export surplus energy to the electricity grid.

109 Orientation and pitch of the roof should facilitate the efficient use of solar collectors and photovoltaic cells

110 Buildings, where practical, should be refurbished, adapted and reused to ensure an efficient use of resources.

111 New buildings should be readily adaptable to future alternative uses.

112 Selection of internal materials for all buildings should be made with regard to internal air quality and ensure low toxic emissions, particularly with respect to paint and joinery products.

Renewable Energy

Objective 31: The development of renewable energy facilities, such as wind and biomass energy facilities, in appropriate locations.

Objective 32: Renewable energy facilities located, sited, designed and operated to avoid or minimise adverse impacts and maximise positive impacts on the environment, local community and the State.

116 Renewable energy facilities, including wind farms, should be located, sited, designed and operated in a manner which avoids or minimises adverse impacts and maximises positive impacts on the environment, local community and the State.

117 Renewable energy facilities, including wind farms, and ancillary developments should be located in areas that maximise efficient generation and supply of electricity.

Micro-climate and Sunlight

Objective 33: Buildings which are designed and sited to be energy efficient and to minimise micro-climatic and solar access impacts on land or other buildings.

Objective 34: Protection from rain, wind and sun without causing detriment to heritage places, street trees or the integrity of the streetscape.

119 Development should be designed and sited to minimise micro-climatic and solar access impact on adjacent land or buildings, including effects of patterns of wind, temperature, daylight, sunlight, glare and shadow.

120 Development should be designed and sited to ensure an adequate level of daylight, minimise overshadowing of buildings, and public and private outdoor spaces, particularly during the lunch time hours.

121 Development should not significantly reduce daylight to private open space, communal open space, where such communal open space provides the primary private open space, and habitable rooms in adjacent City Living Zones.

122 Glazing on building facades should not result in glare which produces discomfort or danger to pedestrians, occupants of adjacent buildings and users of vehicles.

124 Weather protection should not be introduced where it would interfere with the integrity or heritage value of heritage places or unduly affect street trees.

125 Development that is over 21 metres in building height and is to be built at or on the street frontage should minimise wind tunnel effect.

Stormwater Management

Objective 35: Development which maximises the use of stormwater.

Objective 36: Development designed and located to protect stormwater from pollution sources.

Surface water (inland, marine, estuarine) and ground water has the potential to be detrimentally affected by water run-off from development containing solid and liquid wastes. Minimising and possibly eliminating sources of pollution will reduce the potential for degrading water quality and enable increased use of stormwater for a range of applications with environmental, economic and social benefits.

Objective 37: Development designed and located to protect or enhance the environmental values of receiving waters.

Objective 38: Development designed and located to prevent erosion.

Development involving soil disturbance may result in erosion and subsequently sedimentation and pollutants entering receiving waters. Design techniques should be incorporated during both the construction and operation phases of development to minimise the transportation of sediment and pollutants off-site.

Objective 39: Development designed and located to prevent or minimise the risk of downstream flooding.

126 Development of stormwater management systems should be designed and located to improve the quality of stormwater, minimise pollutant transfer to receiving waters, and protect downstream receiving waters from high levels of flow.

127 Development affecting existing stormwater management systems should be designed and located to improve the quality of stormwater, minimise pollutant transfer to receiving waters, and protect downstream receiving waters from high levels of flow.

128 Development should incorporate appropriate measures to minimise any concentrated stormwater discharge from the site.

129 Development should incorporate appropriate measures to minimise the discharge of sediment, suspended solids, organic matter, nutrients, bacteria and litter and other contaminants to the stormwater system and may incorporate systems for treatment or use on site.

130 Development should not cause deleterious affect on the quality or hydrology of groundwater.

131 Development should manage stormwater to ensure that the design capacity of existing or planned downstream systems are not exceeded, and other property or environments are not adversely affected as a result of any concentrated stormwater discharge from the site.

Infrastructure

Objective 40: Minimisation of the visual impact of infrastructure facilities.

Objective 41: Provision of services and infrastructure that are appropriate for the intended development and the desired character of the Zone or Policy Area.

132 Provision should be made for utility services to the site of a development, including provision for the supply of water, gas and electricity and for the satisfactory disposal and potential re-use of sewage and waste water, drainage and storm water from the site of the development.

133 Service structures, plant and equipment within a site should be designed to be an integral part of the development and should be suitably screened from public spaces or streets.

134 Infrastructure and utility services, including provision for the supply of water, gas and electricity should be put in common trenches or conduits.

135 Development should only occur where it has access to adequate utilities and services, including:
(a) electricity supply;
(b) water supply;
(c) drainage and stormwater systems;
(d) effluent disposal systems;
(e) formed all-weather public roads;
(f) telecommunications services; and
(g) gas services.

Landscaping

Objective 55: Water conserving landscaping that enhances the local landscape character and creates a pleasant, safe and attractive living environment.

207 Landscaping should:
(a) be selected and designed for water conservation;
(b) form an integral part of the design of development; and
(c) be used to foster human scale, define spaces, reinforce paths and edges, screen utility areas and enhance the visual amenity of the area.

208 Landscaping should incorporate local indigenous species suited to the site and development, provided such landscaping is consistent with the desired character of the locality and any heritage place.

209 Landscaping should be provided to all areas of communal space, driveways and shared car parking areas.

Transport and Access

Access and Movement

Objective 60: Access to and movement within the City that is easy, safe, comfortable and convenient with priority given to pedestrian and cyclist safety and access.

224 Development should provide safe, convenient and comfortable access and movement.

225 Vehicle access points along primary and secondary city access roads and local connector roads, as shown on Map Adel/1 (Overlay 1) should be restricted.

Pedestrian Access

Objective 61: Development that promotes the comfort, enjoyment and security of pedestrians by providing shelter and reducing conflict with motor vehicles.

Objective 62: Development that contributes to the quality of the public realm as a safe, secure and attractive environment for pedestrian movement and social interaction.

Objective 63: Safe and convenient design of and access to buildings and public spaces, particularly for people with disabilities.

226 Development should reflect the significance of the paths and increase the permeability of the pedestrian network identified within Map Adel/1 (Overlay 2) by ensuring:
(a) pedestrians are not disrupted or inconvenienced by badly designed or located vehicle access ramps in footpaths or streets; and
(b) vehicle and service entry points are kept to a minimum to avoid adverse impact on pedestrian amenity.

228 Development should provide and maintain pedestrian shelter, access and through-site links in accordance with the walking routes identified within Map Adel/1 (Overlays 2, 2A and 3) and the provisions of the Zone or Policy Area in which it is located. Such facilities should be appropriately designed and detailed to enhance the pedestrian environment, have regard to the mobility needs of people with disabilities, and be safe, suitable and accessible.

232 Access for people with disabilities should be provided to and within all buildings to which members of the public have access in accordance with the relevant Australian Standards. Such access should be provided through the principal entrance, subject to heritage considerations and for exemptions under the relevant legislation.

Bicycle Access

Objective 64: Greater use of bicycles for travel to and within the City and the improvement of conditions, safety and facilities for cyclists.

Objective 65: Adequate supply of secure, short stay and long stay bicycle parking to support desired growth in City activities.

233 Development should have regard to the bicycle routes identified within Map Adel/1 (Overlay 3) by:
(a) limiting vehicular access points; and
(b) ensuring that vehicles can enter and leave the site in a forward direction, thereby avoiding reverse manoeuvres.

234 An adequate supply of on-site secure bicycle parking should be provided to meet the demand generated by the development within the site area of the development. Bicycle parking should be provided in accordance with the requirements set out in Table Adel/6.

235 Onsite secure bicycle parking facilities for short stay users (i.e. bicycle rails) should be:
(a) directly associated with the main entrance;
(b) located at ground floor level;
(c) located undercover;
(d) well lit and well signed;
(e) located where passive surveillance is possible, or covered by CCTV; and
(f) accessible by cycling along a safe, well lit route.

237 Access to bicycle parking should be designed to:
(a) minimise conflict with motor vehicles and pedestrians;
(b) ensure the route is well signed and well lit including the use of road markings such as a bicycle logo if appropriate to help guide cyclists; and
(c) ensure the route is unhindered by low roof heights.

238 To facilitate and encourage the use of bicycles and walking as a means of travel to and from the place of work, commercial and institutional development should provide on-site shower and changing facilities.

Public Transport

Objective 66: Development that promotes the use of sustainable transport consistent with State Government objectives and initiatives.

Objective 67: Accessible public transport for all metropolitan residents and visitors and safe and attractive facilities for public transport users.

239 Development along a high concentration public transport route should be designed to ensure that activity and interest for public transport passengers is maximised through the incorporation of active street frontages.

240 Development along high concentration public transport routes identified in Map Adel/1 (Overlay 4) should:
(a) ensure there are pedestrian links through the site if needed to provide access to public transport;
(b) provide shelter (e.g. verandahs) for pedestrians against wind, sun and rain;
(c) provide interest and activity at street level; and
(d) where possible, avoid vehicle access across high concentration public transport routes identified in Map Adel/1 (Overlay 4). Where unavoidable, vehicle access should be integrated into the design of the development whilst retaining active street frontages.

Traffic and Vehicle Access

Objective 68: Development that supports a shift toward active and sustainable transport modes (i.e. public transport, cycling and walking).

Objective 69: An enhanced City environment and the maintenance of an appropriate hierarchy of roads to distribute traffic into the City to serve development in preference to through traffic.

Objective 70: Adequate off-street facilities for loading and unloading of courier, delivery and service vehicles and access for emergency vehicles.

241 Development should be designed so that vehicle access points for parking, servicing or deliveries, and pedestrian access to a site, are located to minimise traffic hazards and vehicle queuing on public roads. Access should be safe, convenient and suitable for the development on the site, and should be obtained from minor streets and lanes unless otherwise stated in the provisions for the relevant Zone or Policy Area and provided residential amenity is not unreasonably affected.

242 Facilities for the loading and unloading of courier, delivery and service vehicles and access for emergency vehicles should be provided on-site as appropriate to the size and nature of the development. Such facilities should be screened from public view and designed, where possible, so that vehicles may enter and leave in a forward direction.

243 Where practicable, development sites should contain sufficient space for the location of construction equipment during the course of building construction, so that development does not rely on the use of Council road reserves to locate such equipment.

249 Access roads within residential development should:
(a) provide convenient access for emergency vehicles, visitors and residents;
(b) enable vehicles to enter and leave a site in a forward direction;
(c) provide a comfortable and safe pedestrian environment; and
(d) be well lit.

Office Development

115 The following principles of sustainable design and construction are required for new office development, and additions and refurbishments to existing office development, to minimise energy consumption and limit greenhouse gas emissions:

(a) passive solar consideration in the design, planning and placement of buildings;
(b) re-using and/or improving existing structures or buildings;
(c) designing for the life-cycle of the development to allow for future adaptation;
(d) considering low levels of embodied energy in the selection and use of materials;
(e) developing energy efficiency solutions including passive designs using natural light, solar control, air movement and thermal mass. Systems should be zoned to minimise use of energy;
(f) using low carbon and renewable energy sources, such as Combined Heat and Power (CHP) systems and photovoltaics; and
(g) preserving and enhancing local biodiversity, such as by incorporating roof top gardens.

Economic Growth and Land Use

Objective 73: The role of the City enhanced as:

(a) the community, civic and cultural heart of South Australia and as a driving force in the prosperity of the State;
(b) the State centre for business, administration, services, employment, education, political and cultural activities, government and public administration;
(c) a welcoming, secure, attractive and accessible meeting place for the people of metropolitan Adelaide and beyond for leisure, entertainment, civic and cultural activity, specialty shopping, personal and community services;
(d) a centre for education and research built on key academic strengths and on the excellent learning environment and student accommodation available in the City;
(e) a supportive environment for the development of new enterprises drawing on the cultural, educational, research, commercial and information technology strengths of the City centre;
(f) the gateway to the attractions of South Australia for international and interstate visitors by developing a wide range of visitor accommodation, facilities and attractions, particularly attractions which showcase the particular strengths of South Australia; and
(g) a great place to live, with a growing diversity of accommodation for different incomes and lifestyles.

Objective 74: A business environment which encourages investment from domestic and foreign sources, business development and employment.

Objective 75: Development which reinforces clusters and nodes of activity and distinctive local character.

Objective 76: A diverse mix of commercial, community, civic and residential activities to meet the future needs of the Capital City of South Australia.

266 Development, particularly within the Capital City and Institutional Zones, is encouraged to:

(a) provide a range of shopping facilities in locations that are readily accessible;
(b) provide for the growth in economic activities that sustain and enhance the variety and mix of land uses and the character and function of the City;

(c) maximise opportunities for co-location, multiple use and sharing of facilities;
(d) be accessible to all modes of transport (particularly public transport) and safe pedestrian and cycling routes; and
(e) have minimal impact on the amenity of residential areas.

266 Development is encouraged to develop and expand upon the existing or create new tourism activities to maximise employment and the long-term economic, social and cultural benefits of developing the City as a competitive domestic and international tourist destination.

267 Development should not unreasonably restrict the development potential of adjacent sites, and should have regard to possible future impacts such as loss of daylight/sunlight access, privacy and outlook.

Squares and Public Spaces*

Objective 57: High quality, readily accessible external and internal open spaces in appropriate locations that form an integral part of the public domain, provide sanctuary, visual pleasure and a range of recreational and leisure opportunities and contribute to the City's pedestrian and bicycle network.

Objective 58: Development that conserves and enhances the City's squares, improves their visual amenity, increases their range of uses, and maximises pedestrian accessibility to their landscaped areas.

Objective 59: A distinctive Adelaide streetscape identity through the use of street furniture, graphics, public art, signs, lighting and landscaping, recognising existing visually significant buildings and trees.

219 The Squares should be for the relaxation, enjoyment and leisure of the City's workers, residents, students and visitors. The landscaped area of the Squares should where possible, be enlarged to improve visual and functional amenity. Development should:
(a) maximise pedestrian convenience, safety and access to the landscaped area of the Squares and reduce conflict between pedestrians and vehicles;
(b) contribute to the amenity of the City through the provision of tall trees and other suitable drought tolerant planting;
(c) provide facilities such as seating, rest areas, and weather protection to enhance cultural, social and outdoor recreational activity;
(d) maintain a high quality of lighting for security and amenity;
(e) minimise buildings, structures, utilities and service facilities; and
(f) maintain a high quality of design.

220 Development fronting public spaces should be of a high standard of design and should reinforce the distinctive urban character of the City by:
(a) defining and enclosing the City Squares with a continuous edge of peripheral buildings which:
(i) are of relatively consistent height and scale as appropriate to the desired character
surrounding each of the Squares;
(ii) are designed to maintain the continuity of the streetscape;
(iii) are situated close to or abutting the Square frontages;
(iv) provide ground floor activities that support the public use of the space; and
(v) are designed and sited to minimise overshadowing of the Square's garden areas.
(b) enhancing interest, use, safety and a range of activities by ensuring:
(i) facades abutting public spaces provide visual interest; and
(ii) appropriate elements of public art;

(c) defining the major streets as important linear public spaces which display a formal townscape character by:
  (i) ensuring that buildings in the Capital City Zone maintain or re-establish, a continuous edge of built-form abutting or situated close to major street frontages;
  (ii) emphasising the townscape importance of development at the intersections of major streets, and intersections of major streets with City Squares, with corner buildings of a scale and form appropriate to their location and situated close to or abutting both street frontages;
  (iii) ensuring that buildings fronting on to such streets are of a shape and orientation which relate to and reinforce the rectilinear grid pattern of the City; and
  (iv) requiring that any substantial set-back, open space or plaza be behind a built-form or landscape element which maintains or reinforces the continuity and line of the street frontage;
(d) maintaining the existing pattern and structure of streets and laneways;
(e) restricting building over minor streets and laneways to avoid over-shadowing and preserve the built-form pattern established by traditional land sub-division in the City; and
(f) allowing for ease of pedestrian circulation and through access where possible

221 Development on, over, encroaching upon, or opening on to public spaces should not endanger public safety or cause undue inconvenience to either pedestrians, including persons with disabilities, or users of vehicles, and should ensure adequate alignment of building levels to surface levels.

Aboriginal Heritage

147 Development should recognise historical and cultural relationships associated with the past, prior and current use of a place which is of significance to Aboriginal people.

148 Development should recognise historical and cultural relationships associated with the past, prior and current use of a place which is of significance to Aboriginal people.

NOTE : For Policy Areas See MAP Adel/48

CC	Capital City Zone
PL	Park Lands Zone
Rb	Riverbank Zone

Scale 1:4150

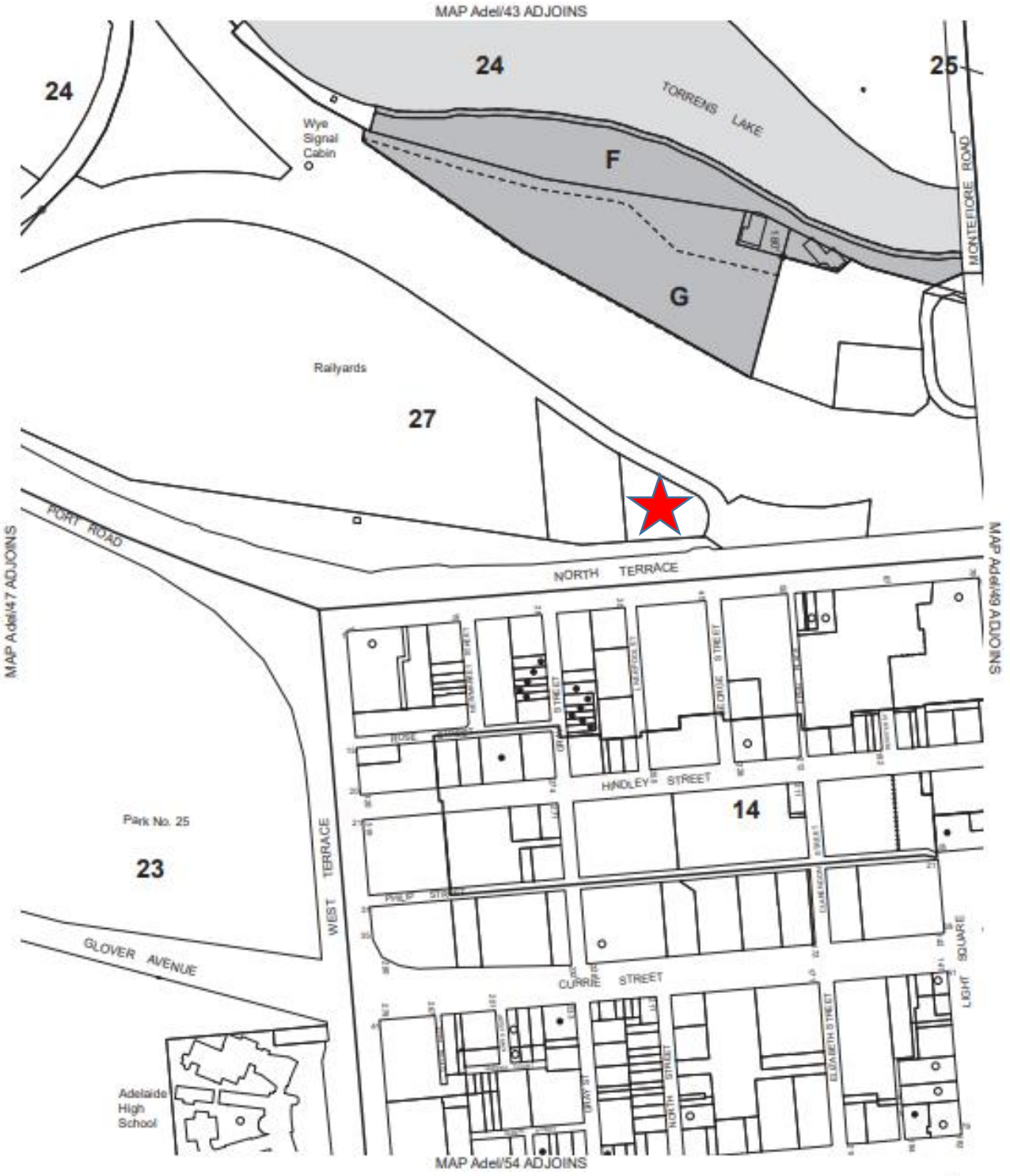
0metres 100 200 300

Zone Boundary

Development Plan Boundary

ADELAIDE (CITY) ZONES MAP Adel/17

Consolidated - 7 June 2018



14	Main Street Policy Area
23	Western Park Lands Policy Area
24	River Torrens West Policy Area
25	Adelaide Oval Policy Area
27	Health Policy Area

F	Riverbank West
G	Car Park
	Proposed Pedestrian Link
○	State Heritage Place
•	Local Heritage Place
	Policy Area Boundary

Scale 1:4150

0metres 100 200 300

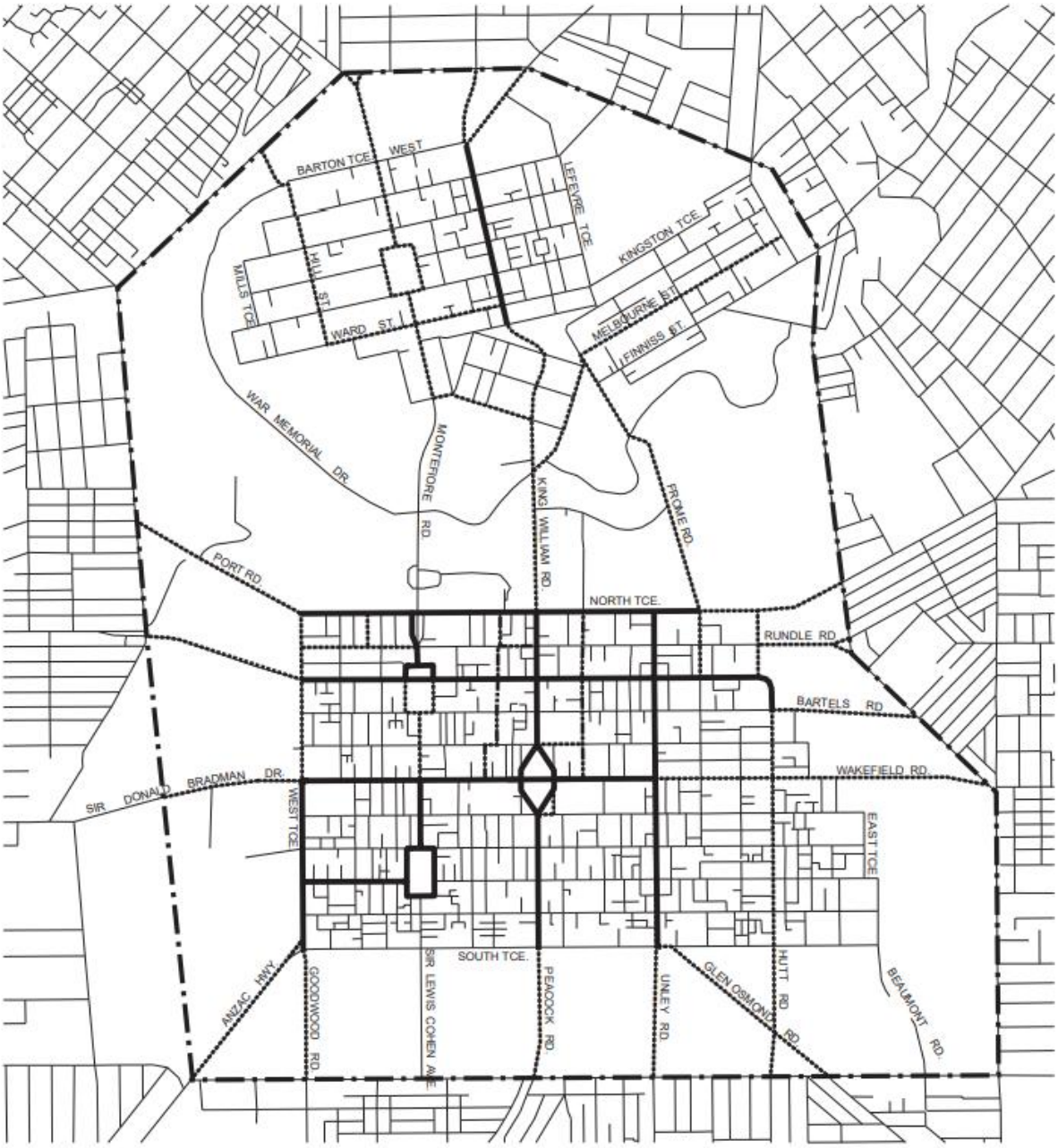
ADELAIDE (CITY) POLICY AREAS MAP Adel/48

Consolidated - 7 June 2018

- Primary Bicycle Network
- Important Secondary Road
- Important Secondary Route
- Recreational Route
- Primary Pedestrian Area [See Map Adel /1 (Overlay 2A) for detail]
- Core Pedestrian Area (non-ancillary car park non-complying)
- Development Plan Boundary

Scale 1:26,000
0metres 500 1000

ADELAIDE (CITY)
BICYCLE NETWORK
MAP Adel/1 (Overlay 3)



High Concentration Public Transport Route

Public Transport Pedestrian Route

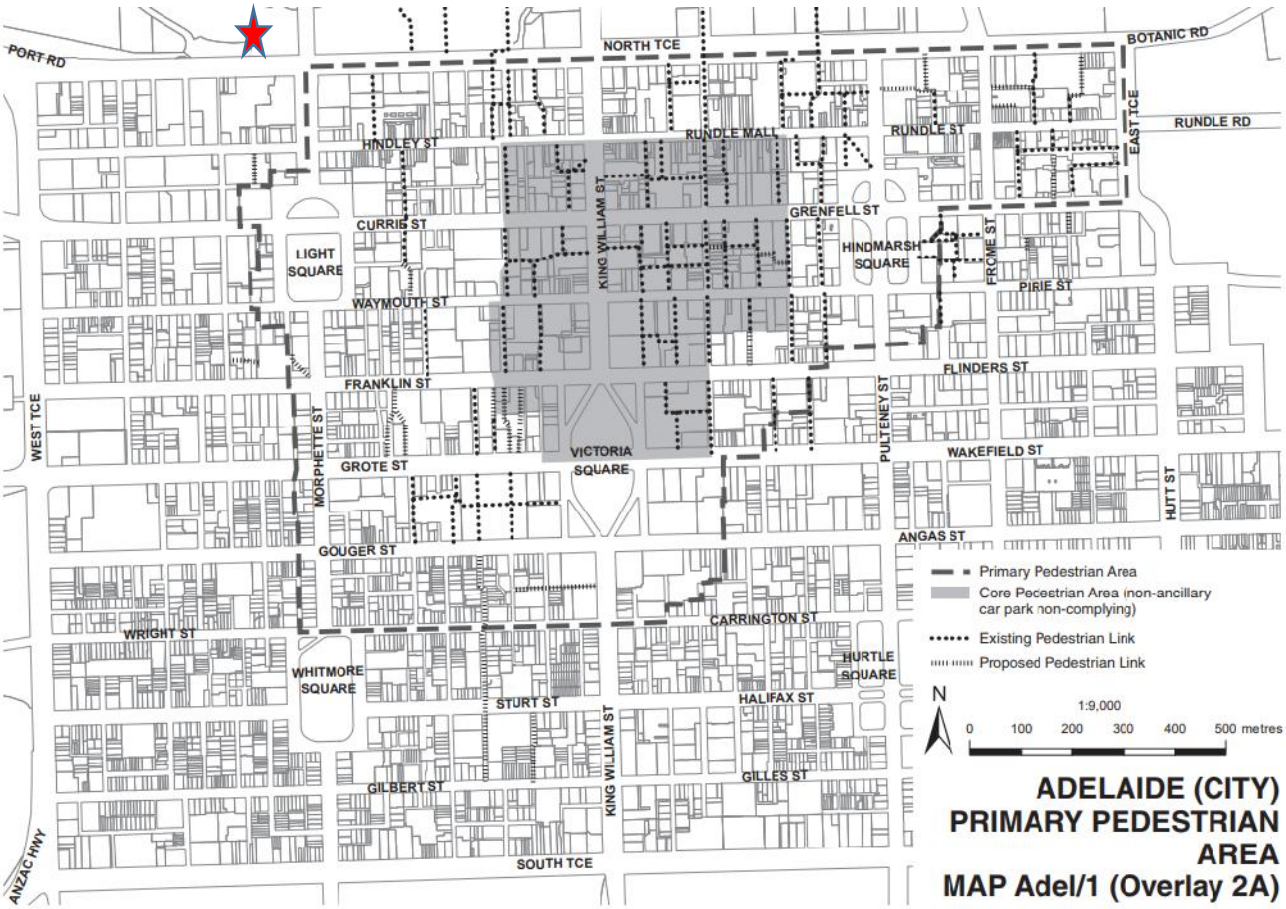
Bus Route

Development Plan Boundary

Scale 1:26,000

0metres 500 1000

ADELAIDE (CITY)
PUBLIC TRANSPORT NETWORK
MAP Adel/1 (Overlay 4)


PORT RD
NORTH TCE
BOTANIC RD
EAST TCE
RUNDLE RD
RUNDLE MALL
RUNDLE ST
HINDLEY ST
KING WILLIAM ST
GRENFELL ST
CURRIE ST
LIGHT SQUARE
HINDMARSH SQUARE
FROME ST
PIRIE ST
WAYMOUTH ST
FLINDERS ST
FRANKLIN ST
WEST TCE
MORPHETTE ST
PULTENEY ST
VICTORIA SQUARE
GROTE ST
WAKEFIELD ST
HUTT ST
ANGAS ST
GOUGER ST
CARRINGTON ST
WRIGHT ST
WHITMORE SQUARE
HURTLE SQUARE
STURT ST
HALIFAX ST
GILBERT ST
GILLES ST
SOUTH TCE
ANZAC HWY
Primary Pedestrian Area
Core Pedestrian Area (non-ancillary car park non-complying)
Existing Pedestrian Link
Proposed Pedestrian Link
N
1:9,000
0 100 200 300 400 500 metres
ADELAIDE (CITY)
PRIMARY PEDESTRIAN AREA
MAP Adel/1 (Overlay 2A)