

5.1 COMPARATIVE ANALYSIS

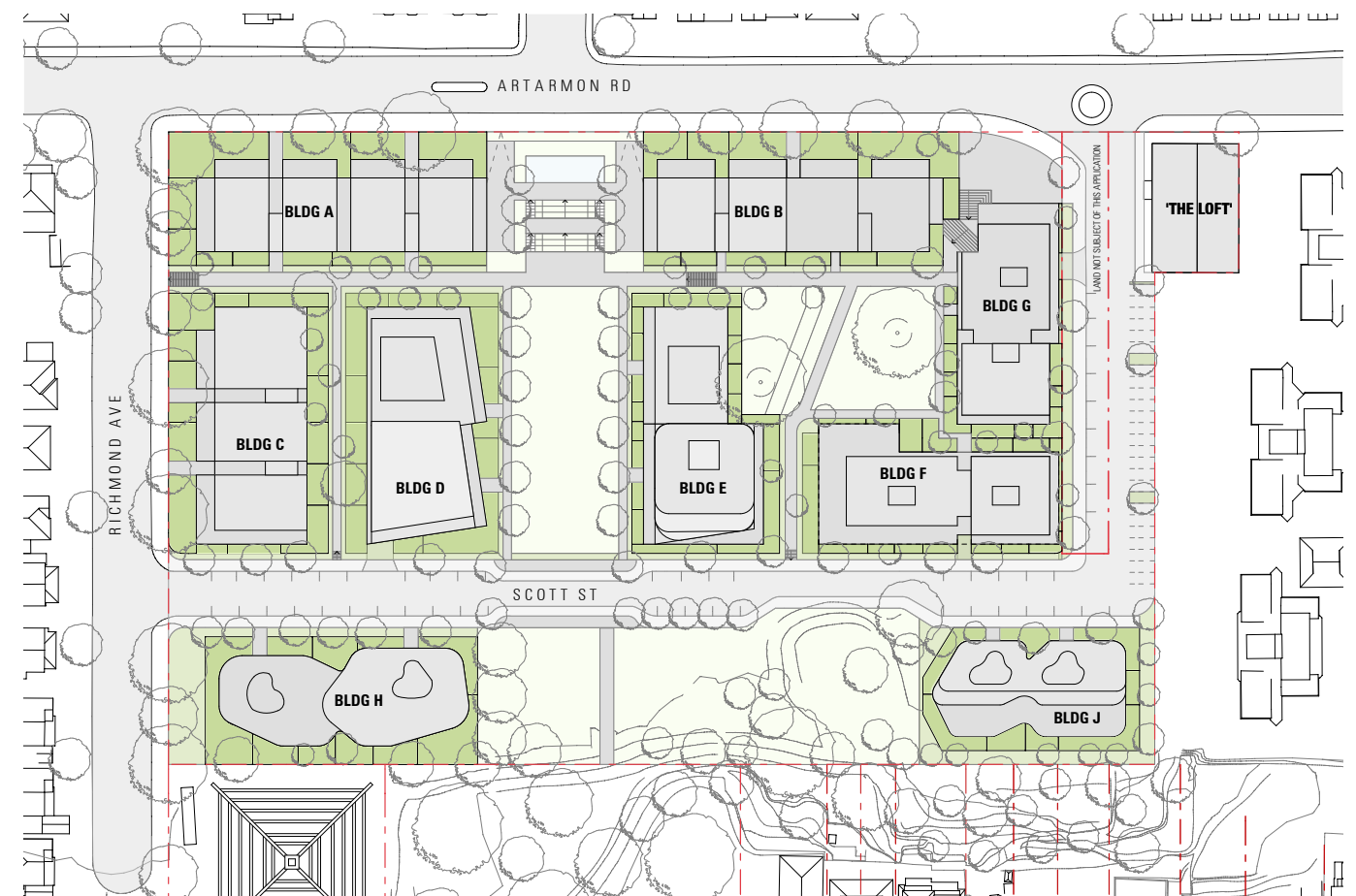
The following pages provide a detailed comparative analysis of the approved scheme and current modification 2. Supplementary drawings have been provided at the end to clarify any calculation made. A summary of the urban design outcomes have also been provided in matrix form. The approved scheme and proposed modification 2 have been assessed based on the following criteria:

PUBLIC OPEN SPACE
SITE LINES AND VISTAS
PRIVATE GARDENS
SOLAR ACCESS
A LEGIBLE STREET GRID
HEIGHTS
TRAFFIC IMPACT
VISUAL BULK
DENSITY AND FSR
SCALE TRANSITION

APPROVED SCHEME



PROPOSED SCHEME



5.2 PUBLIC OPEN SPACE

The proposed scheme started with an investment in public open space and offers a 172% increase over the entire site. The main park is widened, turned 90 degrees from the busy road, given southern views and connects to the Walter St Reserve.

The following information has been considered to confirm that only the "Nine Network Reserve" on Artarmon Rd was approved as public open space. In relation to Cow Paddock Park the Department's assessment states **"The location of that secondary space within the central part of the site better lends itself to use as a communal open space"**.

Willoughby City Council noted that other than the corner park the remaining public open spaces are **"poorly dimensioned left over spaces"**.

On this basis PAC determined: **"The Assessment Report recommends the two open spaces to remain in community title, but only the open space adjacent to Artarmon Road should be made publicly accessible"**.

"Due to the size and location of the smaller open space within the site, the Commission agrees with the assessment report that it is not of a scale to be useful as a public accessible space."

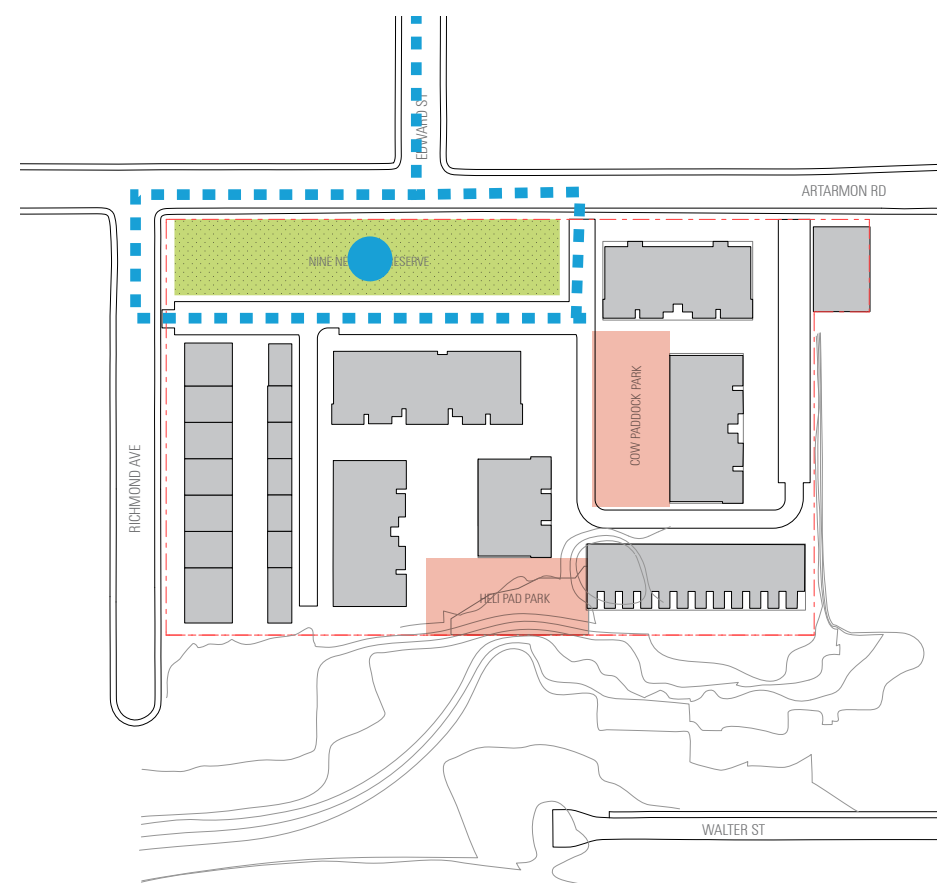
On this basis the approved public open space (soft and hard) of the "Nine Network Reserve" totaled 3178m² in area (measured from approved drawings). All other spaces such as Helipad Park and Cow Paddock Park were approved as communal open space.

The proposed scheme therefore represents the following significant improvements to public open space which benefits the entire community not just the new development.

172% Increase in public open space.
70% Decrease in communal open space as these areas are made public.
44% Increase in private open space

In addition to providing a diverse range of public spaces, including the hard open space of the village square, there is also a 3% increase in soft landscaping area.

APPROVED SCHEME

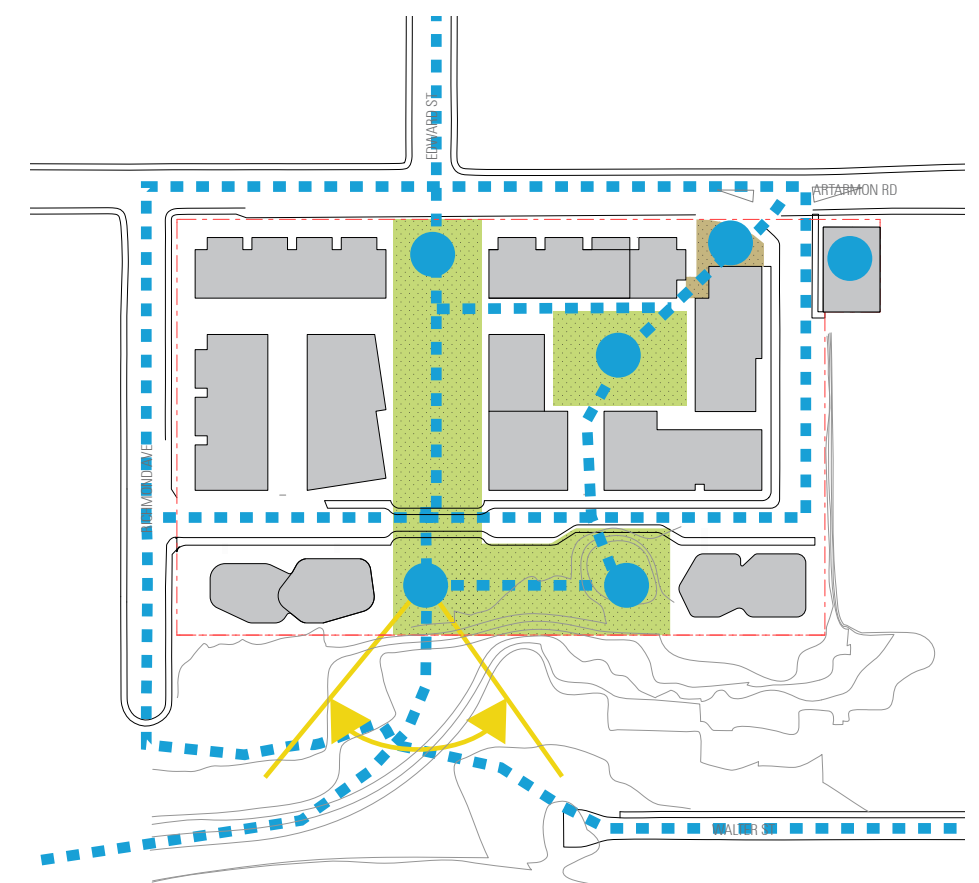


PUBLIC OPEN SPACE: 3178M²

COMMUNAL OPEN SPACE - approved areas

LIMITED PUBLIC CONNECTION TO GREEN SPACES
TURNS AWAY FROM REGIONAL OPEN SPACE CORRIDOR

PROPOSED SCHEME



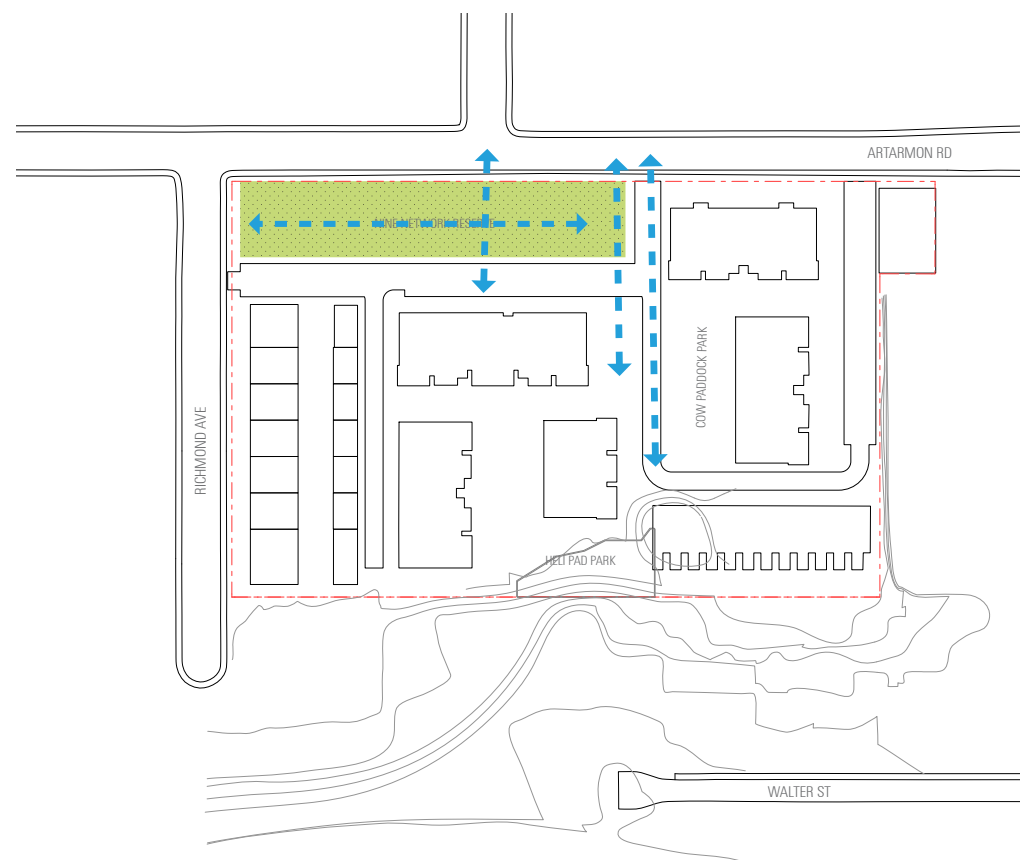
PUBLIC OPEN SPACE: 8396M² (+172%)

PUBLIC ACCESS MADE A PRIORITY

5.3 LONG SIGHT LINES AND VISTAS

Long sight lines and vistas help to break down the sense of massing, reduce the perceived bulk of the development and connect public spaces with local views which help to create a distinct 'sense of place'. Long sight lines also increase site safety and accessibility by creating clear desire lines and ensuring all public spaces are highly visible from Artarmon Rd or Scott Street.

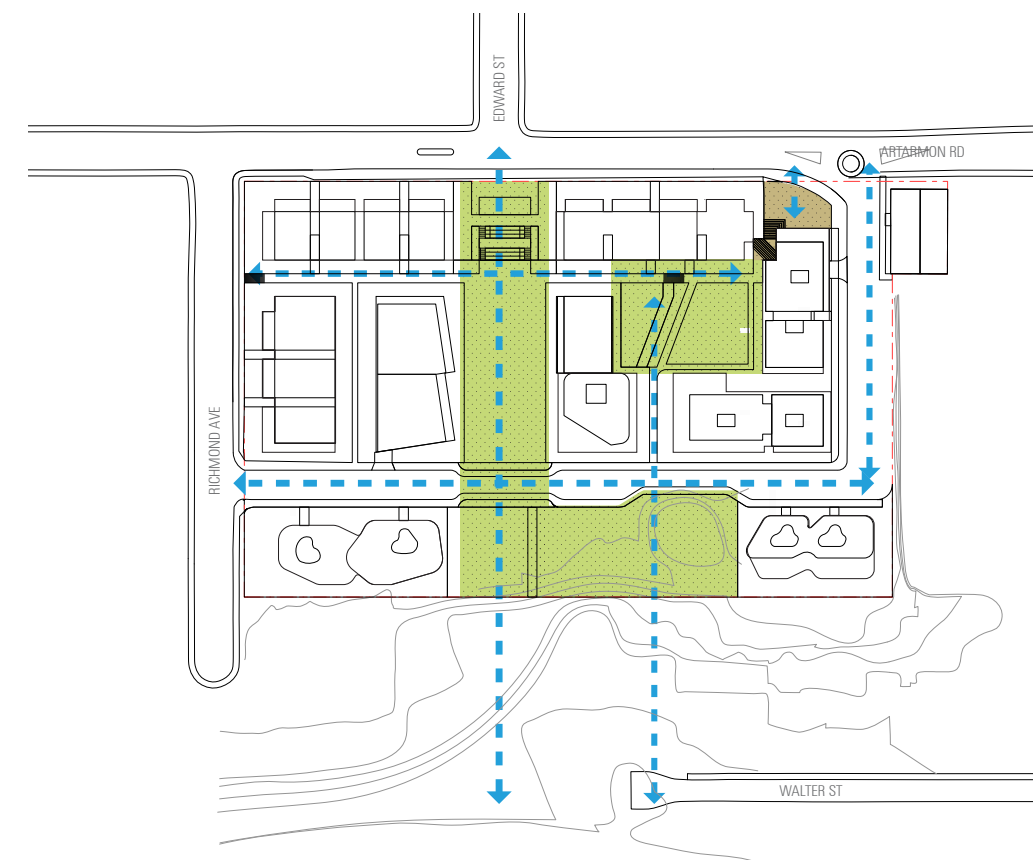
APPROVED SCHEME



MINIMAL SIGHT LINES AND VIEWS

OPPORTUNITIES FOR VIEWS AND VISTAS THROUGH AND ACROSS THE SITE ARE LIMITED AND NARROW. LITTLE VIEW BENEFITS TO ANY PUBLIC SPACE OR SURROUNDING BUILDINGS.

PROPOSED SCHEME



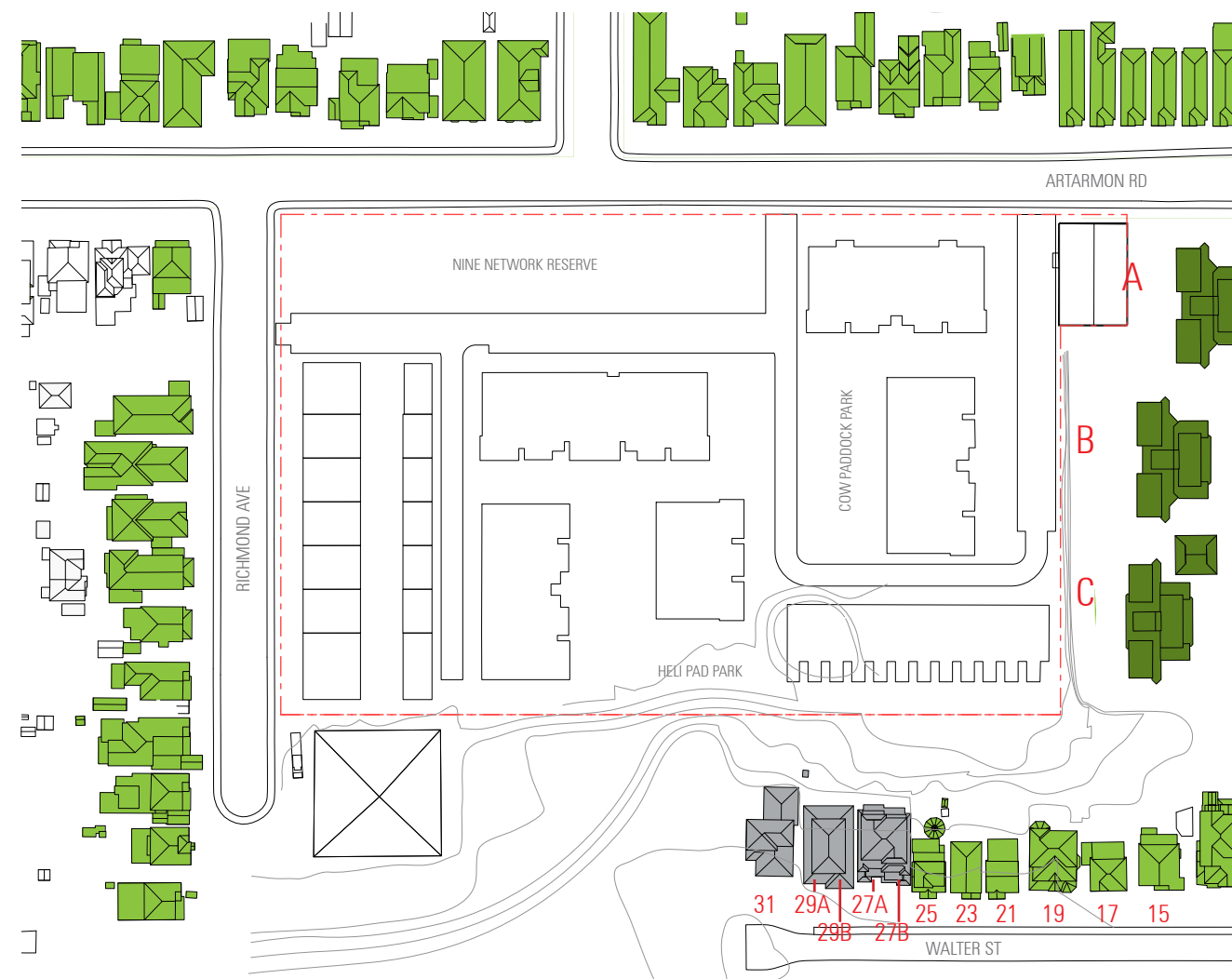
OPEN VISTAS AND PUBLIC VIEWS

LOGICAL BUILDING ARRANGEMENTS, THE CENTRAL PUBLIC OPEN SPACE AND SCOTT ST PROVIDE OPPORTUNITIES FOR LONG VIEWS ACROSS THE SITE AND TO VIEWS BEYOND.

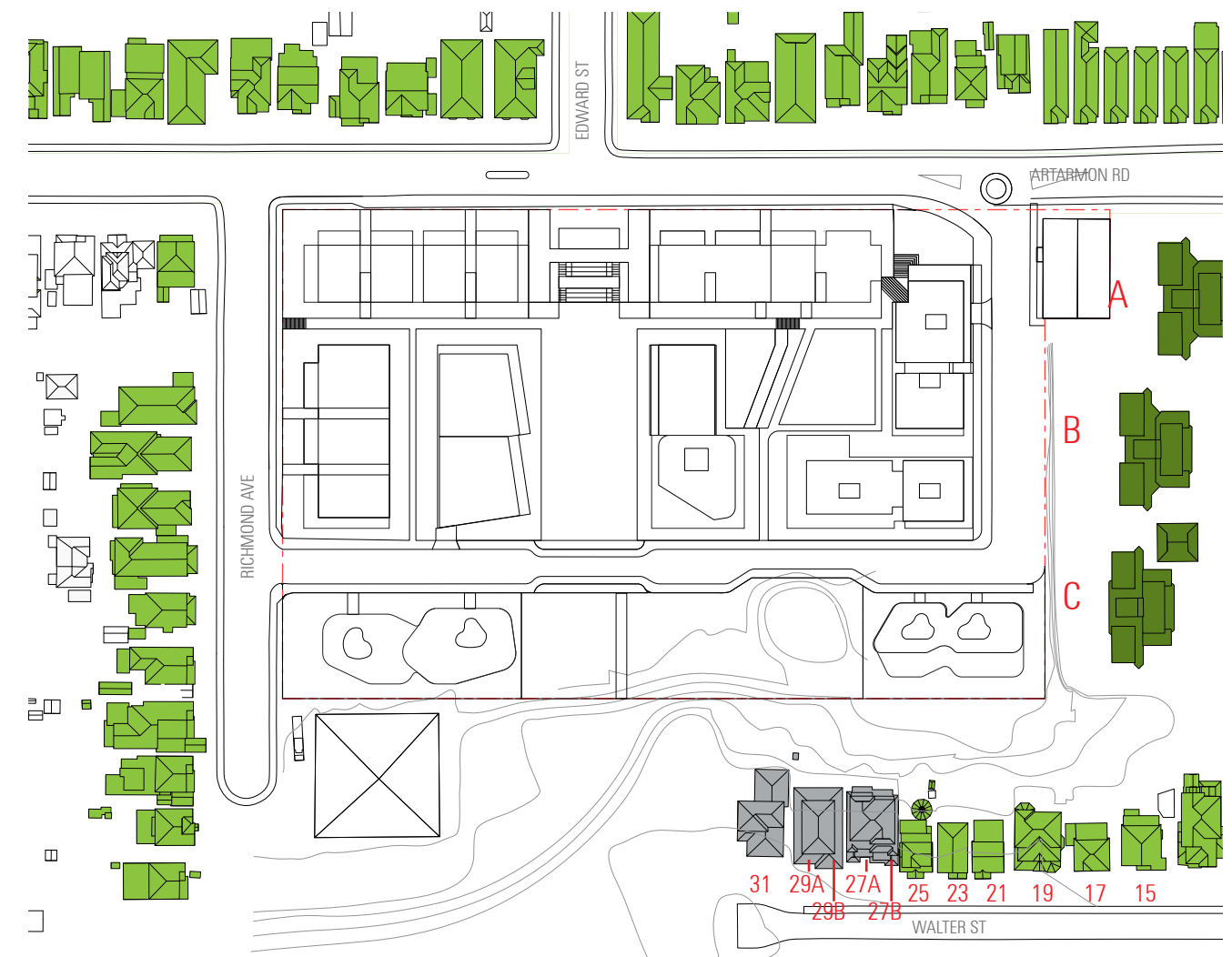
5.4 SOLAR ACCESS - SEPP 65 & WILLOUGHBY DCP

Solar access has been a critical factor in forming the buildings. In particular, solar access to Walter St and the Castle Vale development has been carefully considered. Buildings step back from these boundaries to ensure an improvement in overshadowing, or at least no worst than currently approved. Topological features of the site including the steep escarpment to the south and the steep cliff and wall to the east adjacent with Castle Vale have been factored into these calculations. See Appendix 02 for a comprehensive set of solar diagrams, and an explanation of how solar access has been calculated.

APPROVED SCHEME



PROPOSED SCHEME



= ST NUMBER

COMPLIANT WITH
SOLAR ACCESS WITH SEPP65 ADG
(MIN 2 HOURS BETWEEN 9AM - 3PM)

COMPLIANT WITH
WILLOUGHBY COUNCIL DCP
(MIN 3 HOURS BETWEEN 9AM-3PM)

NON COMPLIANT DUE TO ESCARPMENT
OVERSHADOWING

5.5 SOLAR ACCESS RESULTS - CALCULATIONS

WALTER STREET
HOURS OF SOLAR ACCESS RECEIVED BY EACH PROPERTY

Winter Solstice 22nd June (9am-3pm)

ST NO.	REAR FAÇADE (HOURS)		REAR PRIVATE OPEN SPACE (HOURS)	
	APPROVED	RTS SCHEME	APPROVED	RTS SCHEME
31	4.25	5	2	3.25
29A	3.5	4.25	0	0
29B	4	4.25	0.25	0.75
27A	3.25	3.5	0	0
27B	3.5	3.75	0	0
25	5.75	5.75	5.75	4.75
23	6	6	4.25	4.25
21	6	6	5.5	6
19	5.25	5	4.75	4.25
17	6	5.5	6	5.5
47.5		49	28.5	28.75
		+ 1 hr 30mins		+ 15mins

- Green represents no change from the approved scheme
- Dark Green represents an improvement from the approved scheme
- Red represents increased overshadowing/ a reduction in solar access.

Results - 15 of the 20 study areas in this table show a no change or improvement to the solar access. (improvement from modification 1 submission)

Of the remaining houses where the proposed massing has reduced solar access, no more than 30 mins of solar access has been lost in any facade and 1 hour in any back yard and despite this in every case each affected house continues to receive in excess of the DCP requirement.

CASTLE VALE TOWERS
NUMBER OF APARTMENTS OVERSHADOWED

Winter Solstice 21st June (1pm-3pm)

	1-1:15		1:15-1:30		1:30-1:45		1:45-2		2-2:15		2:15-2:30		2:30-2:45		2:45-3	
BLD #	APPROVED	PROPOSED	APPROVED	PROPOSED	APPROVED	PROPOSED	APPROVED	PROPOSED	APPROVED	PROPOSED	APPROVED	PROPOSED	APPROVED	PROPOSED	APPROVED	PROPOSED
Tower A	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1
Tower B	0	0	0	0	0	0	0	0	0	0	0	1	1	3	2	4
Tower C	0	0	0	0	1	0	4	3	8	6	10	8	12	9	14	10
TOTAL	0	0	0	0	1	0	4	3	8	6	11	10	14	13	17	15
	No change		No change		Improvement (+ 1)		Improvement(+ 1)		Improvement(+ 2)		Improvement(+ 1)		Improvement(+ 1)		Improvement(+ 2)	

- Results:
- Overall the proposed scheme offers a significant improvement for Castlevale
 - The approved scheme will have some overshadowing impact on 18 apartments, whilst the proposed scheme will only affect 15 apartments.
 - Tallying the above table, the length of time that apartments are overshadowed is reduced by 3 hours.
 - In order to achieve the SEPP65 ADG requirement of 2 hours solar access to living rooms at winter between 9am and 3pm, these properties would require sunlight on the western facade between 12 midday and 2pm. Currently 4 properties in the approved scheme will not meet this requirement. In this modification 2 scheme only 2 apartments will not receive this require solar access at winter solstice (bottom two levels, south side, tower c).

5.6 PRIVATE GARDENS

Generous private gardens are a landscape feature of Willoughby and the North Shore. The proposed scheme has a 44% increase in private garden area, reflecting this local characteristic and helping the new development to feel part of the local environment

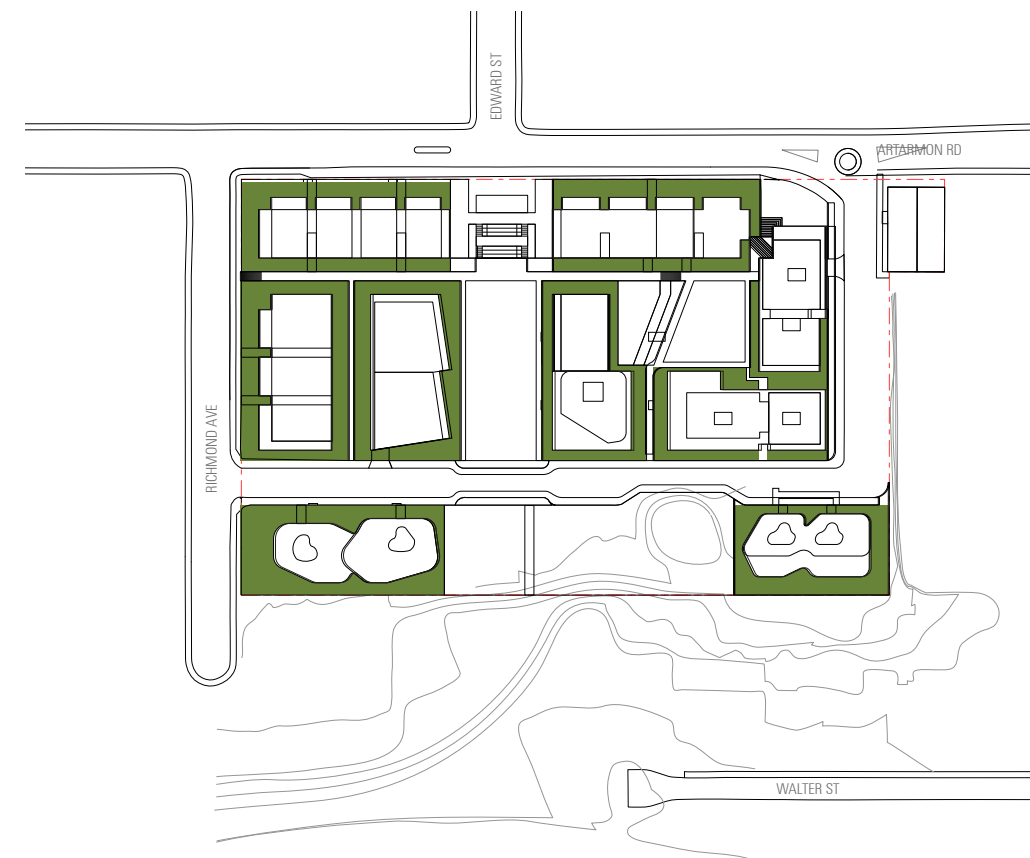
APPROVED SCHEME



PRIVATE GARDENS: 3608M²

THE ARRANGEMENT OF BUILDINGS CREATE AMBIGUOUS SPACES AND COMMUNAL GARDENS WITH LIMITED ACCESS. HELI PAD PARK IS ALSO DIFFICULT TO LOCATE AND ACCESS.

PROPOSED SCHEME



PRIVATE GARDENS: 5039M² (+44%)

LOGICAL BUILDING ARRANGEMENTS CREATE CLEAR DISTINCTIONS BETWEEN PUBLIC AND PRIVATE OPEN SPACE. ALL BUILDINGS ARE PROVIDED WITH GENEROUS GARDENS AROUND ALL SIDES.

5.7 LEGIBLE STREET GRID

A legible street structure helps the development to integrate into the surrounding community. This also ensures the modified development does not feel like a gated community, but rather another new place for the community.

APPROVED SCHEME



INCONSISTENT STREET GRID

DEAD ENDS AND MORE ROADS CREATE A STREET GRID WHICH IS INCONSISTENT WITH THE PATTERNS OF ROADS IN THE NEIGHBOURHOOD.

PROPOSED SCHEME



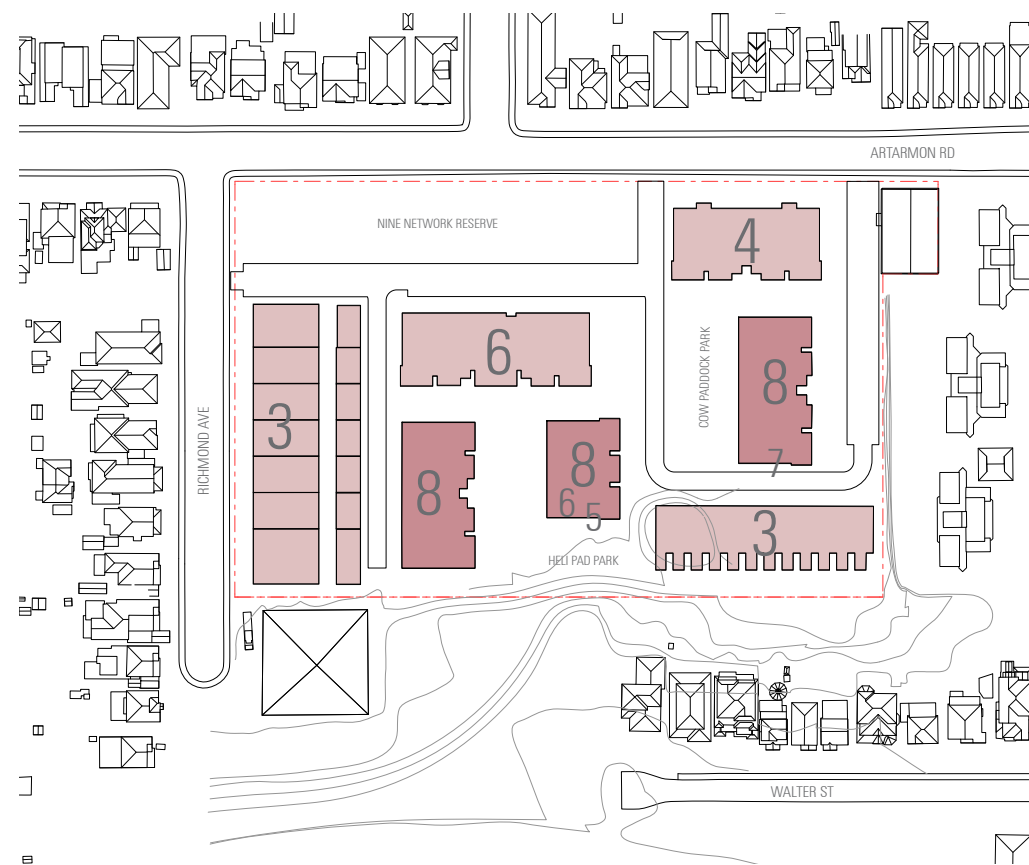
A NEW STREET THAT IS PART OF THE SUBURB

THE SCOTT STREET LOOP CREATES A BLOCK THAT IS SIMILAR IN SCALE TO EXISTING STREET BLOCKS IN THE AREA.

5.8 HEIGHTS

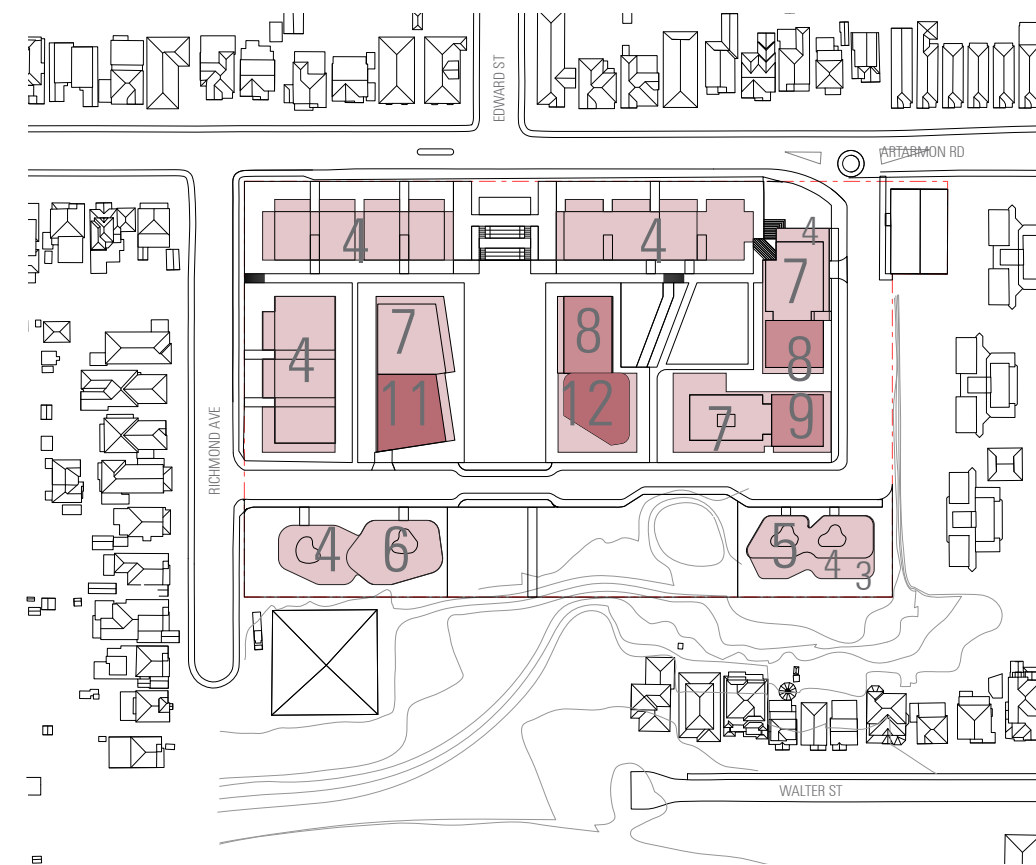
Building heights were assessed against their overshadowing impact and visual impact. Building heights noted reflect the number of storeys facing the street or main public open space. Only three buildings have been proposed above the approved 8 storey approved limit, with a maximum height of 12 storeys in one location. The towers are small in footprint to create a refined scale of building, and create the same, if not better solar access for neighbouring properties. Massing has also been carefully stepped down to the eastern boundary to reduce solar impact on Castle Vale.

APPROVED SCHEME



MAX 8 STOREYS

PROPOSED SCHEME



MAX 12 STOREYS

5.9 CLARIFICATION OF BUILDING HEIGHTS

The Office of the Government Architect noted “the building massing appears to respond appropriately to the surrounding context with particular note to:

- The additional height positioned centrally within the site in the form of two narrow footprint towers works well to ameliorate impacts on the surrounding existing residential areas and streets and allows for lower scale buildings along Artarmon Rd and Richmond Avenue.”

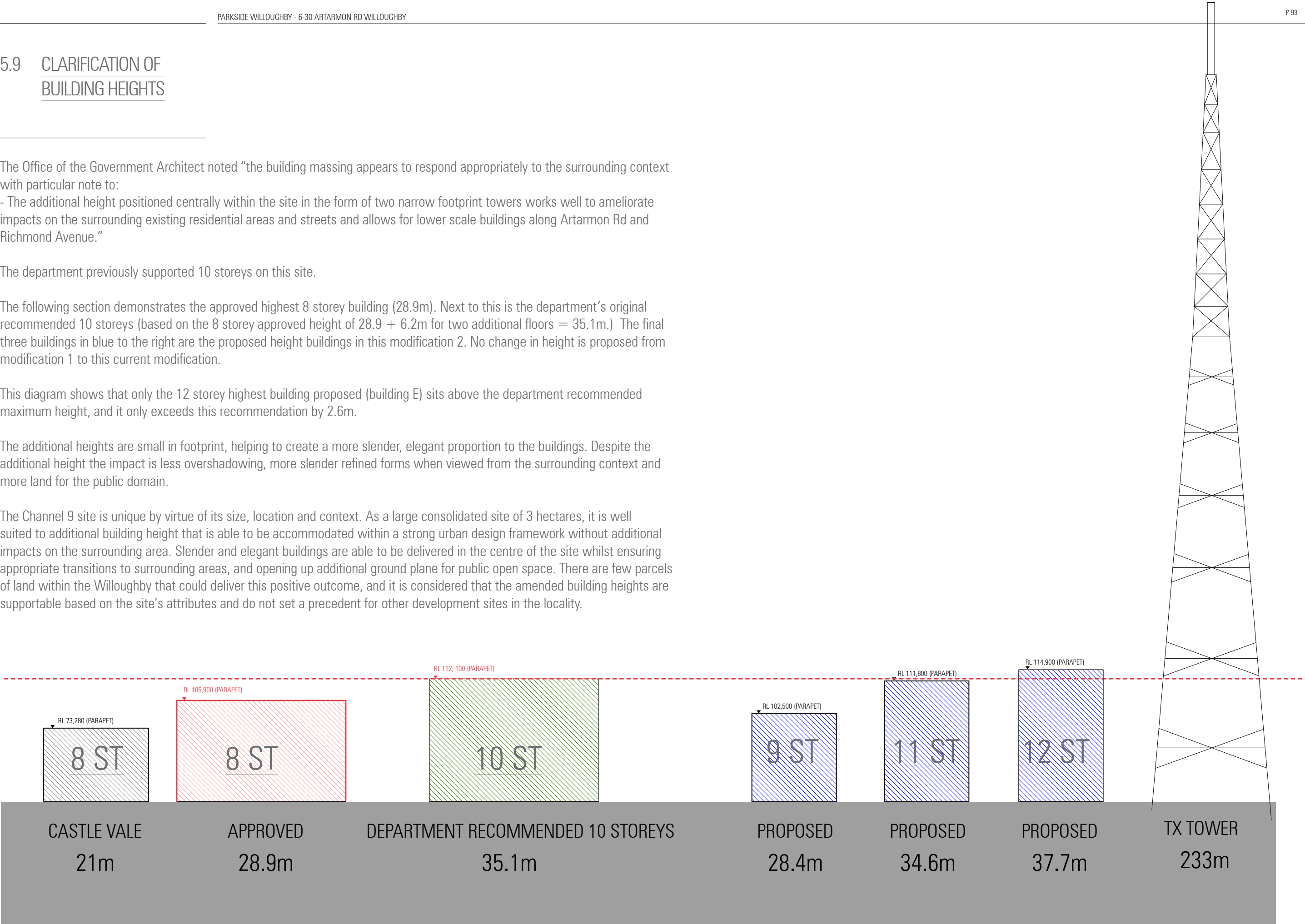
The department previously supported 10 storeys on this site.

The following section demonstrates the approved highest 8 storey building (28.9m). Next to this is the department’s original recommended 10 storeys (based on the 8 storey approved height of 28.9 + 6.2m for two additional floors = 35.1m.) The final three buildings in blue to the right are the proposed height buildings in this modification 2. No change in height is proposed from modification 1 to this current modification.

This diagram shows that only the 12 storey highest building proposed (building E) sits above the department recommended maximum height, and it only exceeds this recommendation by 2.6m.

The additional heights are small in footprint, helping to create a more slender, elegant proportion to the buildings. Despite the additional height the impact is less overshadowing, more slender refined forms when viewed from the surrounding context and more land for the public domain.

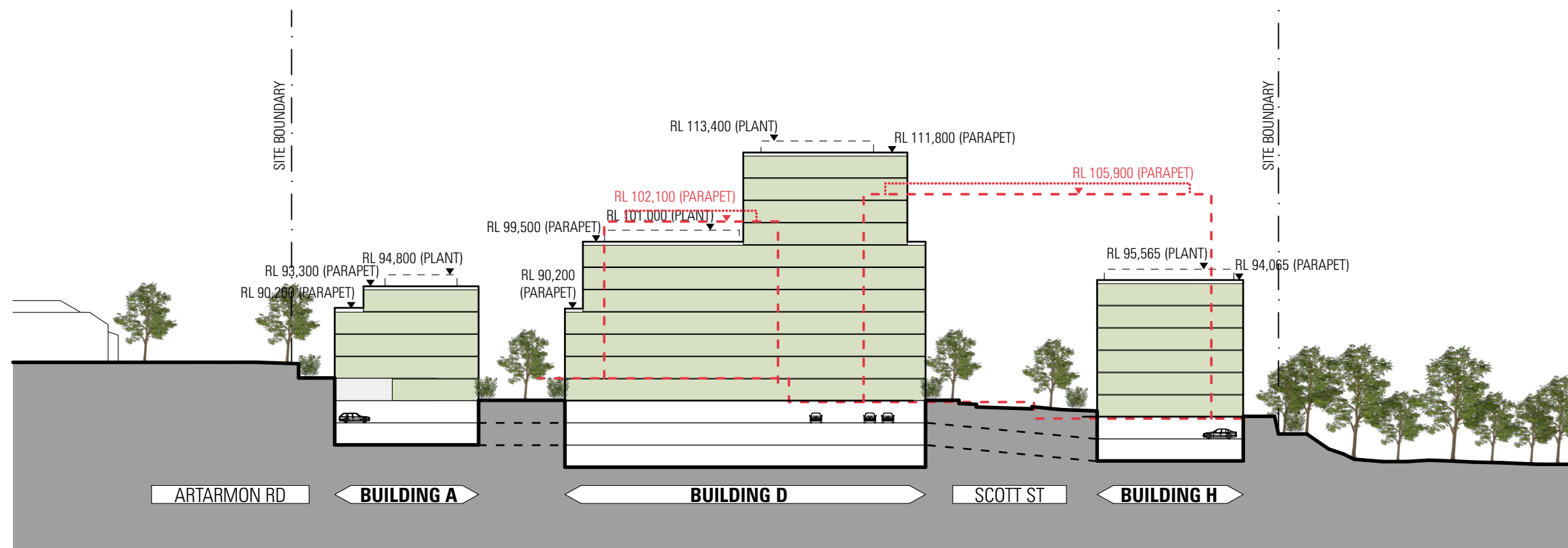
The Channel 9 site is unique by virtue of its size, location and context. As a large consolidated site of 3 hectares, it is well suited to additional building height that is able to be accommodated within a strong urban design framework without additional impacts on the surrounding area. Slender and elegant buildings are able to be delivered in the centre of the site whilst ensuring appropriate transitions to surrounding areas, and opening up additional ground plane for public open space. There are few parcels of land within the Willoughby that could deliver this positive outcome, and it is considered that the amended building heights are supportable based on the site’s attributes and do not set a precedent for other development sites in the locality.



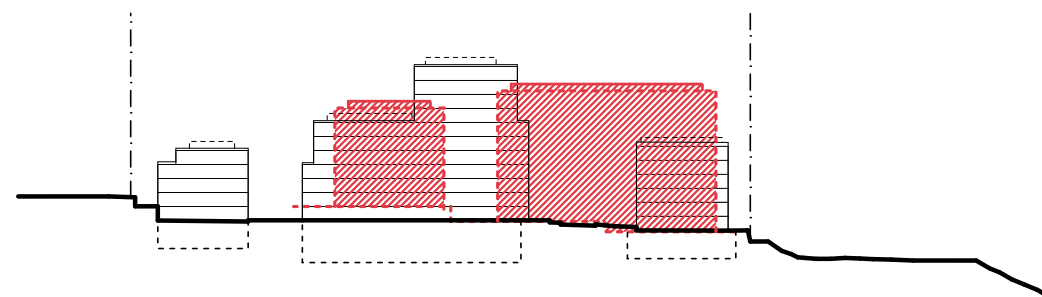
5.10 HEIGHT THROUGH BUILDING D

Building D has a proposed height of 11 stories. The proposed development steps the buildings down with the slope of the site to lower the overall building heights. As such, the proposed RL is 5.9m higher than the approved 8 storey building. The floor plate of the additional height is small with only 3 apartments per level. Additional height helps to create an elegant proportion to the buildings. The height is also moved away from the southern boundary to ensure an improvement in overshadowing impact for Walter St.

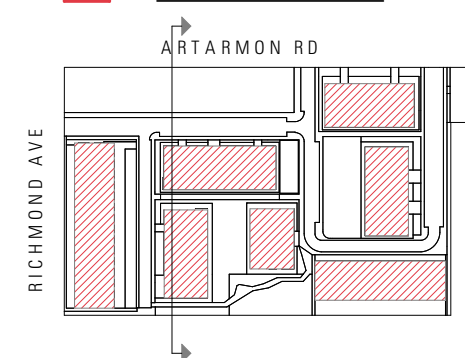
+ 5.9m IN HEIGHT (BETWEEN HIGHEST PARAPET RLs)
- WITH A SMALLER FOOTPRINT
- FURTHER AWAY FROM SOUTHERN BOUNDARY



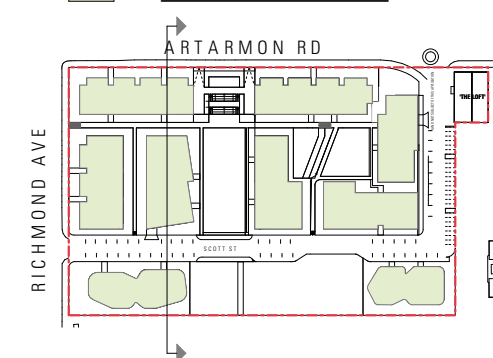
ENVELOPE COMPARISON - APPROVED ENVELOPE



APPROVED ENVELOPE



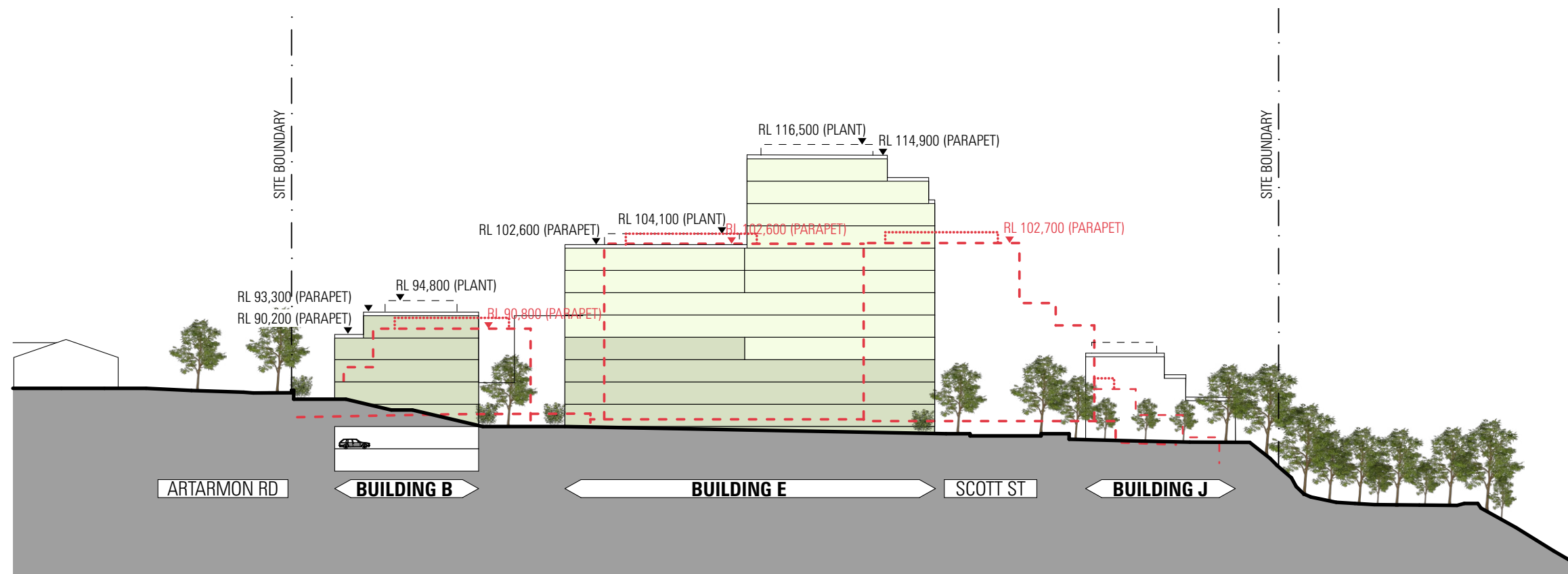
PROPOSED ENVELOPE



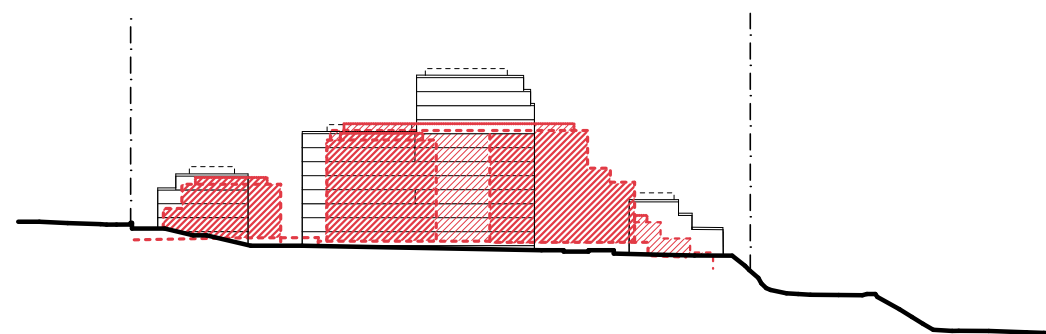
5.11 HEIGHT THROUGH BUILDING E

Building E has a proposed height of 12 stories which is 9m higher than the highest approved 8 storey building. The floor plate of the additional height is small with only 4 apartments per level. The height and bulk of the approved scheme is moved away from the southern boundary to create a park and playground for the public. The additional height results in an improvement in overshadowing for Walter St.

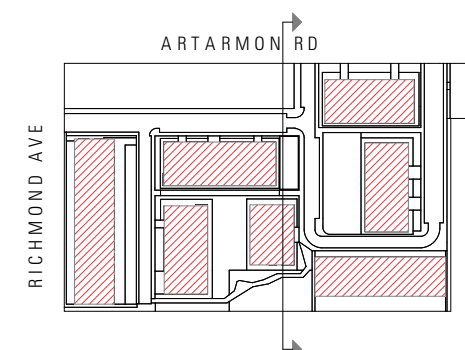
+ 9m IN HEIGHT (BETWEEN HIGHEST PARAPET RLs)
- WITH A SMALLER FOOTPRINT
- FURTHER AWAY FROM SOUTHERN BOUNDARY



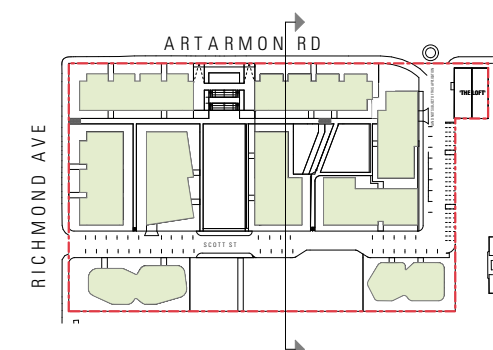
ENVELOPE COMPARISON - APPROVED ENVELOPE



APPROVED ENVELOPE



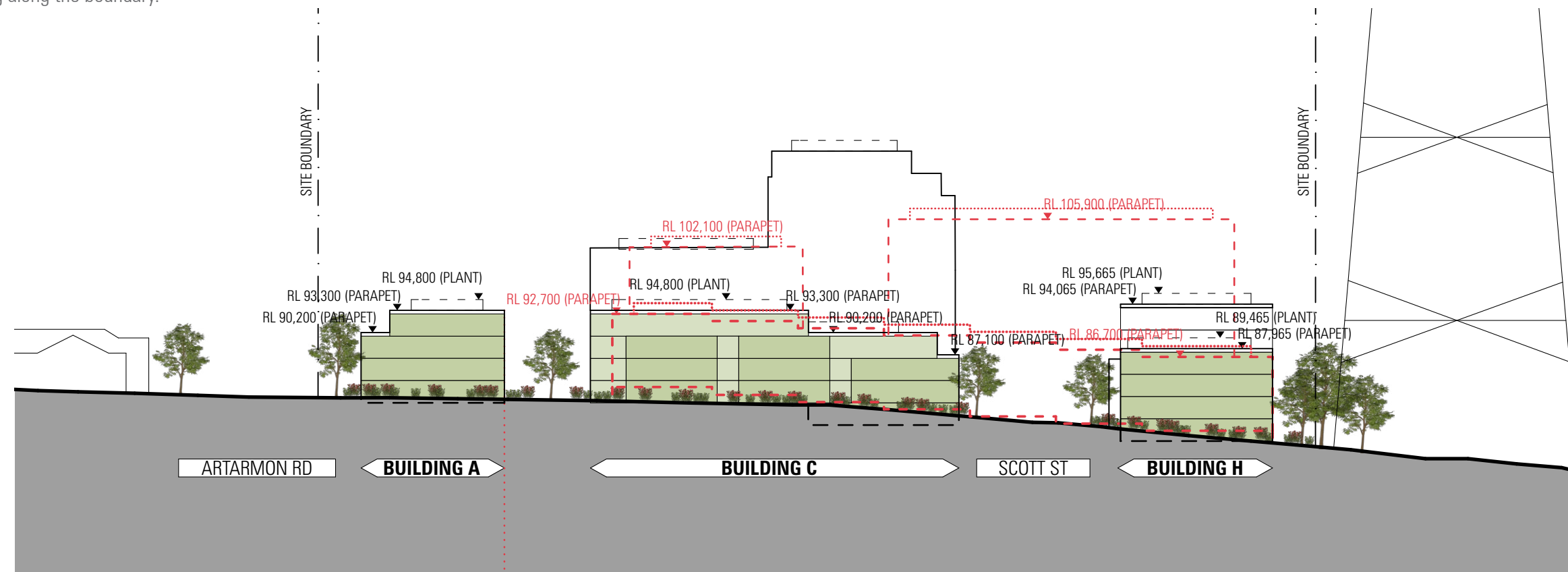
PROPOSED ENVELOPE



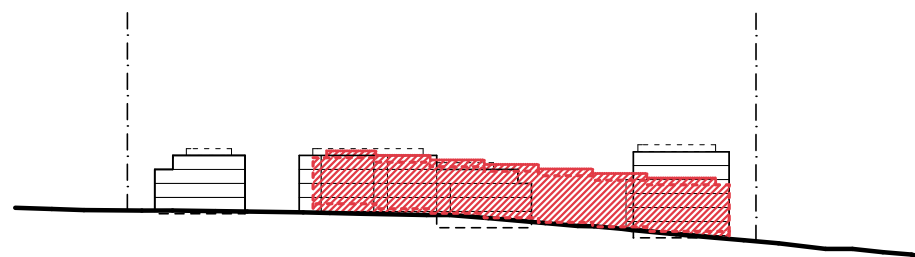
5.12 HEIGHT ALONG RICHMOND AVE

The Richmond Rd elevation has been carefully considered to respect the low scale residential buildings of the street, and to maintain the low scale development established by the approved terrace housing. The approved terrace housing stepped down with the street in an unrelenting form of 15 terraces. This mass has been broken down by the introduction of the new Scott Street. The proposed apartment buildings also step down with the site and are at most an additional 1.3m in height from the approved scheme RLs. In plan building H has been moved away from the boundary to a total of 10m. This will allow for a strong bush planting along the boundary.

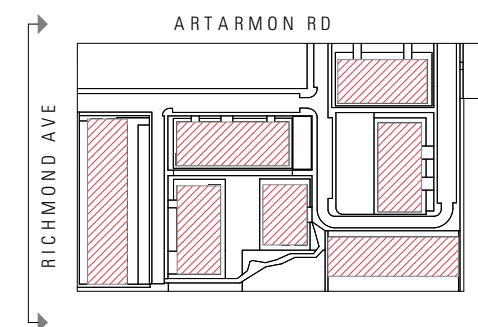
+1.3m IN HEIGHT
- SCALE OF MASS BROKEN DOWN WITH SCOTT ST



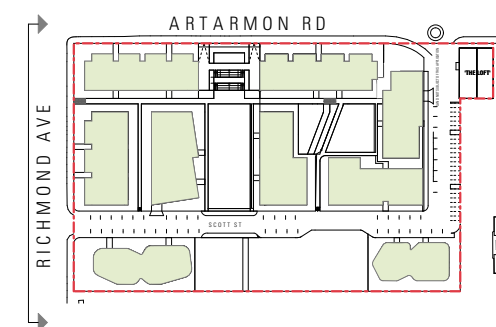
ENVELOPE COMPARISON - APPROVED ENVELOPE



APPROVED ENVELOPE



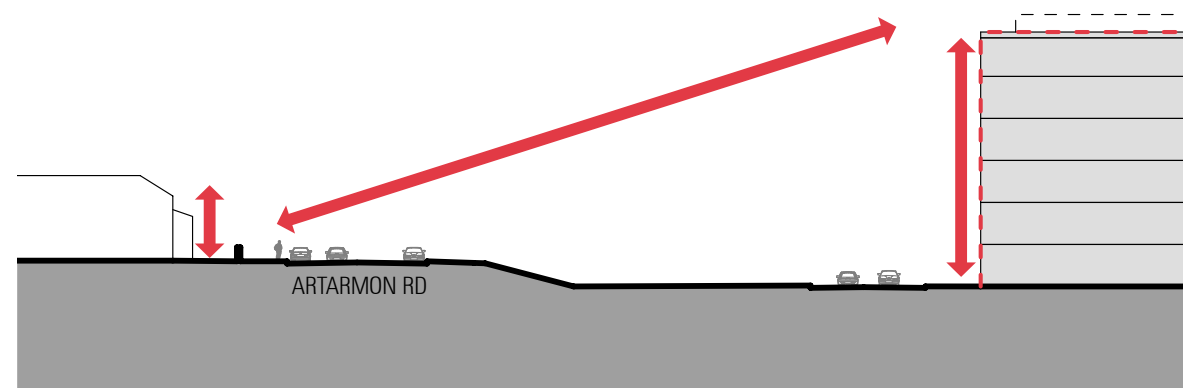
PROPOSED ENVELOPE



5.13 ARTARMON RD SCALE TRANSITION

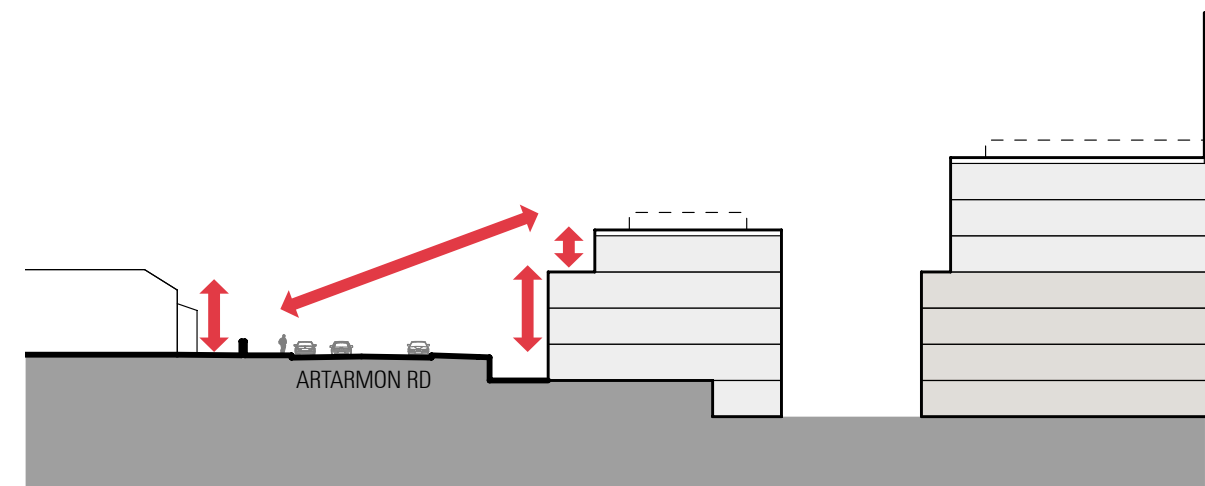
As discussed in detail, the proposed scheme offers a better transition in scale than the currently approved scheme. The respectful low scale built form edge to all streets offers a better result when viewed from Artarmon Rd and Richmond Ave. The scale of buildings more closely reflects the scale of existing houses and helps to complete the built form of the street.

APPROVED SCHEME



STARK CONTRAST IN SCALE OF BUILDINGS

PROPOSED SCHEME



COMPARABLE STREET SCALE

5.14 MASSING AND ENVELOPE COMPARISON

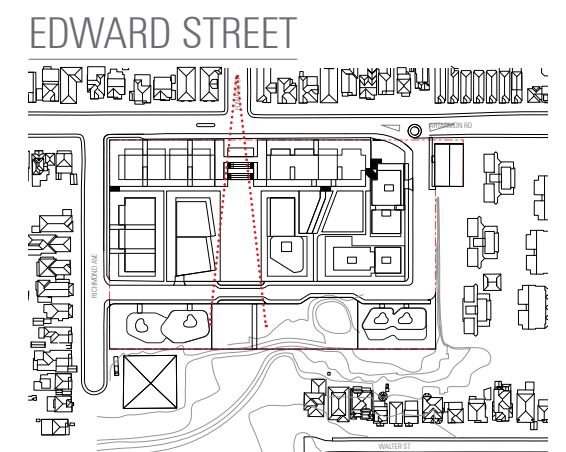


APPROVED VISUAL BLOCKAGE

The strong axis of Edward Street is reinforced rather than blocked by the proposed scheme. The street is extended into a park, allowing for views to St Leonards beyond as you walk or drive down Edward Street towards the site.



PROPOSED OPENING UP PUBLIC VIEWS



5.15 MASSING AND ENVELOPE COMPARISON

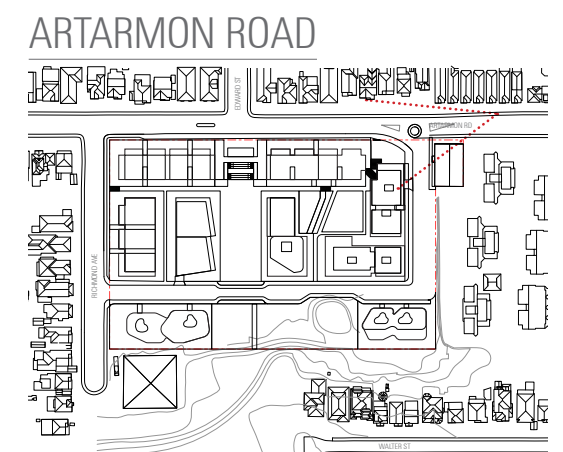


APPROVED

Artarmon Road includes a public plaza alongside Scott St. The massing of the Street Buildings steps back from Artarmon Rd for the plaza and steps up with the street. Vertical articulations in the massing ensure that building heights remain relative to the steep topography of Artarmon Road



PROPOSED



5.16 MASSING AND ENVELOPE COMPARISON

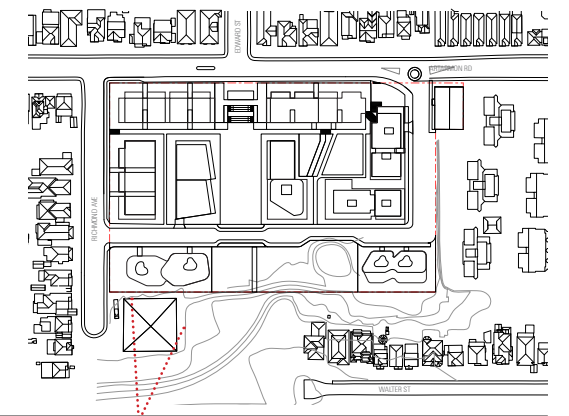


APPROVED

Careful attention has been paid to create more slender buildings which crest with the ridgeline and step down towards each boundary. This ensures that the buildings look more aligned with the natural topography, especially when viewed from a distance. The additional height has minimal impact, yet helps to create more slender towers with more sky and visible trees in between. The central park creates a strong break in the built form.



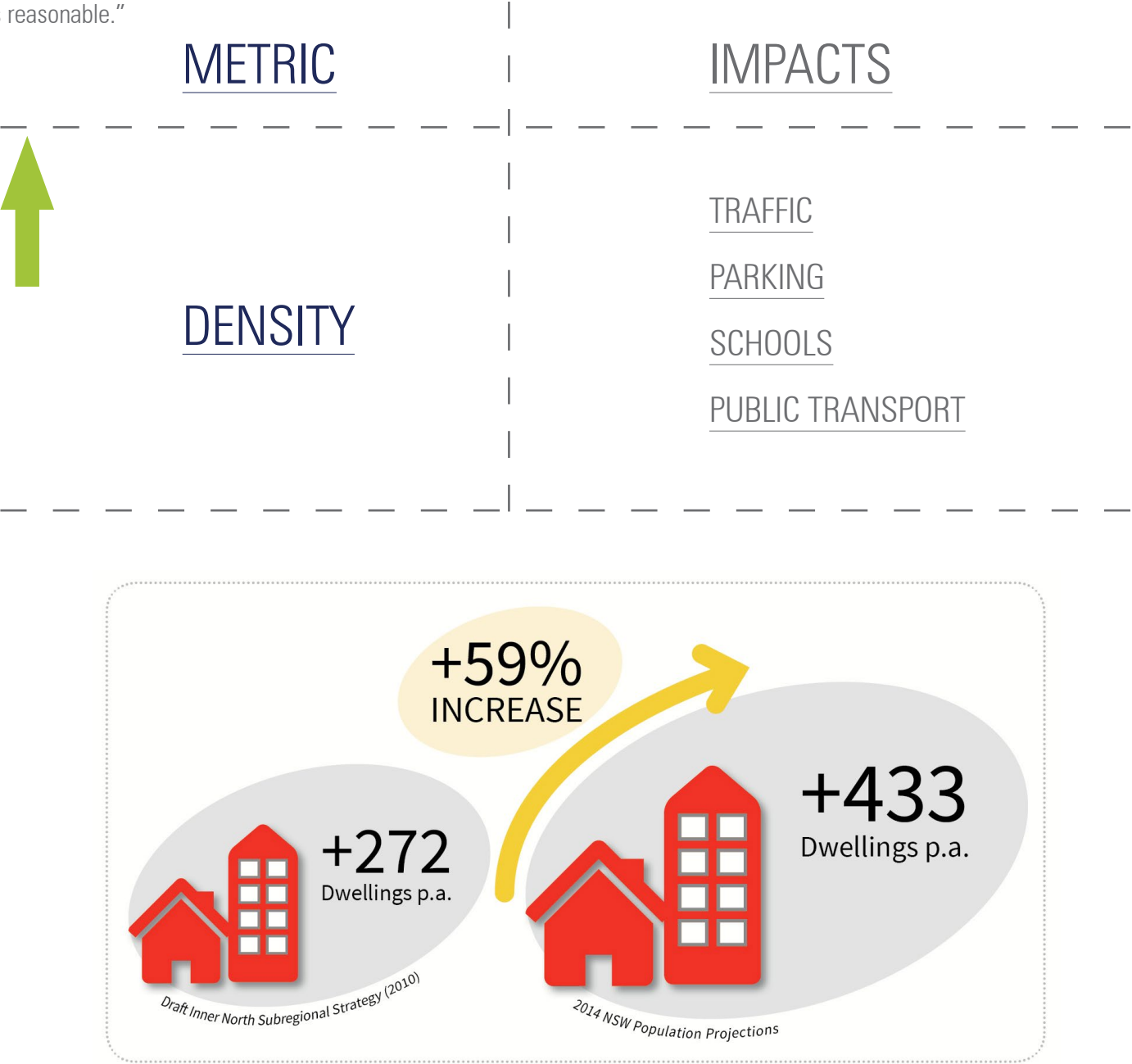
PROPOSED



5.17 DENSITY

Density and the proposed additional 95 apartments have been assessed against their impact on traffic, parking, school and access to public transport both within this report and the JBA planning report. This proposal seeks additional density from the approved scheme by showing the site is suited to increased density without creating additional impacts on the surrounding community. Each of these impacts will be assessed in the coming pages.

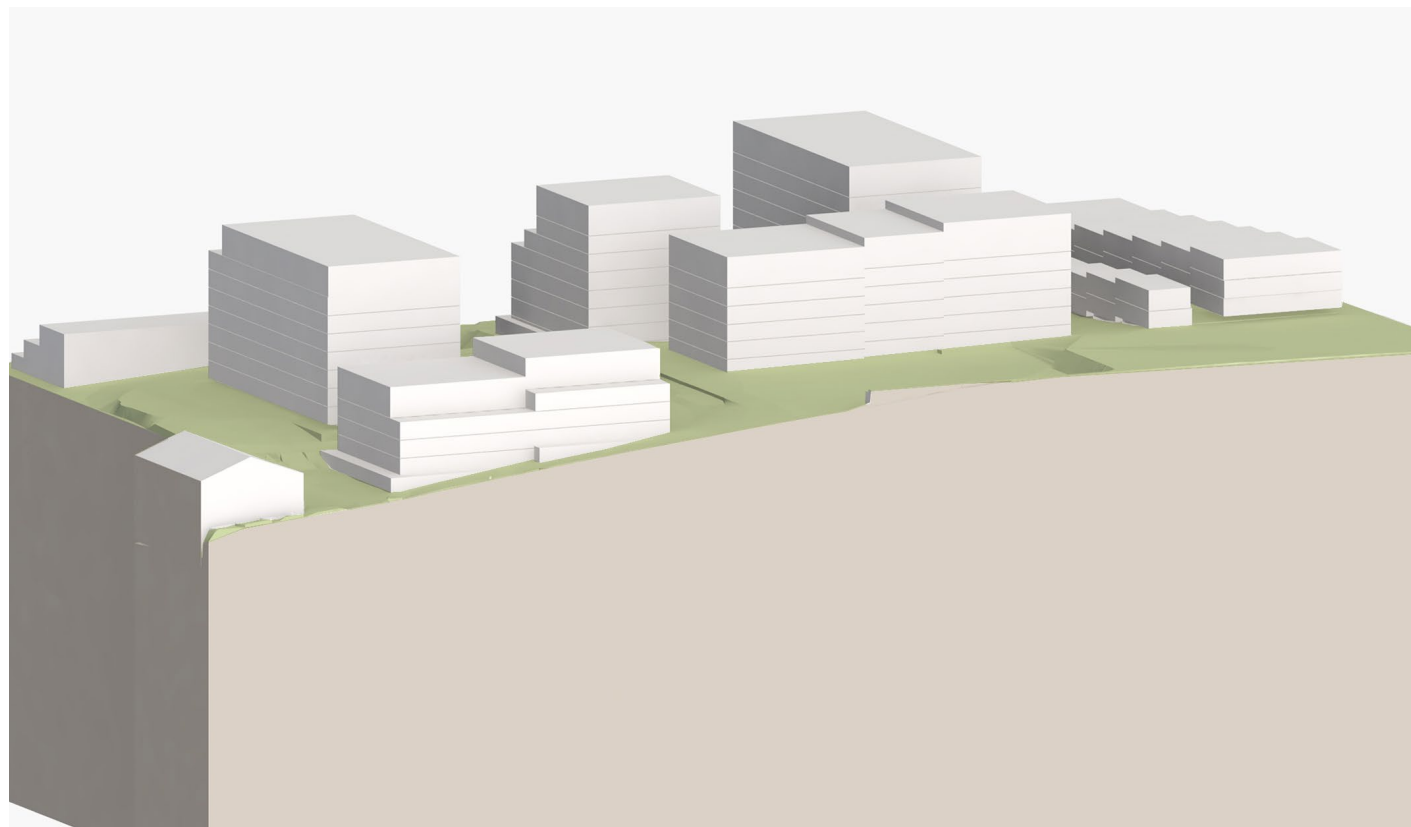
As the Architectus peer review on behalf of Willoughby Council noted. "...the site is close to public transport for density optimisation and strategically, large sites should contribute to achieving dwelling targets as much as is reasonable."



5.18 DENSITY

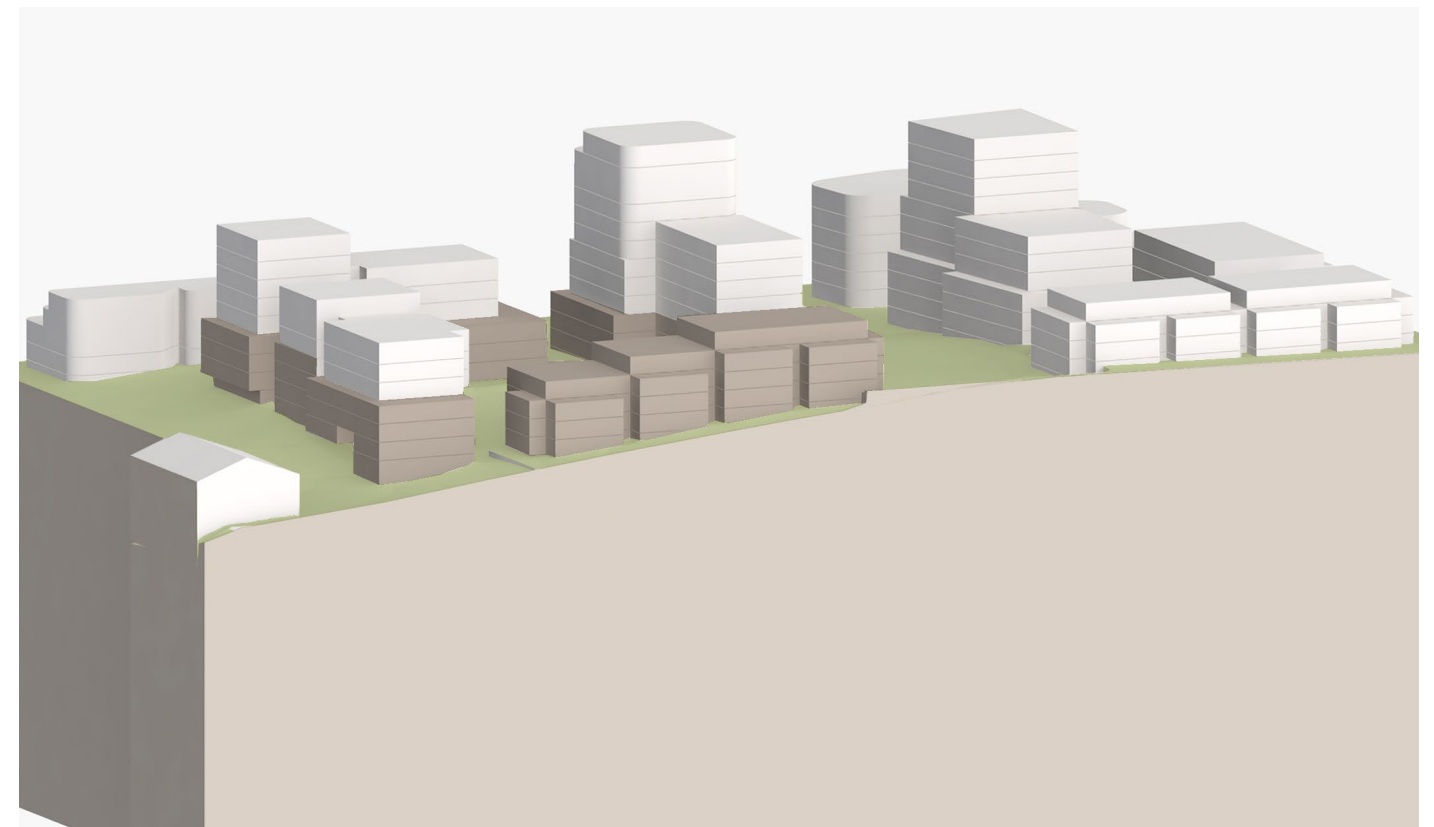
Despite a reduction in bulk, visual impact and overshadowing, the proposed massing allows for an additional 95 apartments, without additional impacts. The resultant FSR is 1.5:1.

APPROVED SCHEME



400 APARTMENTS
FSR: 1.2:1

PROPOSED SCHEME



495 APARTMENTS
FSR: 1.5:1

5.19 EXAMPLES OF OTHER APPROVED SCHEMES WITH SIMILAR FSRs



UNION BALMAIN (ANKA)

201 APARTMENTS

1.5:1 FSR

6 STOREYS

1.6 KM TO LIGHT RAIL TRANSPORT,

150M TO BUS CORRIDOR



MORTON STREET, PARRAMATTA (STARRYLAND)

770 APARTMENTS

1.75:1 FSR

12 STOREYS

1.3 KM TO RAIL TRANSPORT

500M TO BUS CORRIDOR



CLEMTON PARK, CAMPSIE (FRASERS PROPERTY)

700 APARTMENTS + 100 SENIOR LIVING UNITS

1.55-2.15:1

8 STOREYS

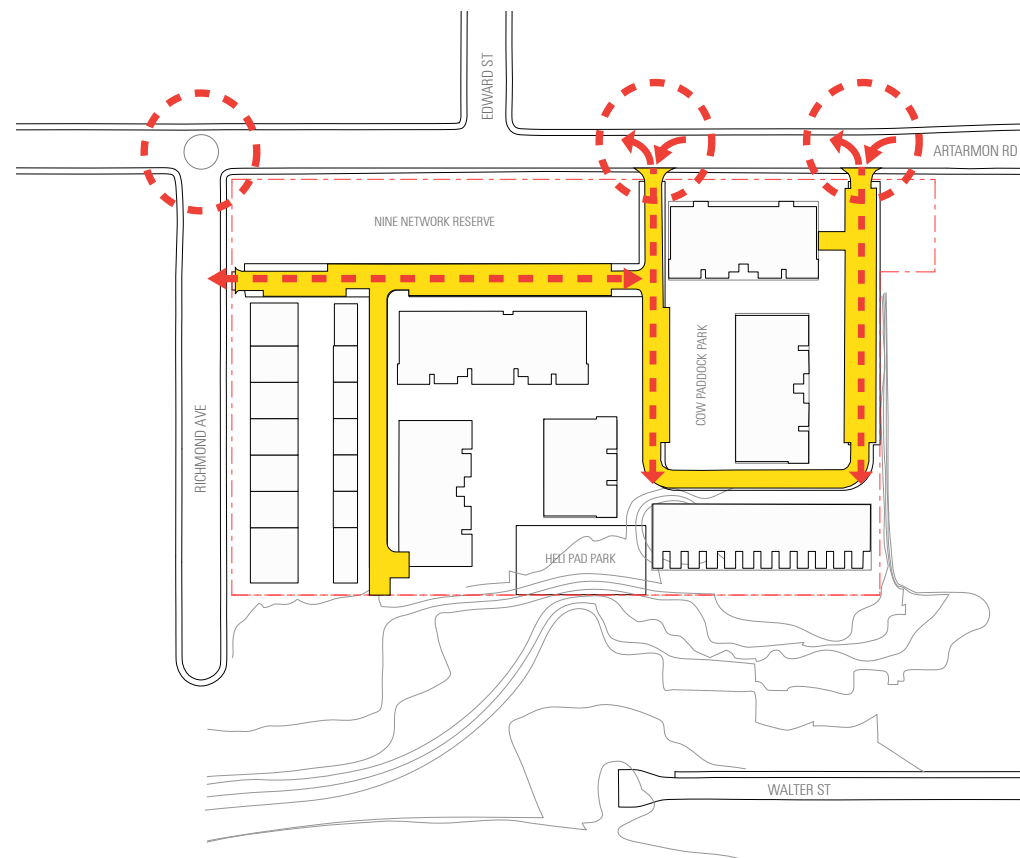
1.7 KM TO RAIL TRANSPORT

300M TO BUS CORRIDOR

5.20 TRAFFIC IMPACT

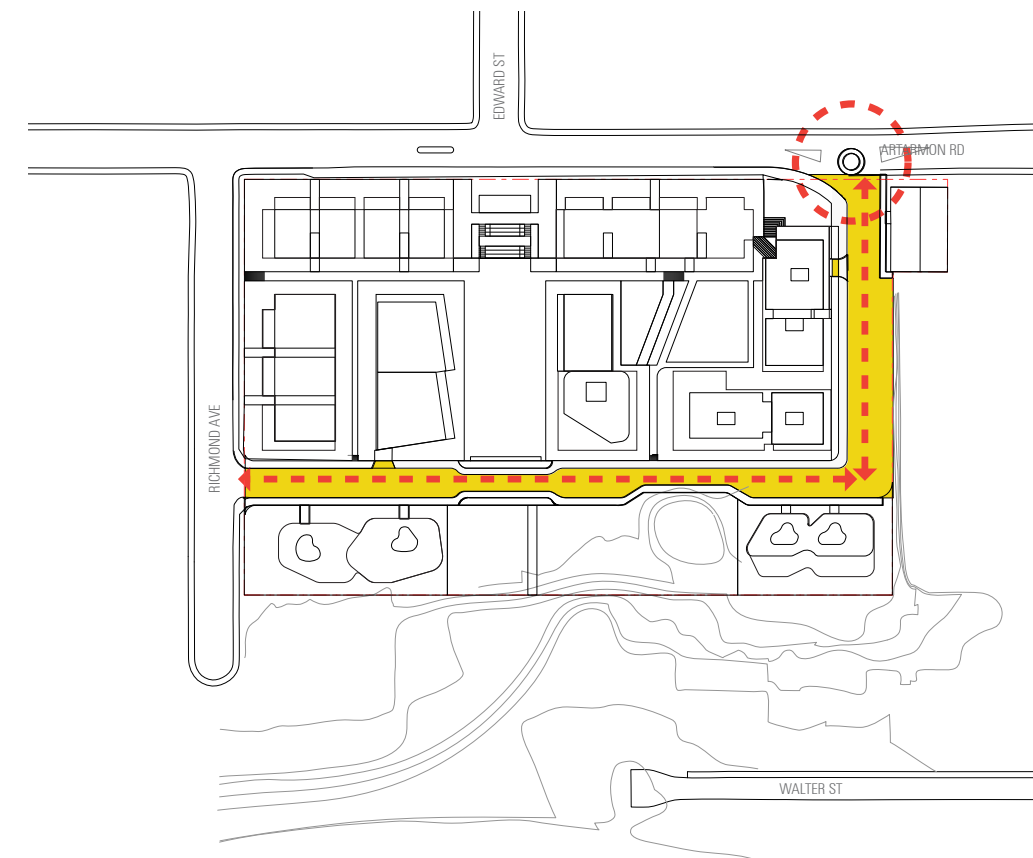
Traffic impacts were a primary concern for the community. The number of exits to Artarmon Rd have been reduced from two to one, with a roundabout to help slow traffic. The two proposed building driveway entries (under building D and G) have been kept internal off Scott Street to reduce their impact. The roundabout has been located adjacent to the natural escarpment on Artarmon Rd to reduce head light impact upon existing residents. Scott St which currently provides private parking for Channel 9 would become public on street parking on both sides for residents and visitors. The internal loop road will include time-limited parking for public and visitor use with nett overall no reduction in on street parking.

APPROVED SCHEME



TWO EXITS TO ARTARMON RD

PROPOSED SCHEME



ONE EXIT ROUTE TO ARTARMON RD
ALIGNED TO AN EXISTING ESCARPMENT

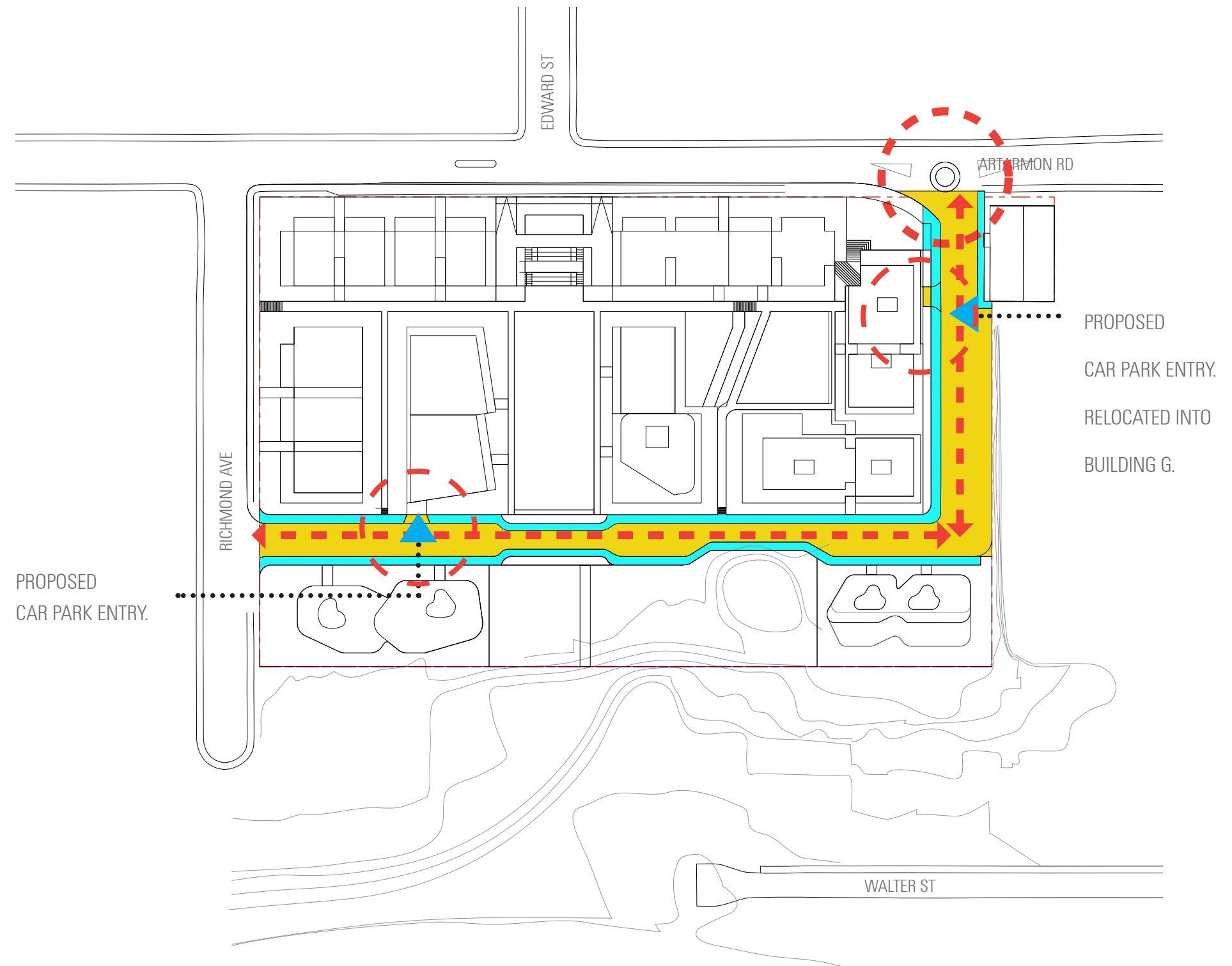
"...the implementation of this (roundabout) would further have positive traffic calming impacts to Artarmon Road in slowing traffic where sight lines can be considered inadequate." GTA Report

5.21 CLARIFICATION OF CAR PARK ENTRY POINTS

Modification 1 and this current modification 2 both include 2 vehicle access ramps to the basement car park. The locations of which are highlighted in this diagram under building D and G. This addresses suggestions from both AJ+C and the Government Architect that the scheme would benefit from two access ramps.

In response to other comments, the location of one driveway has now been relocated into building G (rather than between buildings).

The entry in building G is sized to allow for garbage collection and removal trucks, as well as cars. The second entry at building D is proposed for cars only.



5.22 TRAFFIC IMPACT



5.23 TRAFFIC IMPACT

Right hand turns into Small St from Willoughby Rd currently contribute to traffic congestion at this key intersection near the channel 9 site.

An intersection upgrade has already been proposed by Willoughby City Council as one way to address this congestion.

In order to facilitate this Willoughby Rd/Artarmon Rd intersection upgrade, the developer has proposed to offer \$0.5M in VPA contributions to offset the past, present, and future forecast cumulative traffic impacts as a result of ongoing development.

Final design resolution of this intersection would require community consultation and approval and delivery from Willoughby City Council.

POTENTIAL RECONFIGURATION OF WILLOUGHBY RD

Create a right-turn bay of 100m



Widen Willoughby Rd north of Small Street to accommodate a median.

Create a left-turn bay and slip lane

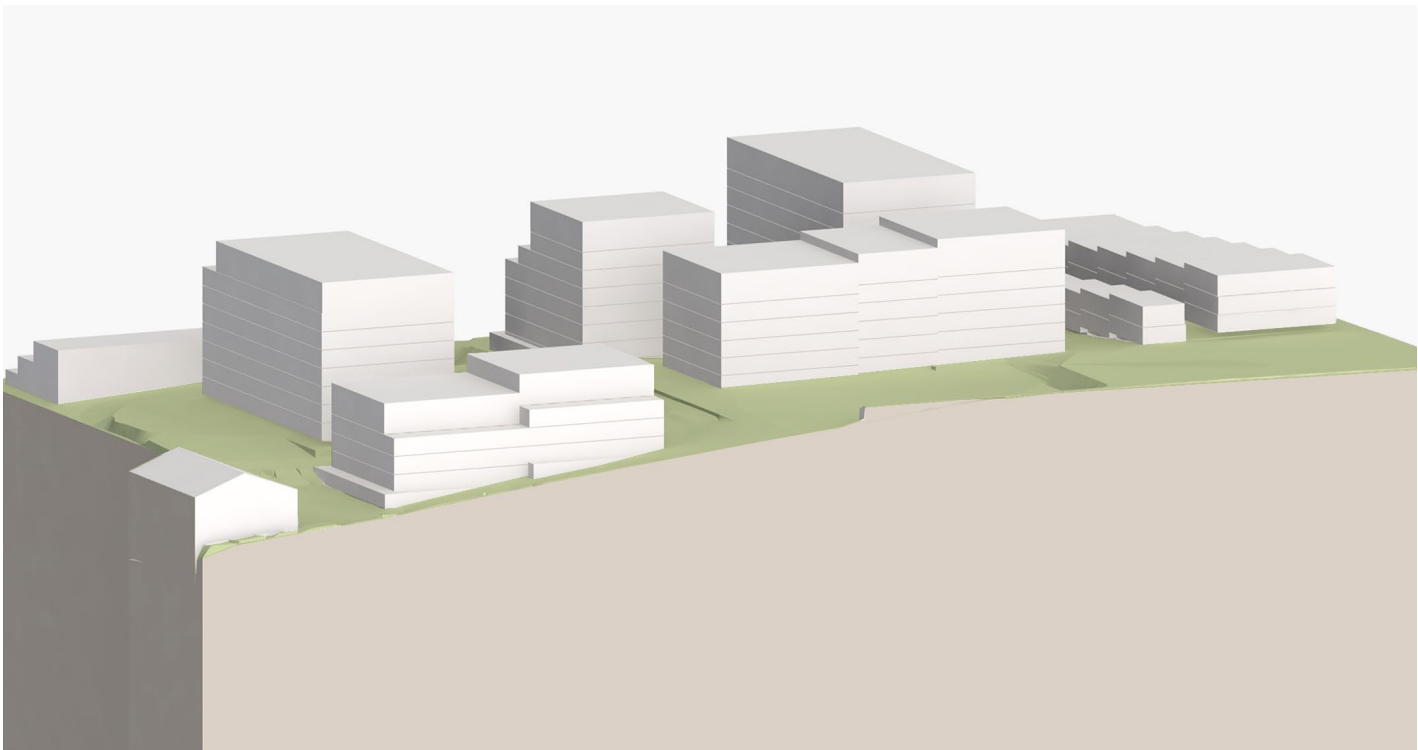
Widen Willoughby Road (south of Small St) to maintain two through lanes each way

Source: Willoughby Leisure Centre Expansion – Traffic and Parking Study (GTA Consultants for Willoughby Council, May 2012)

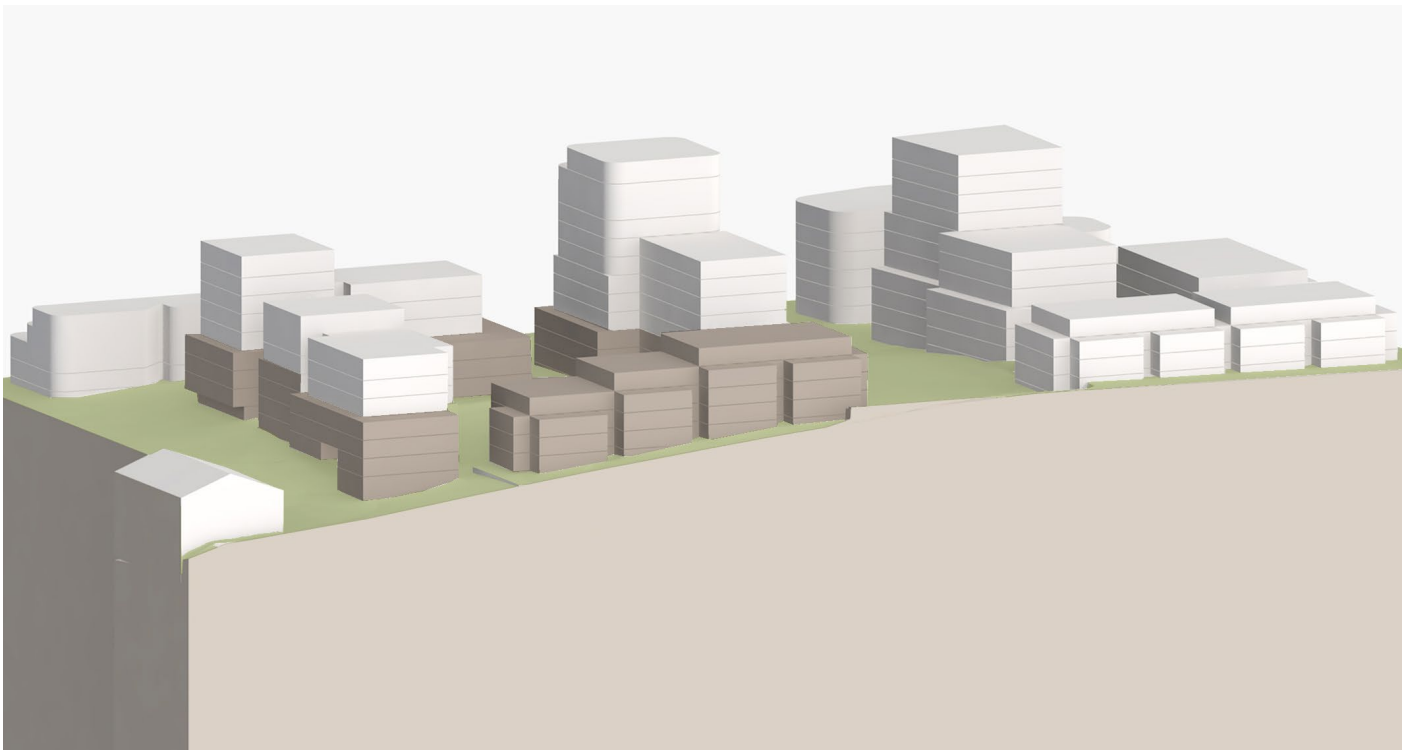
5.24 VISUAL BULK

Careful attention has been paid to reduce the visual bulk of the proposed scheme. By pushing the buildings down into the site, below natural ground level and creating better transition of scale to neighbouring streets, and creating finer grain buildings, the perceived bulk is reduced. This calculation measures the built form above natural ground level and shows not only a perceived reduction in scale but also a numerical reduction in the volume of massing above natural ground level.

APPROVED SCHEME



PROPOSED SCHEME



PROPOSED REDUCTION 11%

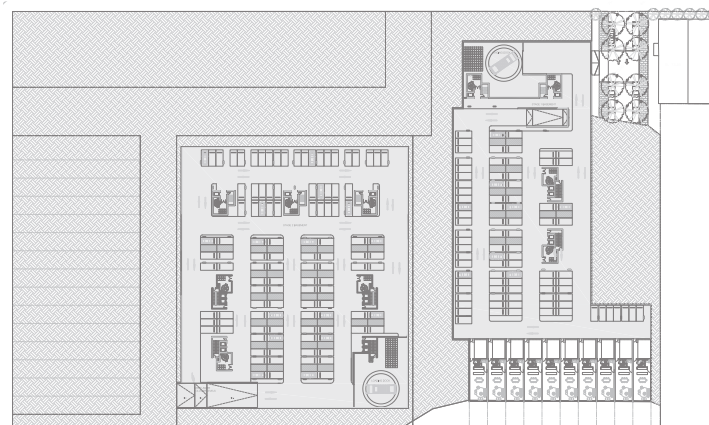
VOLUME:
181727 M³

VOLUME:
162495 M³

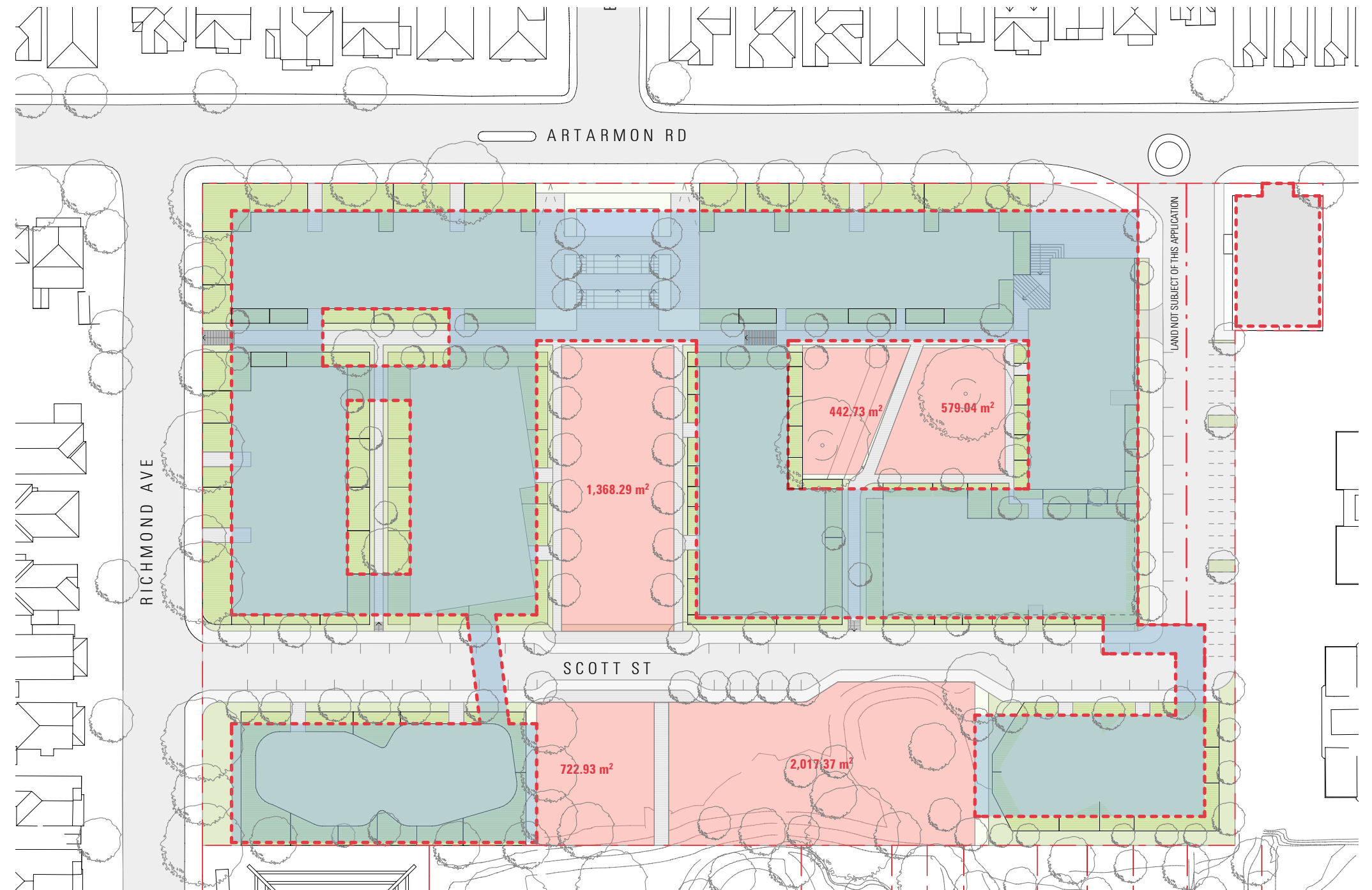
5.25 DEEP SOIL

The following diagram demonstrates the intent of maximising deep soil across the site. With basements largely focused under the building footprints, significant large areas of deep soil can be provided with the primary public open spaces.

The ADG specifies that these areas are free of structures, basements, services, pools, tennis courts, driveways and impervious surfaces. The minimum requirement for a site this size is 7% and minimum dimensions of 6m. It recommends for larger sites that 15% may be possible. Based on the areas provided this site is providing 17% deep soil with the areas noted in pink. Additional deep soil is expected in other locations across the site.



Approved basement



17% DEEP SOIL