



# **FURTHER URBAN DESIGN ANALYSIS REPORT**

**51 HENRY STREET  
PENRITH**

**Response to RFI 25 November 2016 Council's Letter**

05 / 2017 | Project No. 15-177



THE SITE IN HISTORY

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01. INTRODUCTION

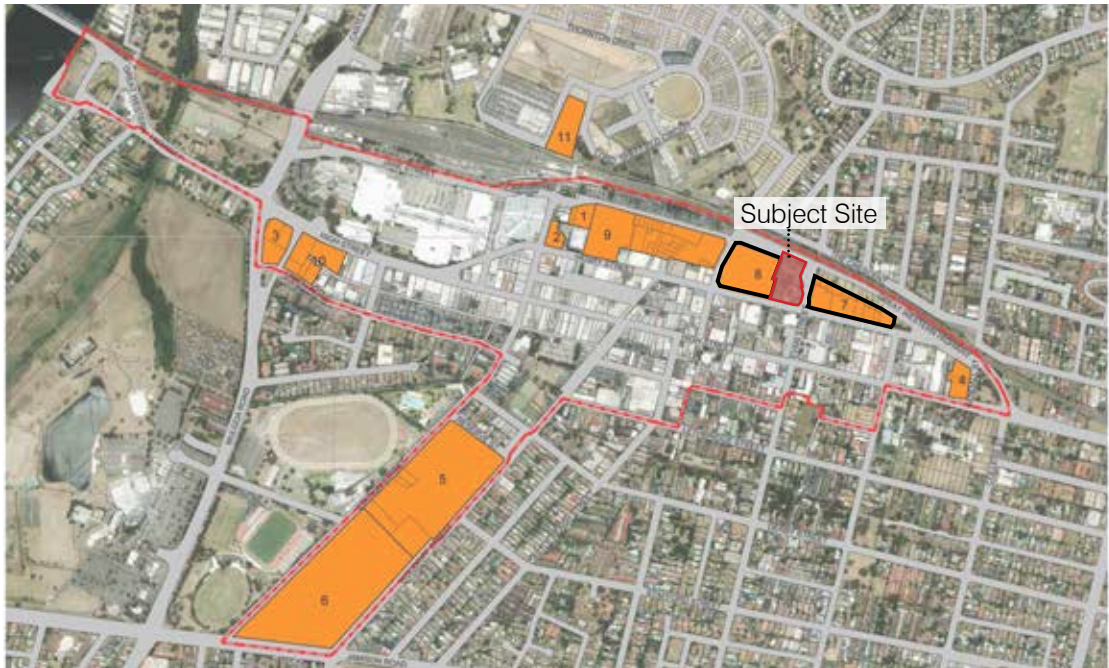
The purpose of this further study is a response to Penrith Council’s Urban Design Panel comments.

The additional analysis draws out details from the “Planning Proposal to amend Penrith Local Environmental Plan 2010\_ Incentives Clause for Key Sites April 2016” and “Penrith Urban Design & Public Benefit Analysis” conducted by Conybeare Morrison International Pty Ltd (known as CM+) in March 2016.

The Study provides clarification on the future urban design context and presents the updated proposed options for the site.

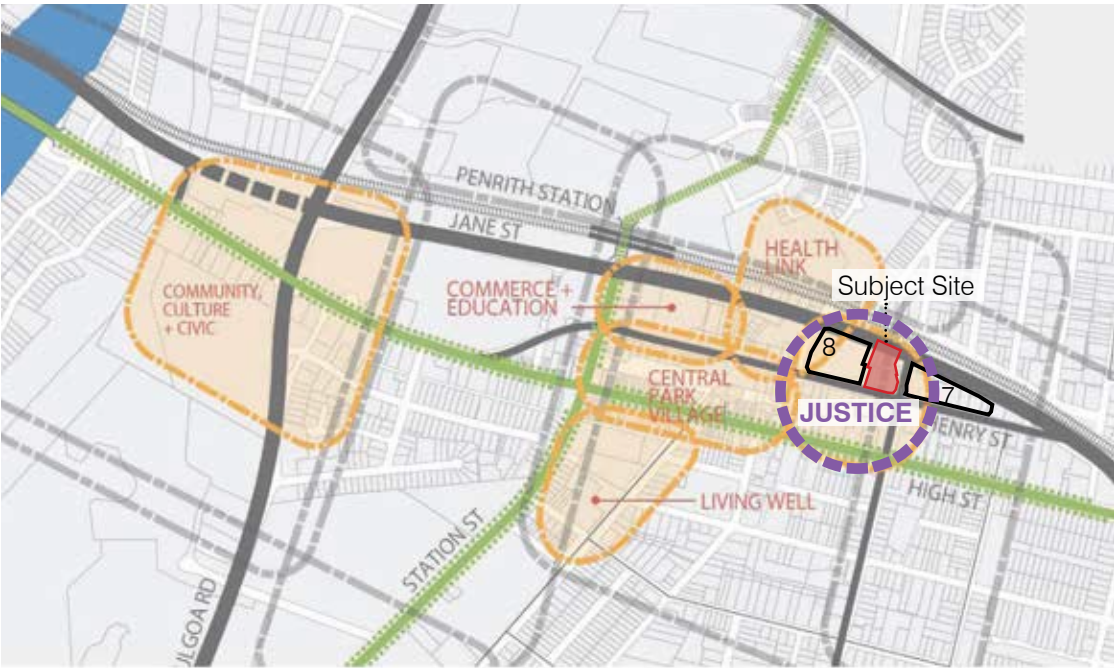
The Study includes a review of the CM+ report and more accurately overlays Council’s proposed LEP changes to ensure that they represent form reflective of their use (commercial, mixed use or residential). Various case studies have been selected to guide the review.

The Study also adopts the future desired development outcome as the subject site is identified as part of Justice Precinct, the proposed development will allow for Justice related commercial uses and retail uses to promote the implementation of Penrith Progression Plan.



Source: CM+ Key Sites as identified in the LEP+Councils additional Key Site 11. Key Site 11 is a part of the latest development of Thornton.

- LEGEND
- Key Site
  - Further Identified Key Site
  - Further Identified Subject Site
  - City Centre Boundary



Source: CM+ Opportunity precincts identified within the Penrith Progression ‘A Plan for Action’

- LEGEND
- Further Identified Subject Site
  - Further Identified Key Site
  - Further Desired Development Outcome of the Subject Site
  - Further Desired Development Outcome of Future Penrith



02. CM+ STUDY

THE CONYBEARE MORRISON URBAN DESIGN STUDY

CM+ Base Case



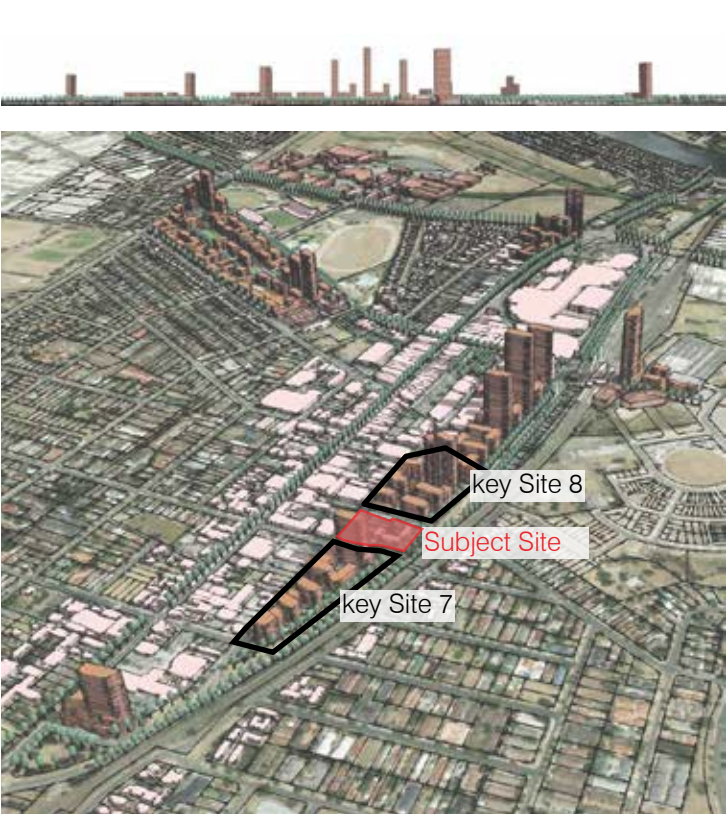
CM+ Option-1 Precinct Identity Based



CM+ Option-2 Height Spine



CM+ Option-3 Point Tower



The development context is illustrated by an Urban Design Study undertaken by CM+ commissioned by Council to understand the impact of increasing densities on Key Sites in the City Centre. The built form modelling has set the indicative design concept in this context to understand the cumulative impact of all proposals.

concept represents the developing trend for the West Region as it facilitates the redevelopment of the commercial core area in line with the densities and heights that promote the development and revitalisation of regional city centres.

CM+ 's four urban design options would result in differing city scape profiles. The Point Tower



03. ADJACENT SITES

KEY SITE 7

Key Site 7 Location



The subject site, 51 Henry Street, Penrith, adjoins the Key Site 7 that has a draft FSR proposed at 5:1.

On March 2016 CM+ conducted a study, known as the ‘Penrith Urban Design & Public Benefit Analysis’, to recommend preferred development outcomes.

It is noted that the CM+ options do not account for the FSR uplift proposed by Council.

CM+ Base Case

CM+ Option 1  
- Precinct Identity Based

CM+ Option 2  
- Height Spine

CM+ Option 3  
- Point Tower



Elevations



Street views



Perspective Views



Site Plans

03. ADJACENT SITES

KEY SITE 8

Key Site 8 Location



In the CM+ Urban Design Feasibility study, three schemes are illustrated at the building height of 18 storeys, 25 storeys and 30 storeys.

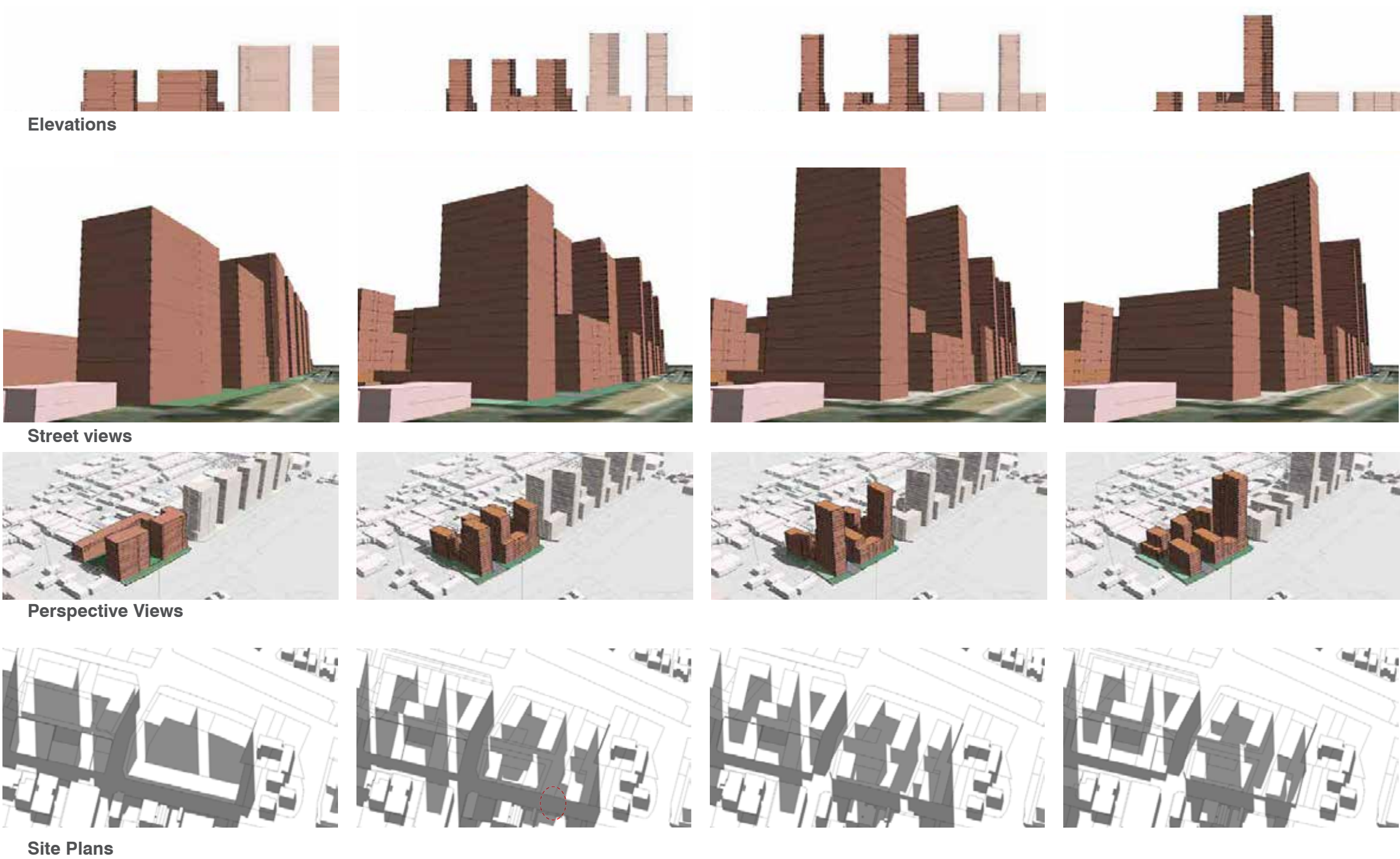
It is noted that the CM+ options do not account for the proposed FSR uplift and do not use floor plate sizes necessarily appropriate to commercial office development.

CM+ Base Case

CM+ Option 1  
- Precinct Identity Based

CM+ Option 2  
- Height Spine

CM+ Option 3  
- Point Tower



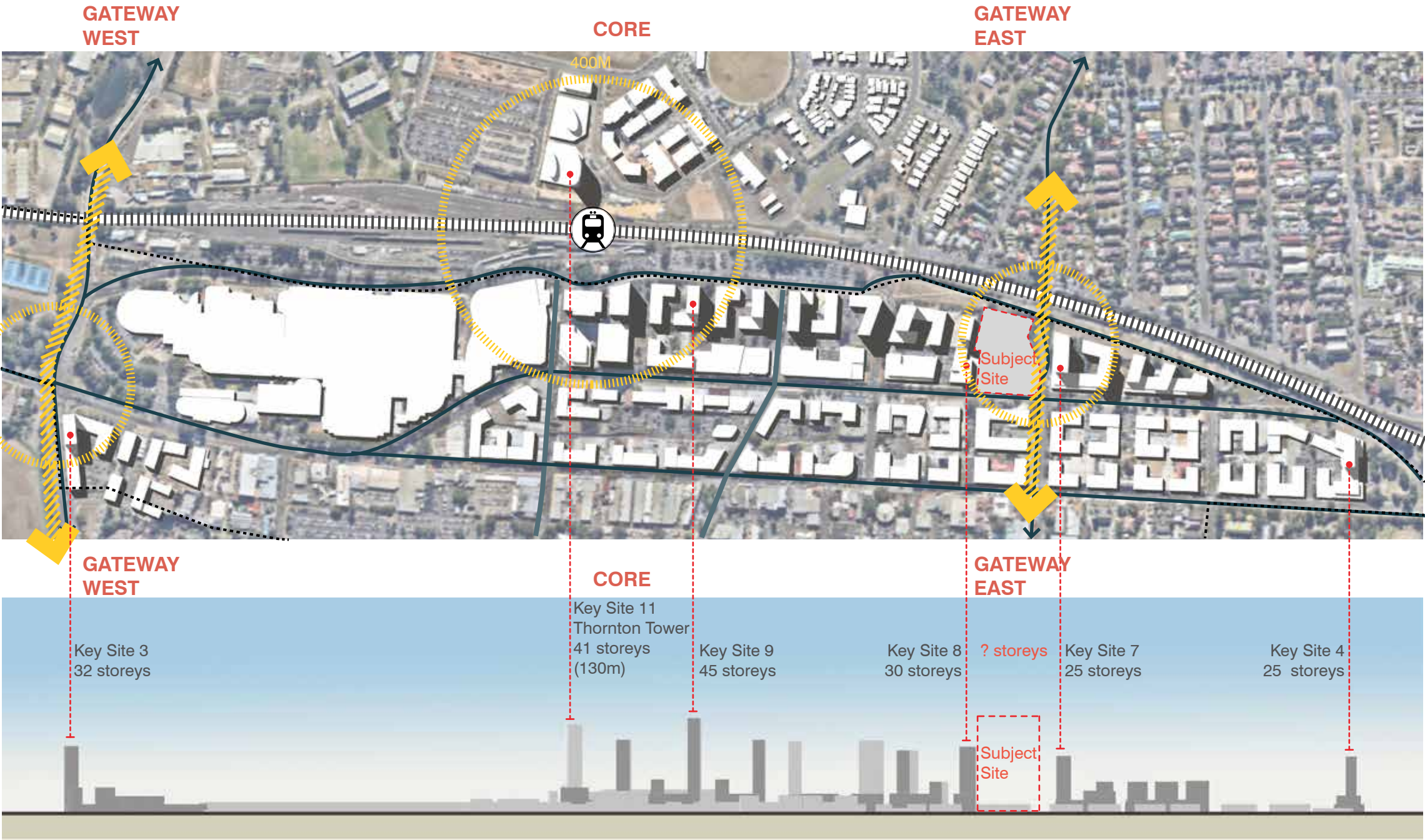


04. BUILDING ENVELOPE STUDY

CM+’S BUILDING ENVELOPE STUDY

Dickson Rothschild analysed CM+’s building envelope study. The analysis of proposed development in the CBD indicates:

- Council’s incentives clause LEP removes the height control for Key Sites.
- The site is at the eastern end of the commercial core and at main north/south road connection over the rail line and the main east-west street through the core-Henry Street. It is approximately 600m to the centralised railway station. These a
- The Gateway Site can accommodate a building at similar height to other gateway sites (Thornton North, 130m or 41 storeys, that is taller than most other buildings in the CBD. Current proposals range between 25 storeys and 45 storeys).



CBD Elevation by CM+’s Study



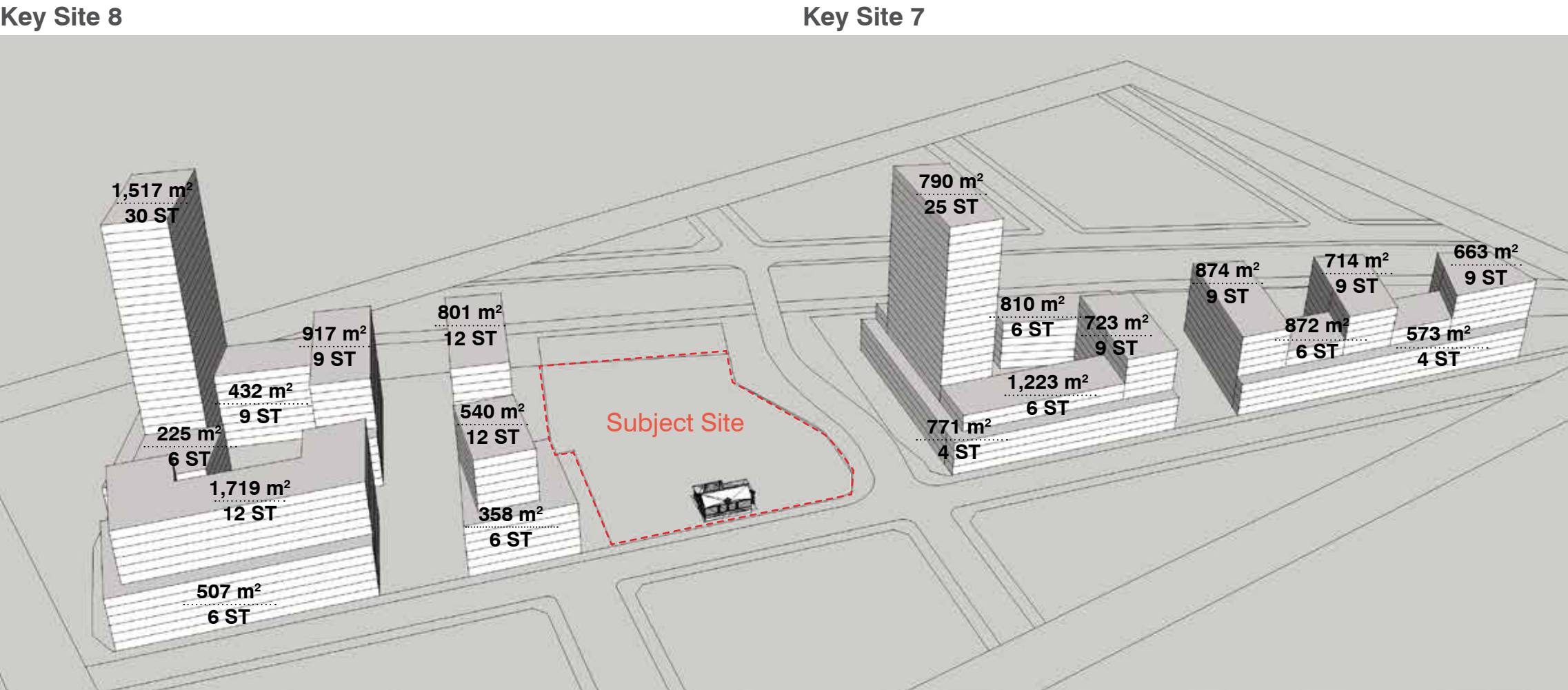
04. BUILDING ENVELOPE STUDY

CM+’S BUILDING ENVELOPE STUDY

Dickson Rothschild analysed CM+’s building envelope study. The graphic of the Point Tower concept shows that CM+ envelopes and actual FSR and floor plate sizes do not relate to that envisaged under the draft LEP both in terms of FSR, and floor plate size and land use.

In Key Site 7, based on the height of building and floor plate size of each building, the gross building area measured from CM+’s massing model is 70,462 sqm and taking 75% efficiency as its mixed use development, gross floor area of the proposal is 52,846 sqm. As site area is 18,850 sqm measured from SixMap, the proposed FSR is 2.8:1. This is lower than Council’s proposed FSR control.

Similarly, in Key Site 8, the gross building area measured from the massing model is 84,297 sqm and taking 80% efficiency for commercial use development, the gross floor area of the proposal is 67,438 sqm. As site area is 16,210 sqm measured from SixMap, the proposed FSR is 4.2:1, which is also lower than Council ‘s proposed limit.



Key Site 8

\*GFA : 67,438m²

Site Area: 16,210m²

FSR: 4.2 :1

\*Note: The developable area measured from massing model is 84,297m² and the potential gross floor area at **80%** efficiency, based on the commercial use premises, is 67,438m².

Subject Site

Site Area: 7,358.3m² (Exclusive of road widening area)

Key Site 7

\*GFA : 52,846m²

Site Area: 18,850m²

FSR: 2.8 :1

\*Note: The gross building area measured from massing model is 70,462m² and the potential gross floor area at **75%** efficiency, based on the mixed use premises, is 52,846m².

04. BUILDING ENVELOPE STUDY

RECENT DEVELOPMENT CASE STUDY IN LOCAL AREA

Dickson Rothschild studied the recent development at 121 Henry Street Penrith as an example of development in the commercial core. The site image and street view of the building indicate the depth of the floor plate is very deep which creates a bulky impression on the streetscape, and internally, the 20 metres floor plate depth does not allow for good light penetration.

More recent trends in office development often seek floorplates which allow efficient layouts but provide better opportunities for enjoying natural light and ventilation in contrast to traditional office blocks which rely heavily on artificial light and air conditioning.

Site Map\_ 121 Henry Street, Penrith



Approximate Floor Plate Size Area: 2,130 sqm

Street View\_ 121 Henry Street, Penrith





04. BUILDING ENVELOPE STUDY

RECENT DEVELOPMENT CASE STUDY IN CBD LOCATIONS

Recent commercial development differs from the large floor plate office buildings of years past. New building seek better natural daylight and floor plates of 1,200-1,800 sqm.

1 Bligh Street, Sydney



Permitted: Office building

Floor plates: 1,637 sqm\*

Floor count: 30

\*Note: Floor plates excludes the central atrium that covers an additional area of approximately 800 sqm.

200 George Street Sydney



Permitted: Office building

Floor plates: average 1,300 sqm\*

Floor count: 37

\*Note: Office tower rise areas: High rise: 1,273 sqm; Mid rise: 1,146 sqm; Low rise: 1.325 to 1,462 sqm.

Eclipse Tower, 60 Station Street Parramatta



Permitted: Office building

Floor plates: 1,320 sqm

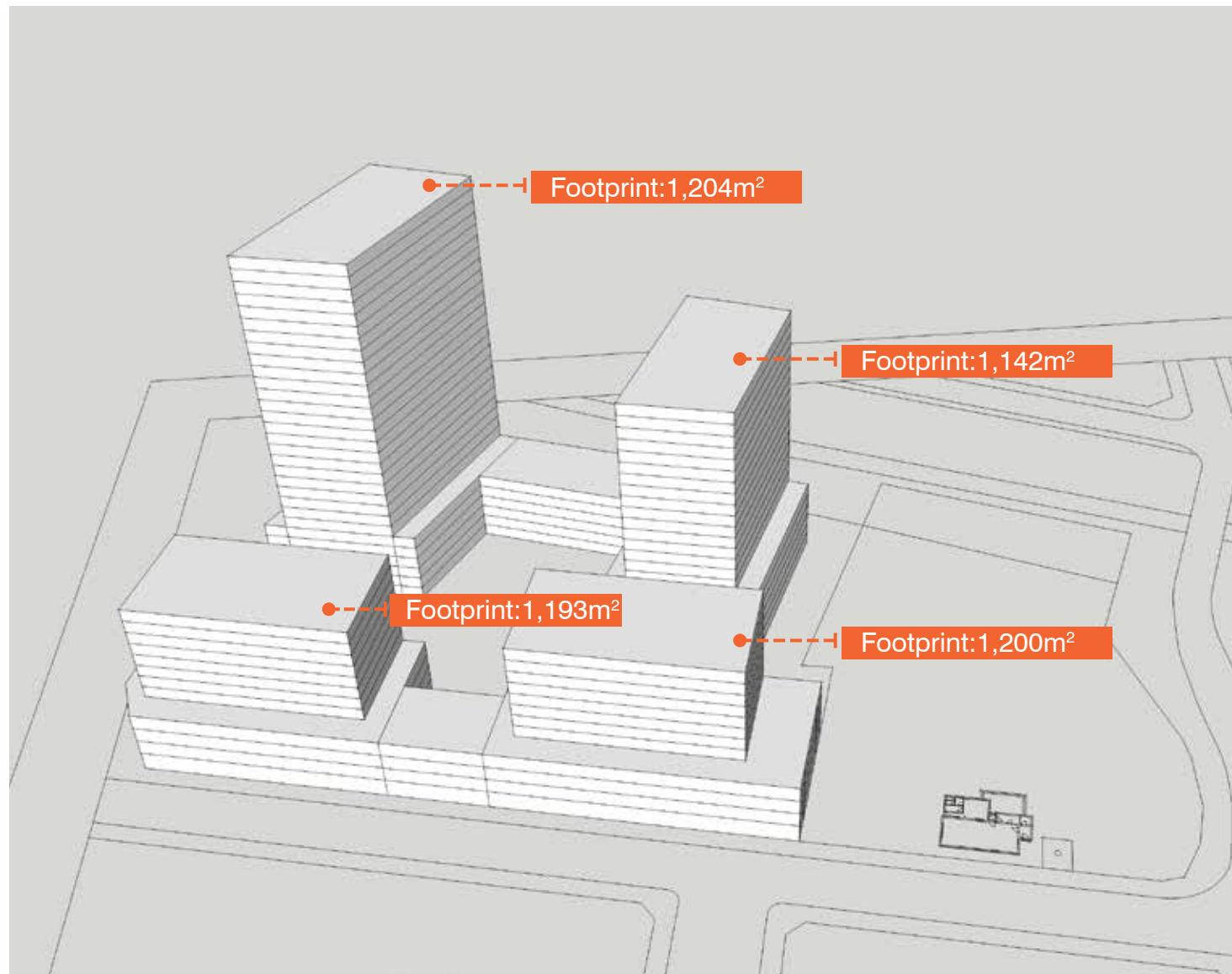
Floor count: 19



## 04. BUILDING ENVELOPE STUDY

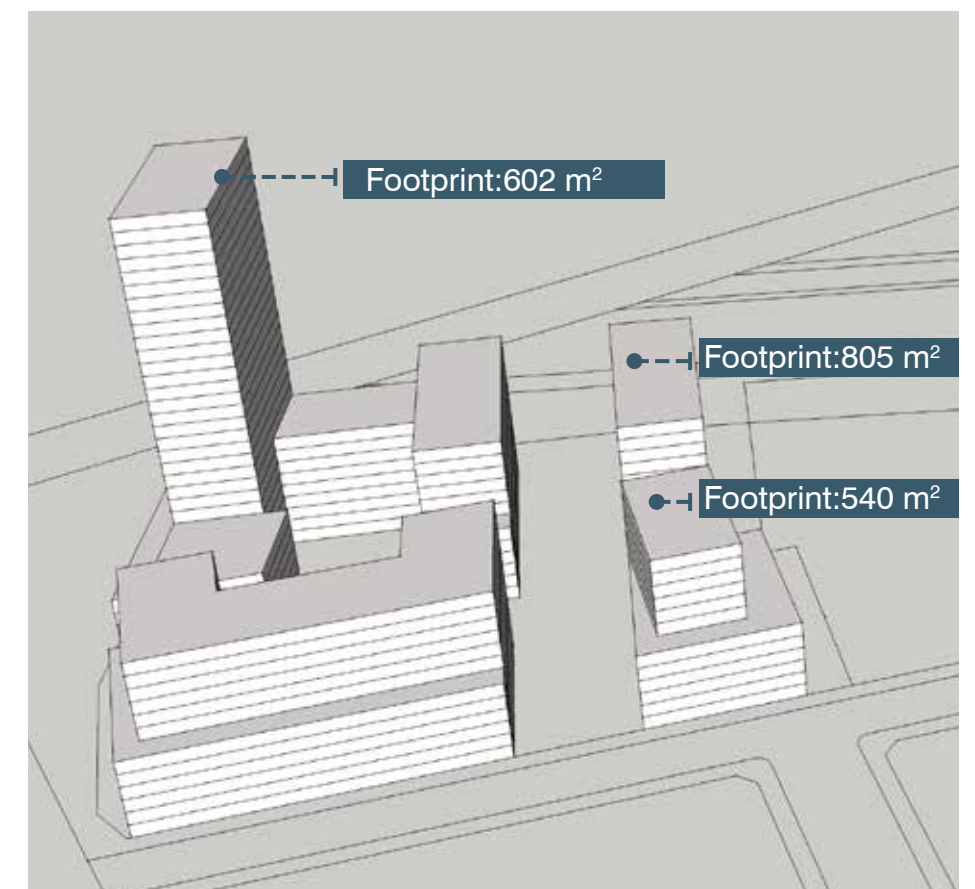
### PROPOSED BUILDING ENVELOPE

#### Commercial Office Building Envelope of Key Site 8



DR UPDATED MASSING MODEL

Dickson Rothschild integrated the CM+ point tower model but updated with more appropriate floor plate sizes, i.e. approximately 1,200 sqm and FSR up to 5.5:1 as proposed.



CM+ PROPOSED MASSING MODEL

Building floor plate size is not large enough to facilitate commercial office use.



04. BUILDING ENVELOPE STUDY

PROPOSED BUILDING ENVELOPE

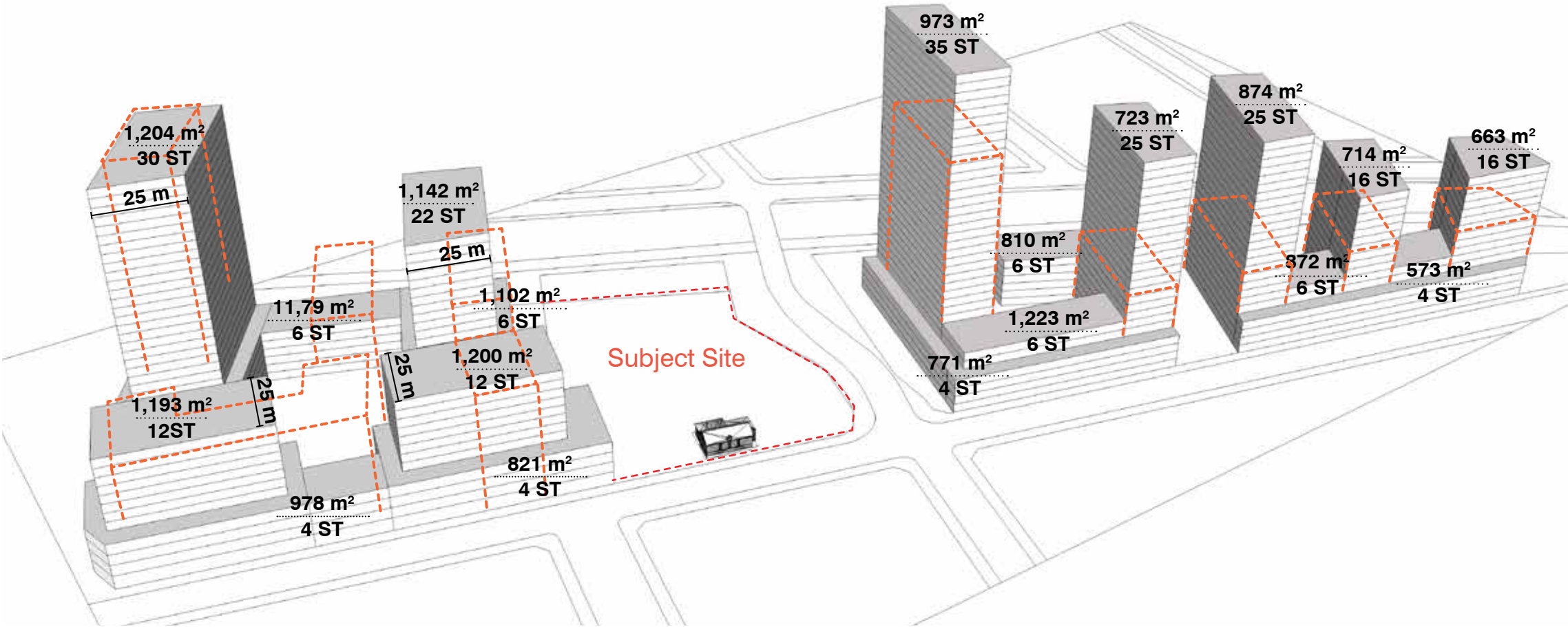
In Key Site 7, Dickson Rothschild integrated the CM+ proposed floor plate and increased height of building to achieve the proposed FSR at 5.0:1. The dash line indicates the change to building height.

In Key Site 8, Dickson Rothschild updated the building floor plate and building depth to reflect the commercial landuse and to achieve the proposed FSR at 5.5:1. The dash line indicates the CM+ building envelope.

It is noted Council’s DCP seeks a maximum building depth of 25m for commercial floorplates.

Key Site 8

Key Site 7



Key Site 8

Subject Site

Key Site 7

\*GFA : 88,722m²

Site Area: 7,358.3m² (Exclusive of road widening area)

\*GFA : 93,779m²

Site Area: 16,210m²

Site Area: 18,850m²

FSR: 5.5 :1

FSR: 5.0 :1

\*Note: The developable area measured from massing model is 110,902m² and the potential gross floor area at **80%** efficiency, based on the commercial use premises, is 88,722m².

\*Note: The developable area measured from massing model is 125,039m² and the potential gross floor area at **75%** efficiency, based on the mixed use premises, is 93,779m².

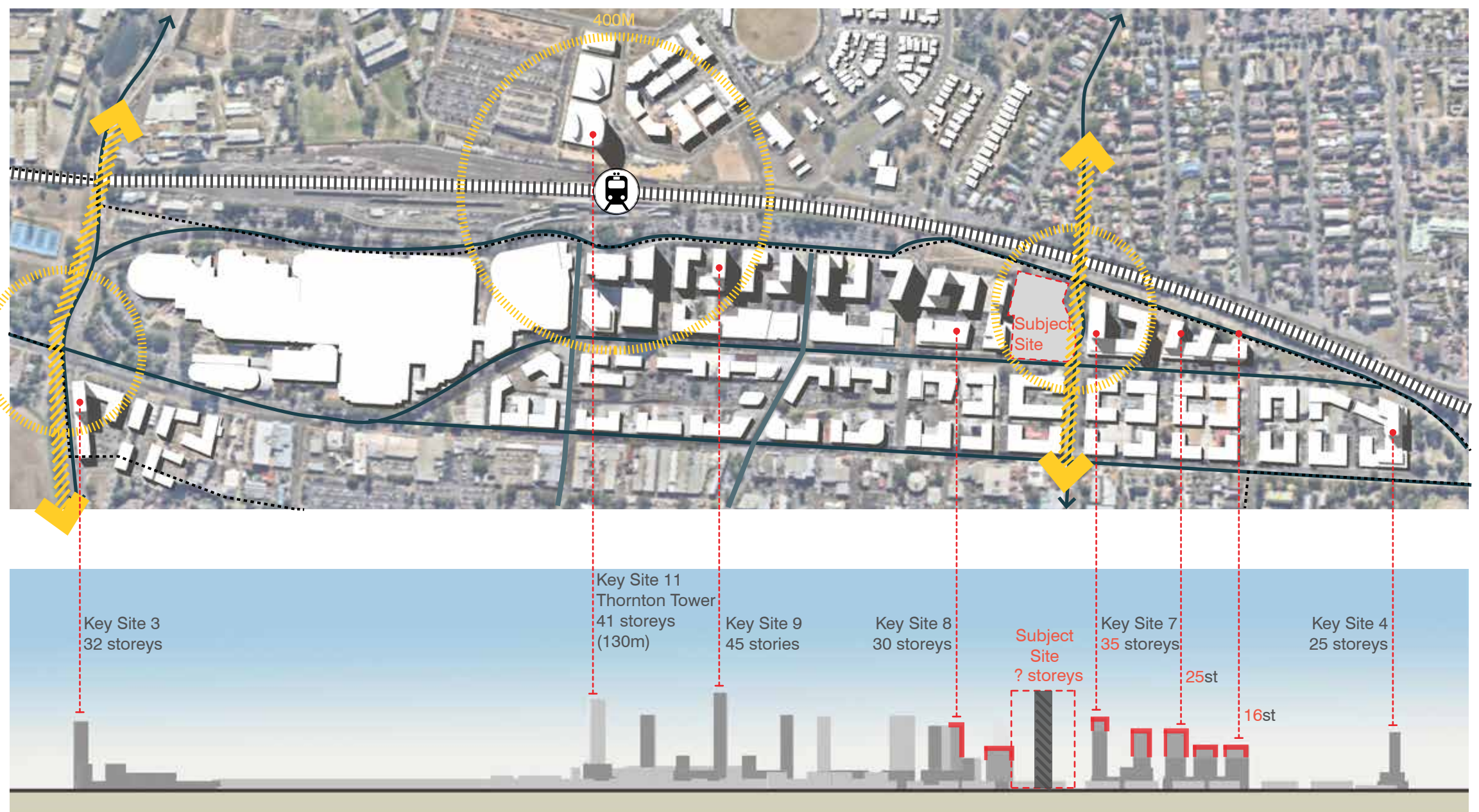
## 05. HEIGHT CONTEXT

### CBD BUILDING ELEVATION

Dickson Rothschild integrated CM+'s building envelope study and updated building floor plate and building depth to facilitate appropriate landuse and more accurately represent the development standards set to apply to the CBD (under the imminent Incentives Clause LEP) and to achieve the proposed FSR.

The proposed development in CBD shows:

- The Gateway site (at the eastern end of the City Core) is suitable for accommodating a building taller than most and in the order of other key sites including Thornton North at 130m or 41 storeys.



CBD Elevation with proposed building shown increased height of building



06. HERITAGE BACKGROUND

The site has a rich heritage dating back to 1805. The predominate use of the site in the last 200 years has been for educational purposes. The site was home to Penrith’s first public school.

Research into the historical background of the site illuminates how the Heritage Item has been used and helps to establish a contextual relationship between the building and its surroundings. This research conducted by Weir Phillip Heritage has informed design principles that help maintain the heritage significance whilst informing future development.

Artist impression. View of the heritage building and public plaza



Site panoramic photo. View of the site from Evan Street





06. HERITAGE BACKGROUND

The historical time line demonstrates the built form morphology of the site over time and changes to the former Infants building and surrounds.

1788

At the time of arrival of the First Fleet in 1788, present-day Penrith lay on the border of the land of the Dharug.

1865



Infants Department

Church

Original Boys Department also the Former 'Sterling Castle' Inn

The historical use of the site. Penrith City Library RJ0/Rj00026

The Penrith Infants School first opened in 1865, with the former “Sterling Castle” Inn at the corner of Evan and Henry Street. A church was situated between the Infants Department and the “Sterling Castle” Inn.

1900



The staff & students outside the school around 1900. Penrith City Library RJ0/Rj00026



06. HERITAGE BACKGROUND

1930's



A photograph from the 1930s from the Methodist Church Hall with the Penrith Public School visible in the far right. Penrith City Library SS0/SS0026

1972



The original 'boys department' on the corner of Henry and Evans Streets as seen in 1972. This building has since been demolished. Penrith City Library 005/005265

1990's



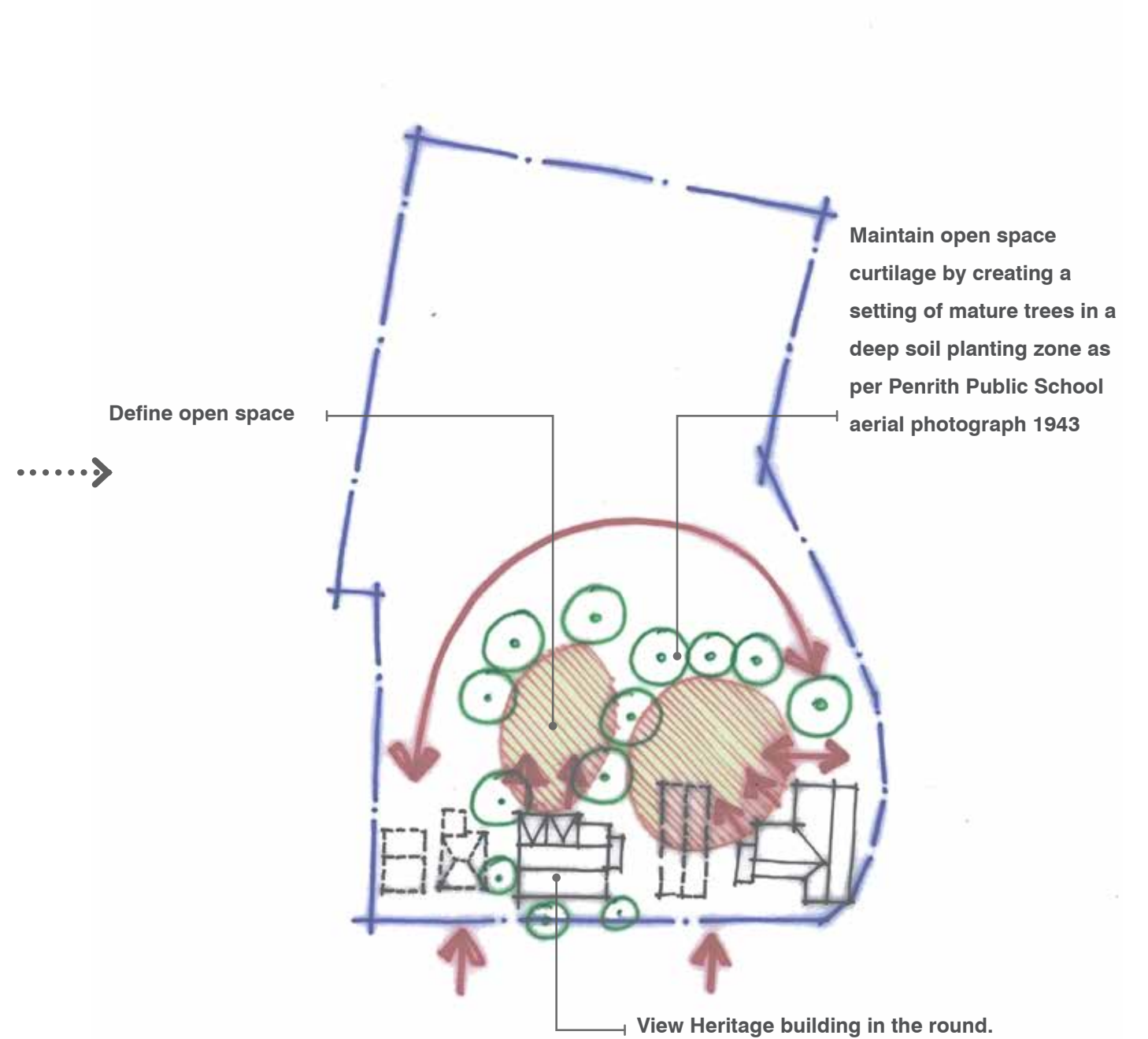
The Penrith Infants School building is only remaining original building.

## 07. HERITAGE CONTEXT ANALYSIS

Research into the historical occupation of the site reveals three buildings that form the Penrith Public School of 1943: the Boys Department house (in the former 'Sterling Castle' Inn), the School Church and the Infants Department.



Upon investigation of the relationship between the building and the surrounding area, design principles have been formulated that inform our treatment of the Heritage Item and the Henry Street frontage.

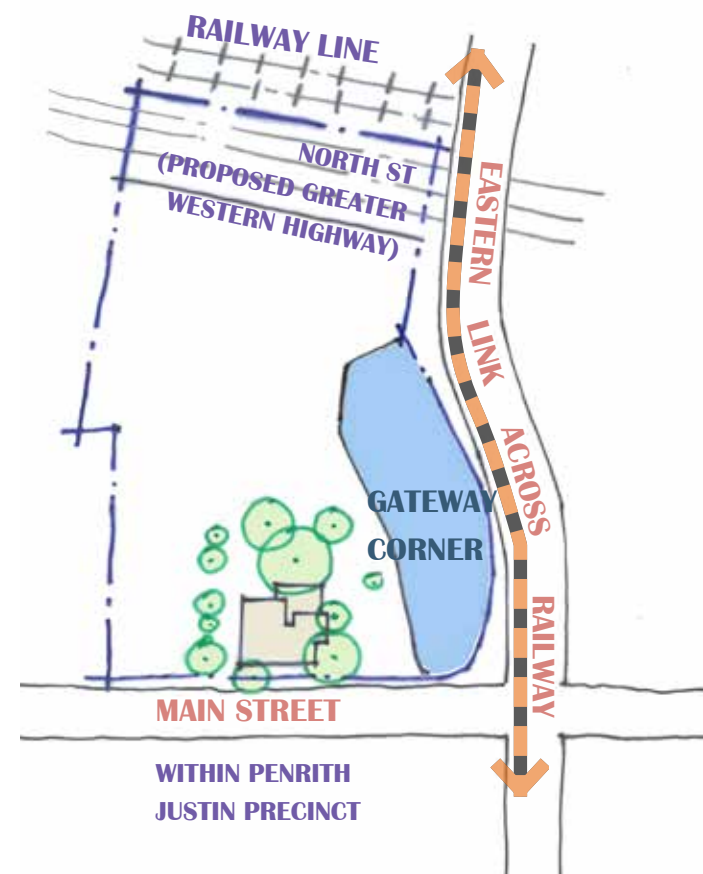




## 08. URBAN DESIGN PRINCIPLES

### Urban Design Context

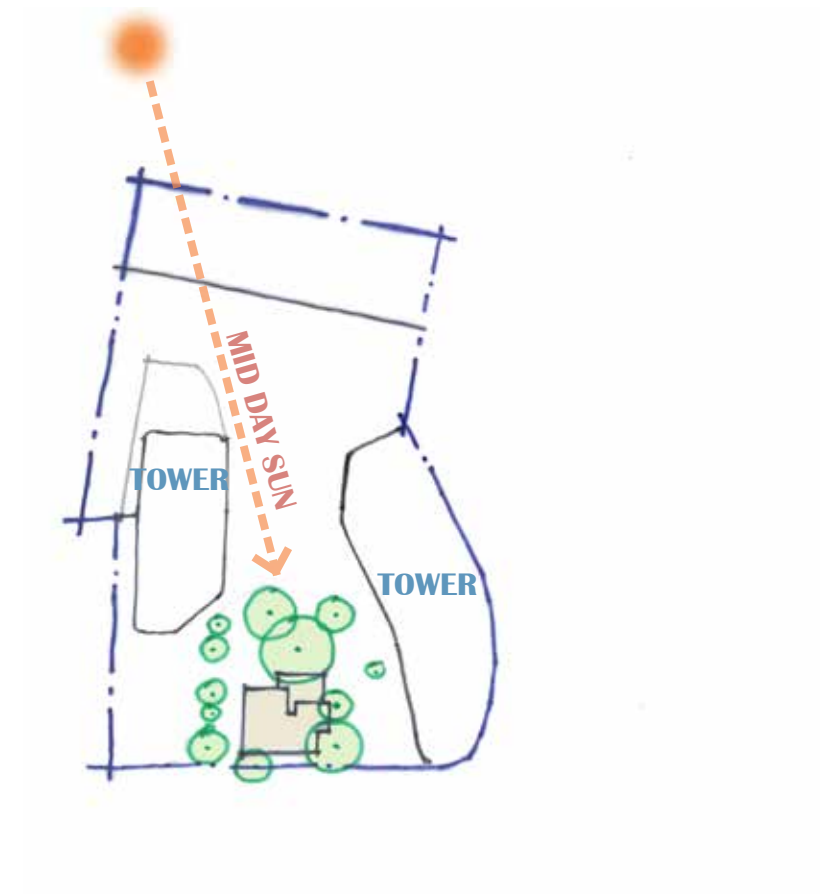
#### \_ Urban Structure



- Located adjacent to the only accessible eastern vehicular link over the rail line to the Penrith CBD and sitting on the fringe of the Penrith CBD core.
- Located 600 metres from Penrith train station.
- Identified as a “Gateway” site and mark “Gateway” location through built form at prominent corner.

### Urban Design Context

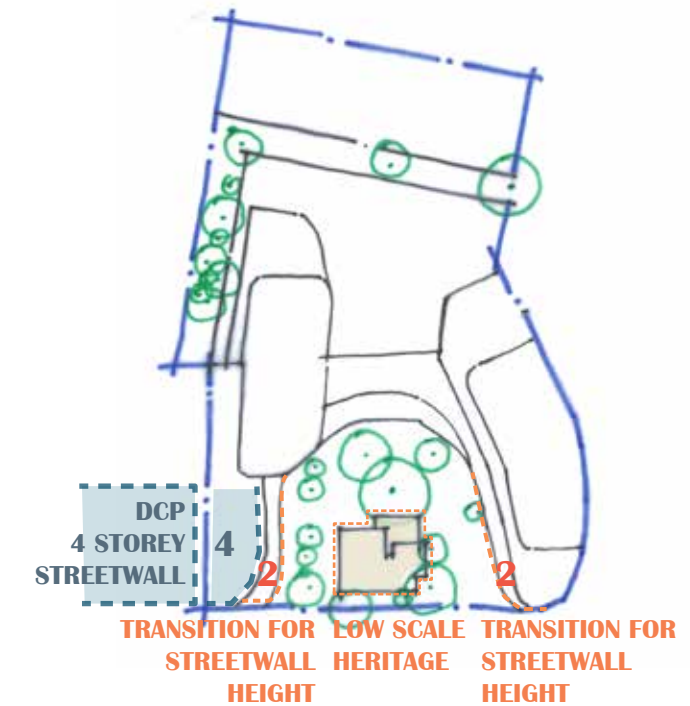
#### \_ Solar Access



- Separate tower buildings as much as possible to maintain solar access to Heritage Item and Public Open Space.
- Limit floorplate of building in the west to increase solar access in the middle of the day.

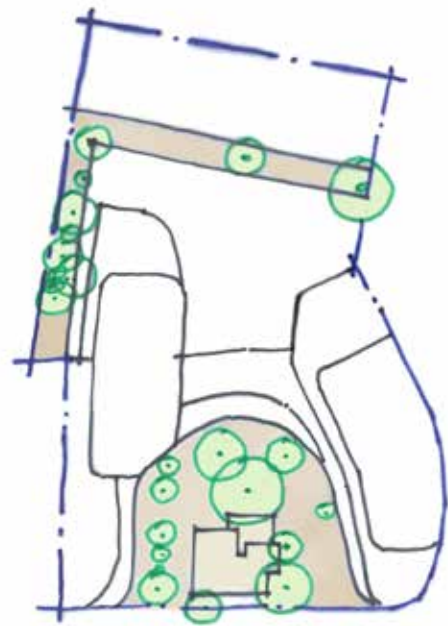
### Urban Design Context

#### \_ Future Streetscape



- Maintain four storey high streetwall to continue DCP street wall height along Henry Street.
- Transition to two storey podium to be sympatholytic to the Heritage Item.

## 08. URBAN DESIGN PRINCIPLES



1.

- Maintain landscape setting of the Heritage Item as shown in the 1943 Aerial Photo through planting of substantial trees in the deep soil zone.



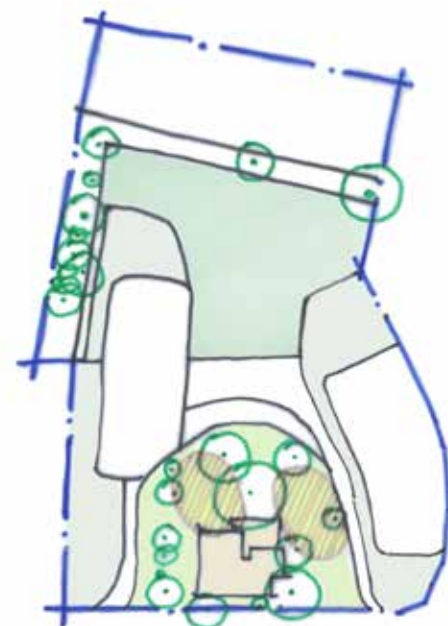
2.

- Make provision for viewing the Heritage Item in the round.



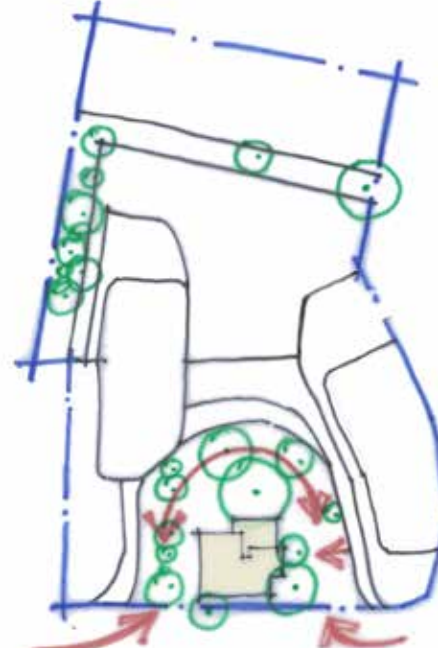
3.

- Provide a termination to the four storey street wall to the west along Henry Street.
- Transition to a two storey podium to frame the Heritage item.
- Further modulate the two storey podium, to the rear of the Heritage Item, to single storey to allow winter light into open space at rear of the Item.
- Define Evan/Henry Street corner with two storey podium to maintain visual importance to heritage item when viewed from the public domain.



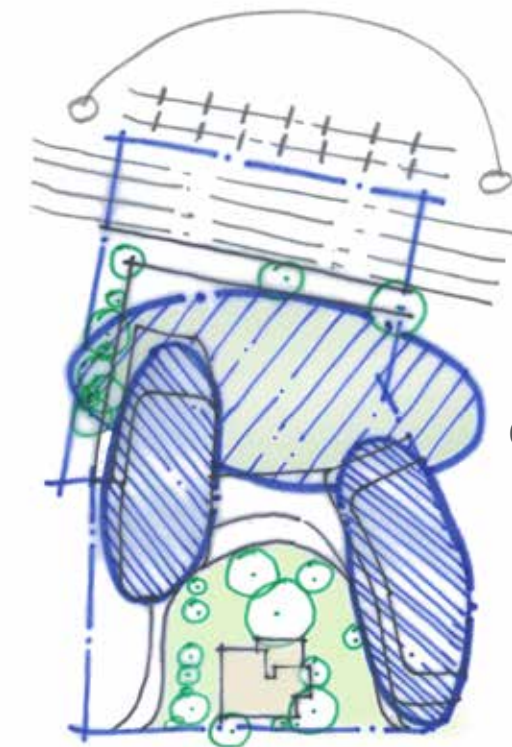
4.

- Define public open space.
- Define green space.



5.

- Encourage pedestrian activity with active edge to plaza.
- Encourage Justice related commercial uses as per Penrith Progression Plan with associate retail uses on the ground level.



6.

- Use built form to create a buffer between heritage item + open space and proposed Great Western Highway Upgrade and Railway line.



09. ECONOMICALLY FEASIBLE OPTION COMPARISON

ECONOMICAL STUDY

The feasibility of five Landuse Options were tested and the following two were the only viable options(refer to HILLPDA Report):

- 1. Residential with 1,500 sqm of retail, proposed FSR at 5.5:1;
- 2. Mixed used development consists 1,500 sqm of retail at ground floor, 5,000 sqm of commercial at podium levels and residential above. Proposed FSR at 6.5:1.

Option/Land Use	Description	Retail GFA (sqm)	Commercial GFA (Sqm)	Residential Units	Key Performance Indicators	
					Development Margin	IRR
1. Commercial FSR 4:1	Commercial Only		34,660		(25.23%)	(21.43%)
2. Residential FSR 5.5:1	Residential with 1,500sqm of retail	1,500		512	28.05%	25.74%
3. Proposed Mixed Use FSR 6.5:1	9 retail tenancies 100 room hotel* 454 residential apartments	1,874	10,429*	454	4.37%	6.24%
4. Mixed Use FSR 5.5:1	Mixed use with retail at ground floor, commercial in podium and residential above	1,874	5,000	451	15.54%	14.02%
5. Mixed Use FSR 6.5:1	Mixed use with retail at ground floor, commercial at podium and residential above	1,500	5,000	554	20.54%	17.21%

Source: Feasibility results of each option, HillPDA

Retail / Mixed Use

Commercial / Office

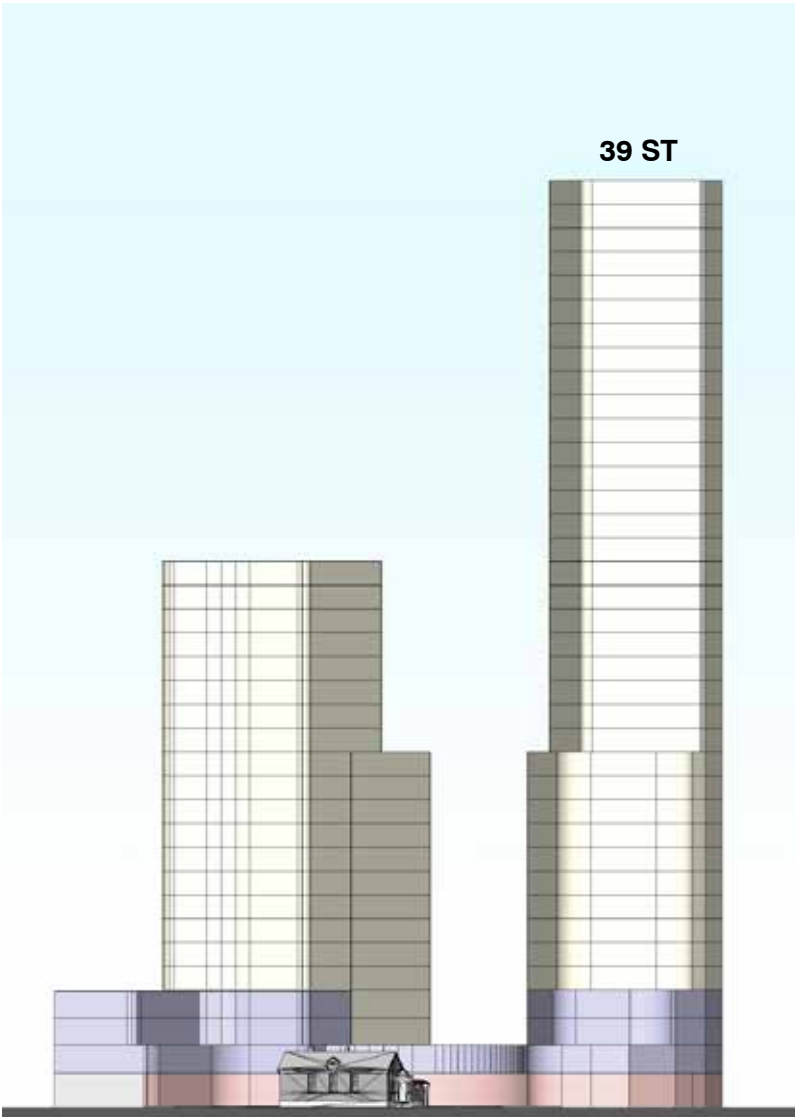
Residential\_ GFA

Car Parking / Driveway

Option 1:

Mixed use with 1,874 sqm of retail at ground floor, 5,000 sqm of commercial in podium and residential above

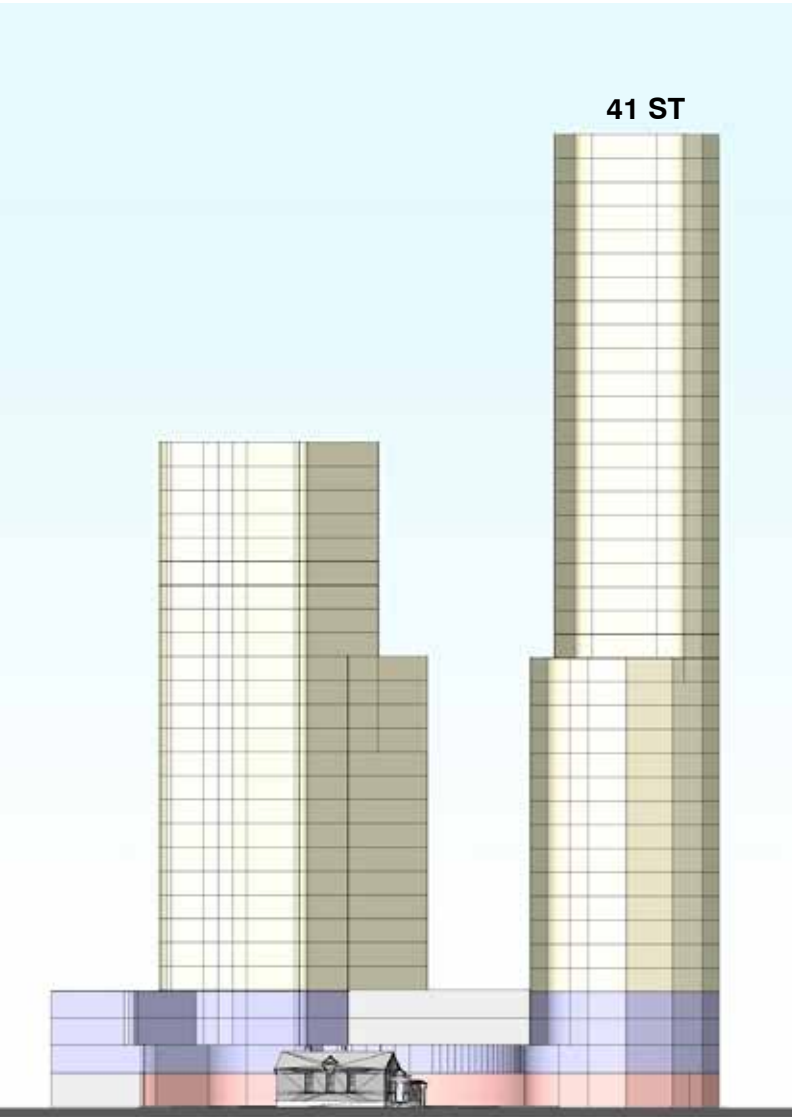
FSR: 5.5:1



Option 2:

Mixed use with 1,500 sqm of retail at ground floor, 5,000 sqm of commercial at podium and residential above

FSR: 6.5:1



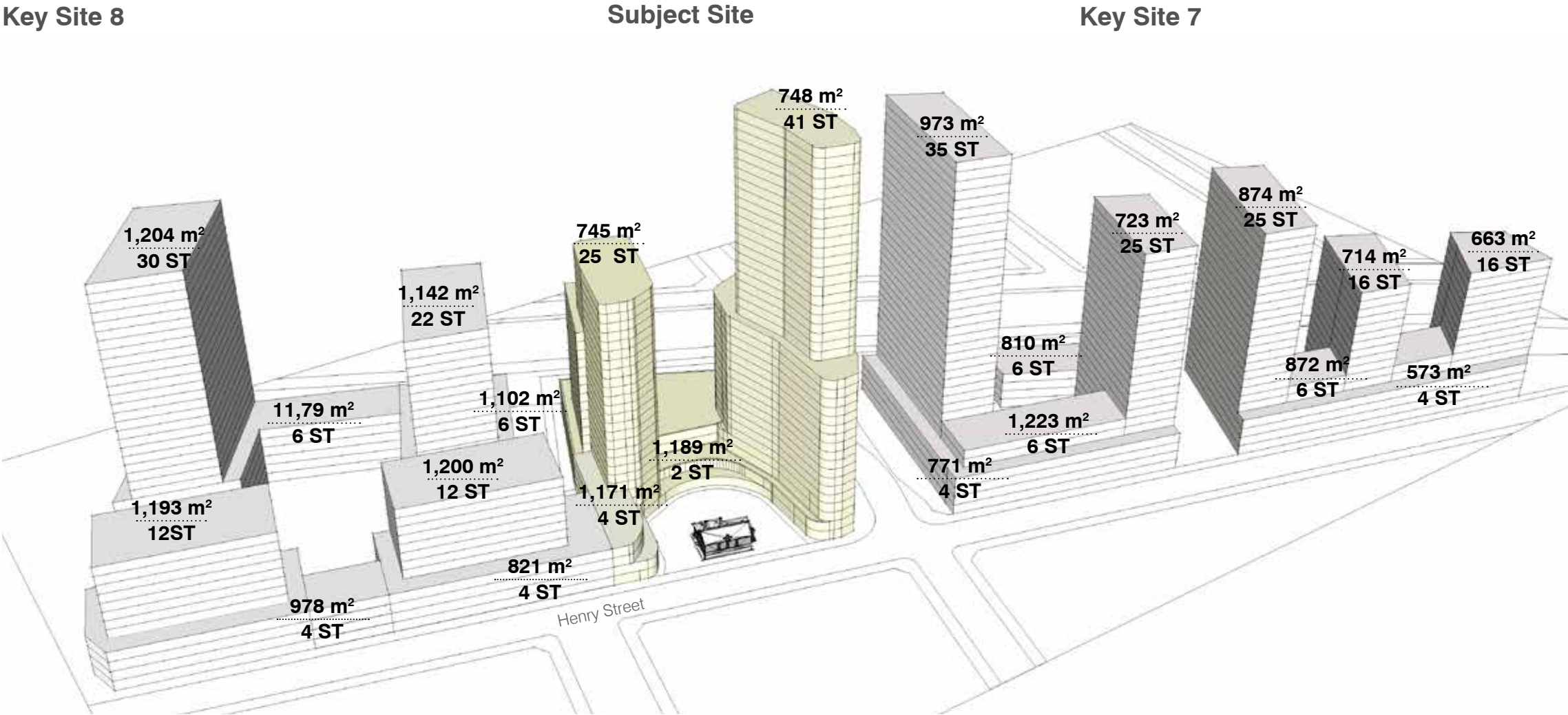


10. CONCEPTUAL MASSING MODEL

PROPOSED BUILDING ENVELOPE

Dickson Rothschild’s proposal considers Penrith DCP required floor plate sizes, depth and building setbacks as well as ADG building separation. The gross building area measured from the massing model is 63,651 sqm and taking 75% efficiency as its mixed use development, gross floor area of the proposal is 47,738 sqm. As site area is 7,358.3 sqm taken from survey plan, the proposed FSR is 6.49:1 (Note: site area excludes future road widening adjacent to Great Western Highway).

Height allows for variation of built form, a landmark tower at the corner and large open space around existing heritage item.



Key Site 8

\*GFA : 88,722m²

Site Area: 16,210m²

FSR: 5.5 :1

\*Note: The developable area measured from massing model is 110,902m² and the potential gross floor area at **80%** efficiency, based on the commercial use premises, is 88,722m².

Subject Site

\*GFA : 47,738m²

Site Area: 7,358.3m²

FSR: 6.49 :1

\*Note: The developable area measured from massing model is 63,651m² and the potential gross floor area at **75%** efficiency, based on the mixed use premises, is 47,738m².

Key Site 7

\*GFA : 93,779m²

Site Area: 18,850m²

FSR: 5.0 :1

\*Note: The developable area measured from massing model is 125,039m² and the potential gross floor area at **75%** efficiency, based on the mixed use premises, is 93,779m².



11. CONCEPTUAL MASTER PLAN

SITE PLAN



12. LAND USE AND POSITION

The massing model illustrates the building position and envelope of each component of the proposed development.

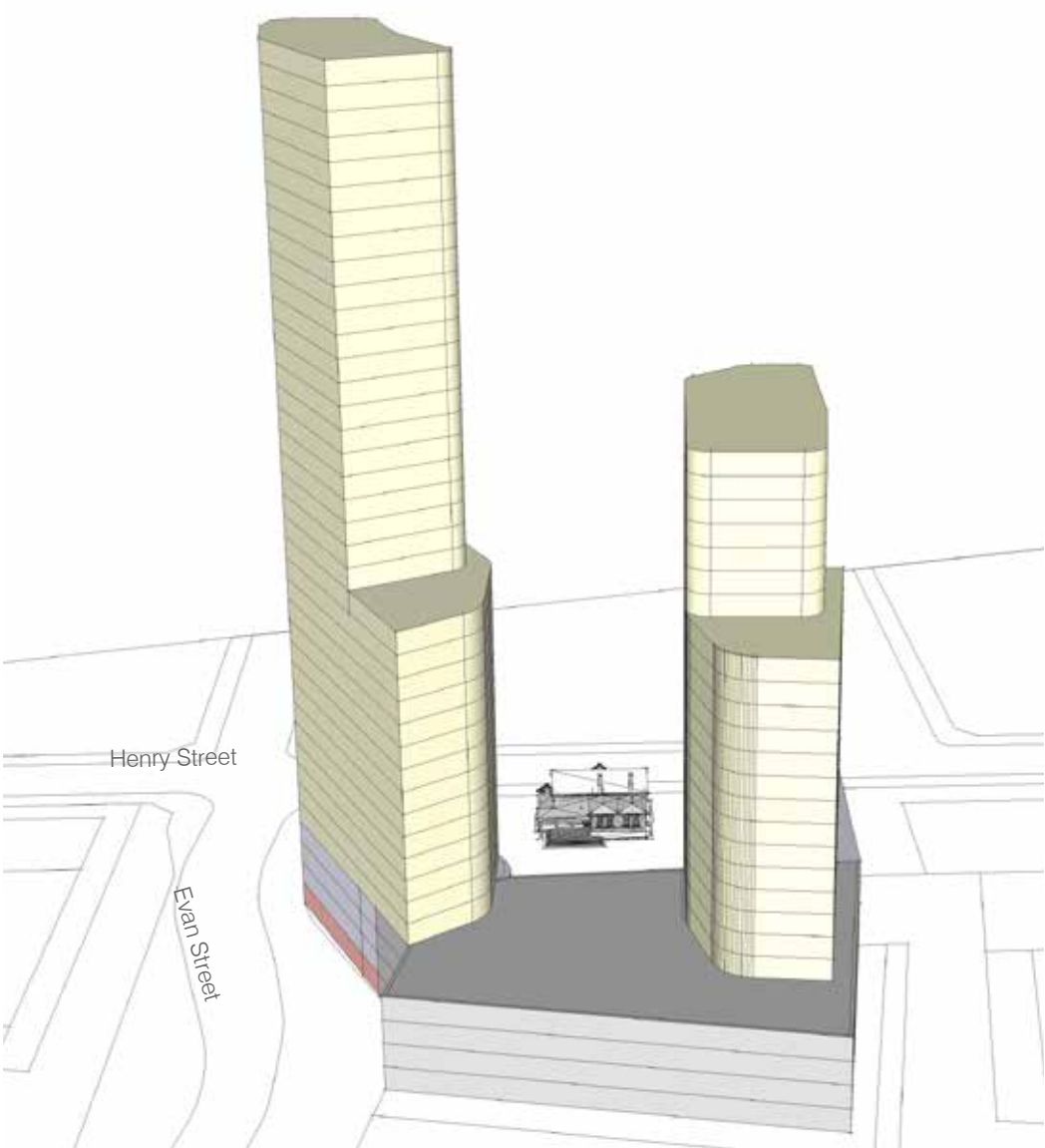
The gross building area of the retail and mixed use component measured from massing model is 1,993 sqm. The GBA of commercial component is 6,787 sqm and 54,871 sqm for residential development. Taking 75% efficiency of total GBA as its proposed mixed use zoning, the proposed GFA of retail and mixed use is 1,495sqm and the GFA of commercial component is 5,090 sqm. The GFA of residential development is 41,153 sqm consisting of approximately 549 two bedroom apartment units taking an average of 75 sqm per unit.

View from South looking towards North



- Retail / Mixed Use\_ GFA: 1,495sqm**
- Commercial / Office\_ GFA: 5,090sqm**
- Residential\_ GFA: 41,153 sqm (549 units)**
- Car Parking / Driveway**

View from North looking towards South





13. DESIGN GUIDELINES

Illustrative scheme looking from south towards the site



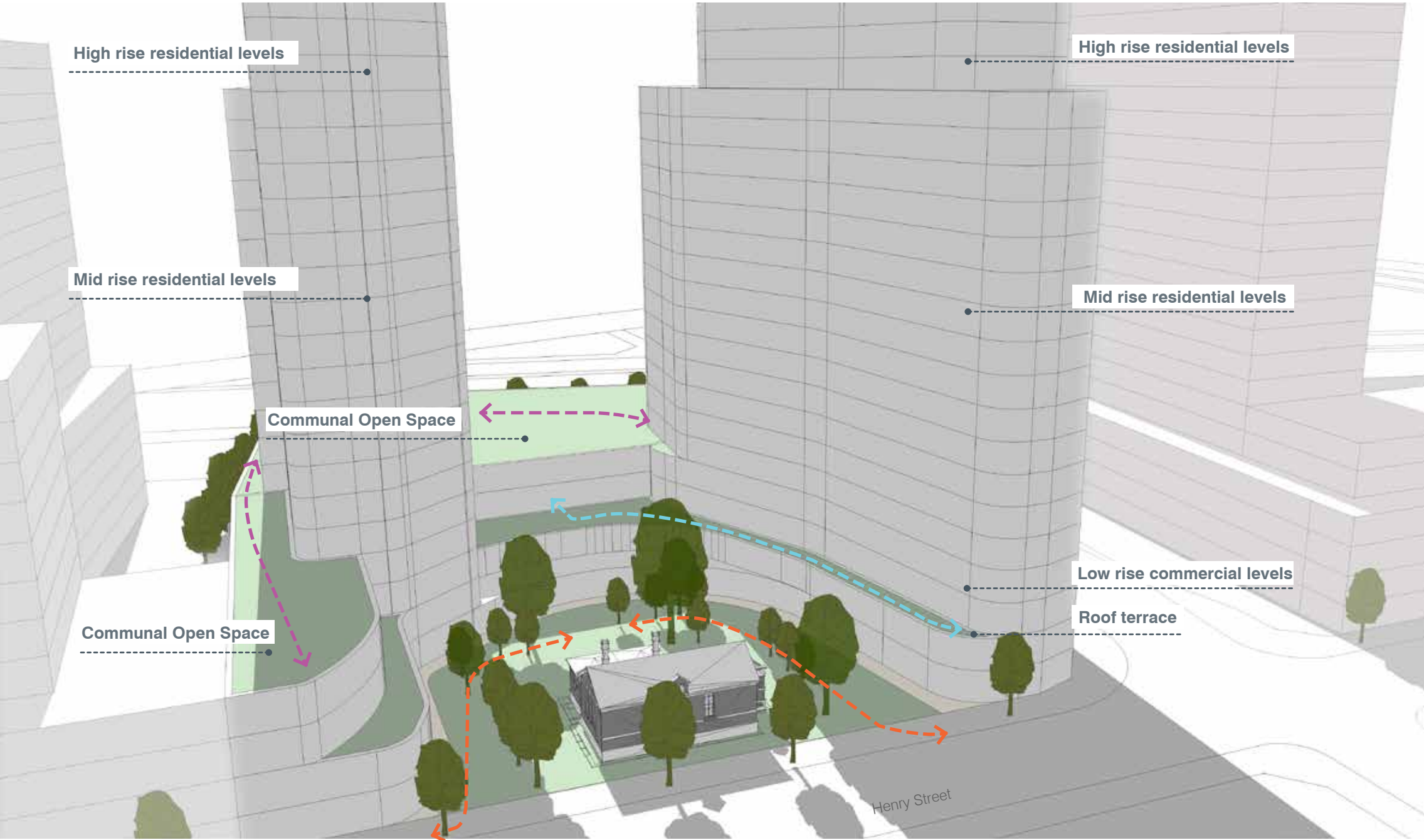
- Separate buildings as much as possible to provide solar access through middle of site towards the south..
- Step building height to provide human scale podium around heritage building.
- Provide a backdrop building in the rear to form a courtyard and to create enclosure to heritage building.
- Create a publicly accessible public open space around heritage building.
- Create landscape curtilage around heritage building to acknowledge historical landscape setting.
- Maximise height on corner to mark “Gateway” location.

Site Plan



- Setback between towers: 26-36 m
- Step building height
- Dropback building in the rear
- Public access to public open space
- Define ‘Gateway’ location

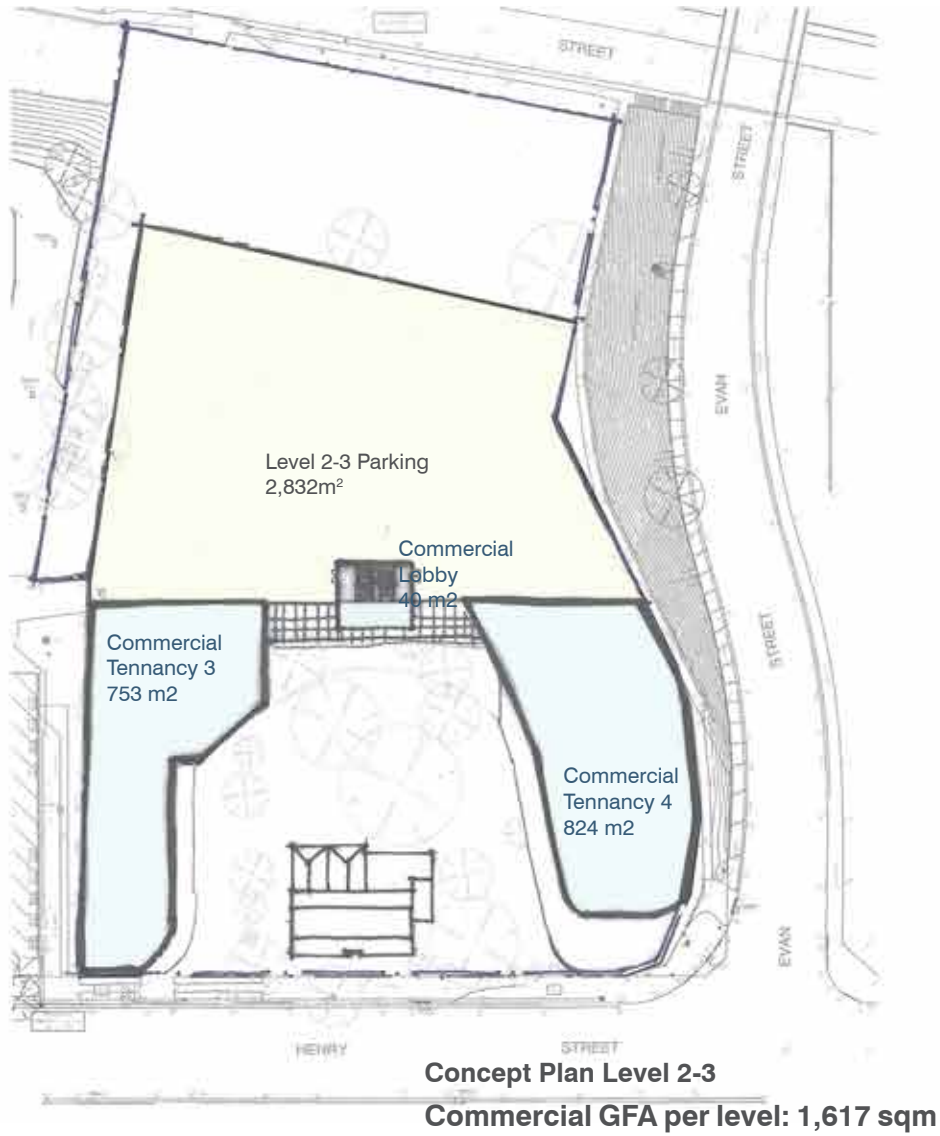
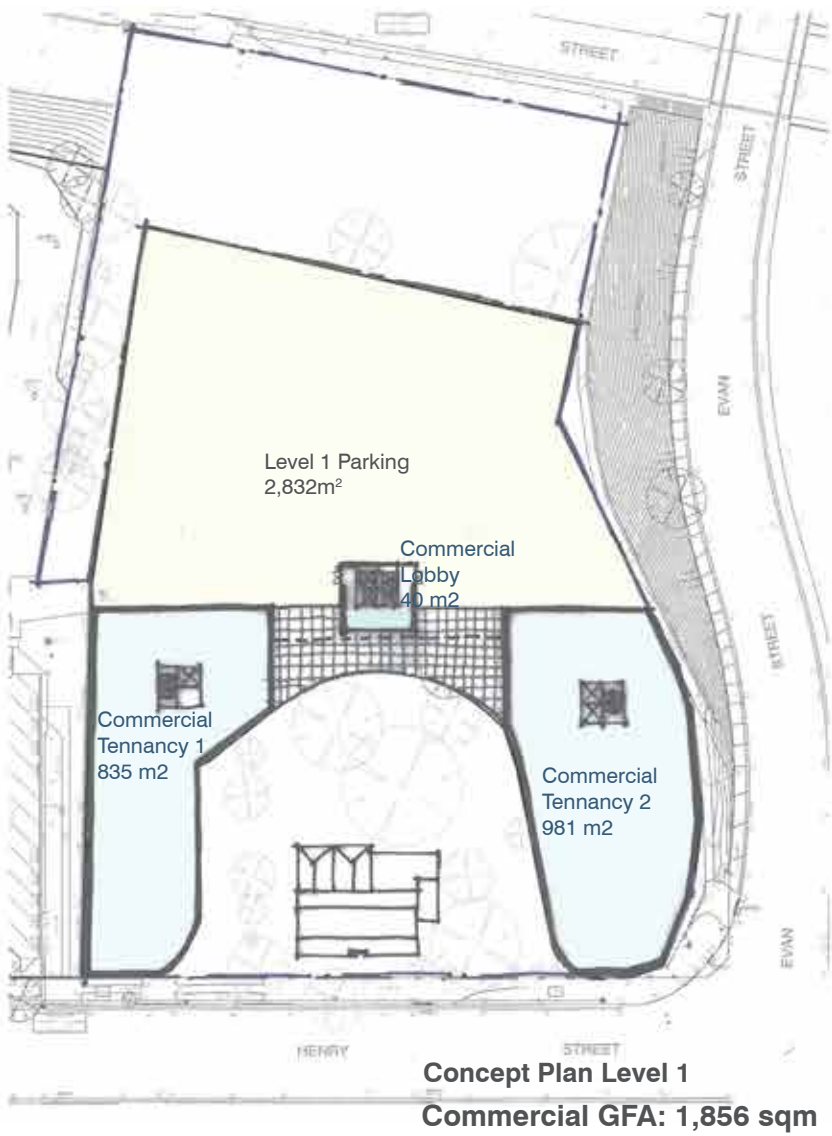
14. PEDESTRIAN ACCESS AND ACTIVITIES





15. CONCEPT DESIGN OF RETAIL / COMMERCIAL FLOOR PLATES

Ground floor retail spaces in association with potential commercial Justice related floor space





16. PUBLIC OPEN SPACE AND ACTIVATION

View looking from southwest towards public plaza



View looking towards the communal open space on podium



View looking from southeast towards public plaza



① Retail on ground level with outdoor seating



② Reuse the heritage item and create a publicly accessible plaza



③ Communal open space on podium level providing recreational opportunities.



④ Retail on ground level with outdoor seating



Public open space reference images



## 17. STREETScape



Streetscape on Henry Street

- Continue street wall height along Henry Street.
- Transition to lower scale streetwall within site to related to heritage.
- Use streetwall height and separation to retain streetscape views to heritage building.



Streetscape on Great Western Hwy

- Creating green buffer between Great Western Hwy and the proposed development to diminish negative impact from railway line (ie. noisy).

18. VIEW IMPACT ON HERITAGE ITEM

The setback of the proposed new buildings on the site will maintain the prominence of the original building when viewed in both directions along Henry Street.

This proposal neatly allows an existing modest school building to maintain its streetscape presence and integrity as a free-standing building whilst allowing major development to take place in close proximity.



Site Plan



View looking from northwest towards the heritage item



View looking from northeast towards the heritage item

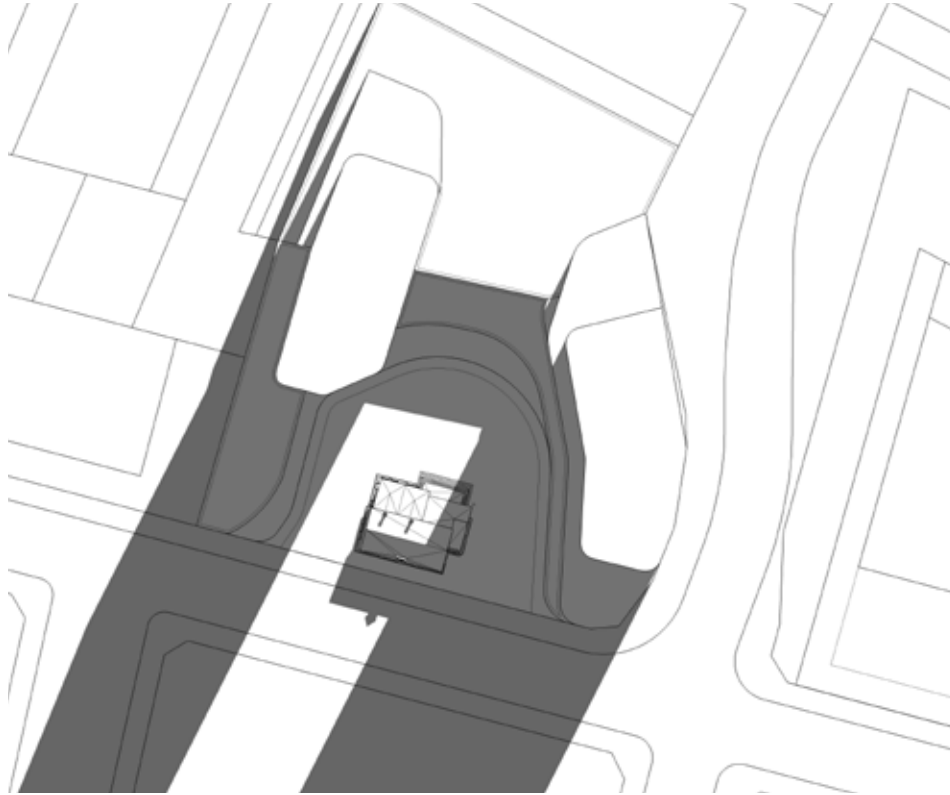
- Match height of streetwall at Key site 8
- Transition streetwall height down to relate to Height Item
- Retail podium setback to Heritage Item: 12- 16m
- Residential tower setback to Heritage Item: 16- 20m
- Align high rise residential tower with Heritage Item
- Curve of chamfer podium building edge to allow view to Heritage Item



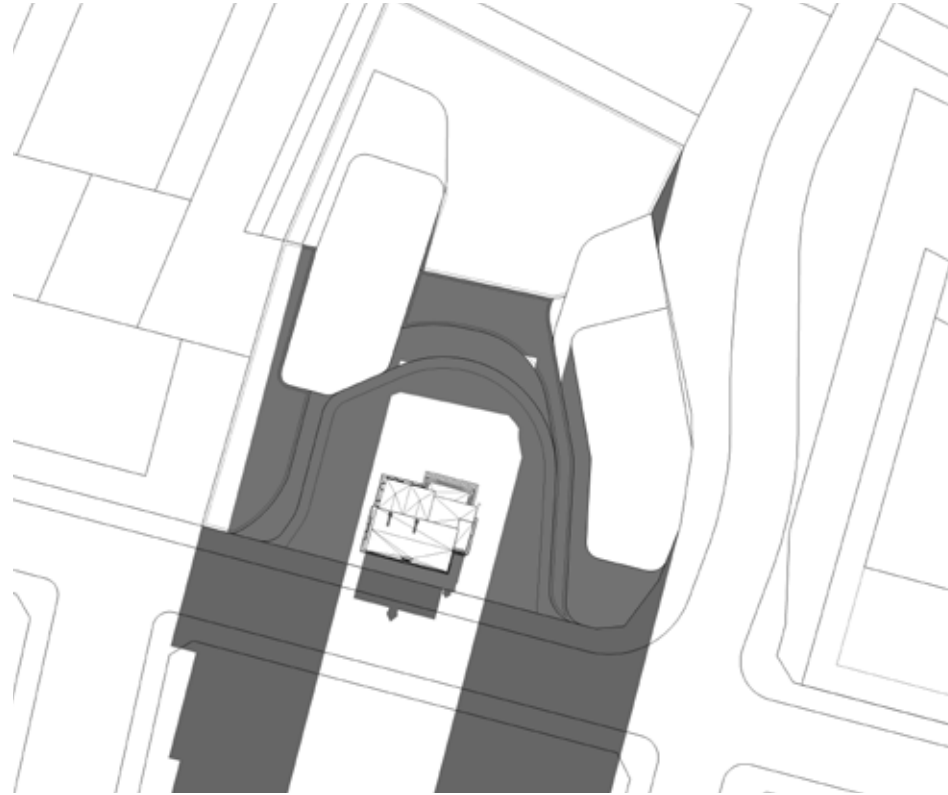
## 19. SHADOW DIAGRAM

A shadow study was undertaken to determine the effects of overshadowing between 10am and 12pm on 22nd of June.

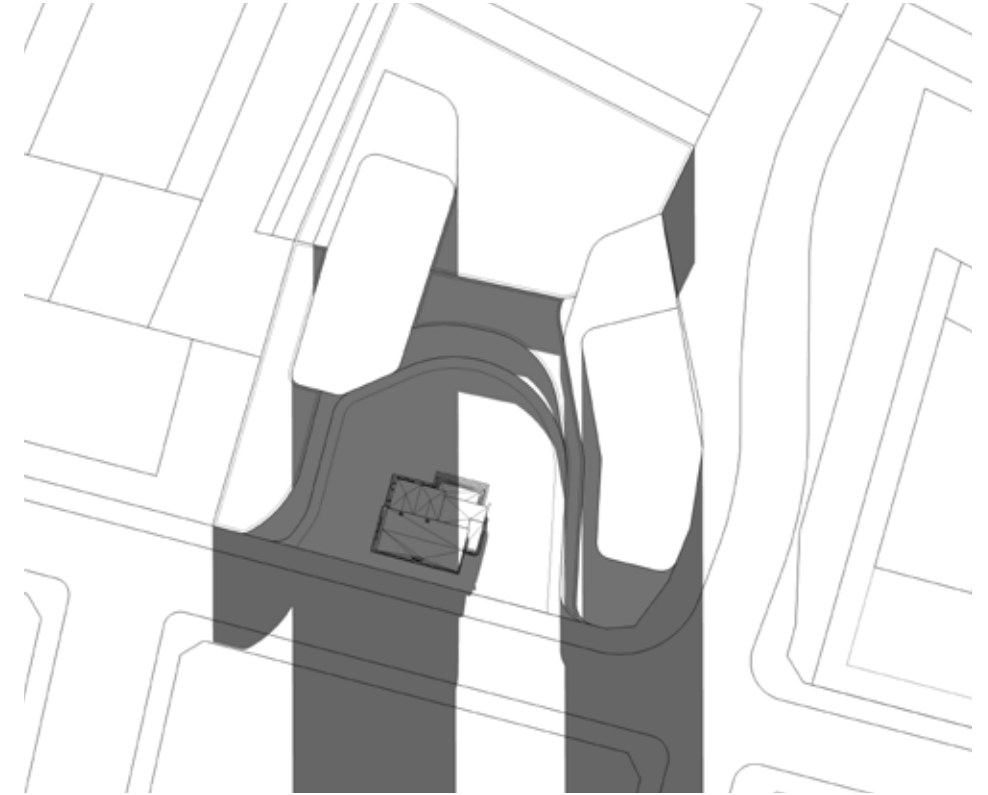
10:00 am on 22nd June



11:00 am on 22nd June



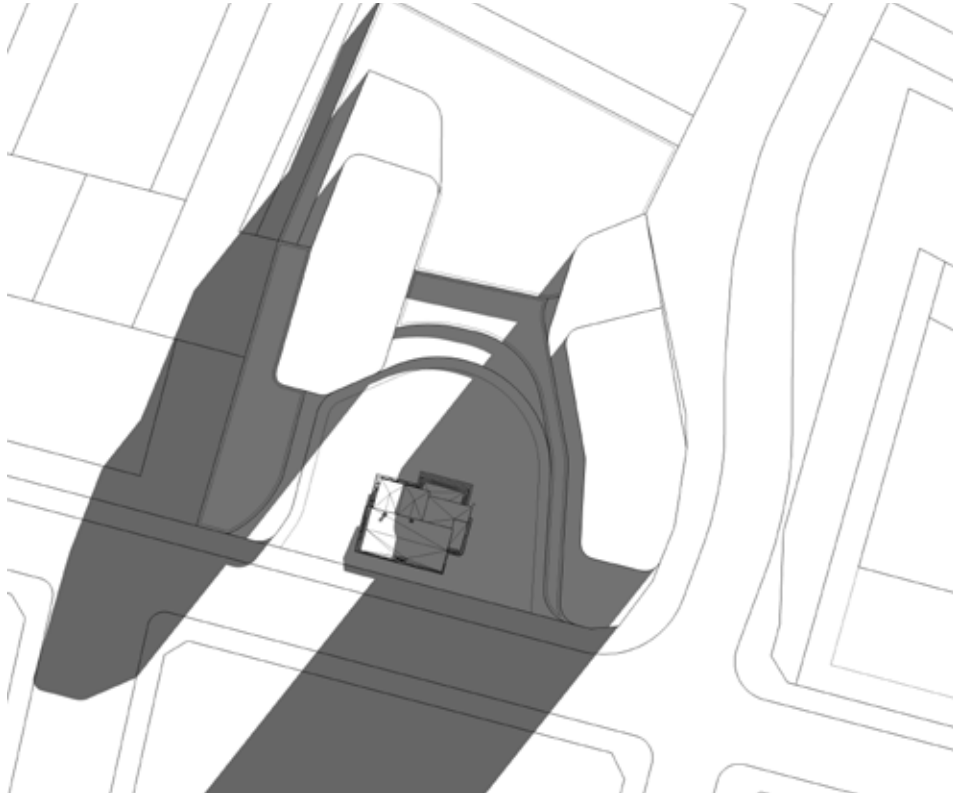
12:00 pm on 22nd June



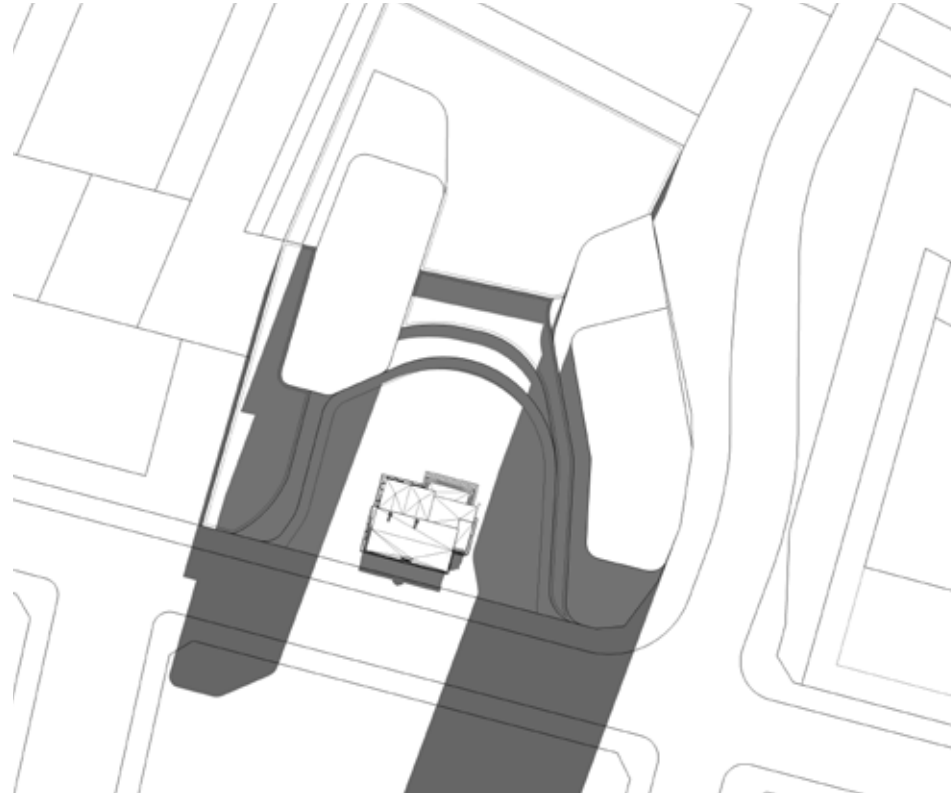
## 19. SHADOW DIAGRAM

A shadow study was undertaken to determine the effects of overshadowing between 10am and 12pm on and 22nd of September.

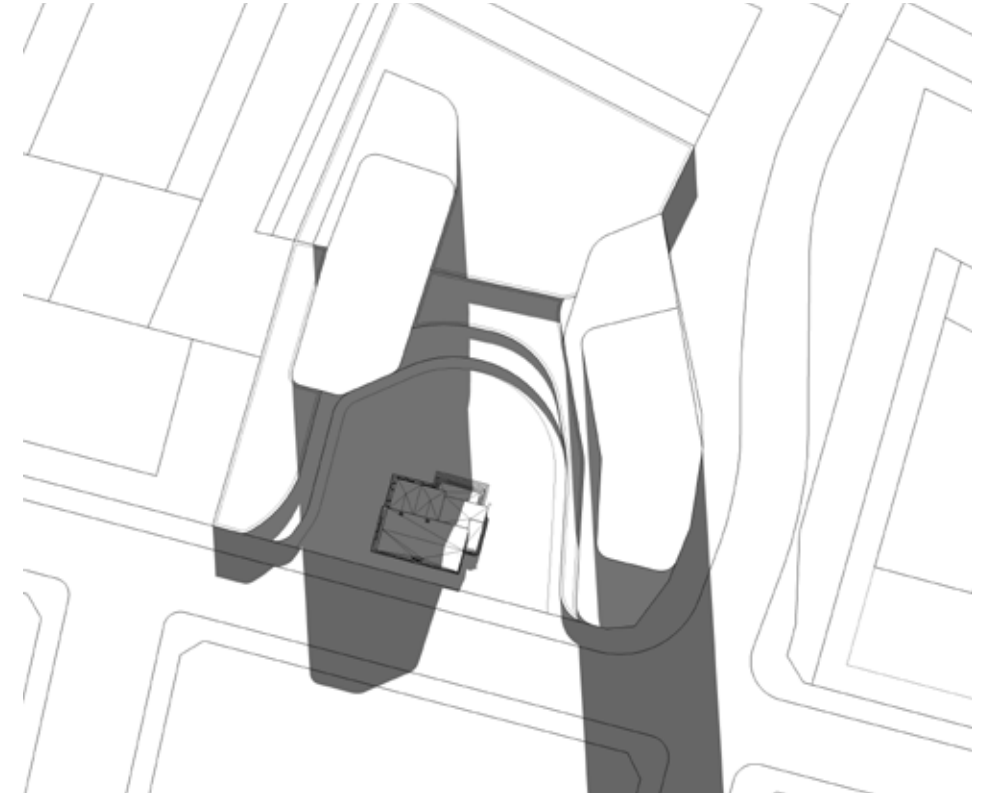
10:00 am on 22nd September



11:00 am on 22nd September



12:00 pm on 22nd September



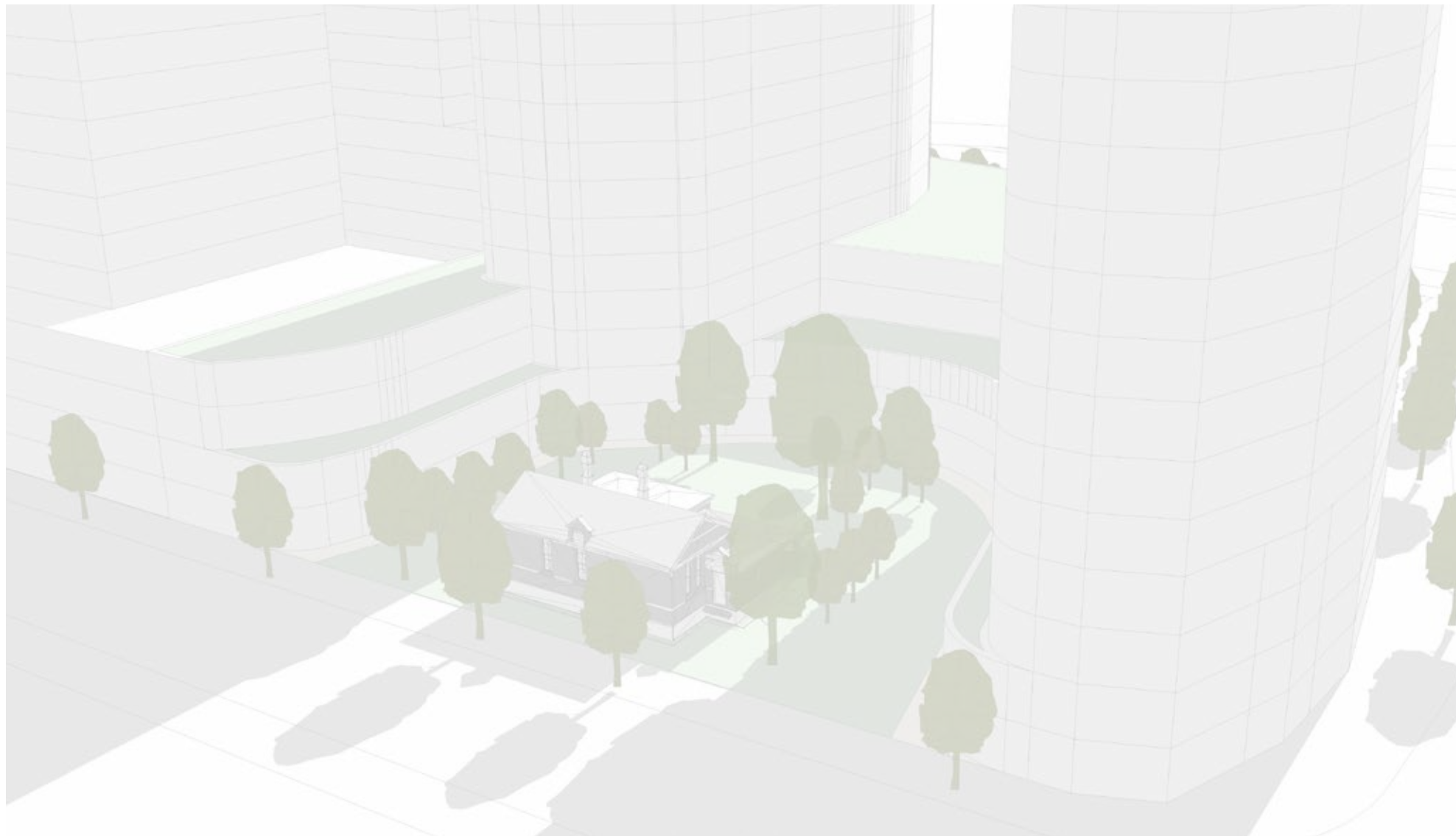


20. YIELD SUMMARY



		TOWER A	TOWER B	HERITAGE BUILDING
GFA / m <sup>2</sup>	Retail	646	689	160
		1,495		
	Commercial	2,461	2,629	
		5,090		
	Residential	14,695	26,459	
		41,153		
	Total	47,738		
Site Area / m <sup>2</sup>		7,358		
FSR		6.49		
Residential Units		196	353	
Total Units		549		

NOTE: Residential units calculated at an average two bedroom apartment /75 sqm per unit.



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Nominated Architect: Robert Nigel Dickson  
Registration No.: 5364

