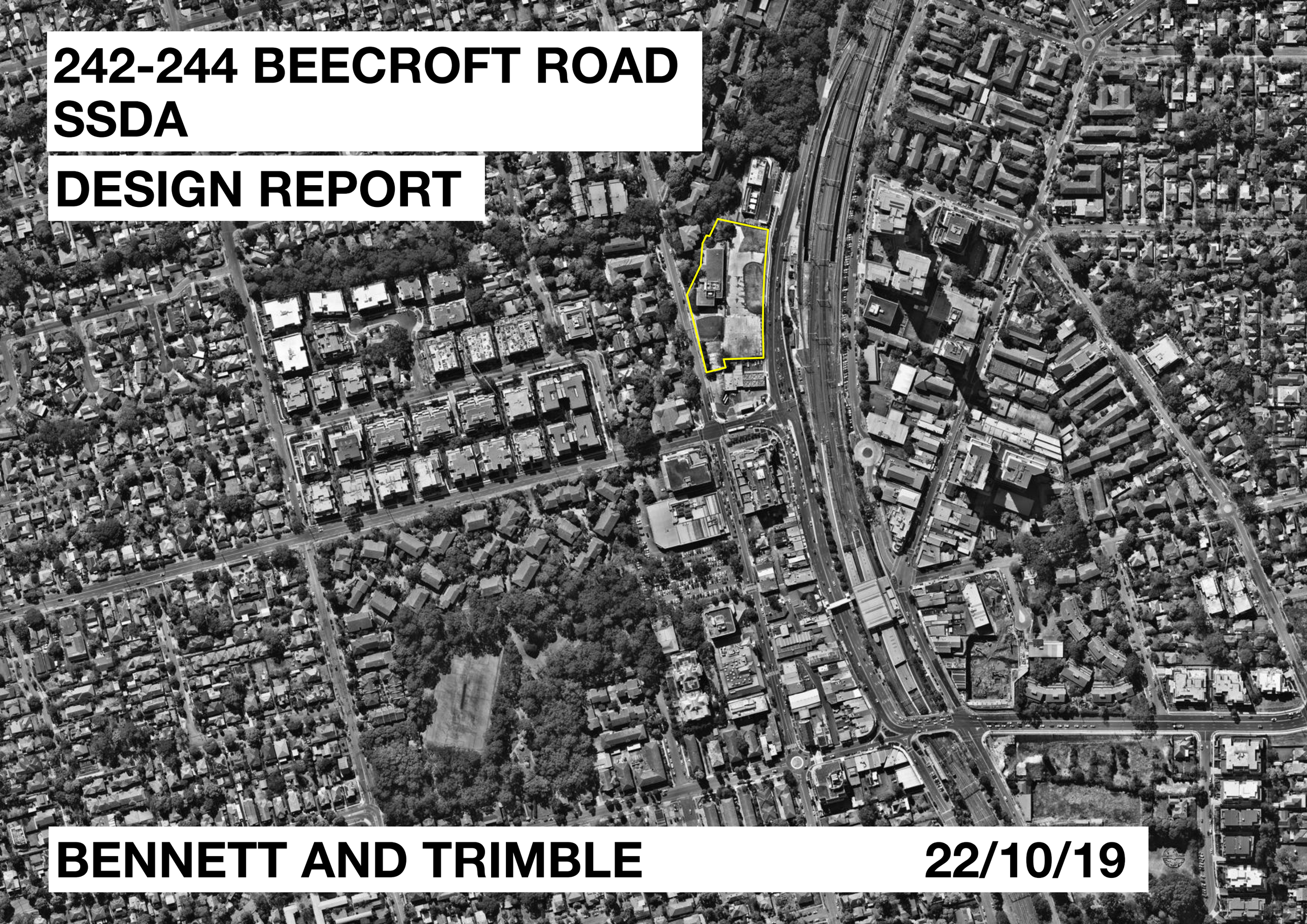
242-244 BEECROFT ROAD SSDA

DESIGN REPORT



BENNETT AND TRIMBLE

22/10/19

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URBAN DESIGN EPPING NORTH WEST URBAN TRANSFORMATION

Prepared for	Landcom
Prepared by	Bennett and Trimble
Issue	B
Date	22/10/19

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INTRODUCTION

The purpose of this Urban Design Report is to describe the analysis and design principles that underpin a reference concept design for a State Significant Development Application (SSDA) for a site at 242-244 Beecroft Road, Epping.

Multiple site strategies and built form studies were investigated with two selected for additional testing. From these, the preferred option was further developed as the concept design.

Preliminary planning for the buildings has been undertaken in order to test amenity through compliance with the Apartment Design Guide (ADG) focussing on solar access, natural cross ventilation, communal open space and building separation. Typical apartment plans have been developed to determine an achievable yield, a schedule of areas, and ADG compliance.

Structure of Report:

A Site Analysis includes context analysis of the site, opportunities and constraints on the site, a summary of relevant planning controls

Design Principles including Urban Design Principles for the site, public domain and landscape principles, and a summary of specific urban design constraints and responses.

A summary of key **Apartment Design Guide Principles.**

A Concept Design for the site has been developed to test massing and urban form within planning controls, capacity and yield, ADG compliance for cross ventilation and daylight provisions, and typical floorplate efficiency.

They have been tested to demonstrate a development model that maximises the development yield within setback and building separation controls, the ADG, and the height limit, and that is commercially realistic in this market.

Concept Images have been prepared with indicative massing, landscaping and common open space. The reference scheme has been shown in the context of proposed and approved developments in the immediate context.

SUMMARY OF CHANGES

1:2000

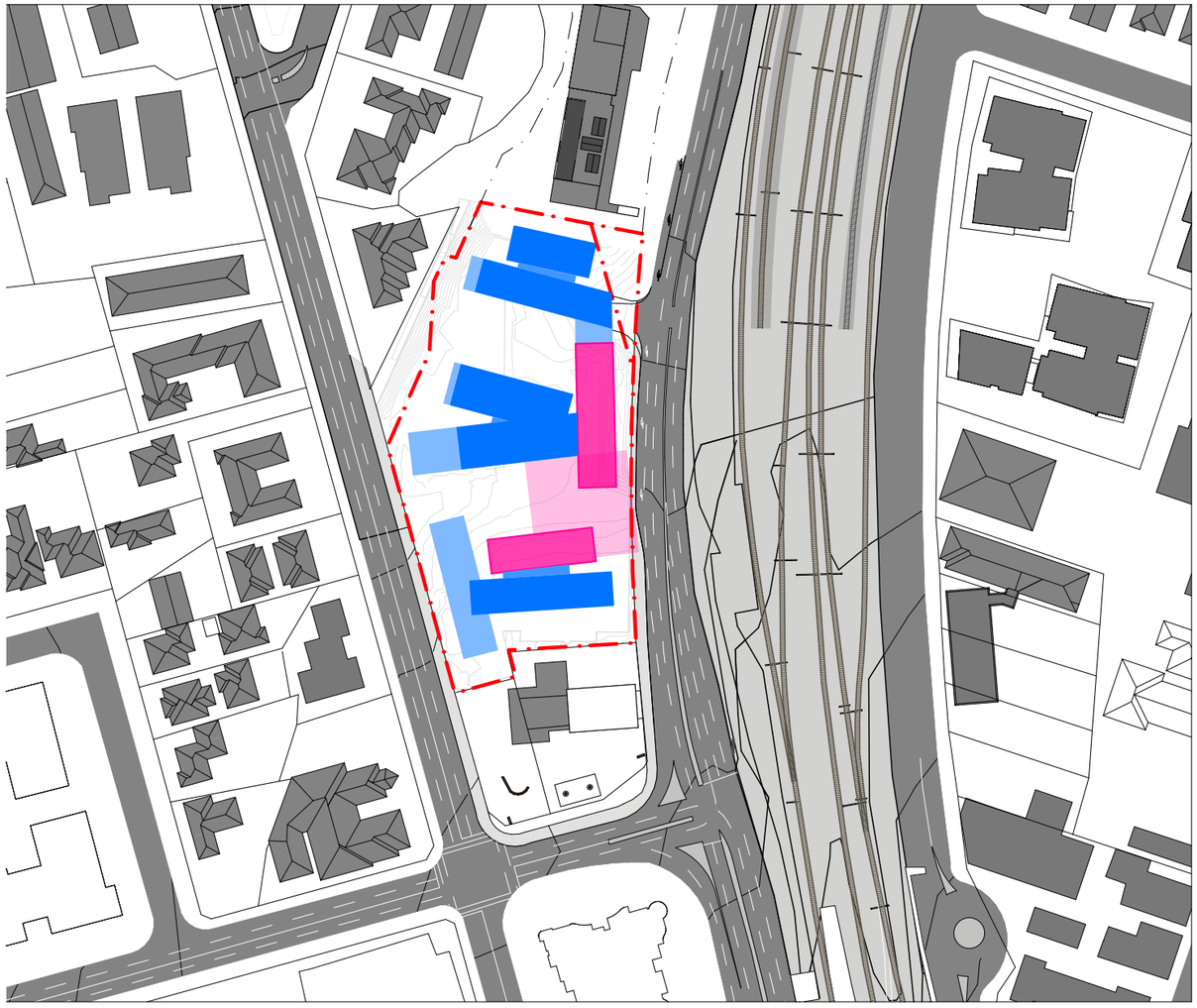
The following changes have been made following the receipt of the SSDA submissions:

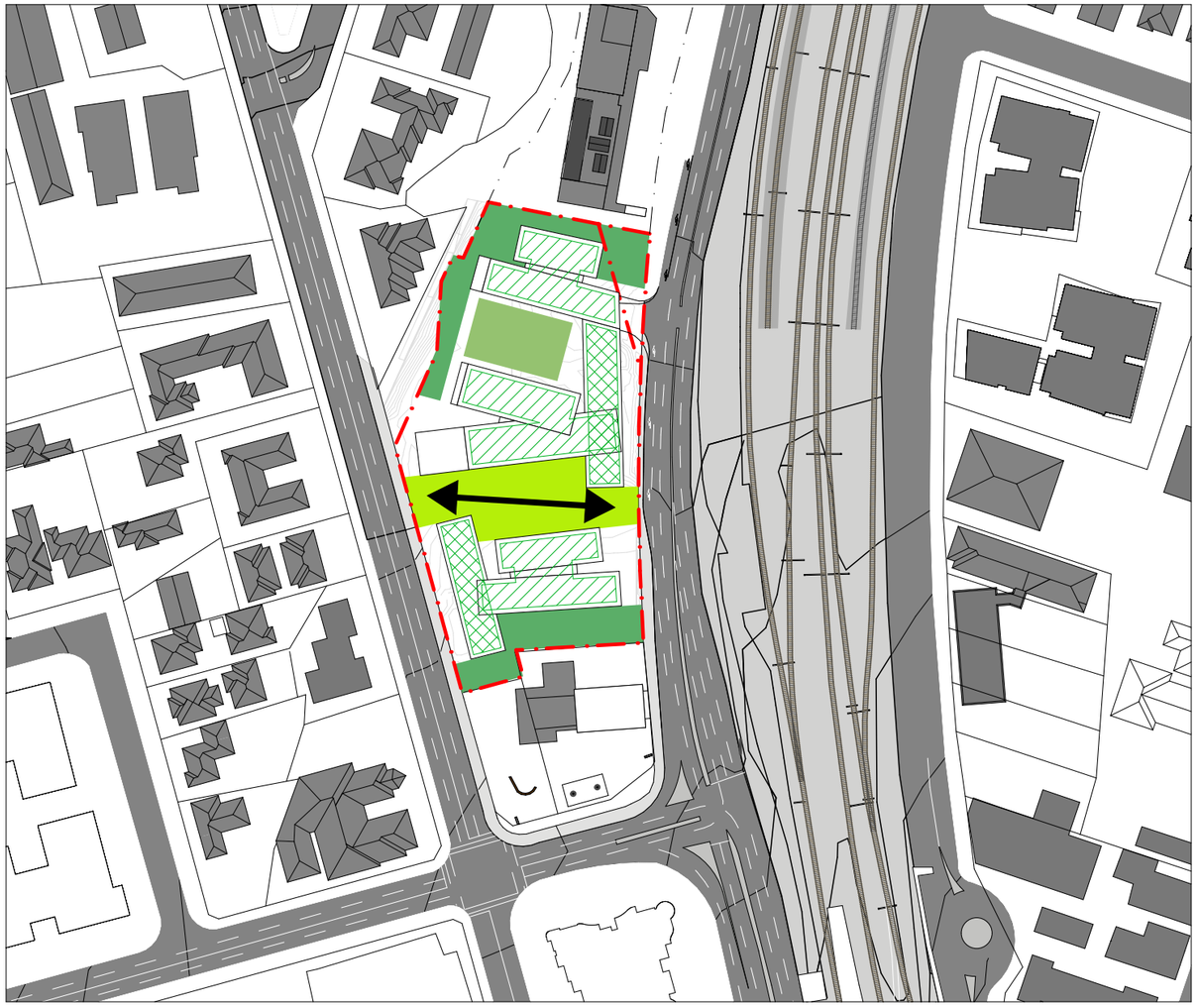
Through Site Link
- The through site link has been redesigned as a wider public, accessible, pedestrian link, that steps down from Beecroft Road to Ray Road.
- The Ray Road building has been shortened to accommodate this change.

Non Residential Uses
- The Non Residential Uses have been redistributed to sit adjacent to Beecroft Road and the new through site link at Beecroft Road.
- A floor to ceiling height of 3.3m has been allowed for by lowering the ground level of the proposed development.

In addition to this, the Urban Design Report has been expanded to further clarify the design process, and rationale. The following sections have been added or expanded:

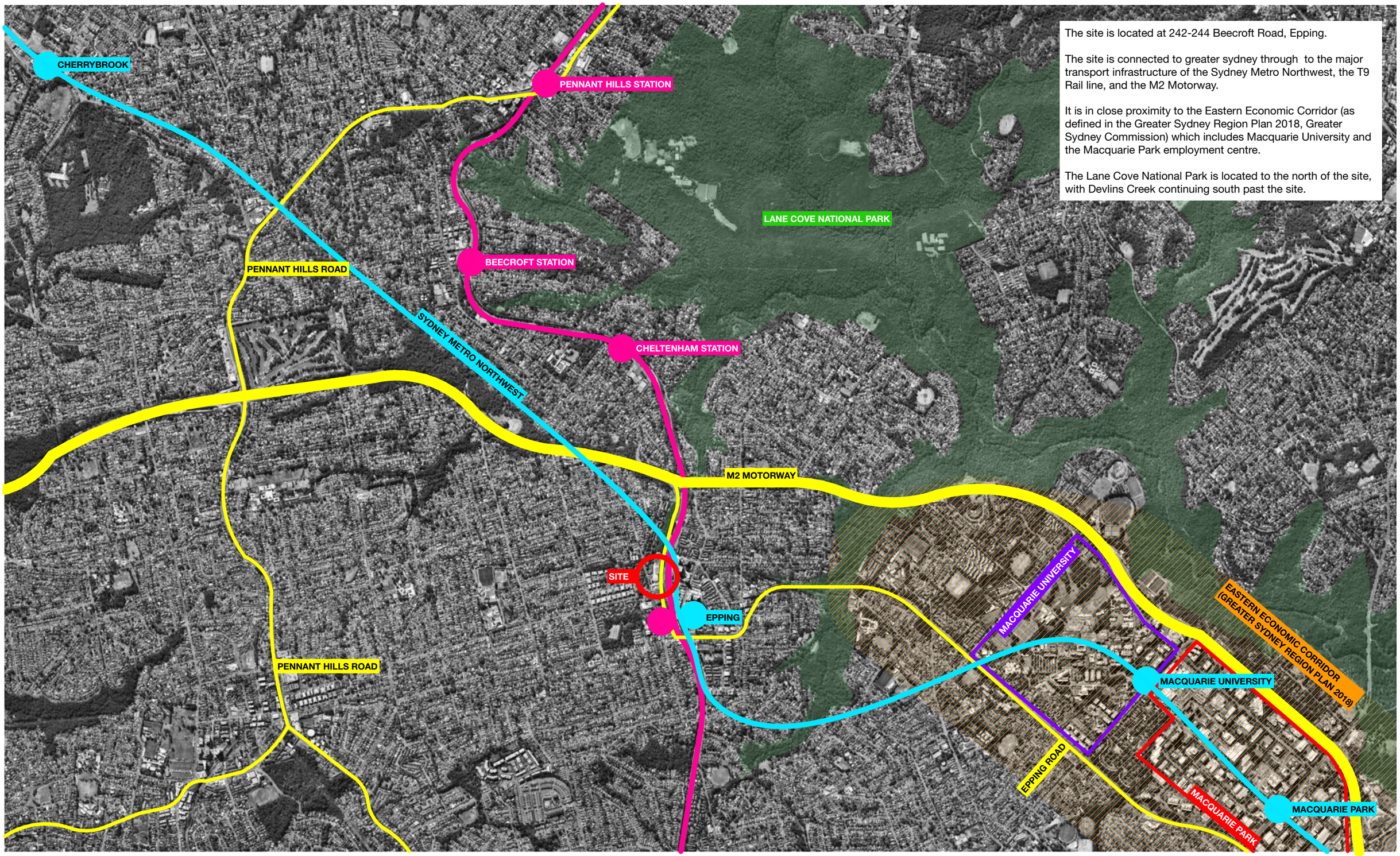
- Site Analysis - Local Character
- Site Analysis - Constraints
- Site Analysis - Summary
- Urban Design Principles
- Public Domain and Landscape Principles
- Assess and Connectivity
- Setbacks and Alignments
- Height in Stories
- Activation and Ground Floor Uses
- Noise Mitigation
- Overshadowing - 246-250 Beecroft Road
- ADG - Design Principles summary





SITE ANALYSIS - REGIONAL CONTEXT

1:25000



The site is located at 242-244 Beecroft Road, Epping.

The site is connected to greater sydney through to the major transport infrastructure of the Sydney Metro Northwest, the T9 Rail line, and the M2 Motorway.

It is in close proximity to the Eastern Economic Corridor (as defined in the Greater Sydney Region Plan 2018, Greater Sydney Commission) which includes Macquarie University and the Macquarie Park employment centre.

The Lane Cove National Park is located to the north of the site, with Devlins Creek continuing south past the site.

SITE ANALYSIS - LOCAL CONTEXT

1:5000

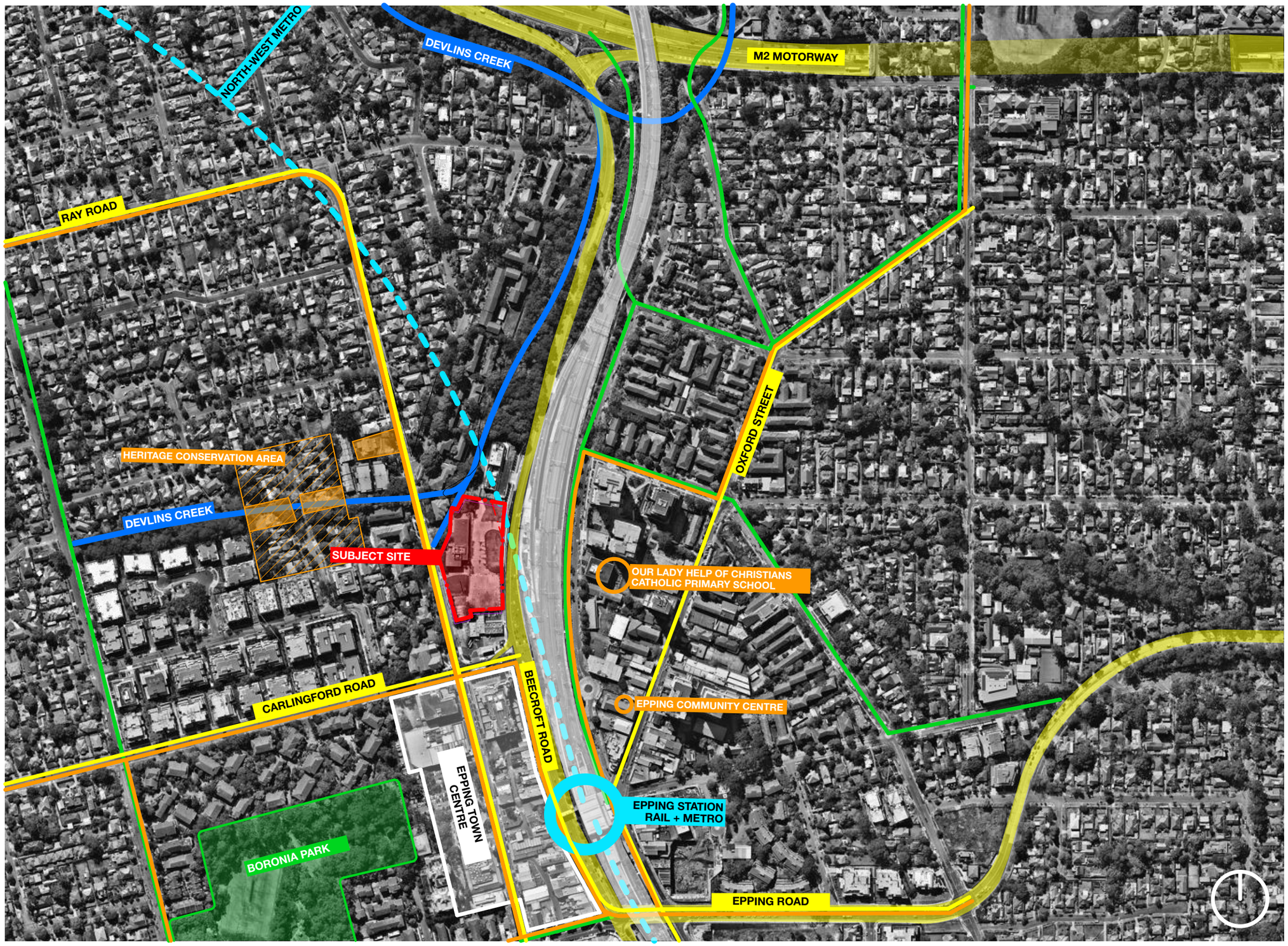
The site is located at 242-244 Beecroft Road, Epping.

The site is located between Beecroft Road to the east and Ray Road to the west. A service station is located to the south of the site, and a services facility for Sydney Metro is located to the north.

Devlins Creek runs along the north west boundary in a concrete canal.

Epping Town Centre, and the Metro and Rail stations are located across Carlingford Road to the south of the site.

Significant residential developments have been recently completed on Carlingford Road and across the rail line from the site.



SITE
MAIN ROADS
BIKE PATHS
BUS ROUTES
GREEN SPACE
HERITAGE
DEVLINS CREEK

SITE ANALYSIS - LOCAL CHARACTER

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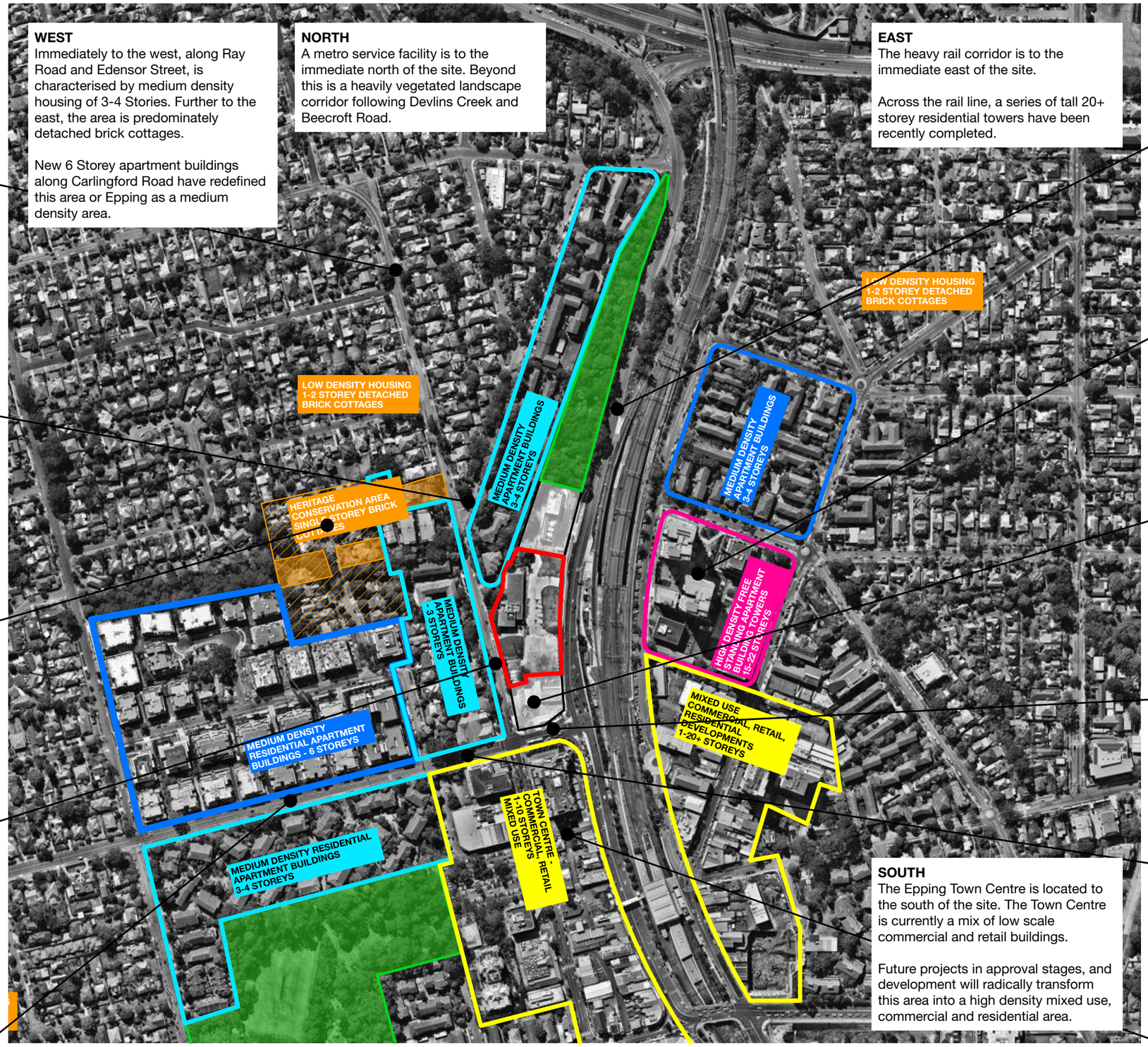


WEST
Immediately to the west, along Ray Road and Edensor Street, is characterised by medium density housing of 3-4 Stories. Further to the east, the area is predominately detached brick cottages.

New 6 Storey apartment buildings along Carlingford Road have redefined this area or Epping as a medium density area.

NORTH
A metro service facility is to the immediate north of the site. Beyond this is a heavily vegetated landscape corridor following Devlins Creek and Beecroft Road.

EAST
The heavy rail corridor is to the immediate east of the site.

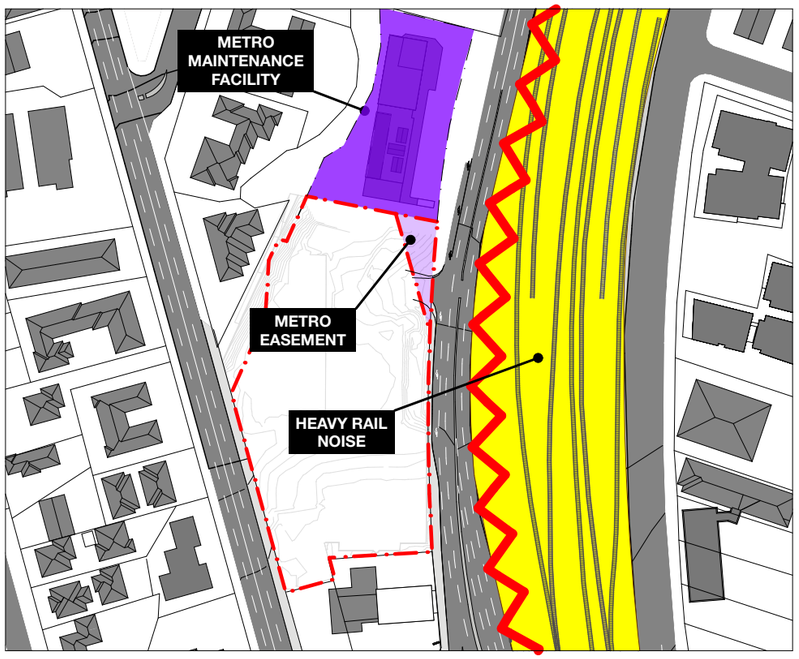
Across the rail line, a series of tall 20+ storey residential towers have been recently completed.

SOUTH
The Epping Town Centre is located to the south of the site. The Town Centre is currently a mix of low scale commercial and retail buildings.

Future projects in approval stages, and development will radically transform this area into a high density mixed use, commercial and residential area.

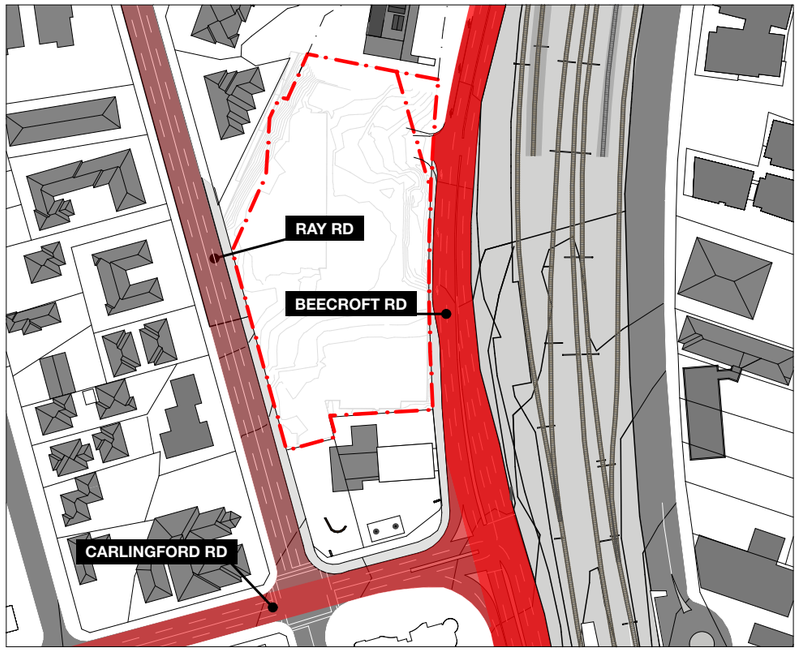
SITE ANALYSIS - CONSTRAINTS

1:2500



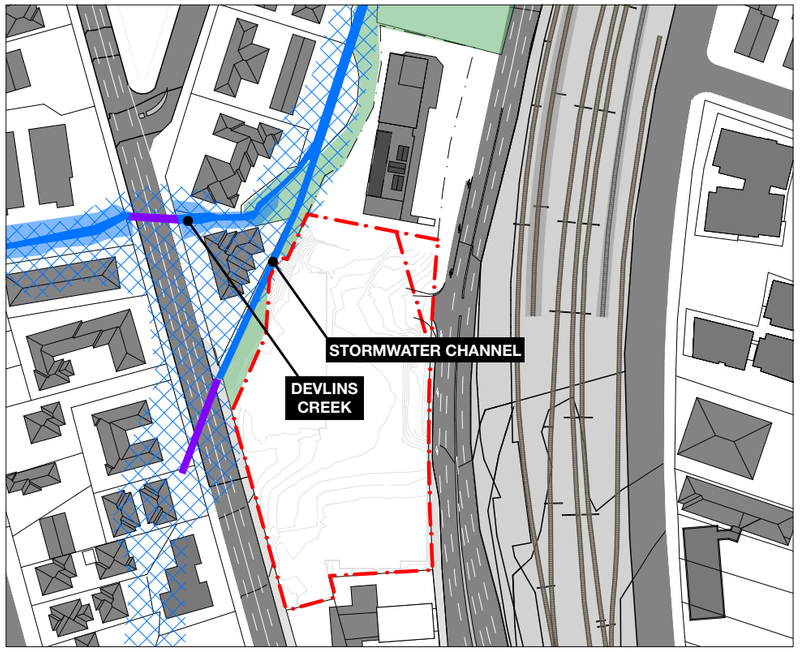
HEAVY RAIL AND METRO CORRIDORS

- The site is located adjacent a heavy rail corridor. Acoustics and noise issues related to this use will need to be addressed in the site planning.
- The site is also adjacent the Sydney Metro rail corridor and Epping Service Facility.



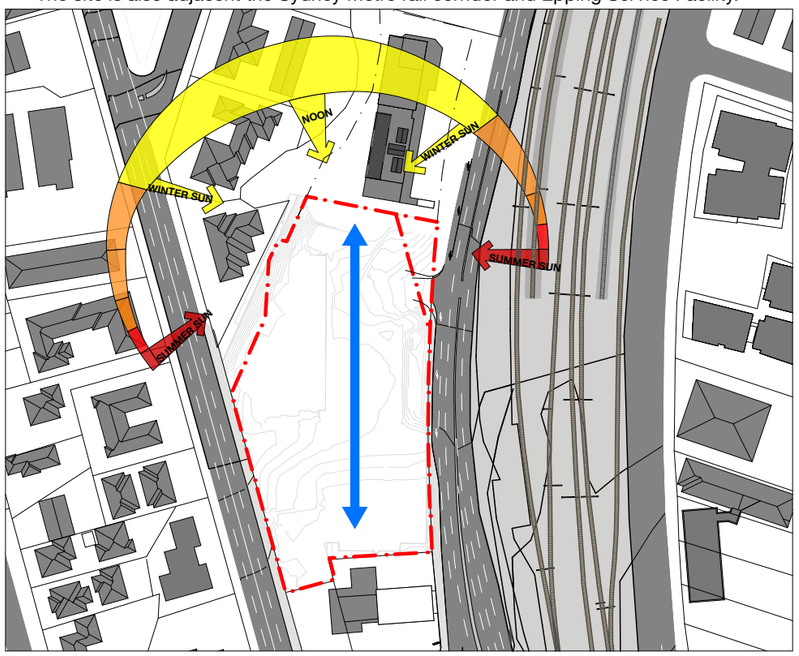
ADJACENT ROADS

- The site is located adjacent the State Classified Main Road of Beecroft Road, and near the intersection of the State Classified Main Road of Carlingford Road.
- The intersection of Beecroft Road and Carlingford Road is a busy intersection



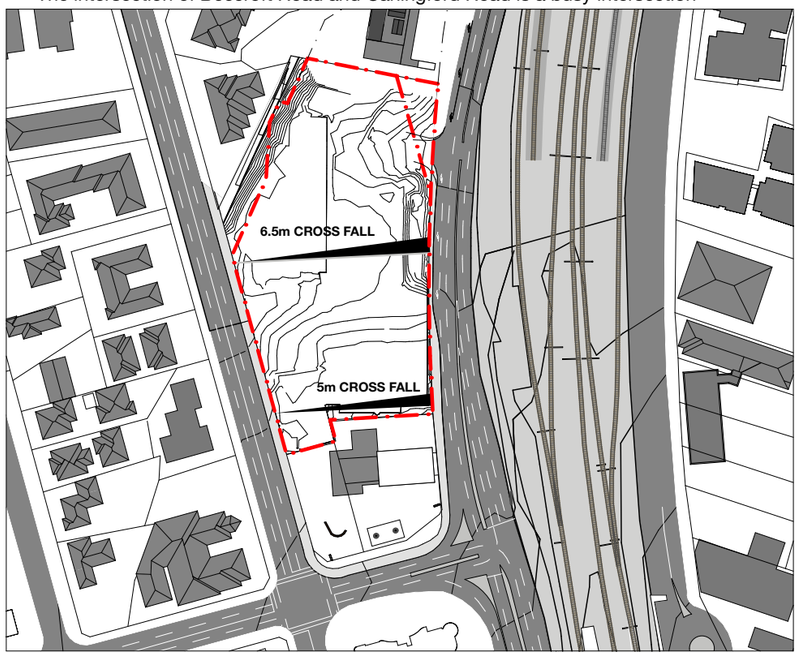
DEVLINS CREEK

- Devlins Creek runs along the north west boundary of the site in a concrete canal and continues under Ray Road.
- No permanent structures within 1m of Stormwater Channel



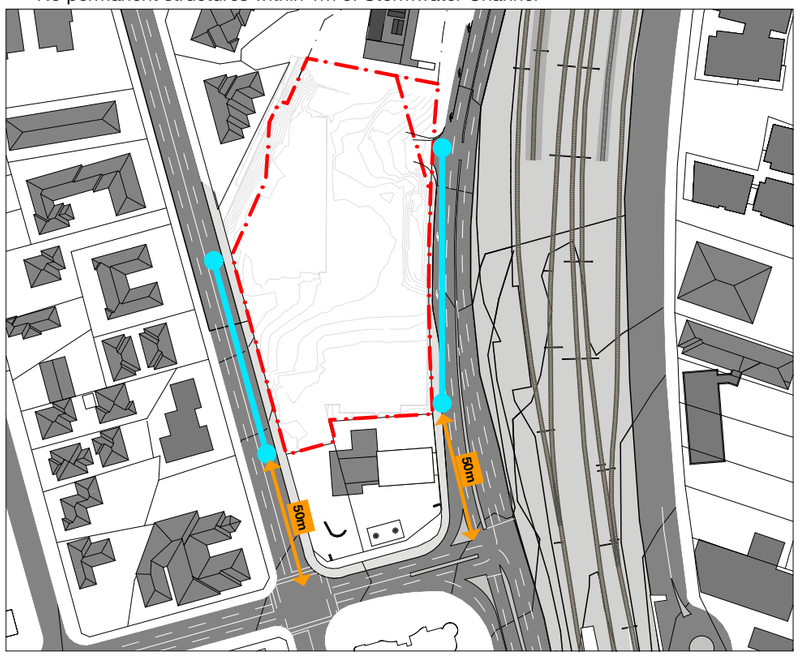
SITE ORIENTATION

- The site is oriented North South.
- Future residential uses will need to address the potential for overshadowing, and access to natural daylight



TOPOGRAPHY

- The site falls 5-6.5m from East to West from Beecroft Road to Ray Road
- The north west boundary of the site falls to Devlins Creek



ACCESS AND ADDRESS

- Limited street frontage due to site boundary and orientation
- Proximity to major and busy intesection
- Street frontage and address off busy Roads

SITE ANALYSIS - SUMMARY

1:2500

DESIGN STATEMENT

1:2000

Three towers are arranged on the site to optimise access to daylight, privacy, and building separation.

The towers are oriented east/west to minimise the length of facade exposed to rail and road noise, and to open the primary facade to the north.

Each tower comprises two rectangular forms that are angled in response to the geometry of the site and to increase solar penetration. The separation of the forms and the cuts between the elements, breaks down the scale of the towers, reducing the apparent width of each element and allows for increased opportunities for cross ventilation, aspect, daylight, and amenity..

The towers are within the height plane and of an equal height. They act as a transition between the tall towers proposed at the Epping Town Centre and the lower scale built form to the north of the site.

A dense landscape corridor along Devlins Creek provides a green buffer to the development when viewed from the north.

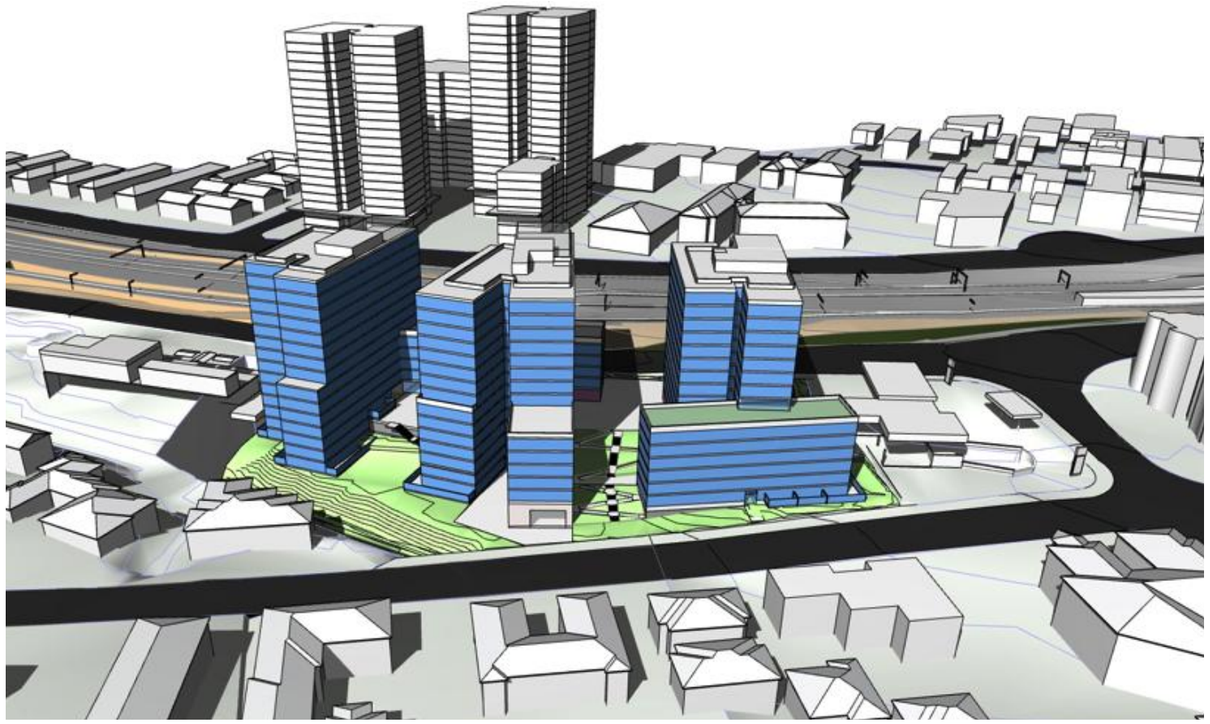
On Beecroft Road a 5 storey podium connects the two northernmost towers and on Ray Road a 5 storey podium connects the two southernmost towers.

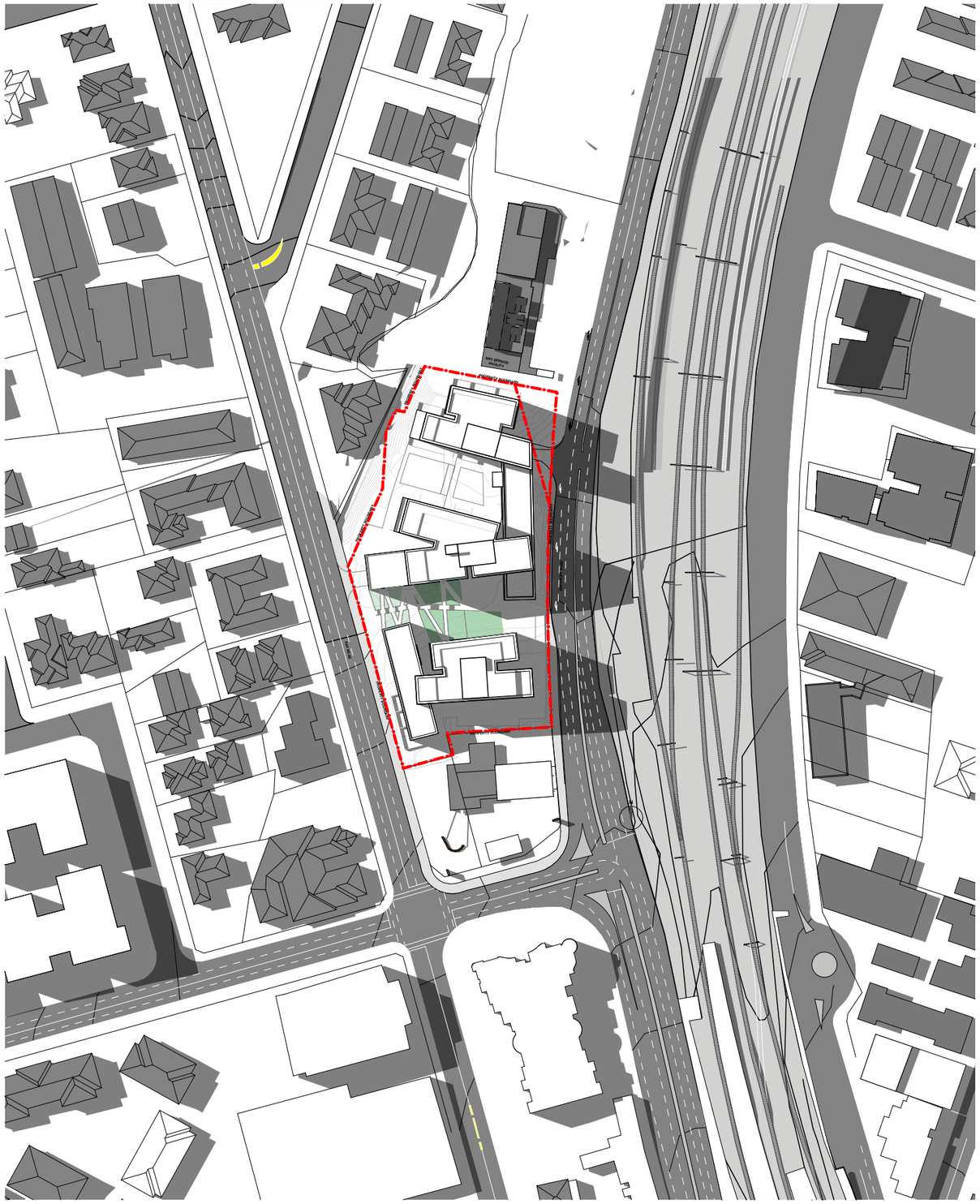
Communal open space is located on the rooftops of the towers and podiums, as well as in the northern ground level courtyard between the towers.

A through site pedestrian link connects Beecroft Road and Ray Road through the centre of the site.

There are two proposed carpark entry points; one on Beecroft Road and one on Ray Road. Waste collection and loading would be from the Ray Road entry.

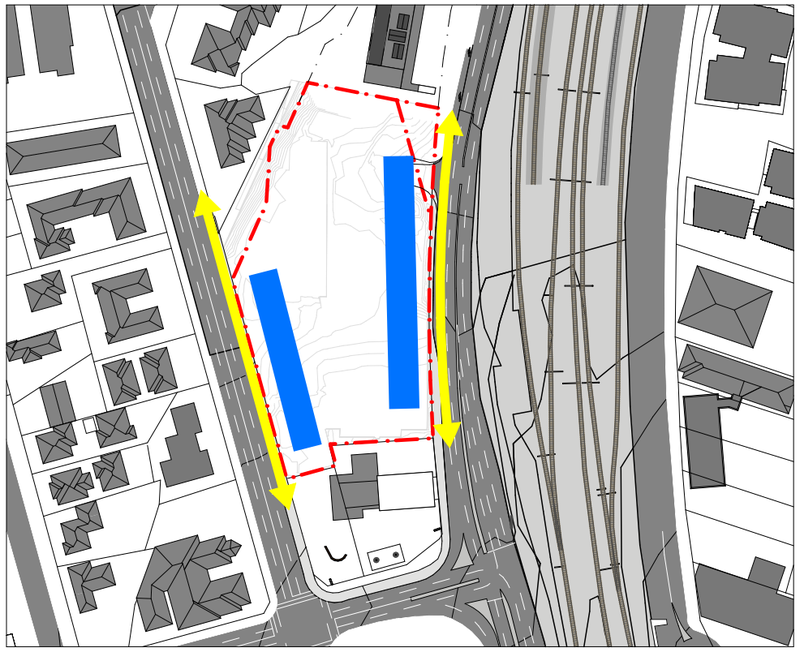
The architectural treatment of the buildings would further break down the scale of the building as series of elements at an appropriate urban scale.



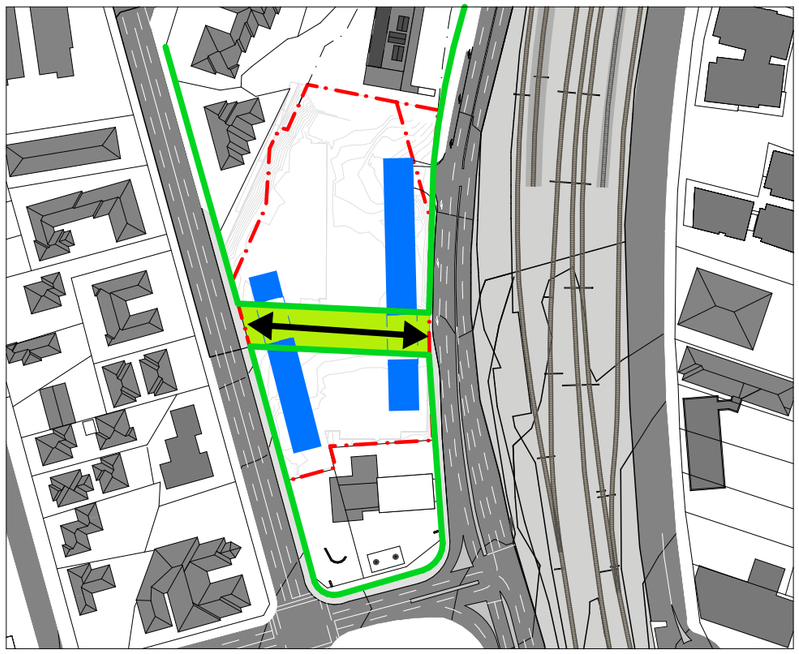


URBAN DESIGN PRINCIPLES

1:2500

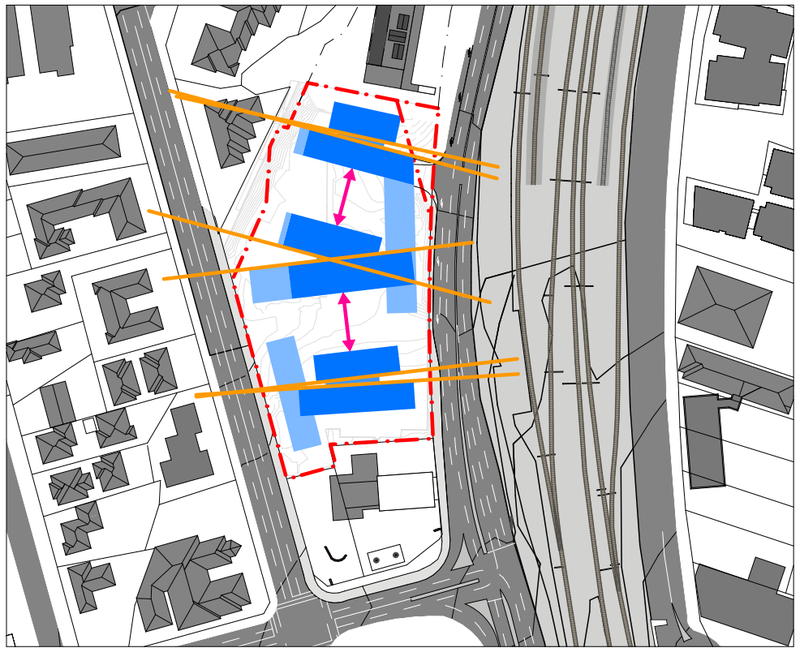


1. INTRODUCE LOW SCALE STREET DEFINING BUILDINGS ALONG BEECROFT ROAD AND RAY ROAD



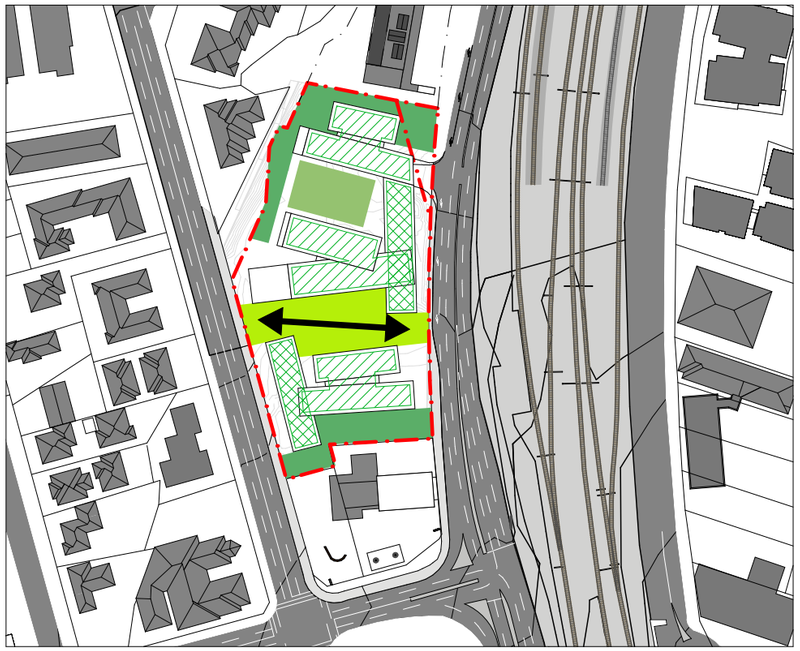
2. CREATE NEW THROUGH SITE LINK TO BREAK DOWN THE SCALE OF THE URBAN BLOCK AND INCREASE AREA CONNECTIVITY.

3. POSITION TALLER BUILDINGS AS A SEQUENCE OF TOWERS FOLLOWING THE SITE ORIENTATION



4. SHAPE AND ORIENT TALL BUILDINGS TO MAXIMISE SOLAR AMENITY, CROSS VENTILATION, AND ASPECT, AND TO BREAK DOWN THE SCALE OF THE BUILDINGS

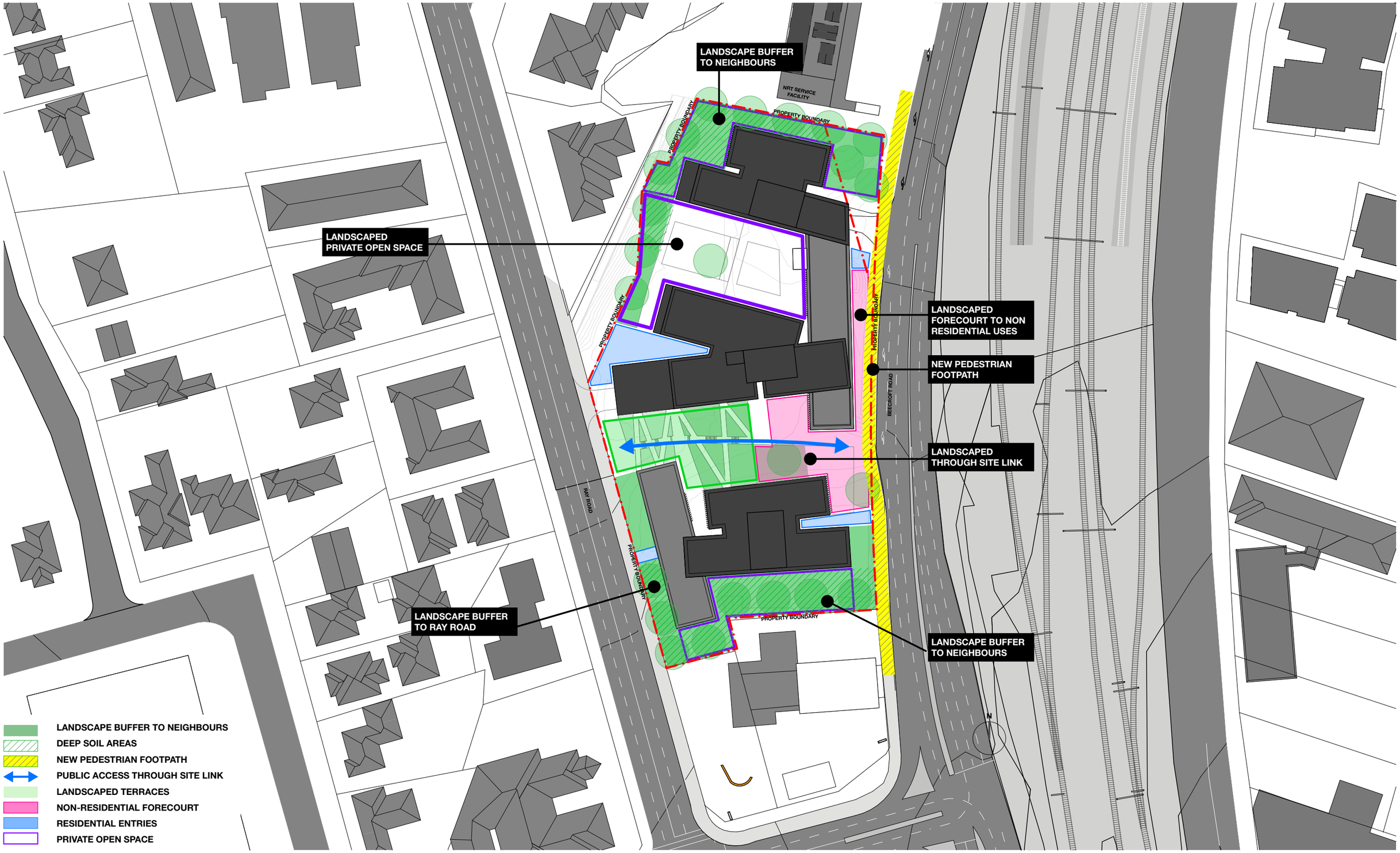
5. LOCATE NON-RESIDENTIAL USES AT GROUND LEVEL ADJACENT THE BUSY BEECROFT ROAD AND ADJACENT THE THROUGH SITE LINK



6. USE LANDSCAPING TO
- DEFINE THE PUBLIC AND PRIVATE DOMAIN AT GROUND LEVEL
- PROVIDE DEEP SOIL BUFFERS TO ADJACENT PROPERTIES
- CREATE NEW ROOFTOP COMMUNAL SPACES OF VARIED CHARACTERS

PUBLIC DOMAIN AND LANDSCAPE PLAN

1:1000



INDICATIVE GROUND FLOOR PLAN 1:1000

ACCESS AND CONNECTIVITY

1:1000

SETBACKS AND ALIGNMENTS

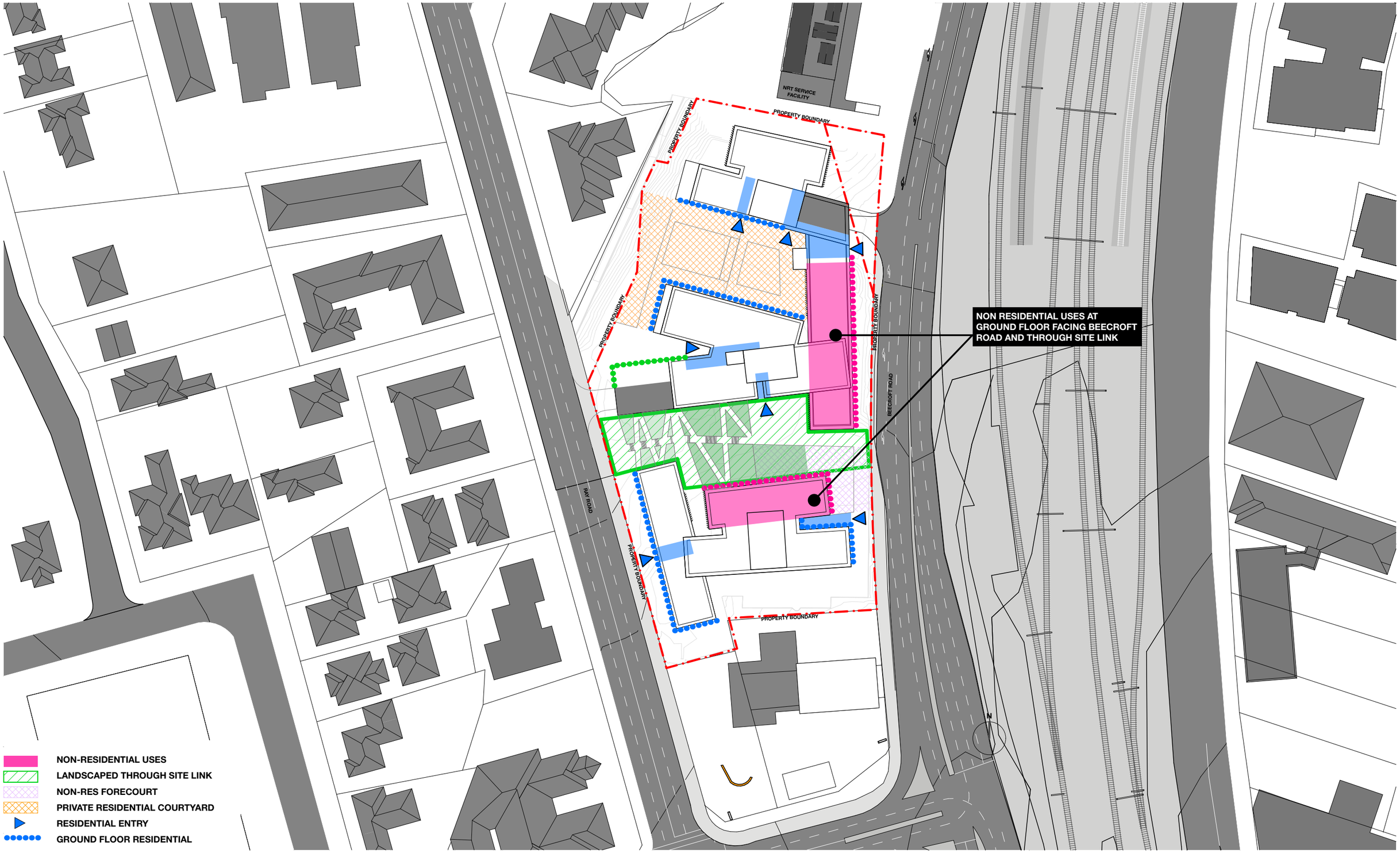
1:1000

HEIGHT IN STORIES

1:1000

ACTIVATION AND GROUND FLOOR USES

1:1000



CPTED

1:1000

CRIME PREVENTION THROUGH ENVIRONMENTAL DESIGN
THE FOLLOWING CONSIDERATIONS HAVE BEEN MADE WITH RESPECT TO MAKING A SAFE AND SECURE MIXED USE DEVELOPMENT

PRIVATE COURTYARD AND OPEN SPACE
- ACCESS CONTROLLED AREA
- PASSIVE SURVEILLANCE FROM RESIDENTIAL APARTMENTS OVERLOOKING THE OPEN SPACE
- SHARED FACILITIES AND LANDSCAPED AREAS AT GROUND FLOOR TO ENCOURAGE TERRITORIAL REINFORCEMENT

PUBLIC COURTYARD AND OPEN SPACE
- PASSIVE SURVEILLANCE FROM RESIDENTIAL APARTMENTS OVERLOOKING THE OPEN SPACE
- ACTIVATION THROUGH MIXED USES AT GROUND FLOOR
- USE OF LIGHTING TO MAKE A COMFORTABLE AND SAFE OUTDOOR SPACE AT ALL HOURS
- SHARED FACILITIES AND LANDSCAPED AREAS AT GROUND FLOOR TO ENCOURAGE TERRITORIAL REINFORCEMENT

THROUGH SITE LINK
- PASSIVE SURVEILLANCE FROM RESIDENTIAL APARTMENTS OVERLOOKING THE OPEN SPACE
- ACTIVATION THROUGH MIXED USES AT LOWER LEVELS
- USE OF LIGHTING TO MAKE A COMFORTABLE AND SAFE OUTDOOR SPACE AT ALL HOURS

PASSIVE SURVEILLANCE FROM APARTMENTS

NON-RESIDENTIAL USES
LANDSCAPED THROUGH SITE LINK
NON-RES FORECOURT
PRIVATE RESIDENTIAL COURTYARD
RESIDENTIAL ENTRY
GROUND FLOOR RESIDENTIAL

NOISE MITIGATION

1:1000

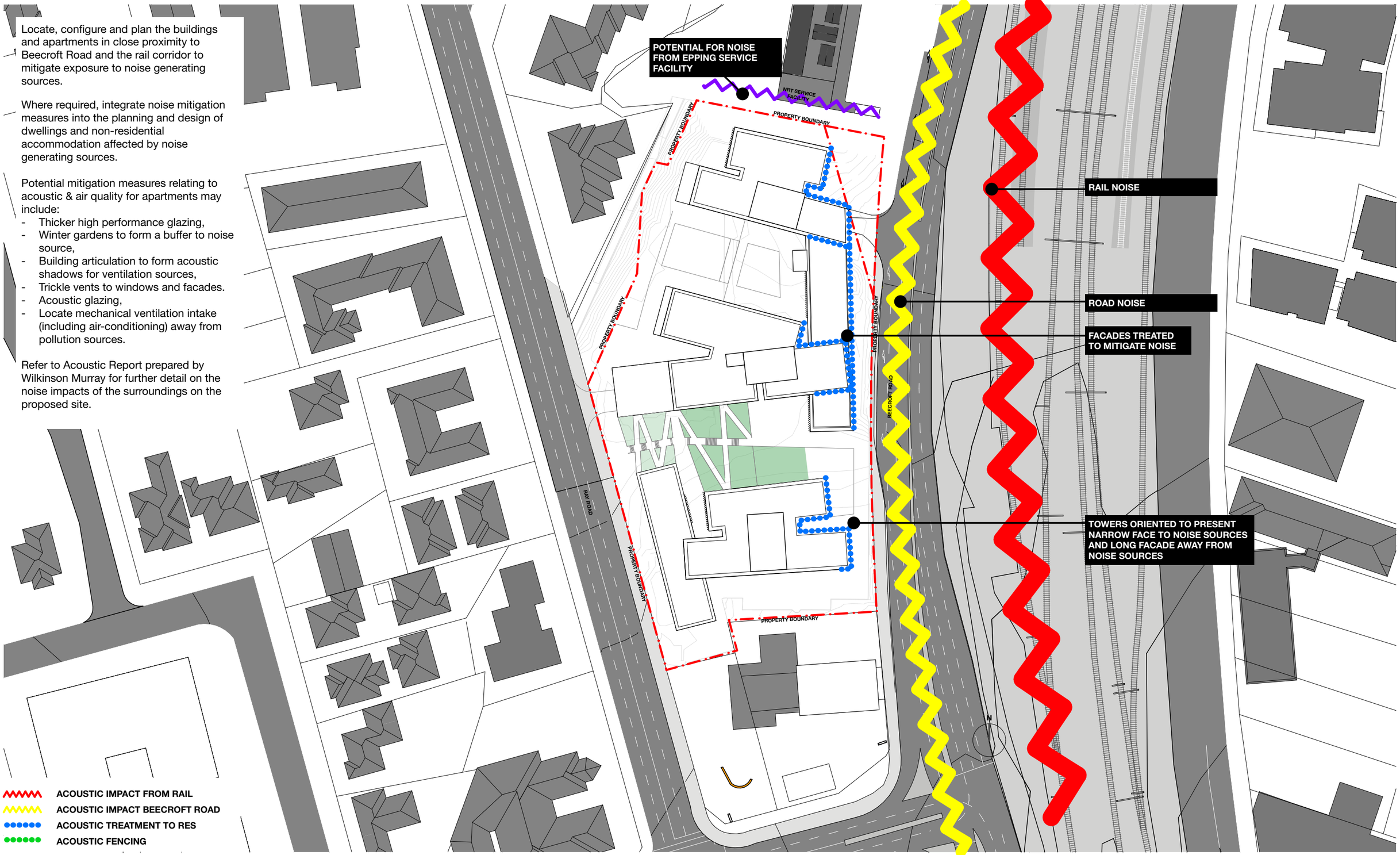
Locate, configure and plan the buildings and apartments in close proximity to Beecroft Road and the rail corridor to mitigate exposure to noise generating sources.

Where required, integrate noise mitigation measures into the planning and design of dwellings and non-residential accommodation affected by noise generating sources.

Potential mitigation measures relating to acoustic & air quality for apartments may include:

- Thicker high performance glazing,
- Winter gardens to form a buffer to noise source,
- Building articulation to form acoustic shadows for ventilation sources,
- Trickle vents to windows and facades.
- Acoustic glazing,
- Locate mechanical ventilation intake (including air-conditioning) away from pollution sources.

Refer to Acoustic Report prepared by Wilkinson Murray for further detail on the noise impacts of the surroundings on the proposed site.



OVERSHADOWING - 246 BEECROFT ROAD

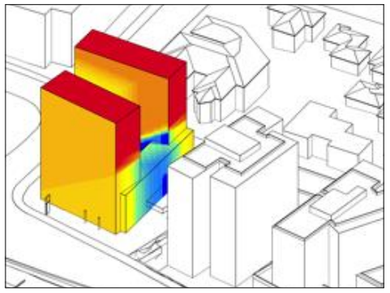
1:1000

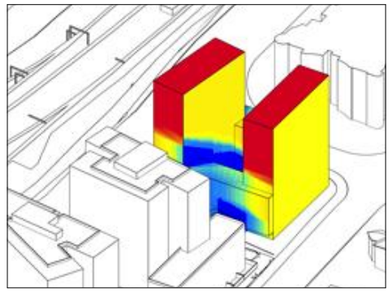
An indicative massing has been prepared for 246-250 Beecroft Road, on the southern boundary of the subject site. The massing is indicative only and has not been tested in detail.

The massing represents the following assumptions:

Site Area: 2,800m^2
FSR: 4.5:1

GFA: 12,600m^2
GBA: 15,750m^2





The solar analysis suggests that ADG compliance should be possible on the site.

0 HR | 15 MIN 1 HR 2 HR 3 HR 4 HR 5 HR 6 HR

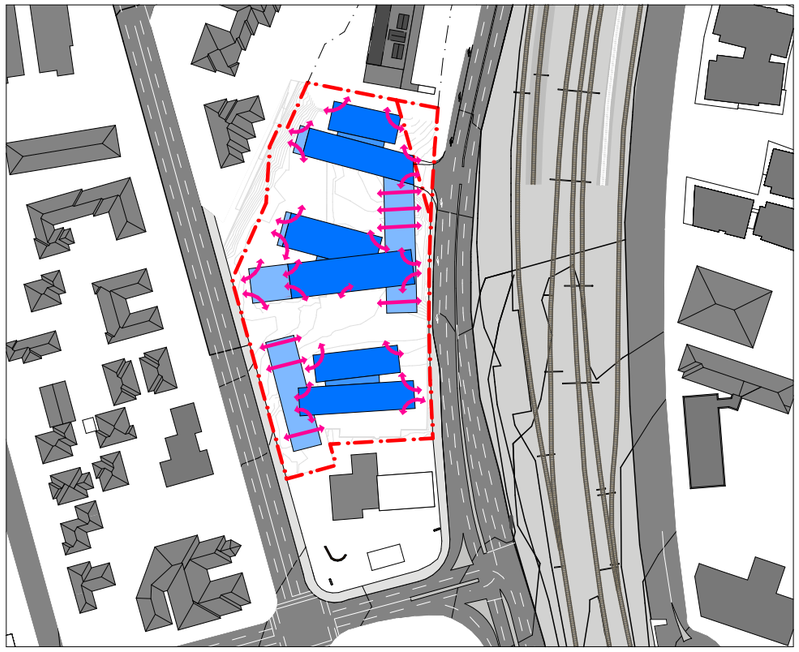
ADG - DESIGN PRINCIPLES

The following key elements of the Apartment Design Guide have informed the Concept Design. The Concept Design has been developed to enable full compliance with the ADG for the future developed design. Detailed compliance diagrams are included at the end of this report.

1:2500

MAXIMISE SUNLIGHT ACCESS

Building form is configured and oriented to maximise sunlight access to achieve ADP compliance.

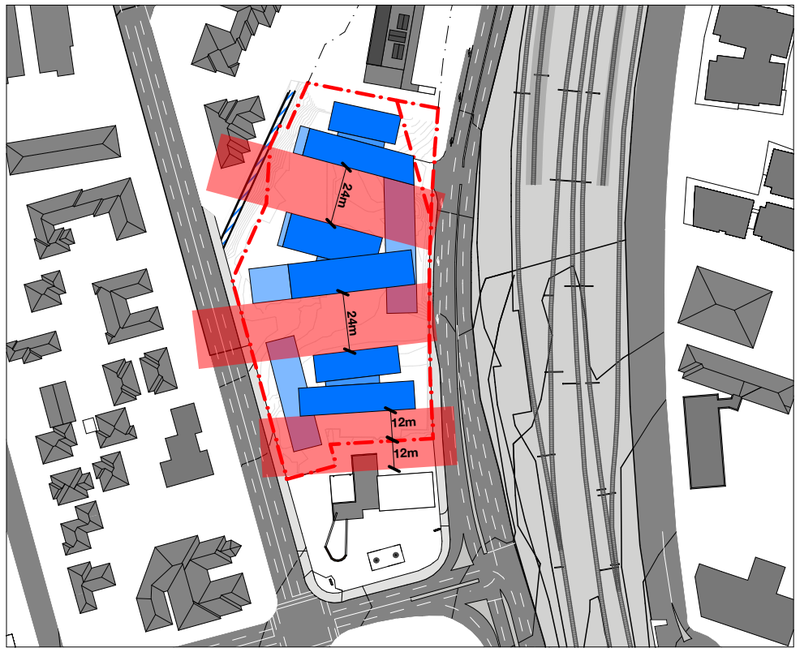


OPTIMISE NATURAL VENTILATION

Natural ventilation is provided by slender towers with cross ventilated corner apartments and low-rise dual-aspect apartments.

COMMON AREAS

Cores and lobbies have been arranged for a maximum of eight apartments per lobby to encourage interaction and familiarity with neighbours. All lobbies are naturally ventilated.

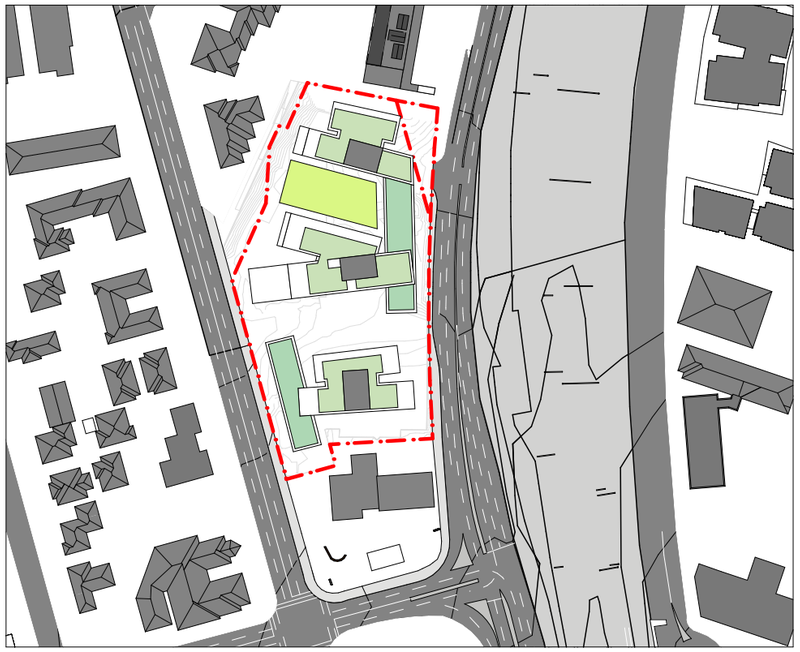


BUILDING SEPARATION

There is a 24 metre separation between buildings over 8 storeys in compliance with ADG separation requirements.

DEEP SOIL ZONES

Large Deep Soil zones are located at the northern, eastern, and southern boundaries to provide landscape buffers and separation to adjacent properties. Dedicated deep soil areas are located in the basement to allow for trees to be planted in the ground level courtyards.

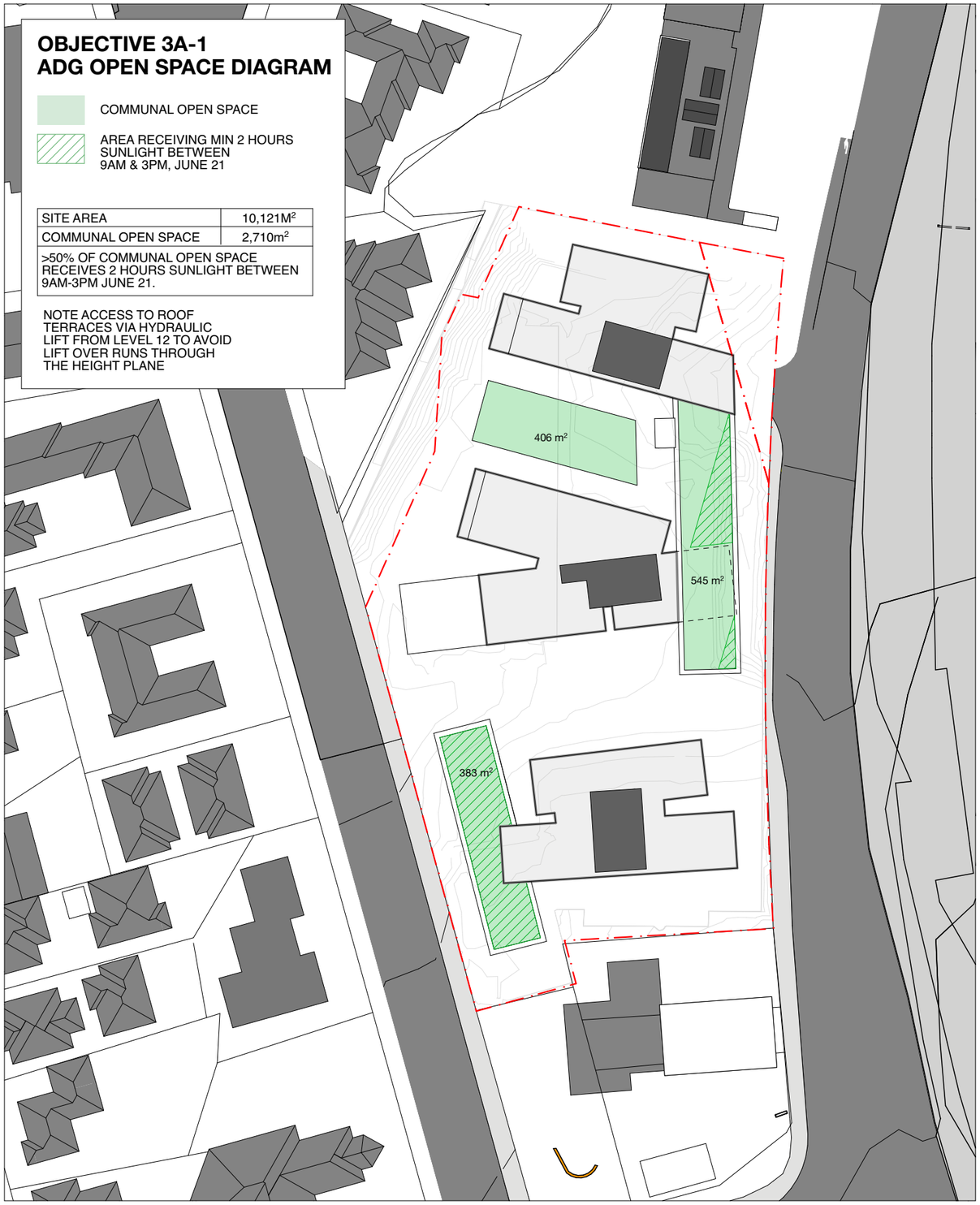


COMMUNAL OPEN SPACE

Communal open space is provided on the rooftops of the towers, podiums, and at ground level. The rooftops provide excellent access to daylight and privacy. The number of them will make a variety of types of communal spaces and activities possible.

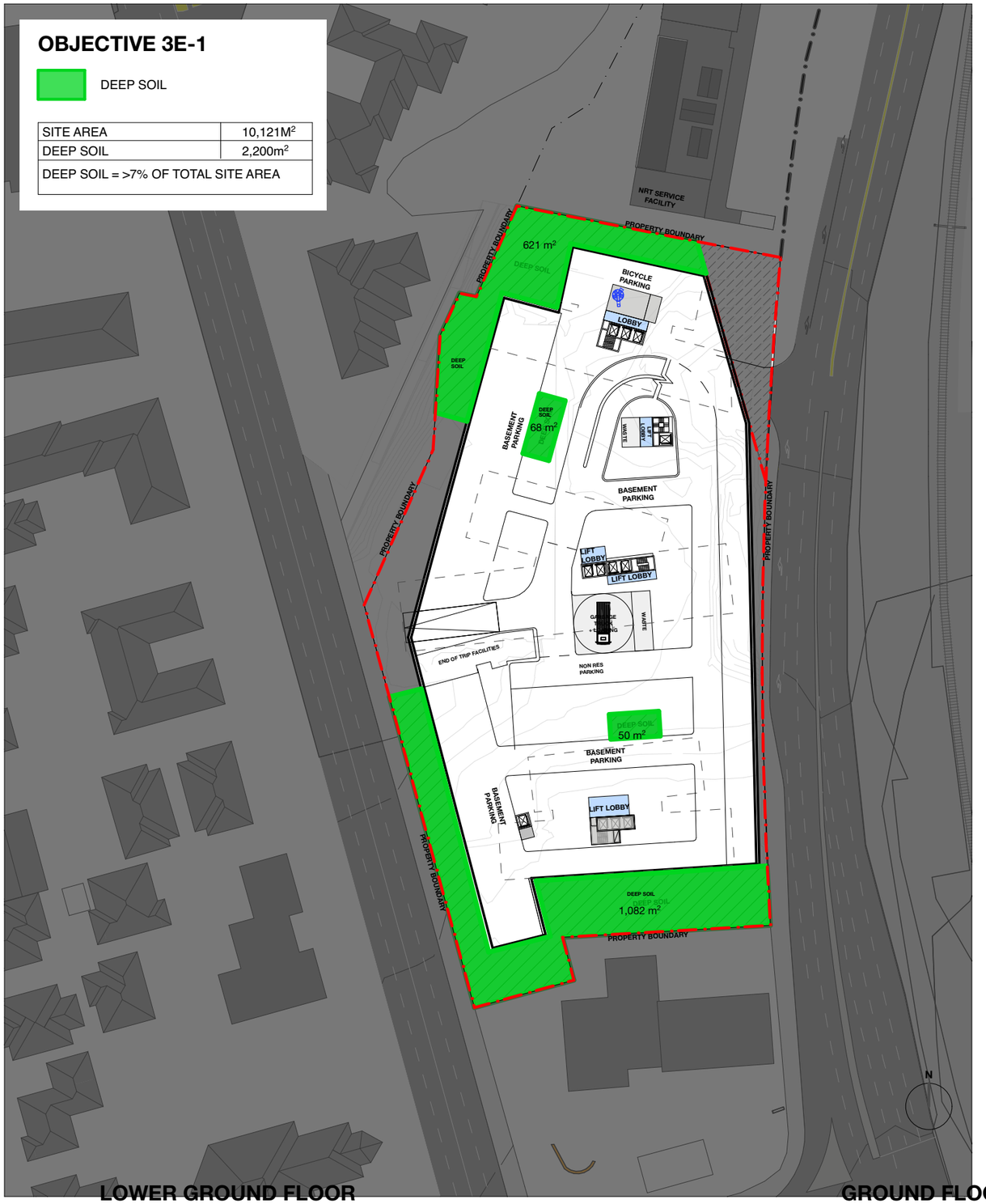
ADG - COMMUNAL OPEN SPACE

1:1000



ADG - DEEP SOIL

1:1000



LOWER GROUND FLOOR

GROUND FLOOR

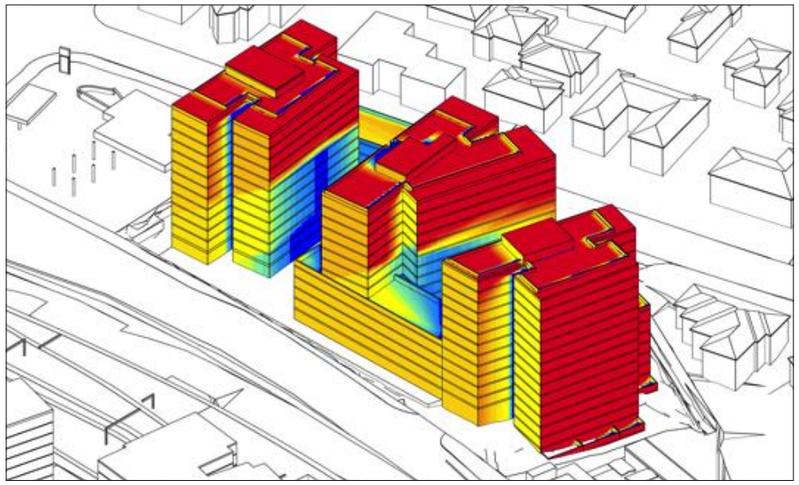
ADG - VENTILATION AND SOLAR ACCESS

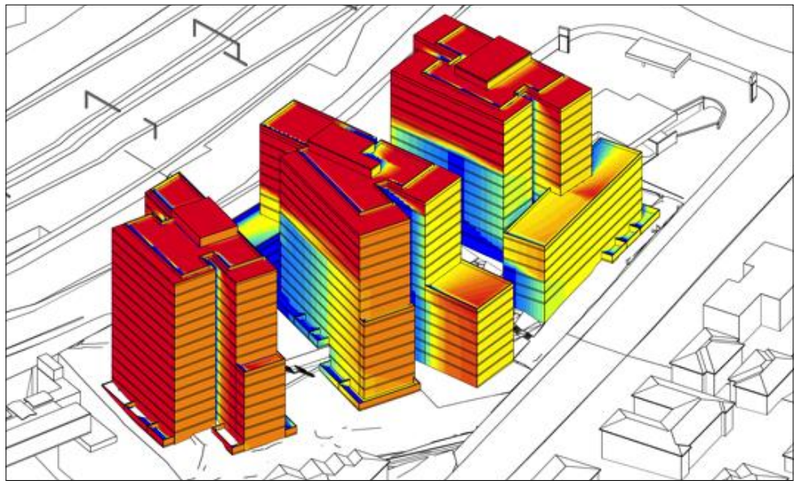
1:2.47

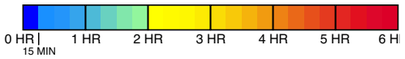
OBJECTIVE 4A-1 SOLAR AND DAYLIGHT ACCESS
OBJECTIVE 4B-3 NATURAL VENTILATION

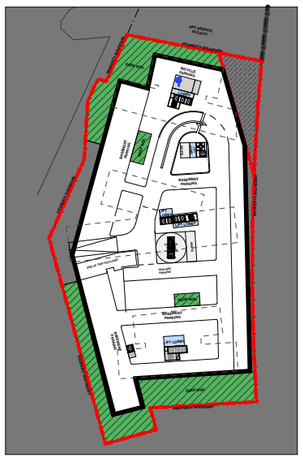
- RECEIVES TWO OR MORE HOURS OF SUNLIGHT BETWEEN 9AM AND 3PM, JUNE 21
- RECEIVES LESS THAN TWO HOURS OF SUNLIGHT BETWEEN 9AM AND 3PM, JUNE 21
- RECEIVES NO DIRECT SUNLIGHT BETWEEN BETWEEN 9AM AND 3PM, JUNE 21
- NATURALLY CROSS VENTILATED APARTMENTS

OBJ 4A-1 - SOLAR AND DAYLIGHT ACCESS	ADG TARGET			COMPLIES
# APARTMENTS RECEIVING 2+ HOURS OF SUNLIGHT BETWEEN 9AM AND 3PM, JUNE 21	min 70% (303)	330	76%	YES
# APARTMENTS RECEIVING NO DIRECT SUNLIGHT BETWEEN 9AM AND 3PM, JUNE 21	max 15% (65)	54	13%	YES
OBJ 4B-3 - NATURAL CROSS VENTILATION				
# APARTMENTS THAT MAY BE NATURALLY CROSS VENTILATED	min 60% (260)	291	67%	YES



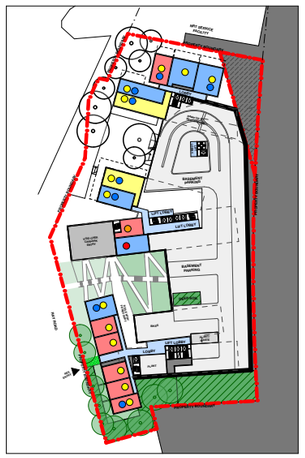




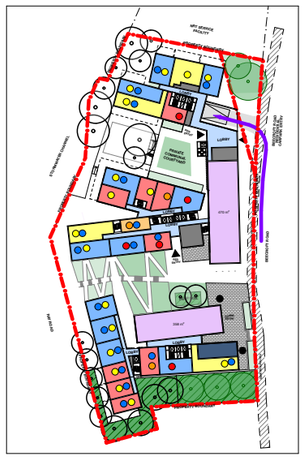


BASEMENT LEVEL 2

BASEMENT LEVEL 1



LOWER GROUND FLOOR



GROUND FLOOR

LEVEL 1

LEVEL 2

LEVEL 3

LEVEL 4

LEVEL 5

LEVEL 6

LEVEL 7

LEVEL 8

LEVEL 9

LEVEL 10

LEVEL 11

LEVEL 12

ENVELOPE

+129,430
+126,730
+129,430
+104,350
+101,730
+126,730
+129,130
+101,730
+102,730
+101,730
+102,730

VIEW 1

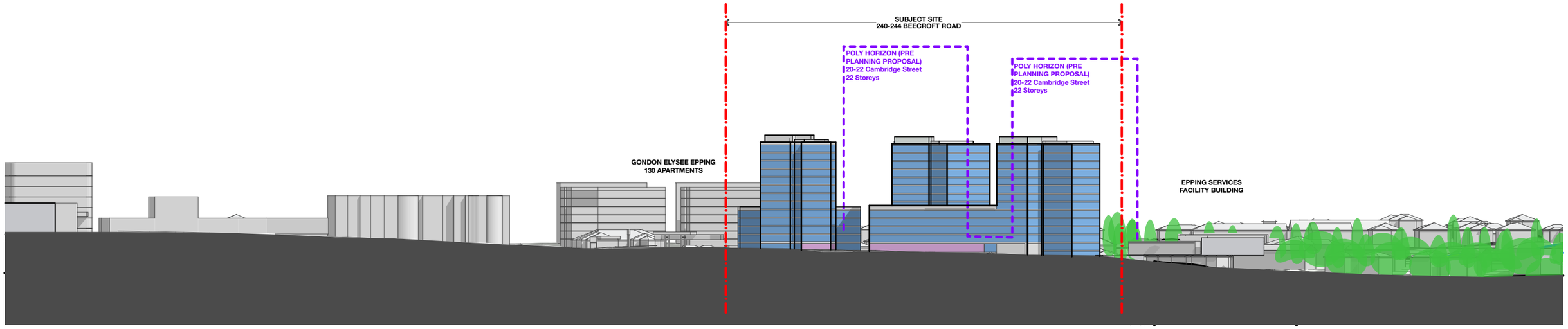
MARQUIS
6 Stories
GODON ELYSEE EPPING
6 Stories
EPPING GARDENS
6 Stories
EPPING TOWN CENTRE
SUBJECT SITE
15 Stories
JARDINE RESIDENCE
56 Apartments
22 Stories
B1 CHESTER
119 Apartments
15 Stories
POLY HORIZON
20-22 Cambridge Street
22 Stories

VIEW 2

POLY HORIZON
20-22 Cambridge Street
22 Stories
SUBJECT SITE
15 Stories
EPPING TOWN CENTRE
MARQUIS
6 Stories
GODON ELYSEE EPPING
6 Stories
EPPING GARDENS
6 Stories

CONTEXT ELEVATION

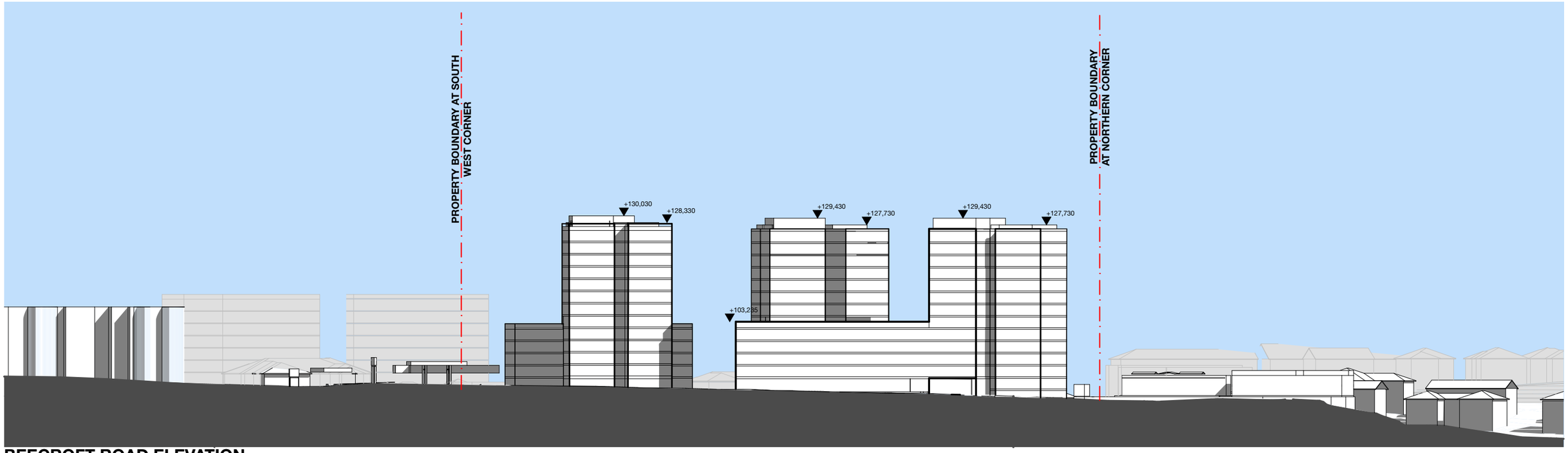
1:1500



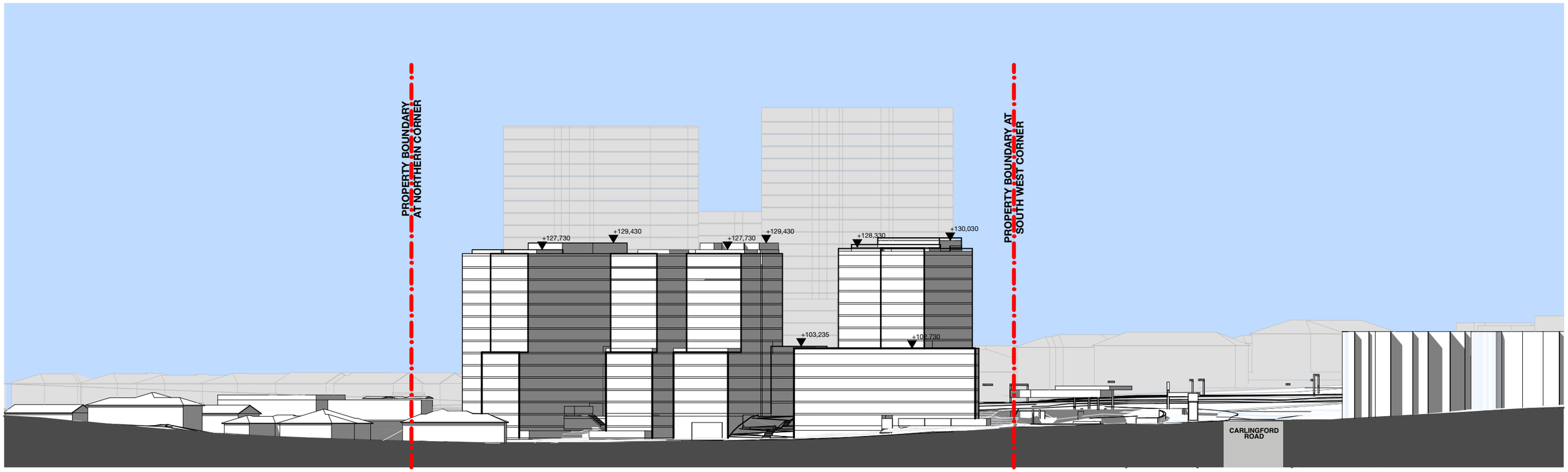
CONTEXT ELEVATION

STREET ELEVATIONS

1:1000



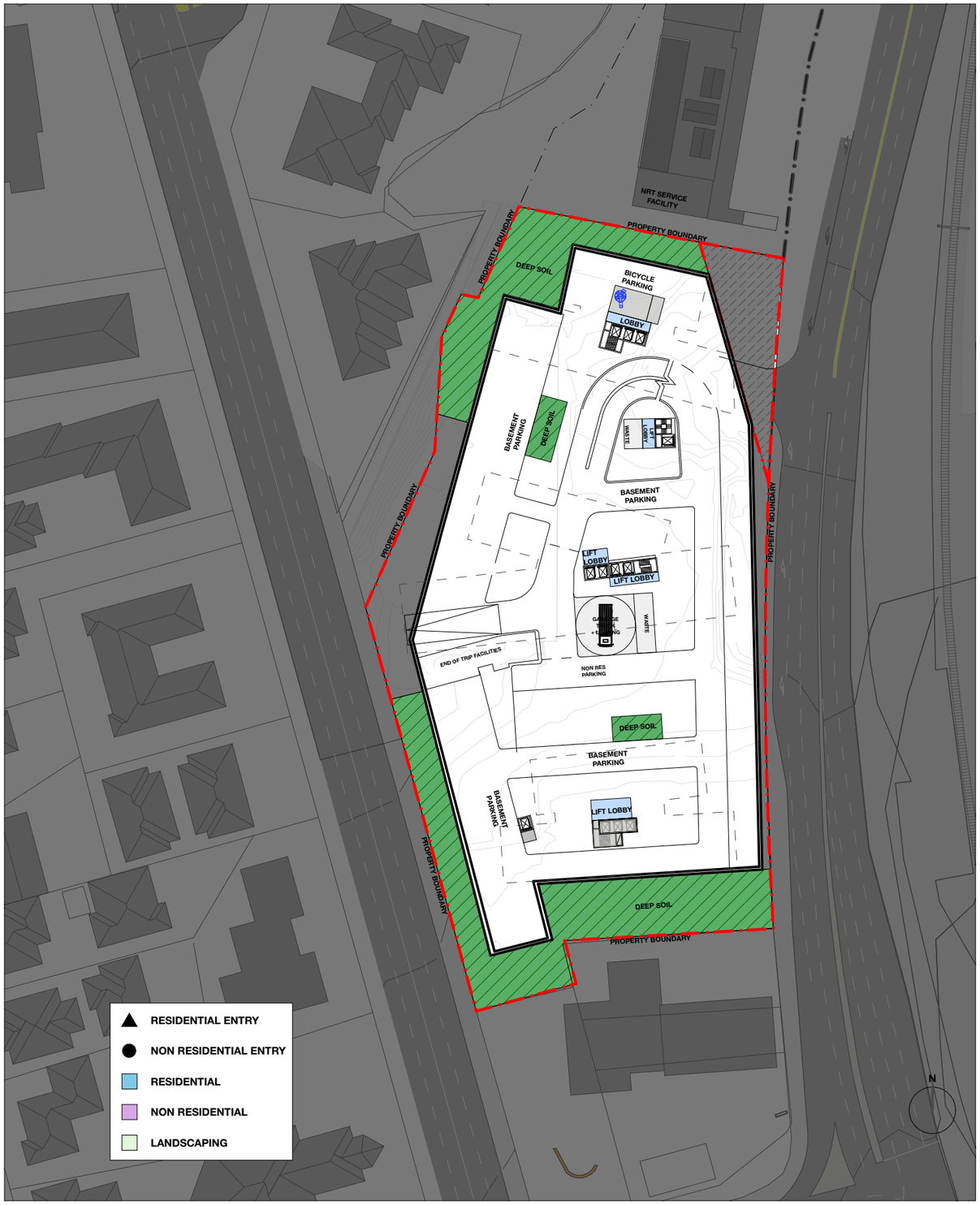
BEECROFT ROAD ELEVATION



RAY ROAD ELEVATION

PLANS - P2 & P1

1:1000

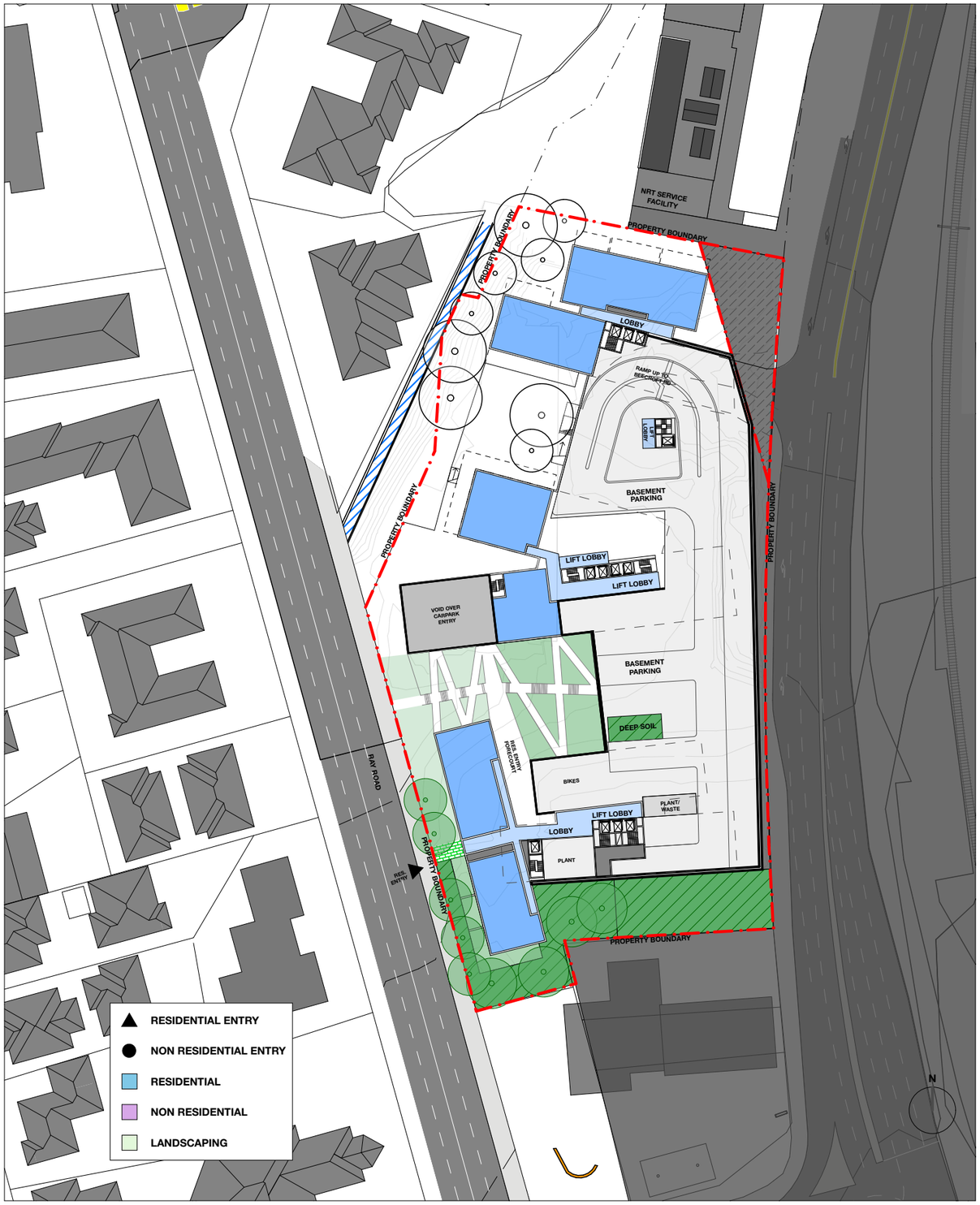


INDICATIVE BASEMENT LEVEL 2 FLOOR PLAN 1:1000

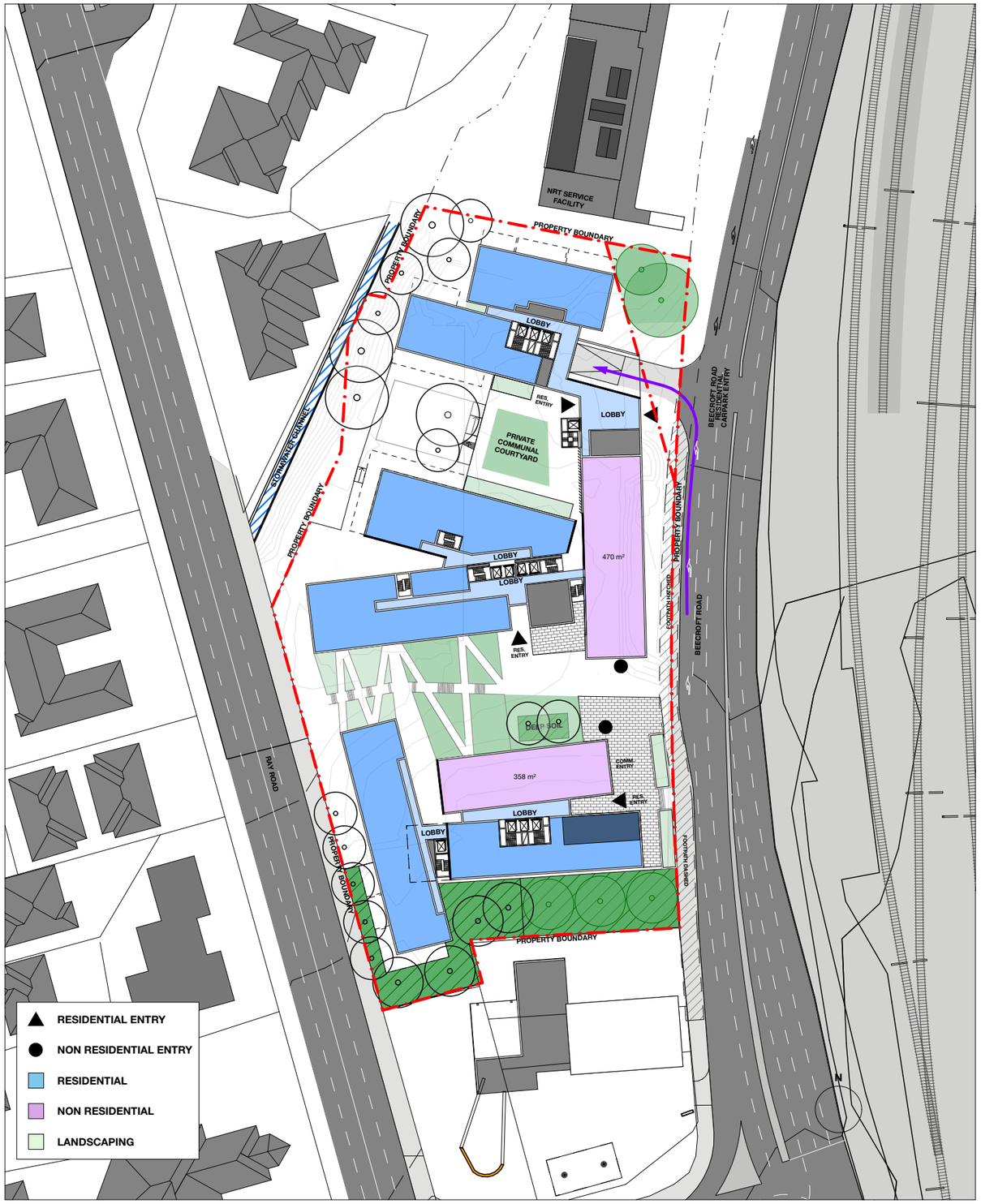
INDICATIVE RAY ROAD ENTRY/BASEMENT LEVEL 1 FLOOR PLAN 1:1000

PLANS - LG & GF

1:1000



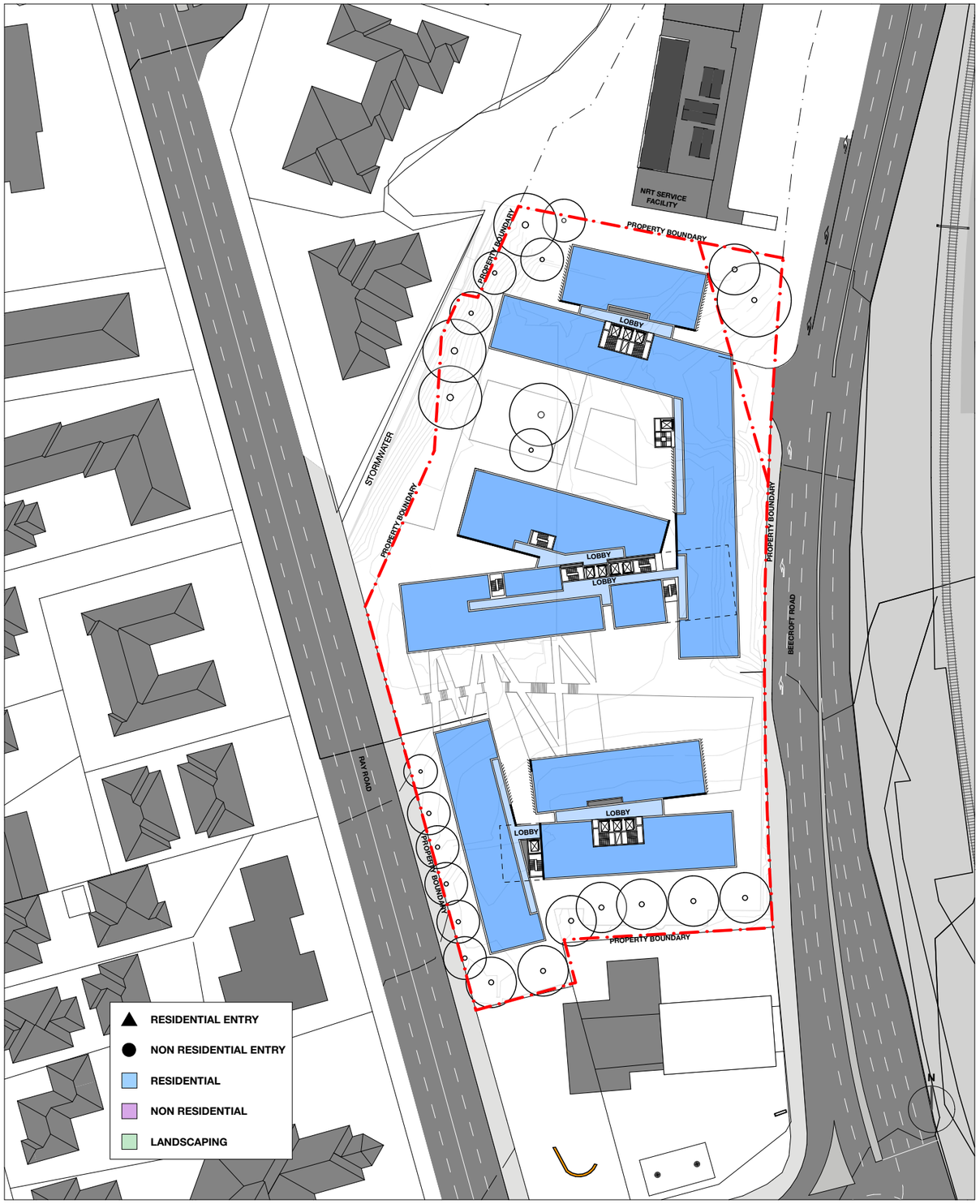
INDICATIVE LOWER GROUND FLOOR PLAN 1:1000



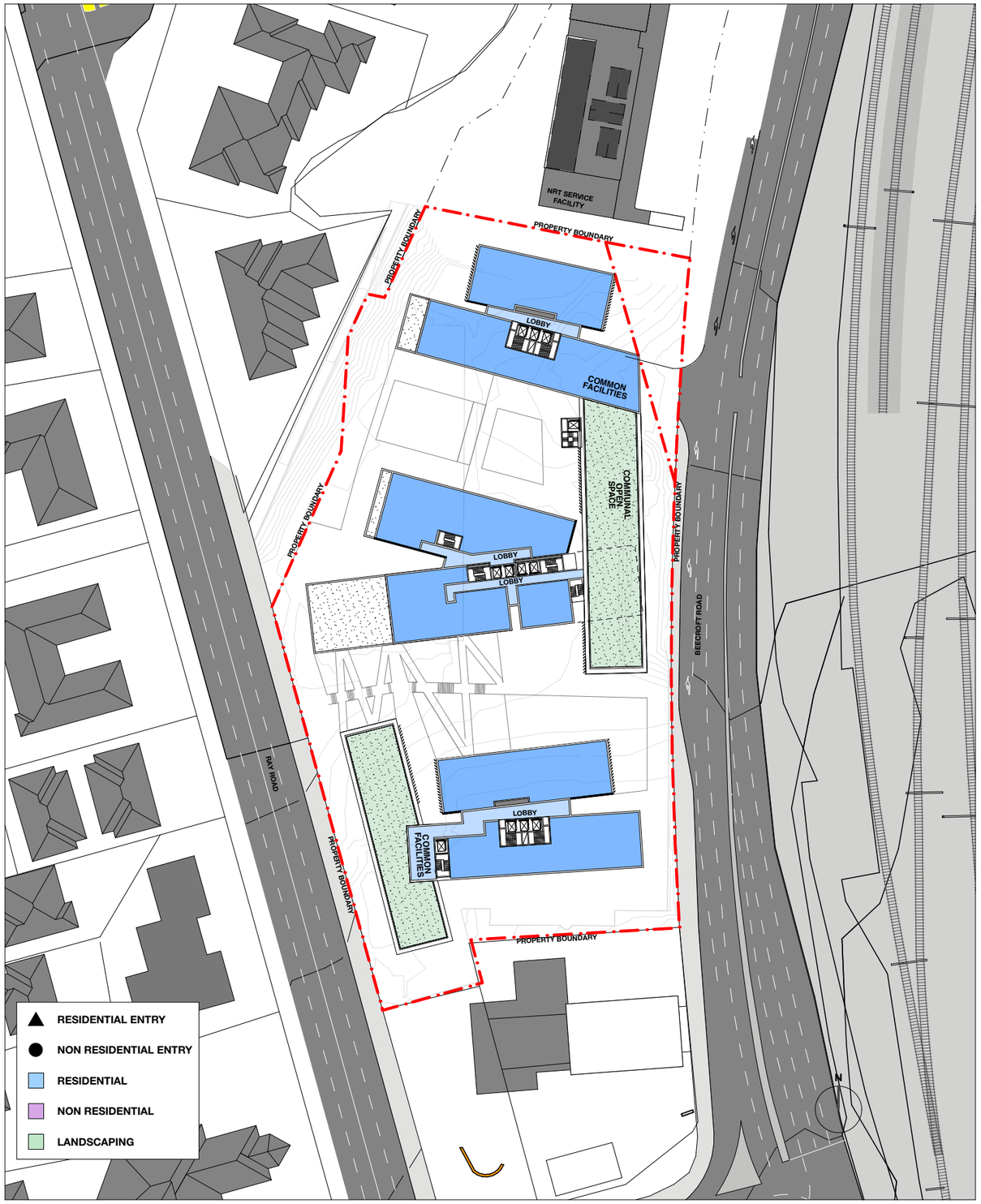
INDICATIVE GROUND FLOOR (BEECROFT ROAD) PLAN 1:1000

PLANS- L1-L4 & L5

1:1000



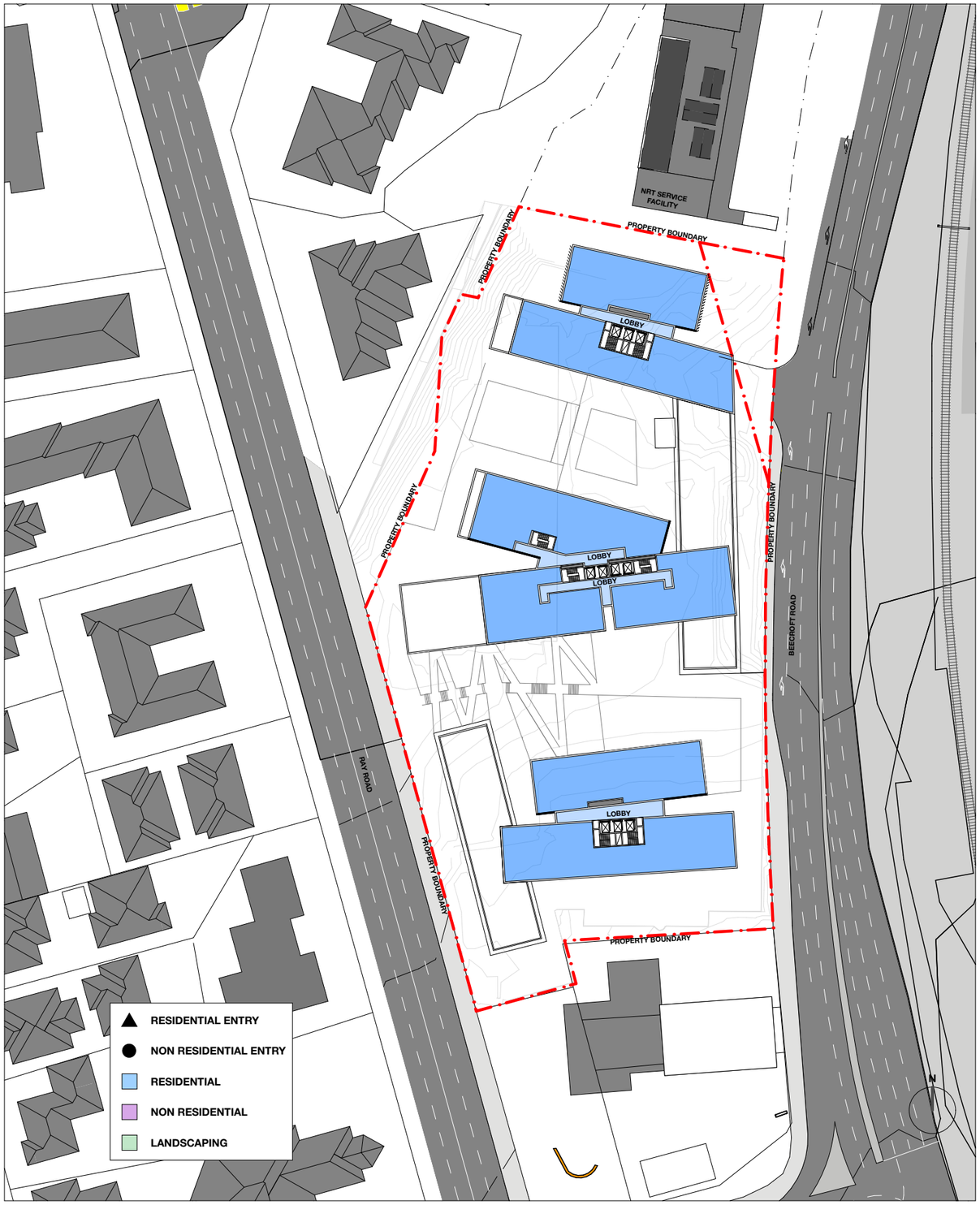
INDICATIVE LEVEL 1-4 FLOOR PLAN 1:1000



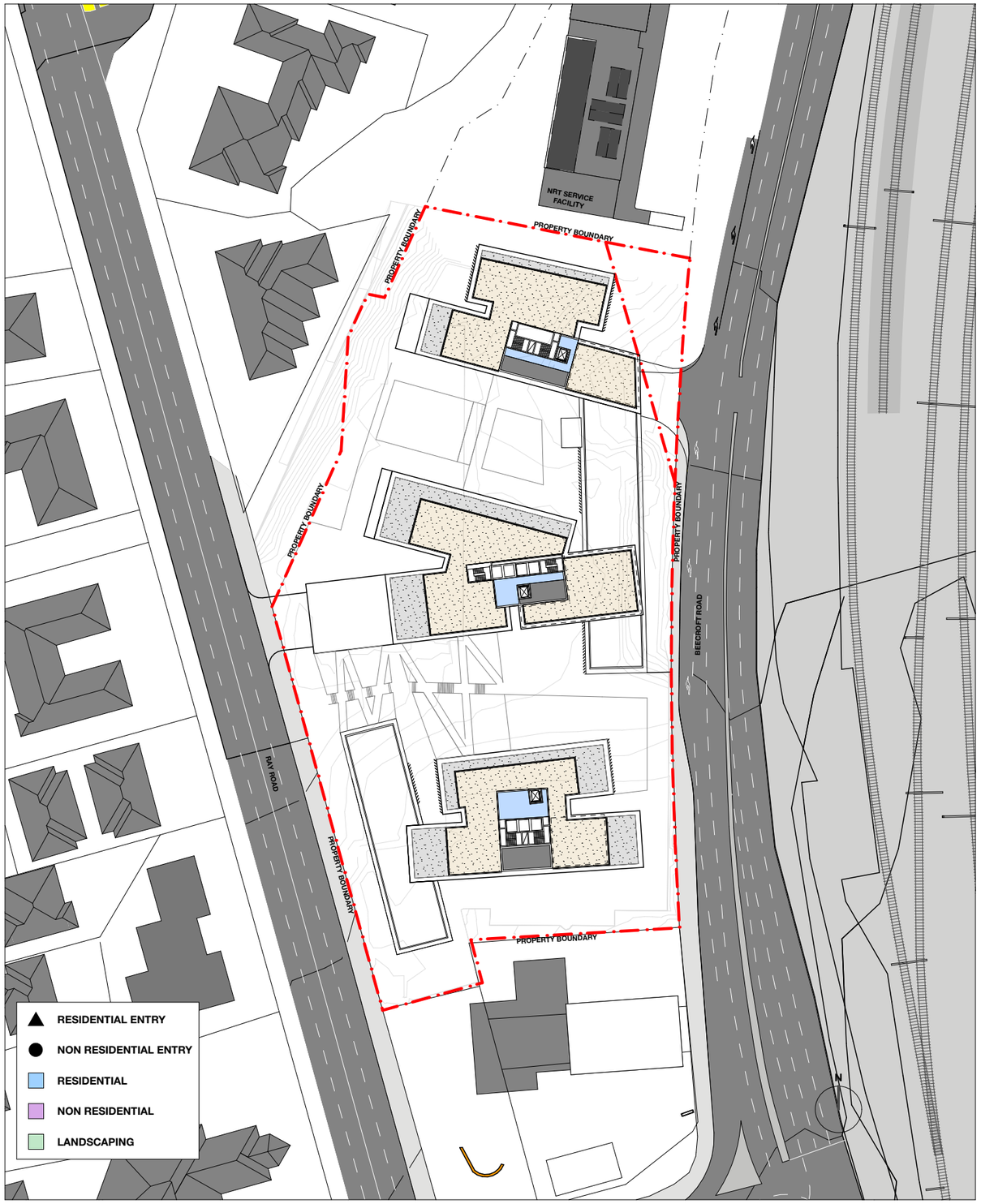
INDICATIVE LEVEL 5 FLOOR PLAN 1:1000

PLANS - TOWER

1:1000



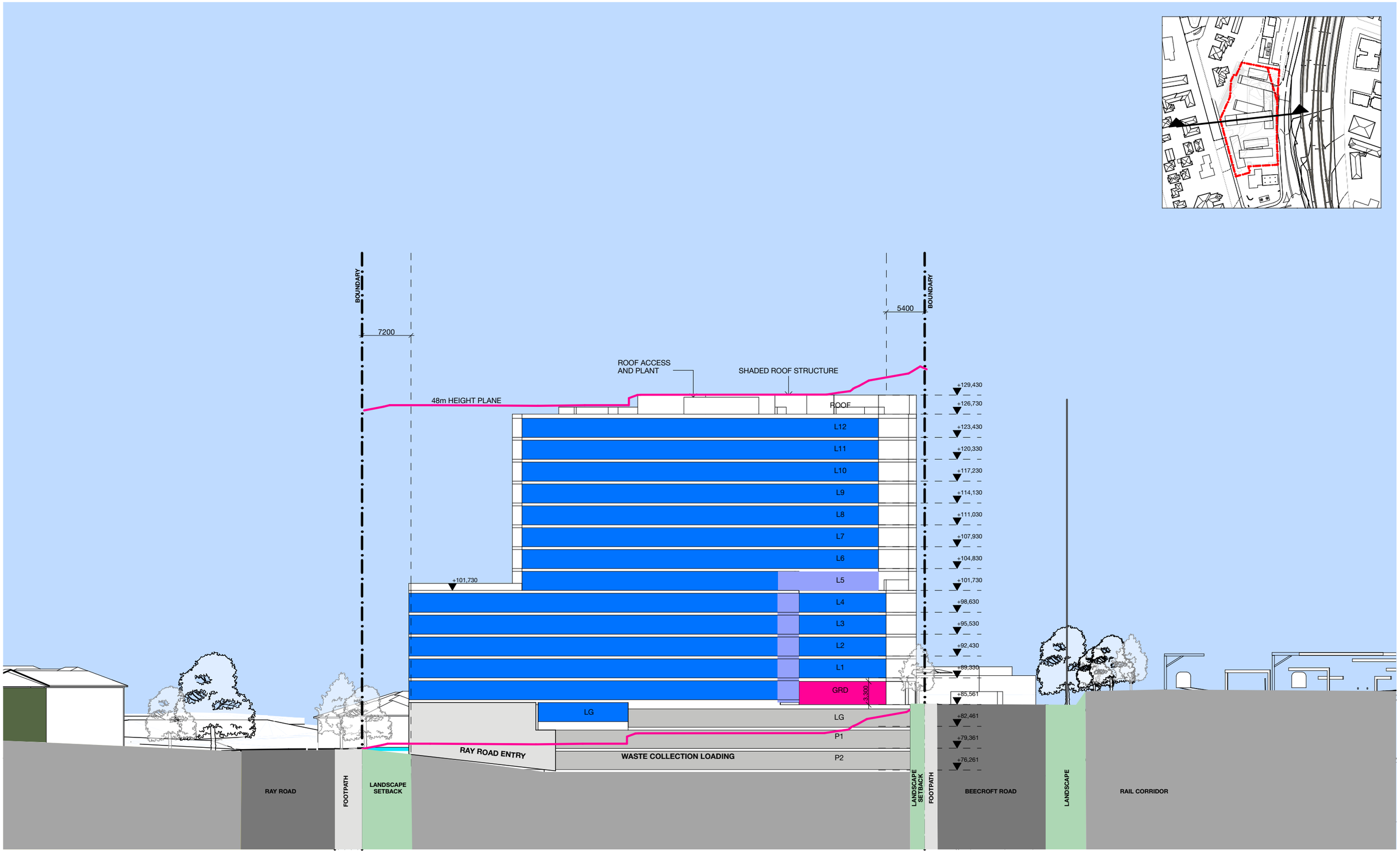
INDICATIVE TYPICAL TOWER FLOOR PLAN 1:1000



INDICATIVE ROOF PLAN 1:1000

EAST/WEST SECTION 1

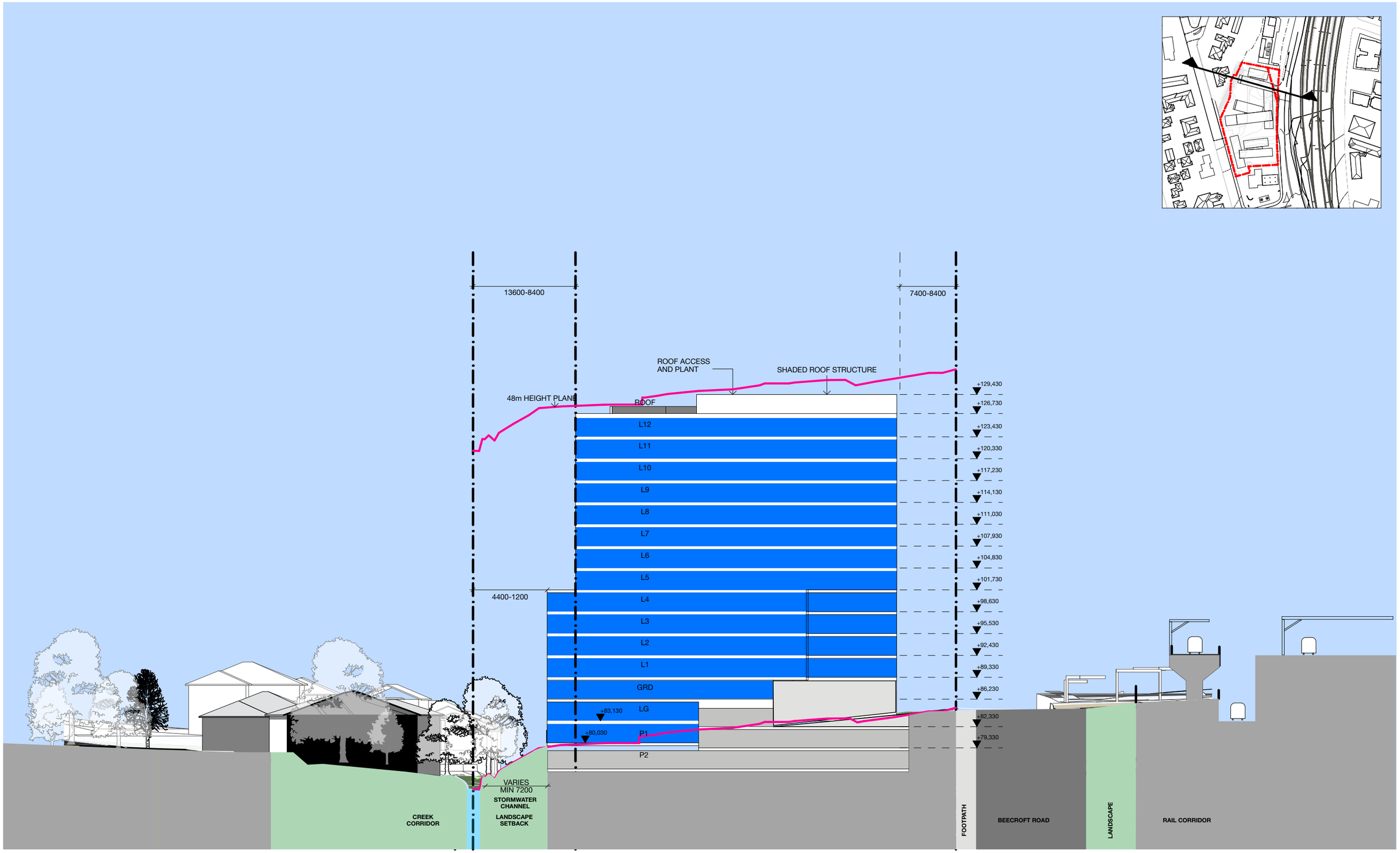
1:500



EAST-WEST SECTION 1
RAY ROAD ENTRY

EAST/WEST SECTION 2

1:500



EAST-WEST SECTION 2
RAY ROAD ENTRY

NORTH/SOUTH SECTION

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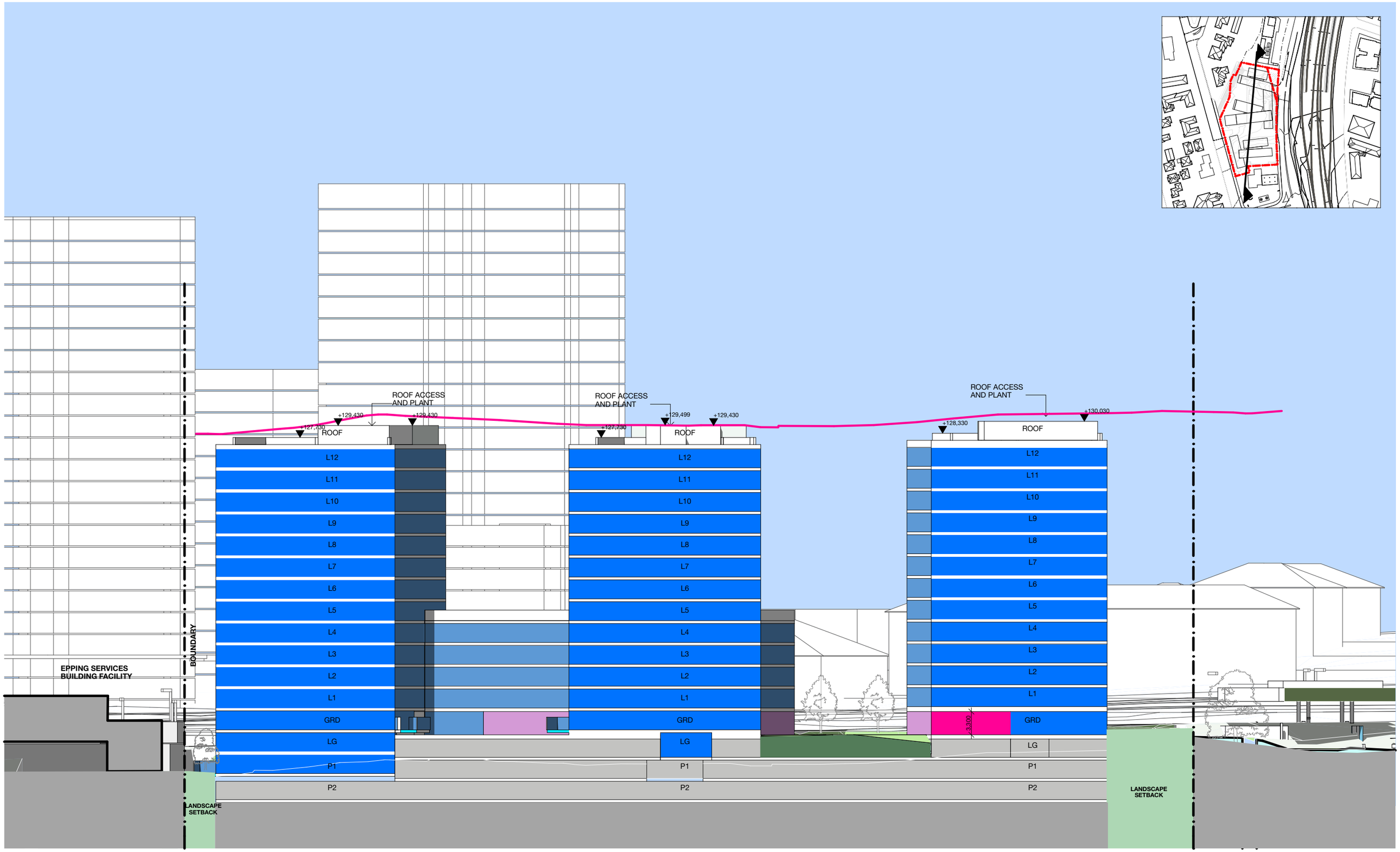
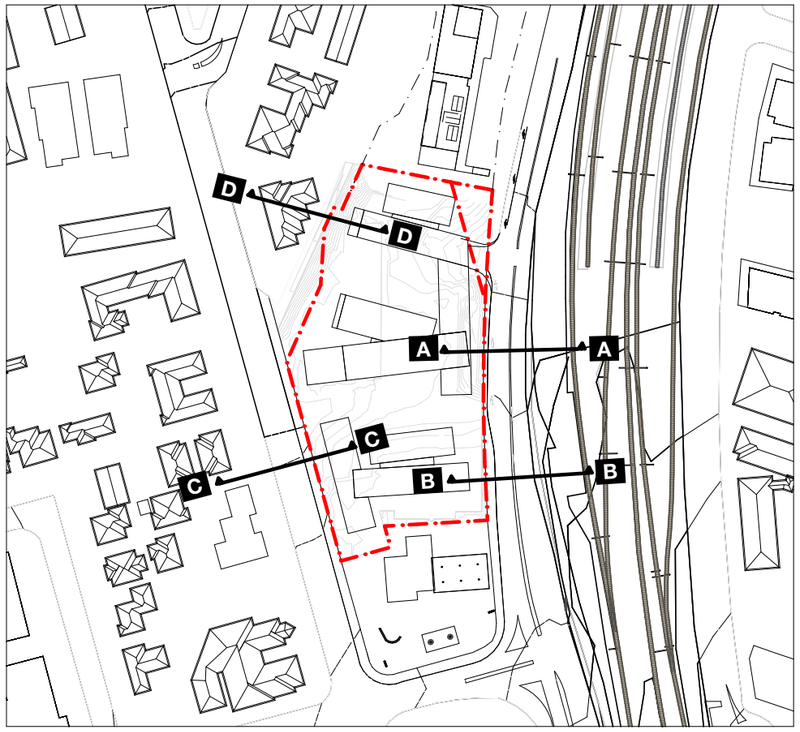
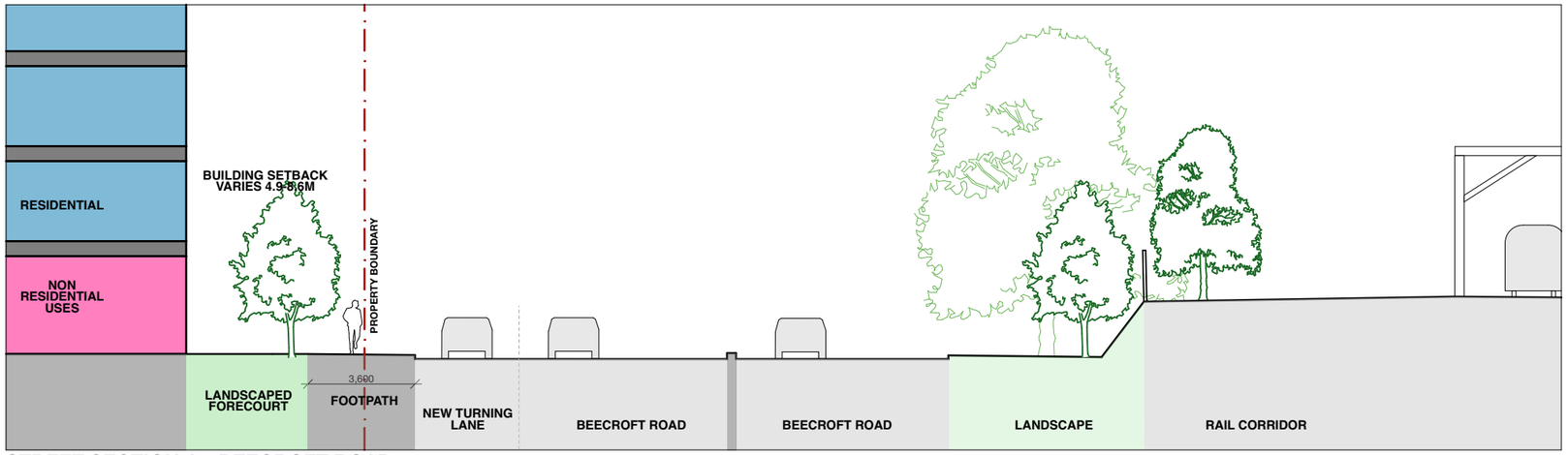


NORTH-SOUTH SECTION
RAY ROAD ENTRY

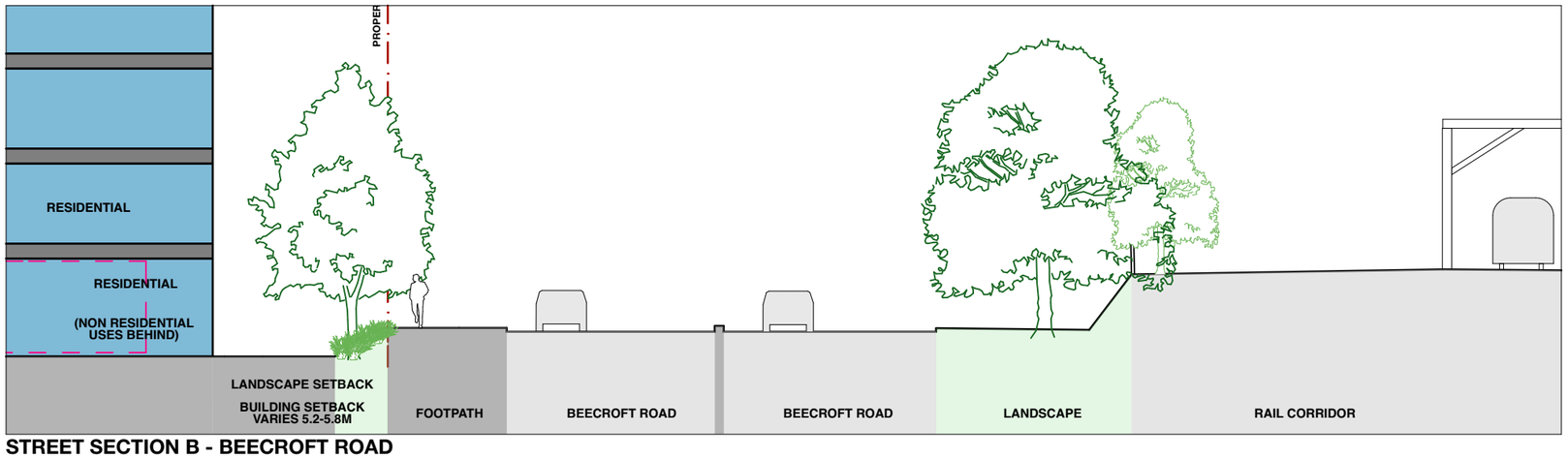
STREET SECTIONS

1:200



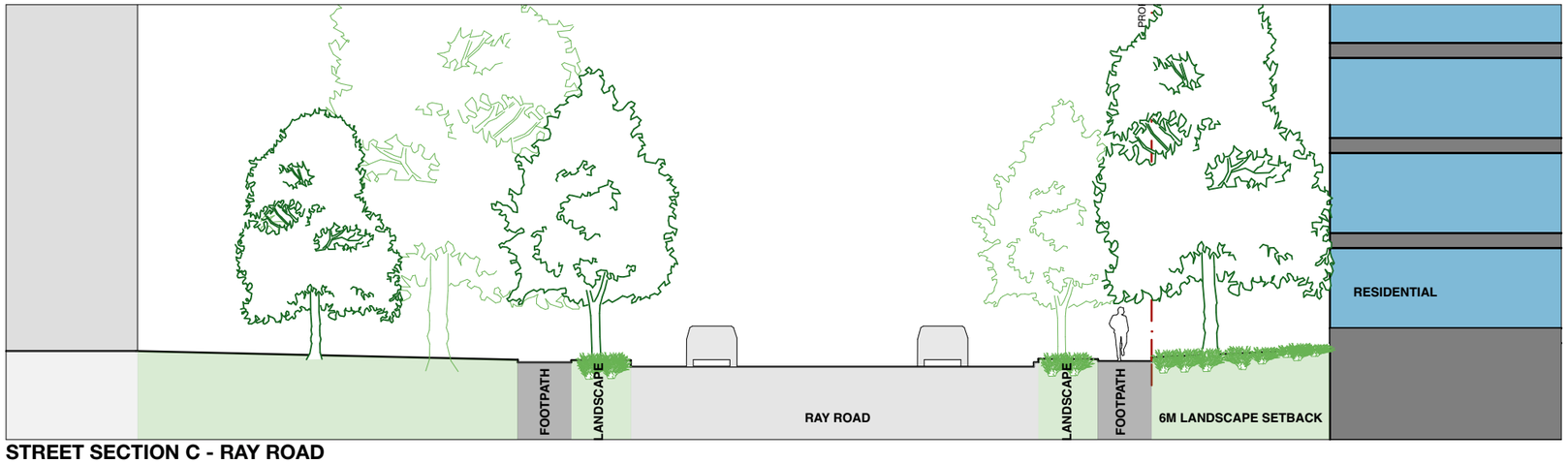


STREET SECTION A - BEECROFT ROAD



STREET SECTION B - BEECROFT ROAD

STREET SECTION D - DEVLINS CREEK ROAD



STREET SECTION C - RAY ROAD

AREA CALCULATIONS

AREA SCHEDULE

Site Area	10,121												
	GBA Basement	GBA Non Residential	GFA Non-res	GBA Residential	GFA Residential	TOTAL GFA (Res+ Non Res)	RES NLA	Yield (As per refecence scheme					
	Measured	Measured	Calculated (GFAx80%)	Measured	Calculated (GBA*80%)		Calculated (GFAx90%)	Studio	1 Bed	2 Bed	3 Bed	Total APTs	No. Car Spaces
P2	7,463					0	0					0	170
P1	5,675			890	712	712	641		2	5		7	110
LG	4,390			1,550	1,240	1,240	1,116		7	6	2	15	66
GRD		885	752	3,290	2,632	3,384	2,369	1	9	11	4	25	
L1				4,300	3,440	3,440	3,096	5	13	20	4	42	
L2				4,300	3,440	3,440	3,096	5	13	20	4	42	
L3				4,300	3,440	3,440	3,096	5	13	20	4	42	
L4				4,300	3,440	3,440	3,096	5	13	20	4	42	
L5				2,870	2,296	2,296	2,066	2	8	13	2	25	
L6				3,050	2,440	2,440	2,196	4	4	15	5	28	
L7				3,050	2,440	2,440	2,196	4	4	15	5	28	
L8				3,050	2,440	2,440	2,196	4	4	15	5	28	
L9				3,050	2,440	2,440	2,196	4	4	15	5	28	
L10				3,050	2,440	2,440	2,196	4	4	15	5	28	
L11				3,050	2,440	2,440	2,196	4	4	15	5	28	
L12				3,050	2,440	2,440	2,196		2	16	6	24	
TOTAL	**17,528**	**885**	**752**	**47,150**	**37,720**	**38,472**	**33,948**	**47**	**104**	**221**	**60**	**432**	**346**
						FSR 3.8:1			**35.0%**	**51.2%**	**13.9%**		0.80

Parking

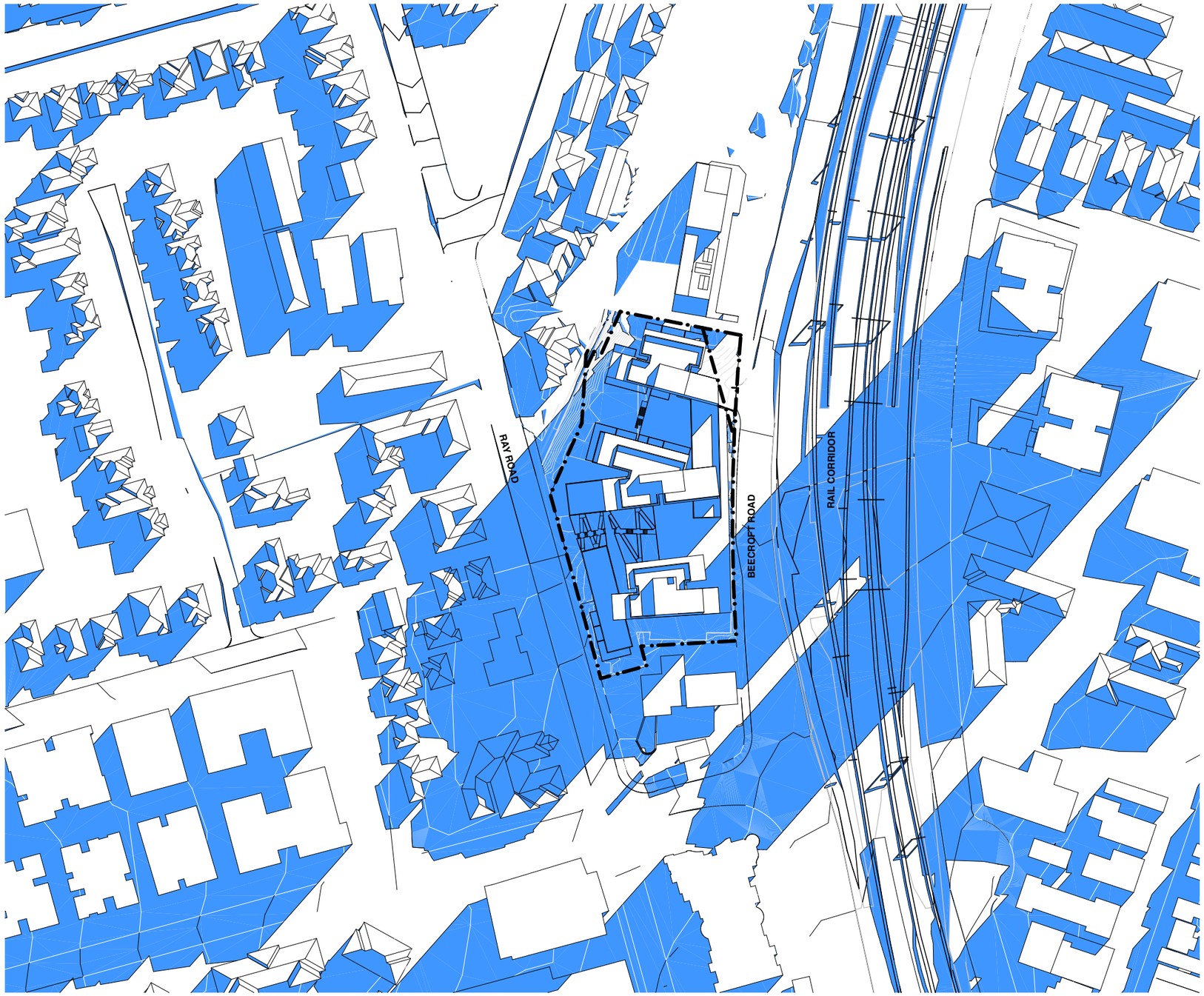
	Max Rate	Min Rate	Source	Max No.
1 BED	0.4		RMS	61
2 BED	0.7		RMS	155
3+ BED	1.2		RMS	72
VISITOR		1 per 7apts		62
CARSHARE		1 per Building	Parramatta DCP	3
NON RES		1 per 70sqm	Parramatta DCP	11
TOTAL CAR SPACES (max)				364
MOTORCYCLE		1 per 25 car spaces		15
BICYCLE		1 per apt + 1 visitor /10 apartments		476

NOTE:
Area schedule based on the reference design. Further development and testing of this reference scheme will be required to confirm all numbers.

Vistor rates increased to match Hornsby DCP

SUN STUDIES 9AM

1:2000



SUN STUDIES 10AM

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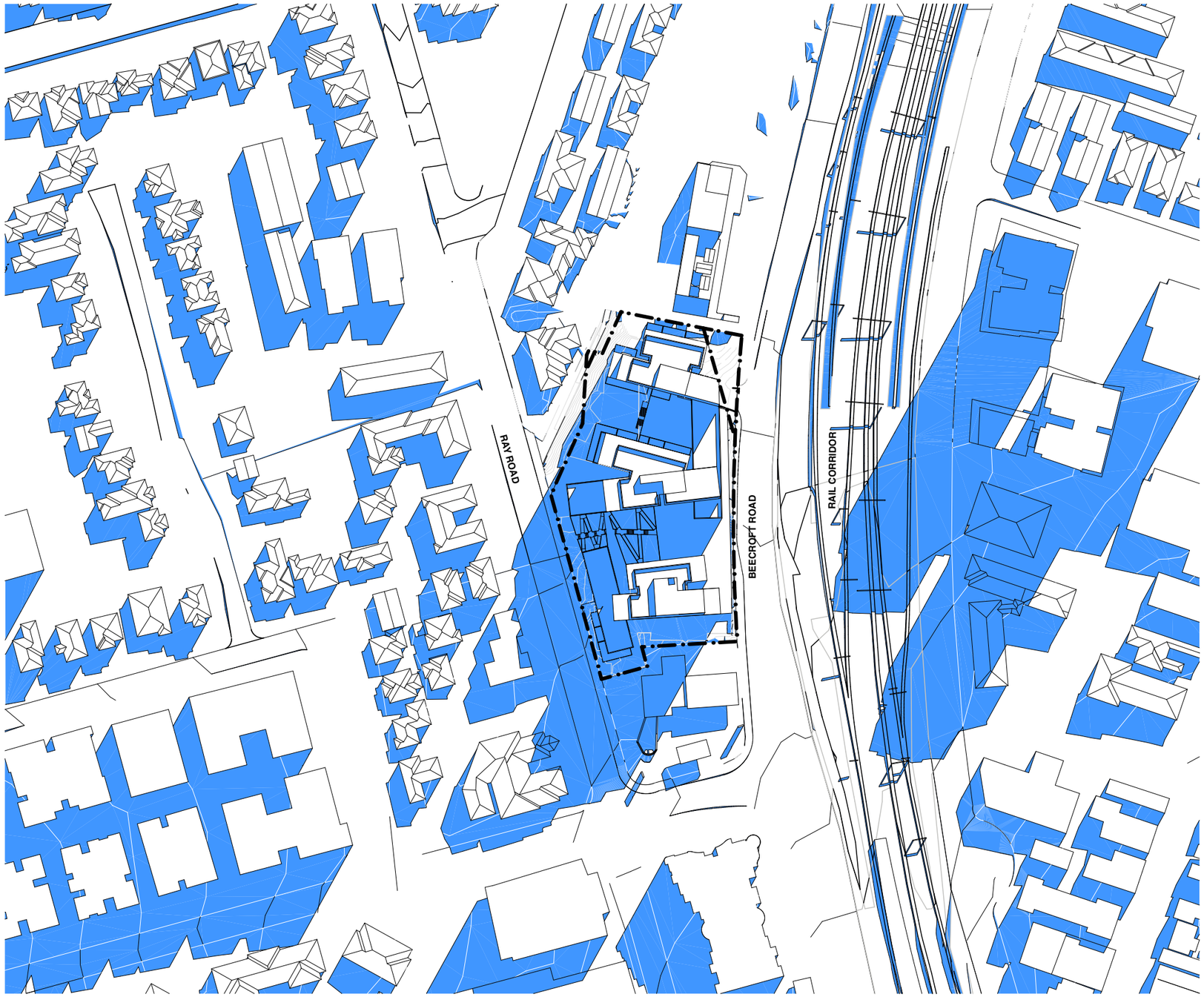

SUN STUDIES 11AM

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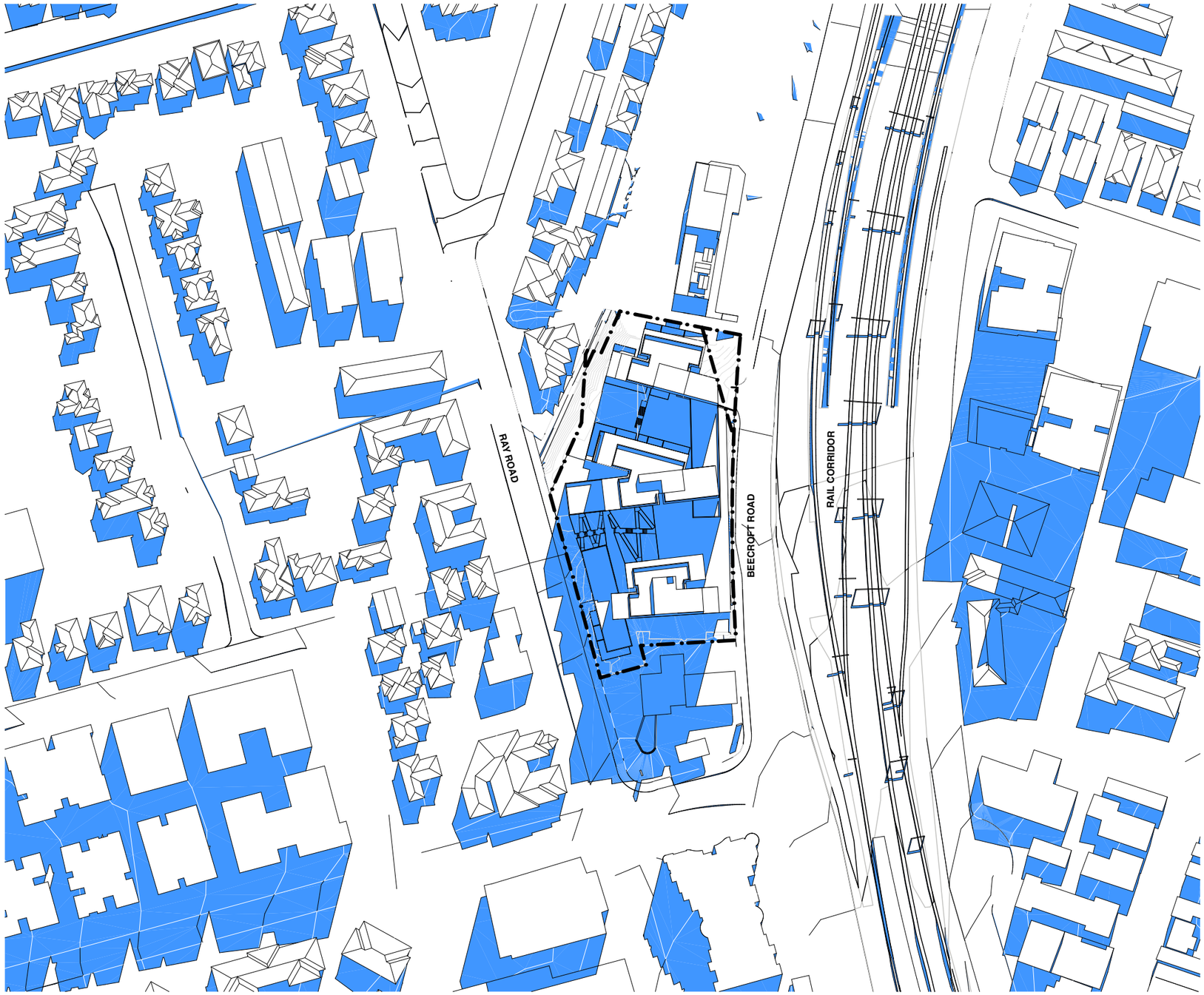

SUN STUDIES 12PM

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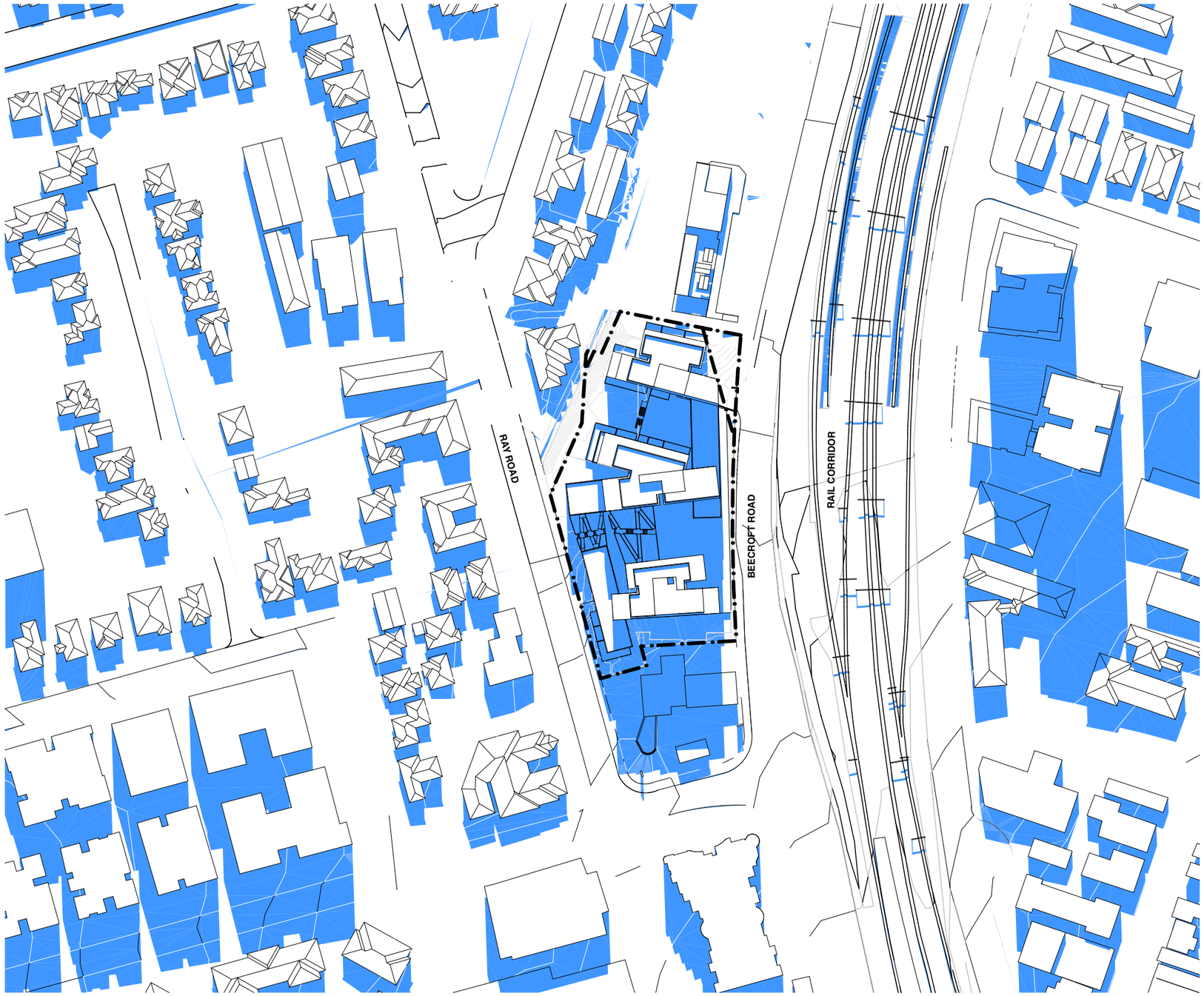

SUN STUDIES 1PM

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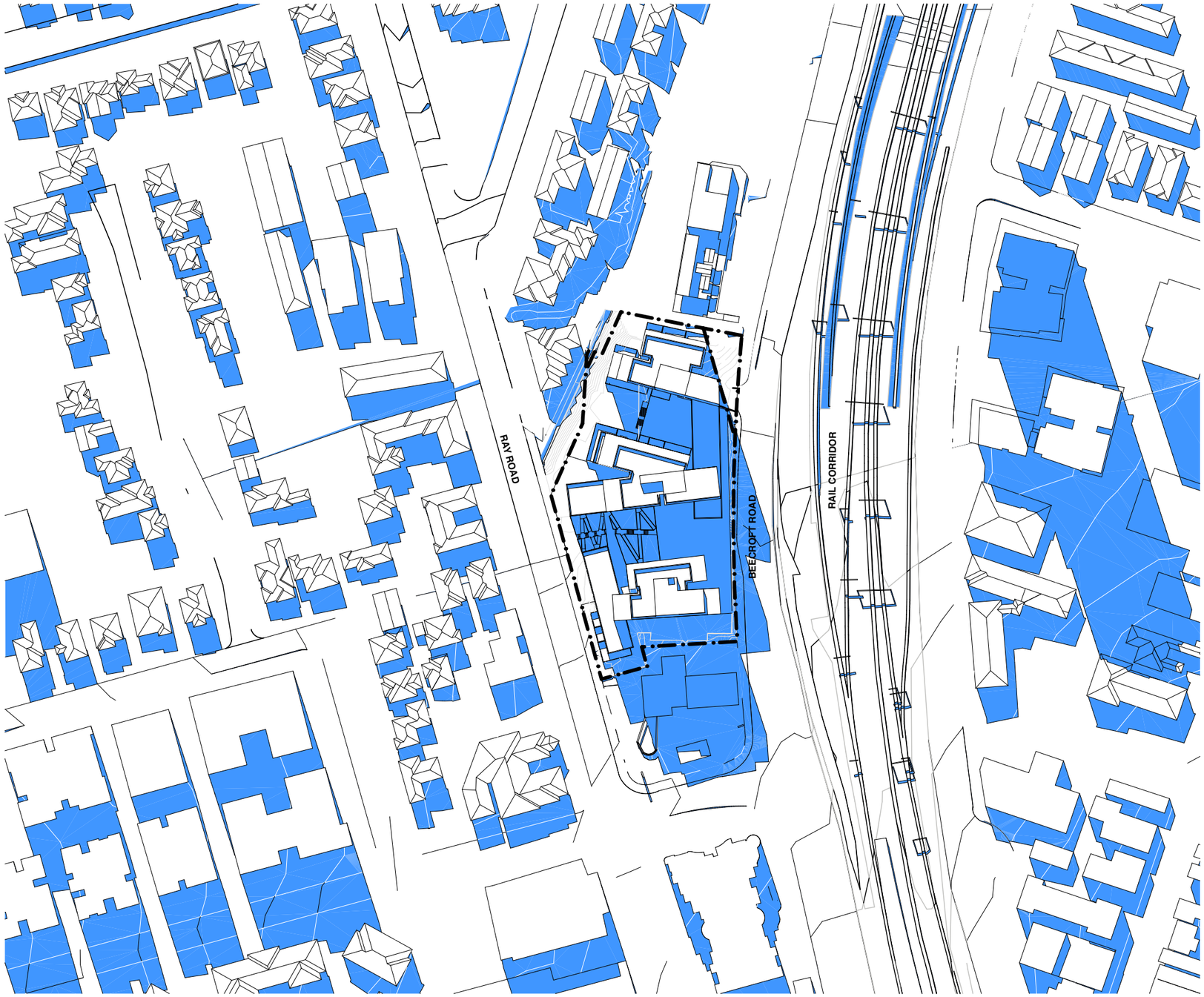

SUN STUDIES 2PM

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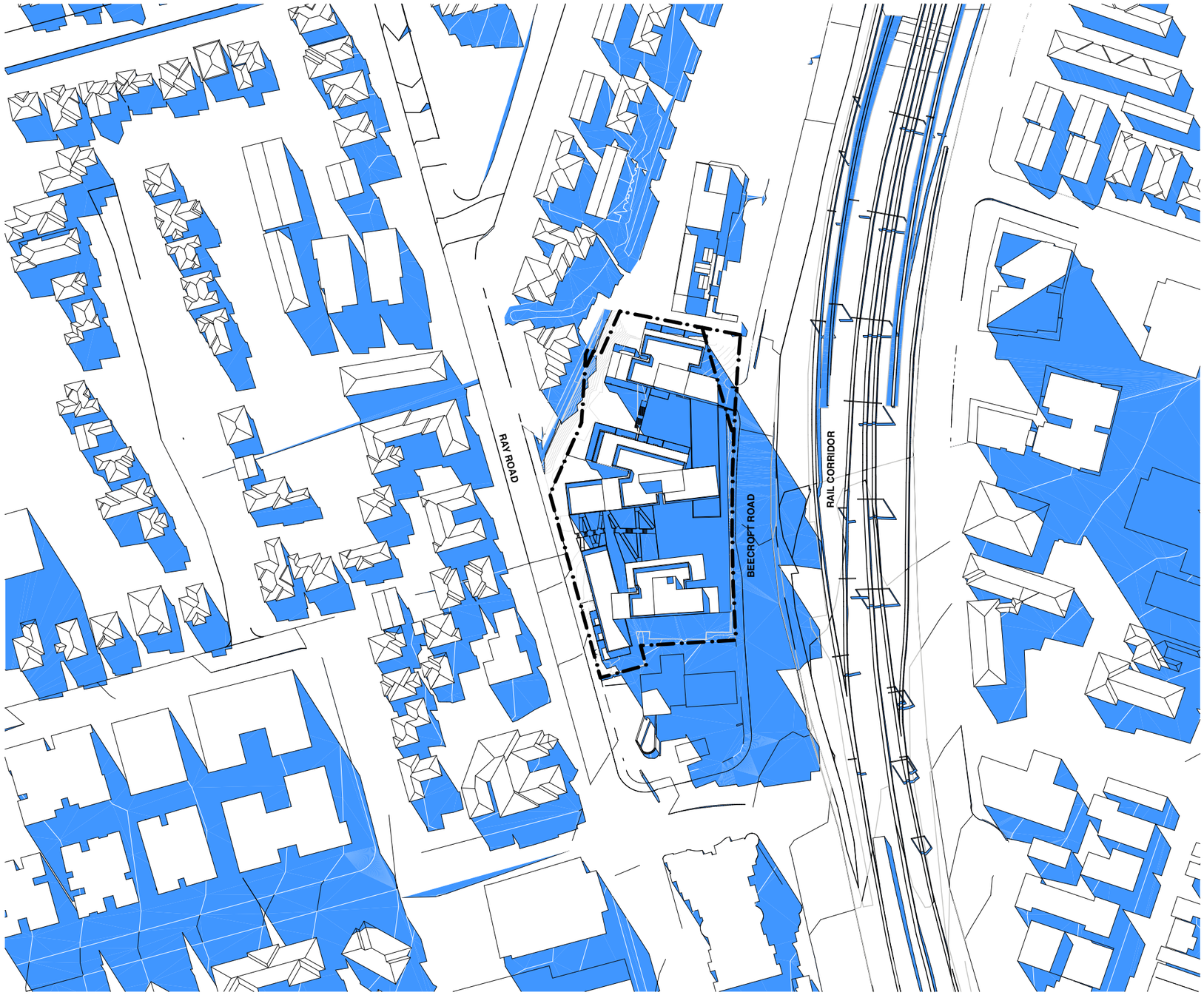

SUN STUDIES 3PM

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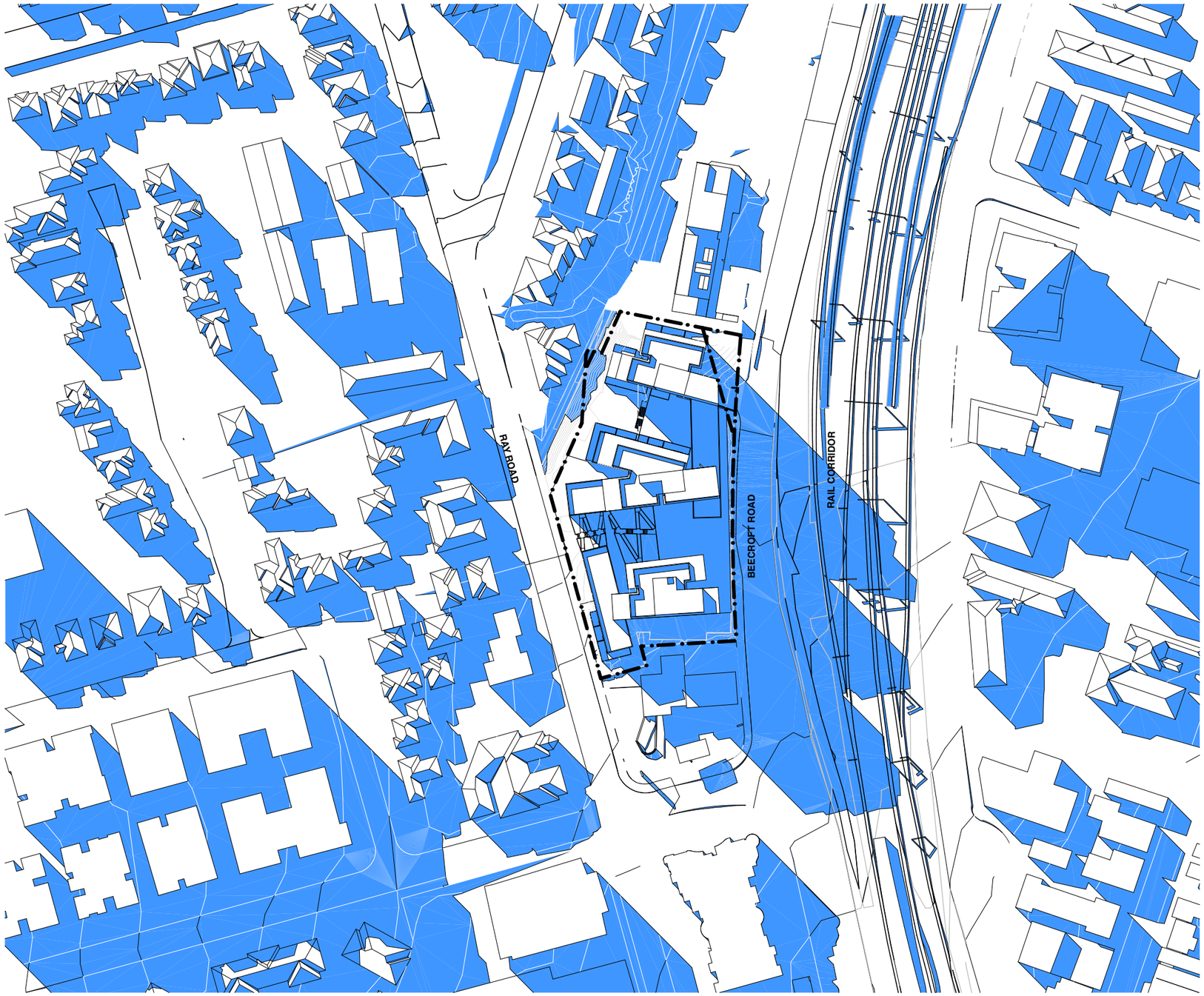
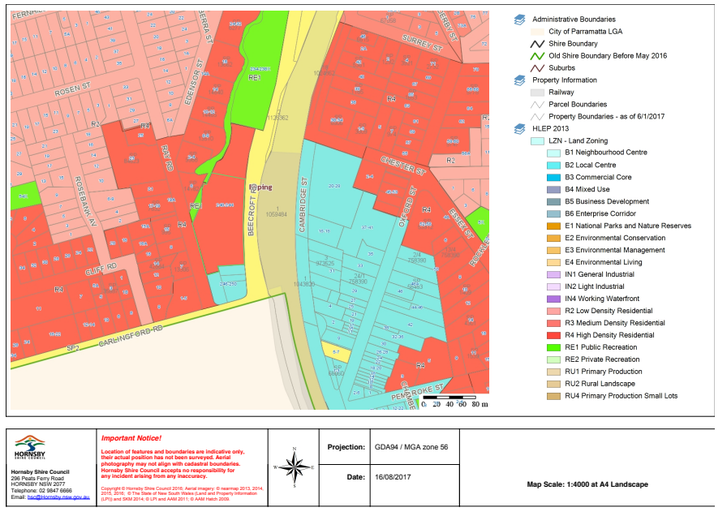
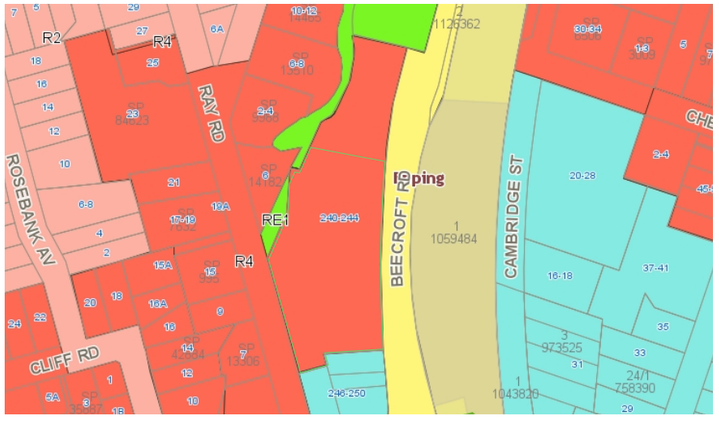


ANALYSIS - LEP CONTROLS

HORNSBY SHIRE COUNCIL - RELEVANT LEP CONTROLS

ZONING

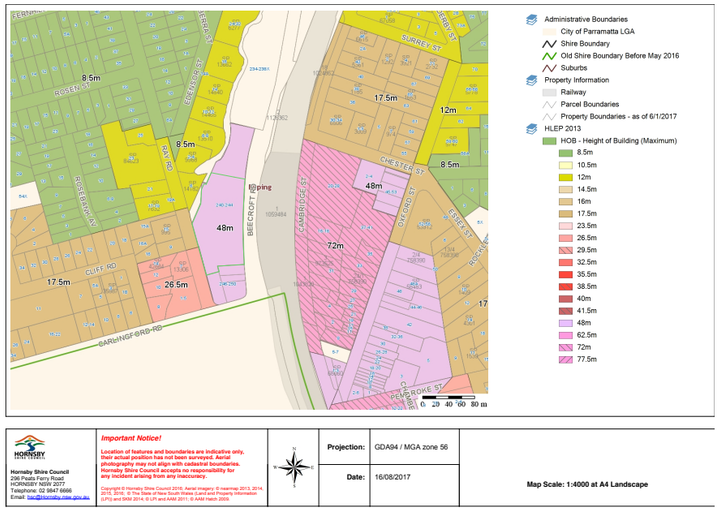


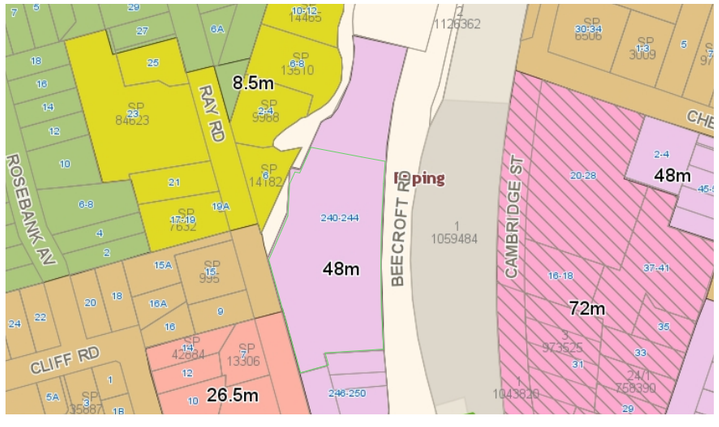


The study areas includes sites that are zoned:

R4 R4 High Density Residential

MAXIMUM BUILDING HEIGHT

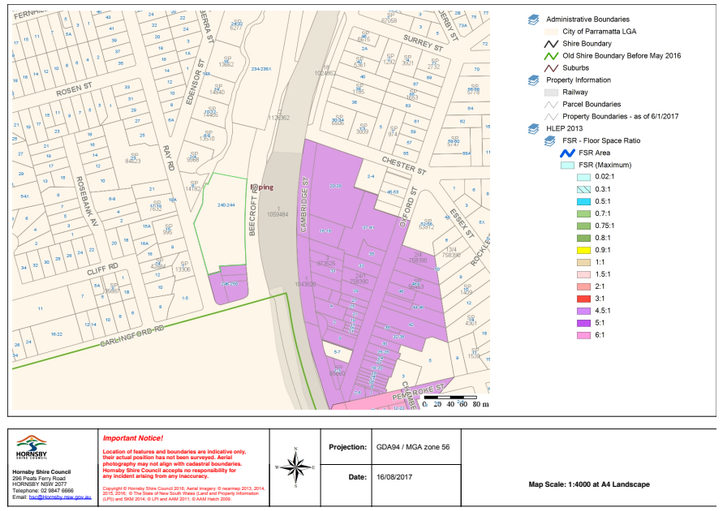


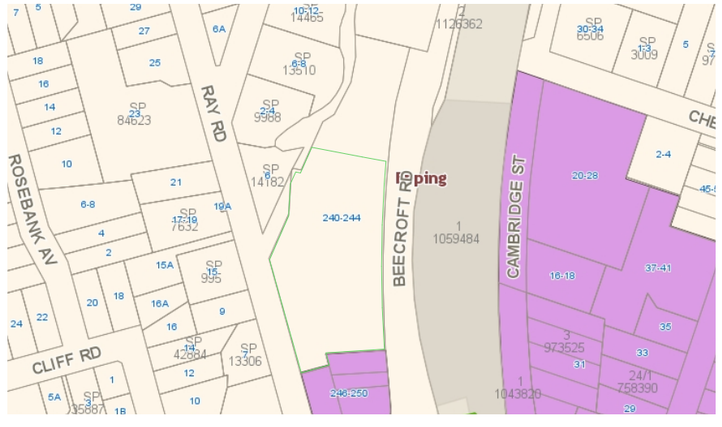


The maximum buildings heights are:

48m

FLOOR SPACE RATIO





No floor space ratio applies to the site