

APPENDIX B

MODELLING OF PROPOSED PLAN CHANGES 6, 8 AND 10
(PRESENTATION TO PRE HEARING CONFERENCE 13TH NOVEMBER 2004)





MODELLING OF PROPOSED PLAN CHANGES 6, 8 & 10

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Prepared for

Queenstown Lakes District Council

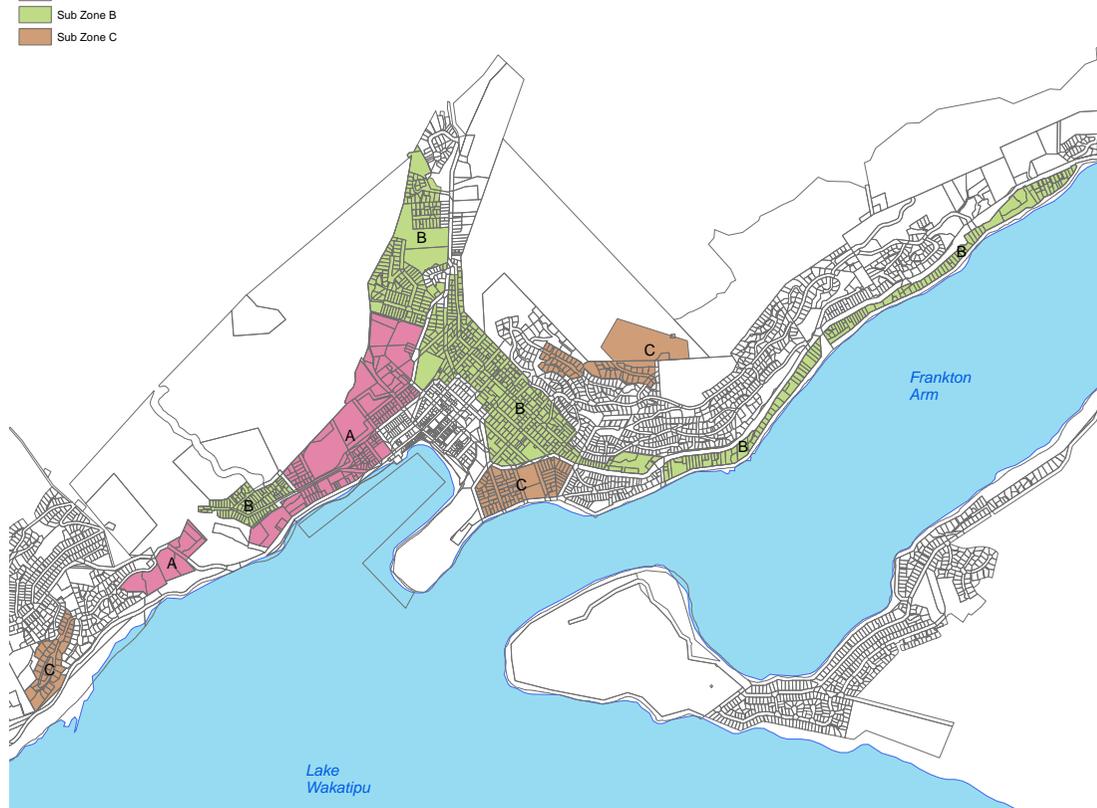
Monday, 13th November 2006

BACKGROUND

- Significant number of submissions suggesting plan change inadequately researched:
 - need for modelling
 - no evidence to show landowners can build to permitted levels
- QLDC modelling brief:
 - Permitted activities
 - Comparison between previous and proposed rules
 - Consider Plan Changes 6, 8 and 10 in combination
 - Scenarios developed to permitted baseline
- Consultation responses from local Architects:
 - Assume excavation allowances for underground parking and buildings on steeper slopes
 - Model sites subject Frankton Road zone rules
 - Present modelling in context (i.e. effect of multiple sites)

SUB ZONE AREAS - Queenstown

Legend
Parcels
HDR sub zone
Sub Zone A
Sub Zone B
Sub Zone C



Zone	Area (Ha)	% of Total
HDR Sub-Zone A	42.8	25.8%
HDR Sub-Zone B	92.6	55.9%
HDR Sub-Zone C	30.3	18.3%



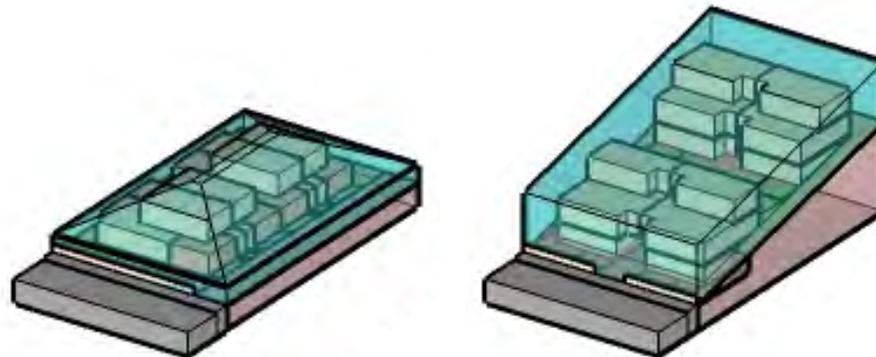
SUB ZONE AREAS - Wanaka



Zone	Area (Ha)	% of Total
HDR Sub-Zone B	8.6	36.8%
HDR Sub-Zone C	14.8	63.2%

MODELLING METHODOLOGY AND ASSUMPTIONS

- 1000m² site (25m frontage x 40m deep)
- Three slope scenarios - flat, 12° and 20° (Frankton Road)
- 3m storey heights
- 5m unit frontage widths (minimum)
- Onsite vehicle manoeuvrability and 1:6 ramps (maximum)
- Basic building mass only (i.e. no roof pitches or additions)
- PIM's and resource consents used to inform models



Recession plane envelopes

Note: Many variations in site area, site layout and building configuration are possible. Modelling is only intended to provide a general indication of permitted outcomes.

SITE AREA ANALYSIS - QUEENSTOWN

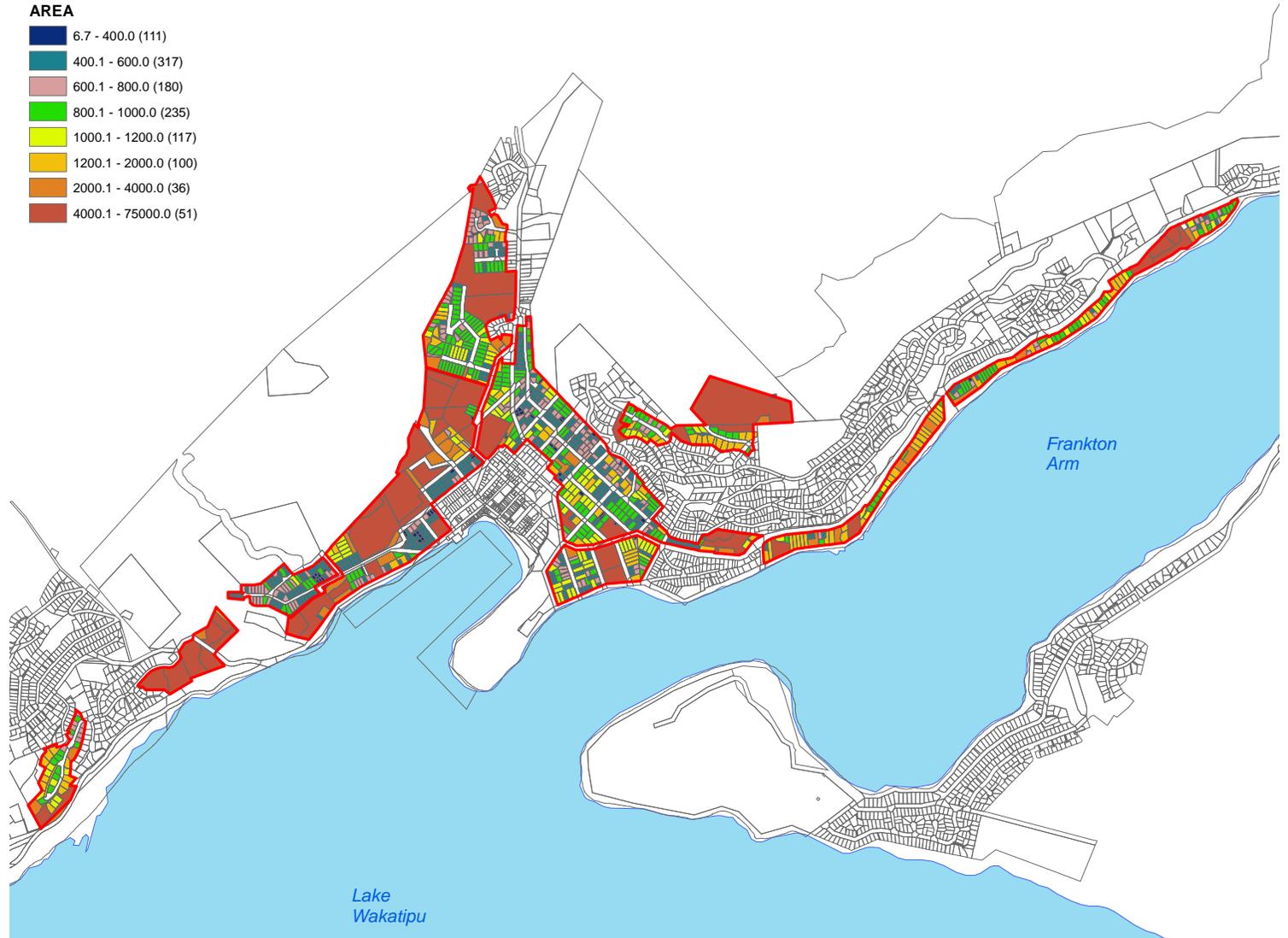
Legend

 HDR sub zone

HDR area (count)

AREA

-  6.7 - 400.0 (111)
-  400.1 - 600.0 (317)
-  600.1 - 800.0 (180)
-  800.1 - 1000.0 (235)
-  1000.1 - 1200.0 (117)
-  1200.1 - 2000.0 (100)
-  2000.1 - 4000.0 (36)
-  4000.1 - 75000.0 (51)

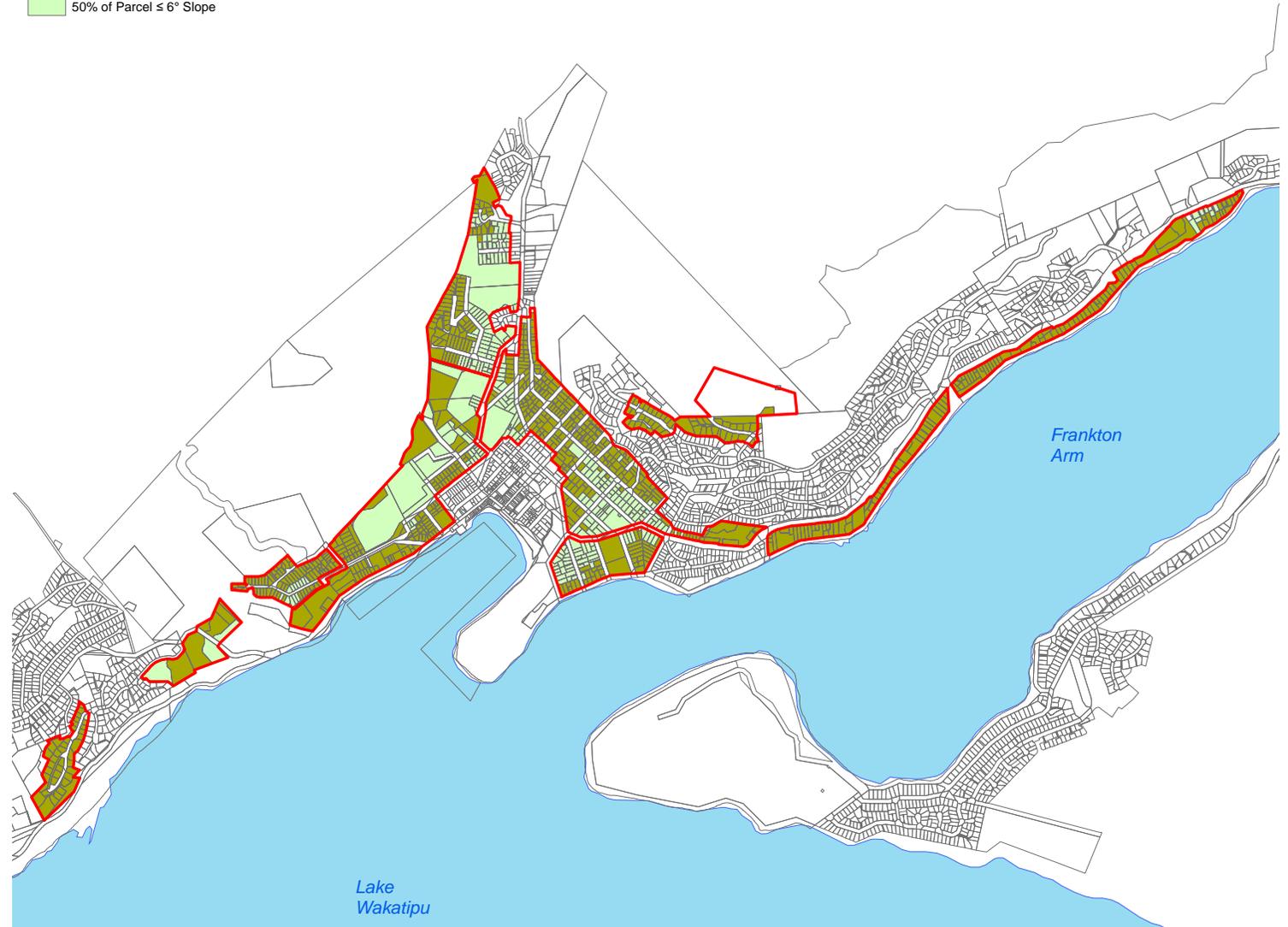


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SLOPE ANALYSIS - QUEENSTOWN

Legend

-  HDR sub zone
- Slope Analysis**
-  50% of Parcel $\geq 6^\circ$ Slope
-  50% of Parcel $\leq 6^\circ$ Slope

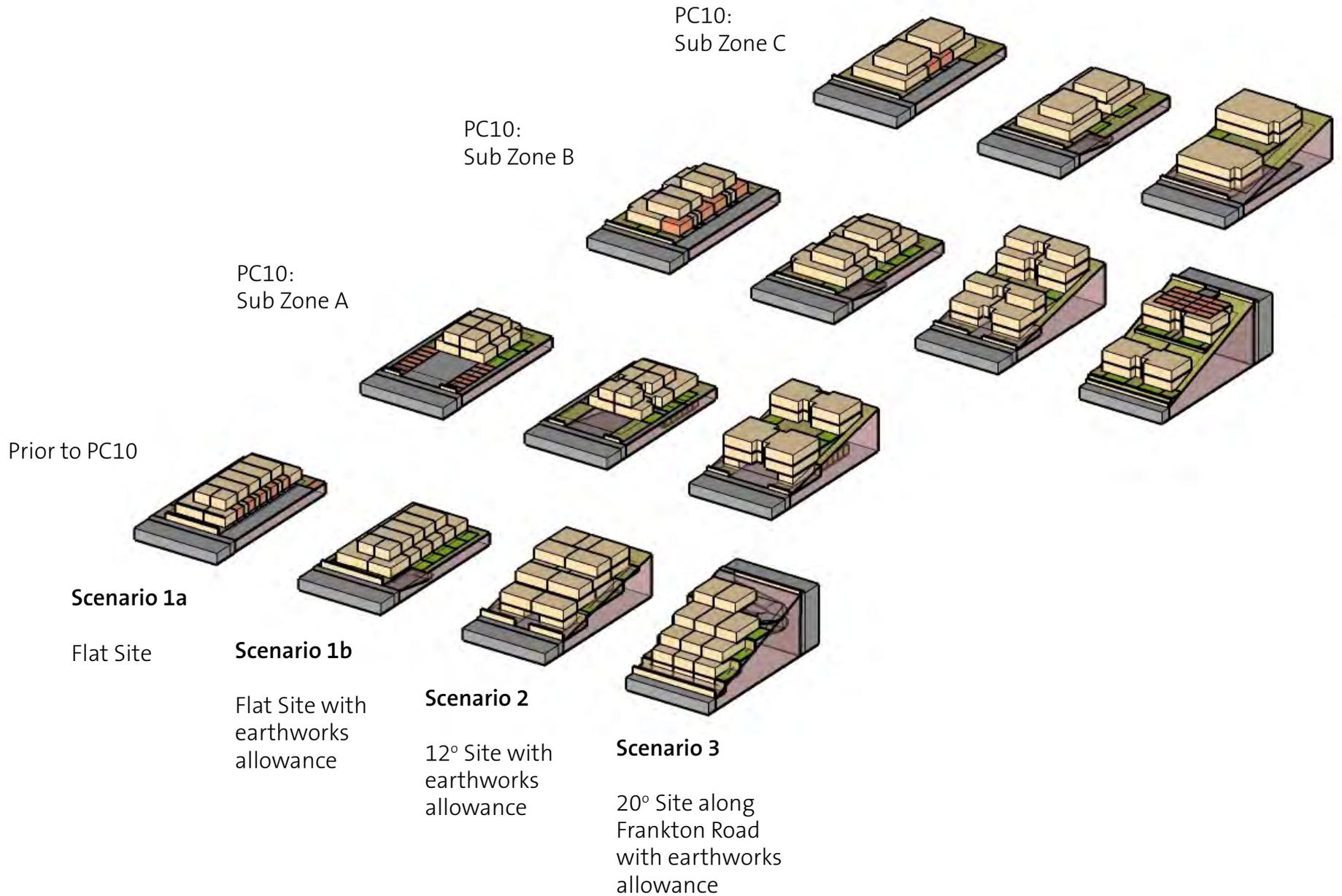


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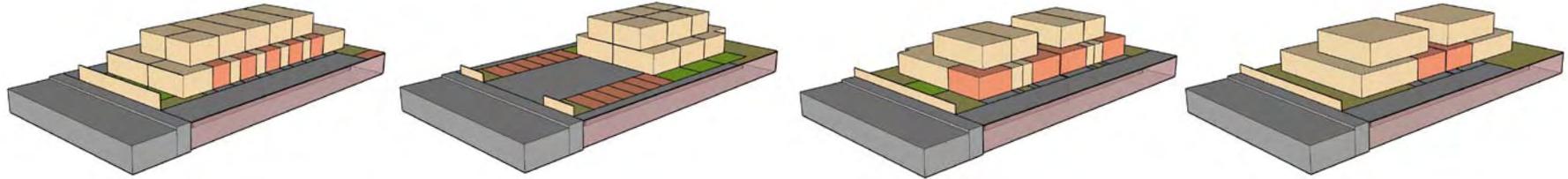
SITE AREA AND SLOPE ANALYSIS - WANAKA



MODELLING SUMMARY MATRIX



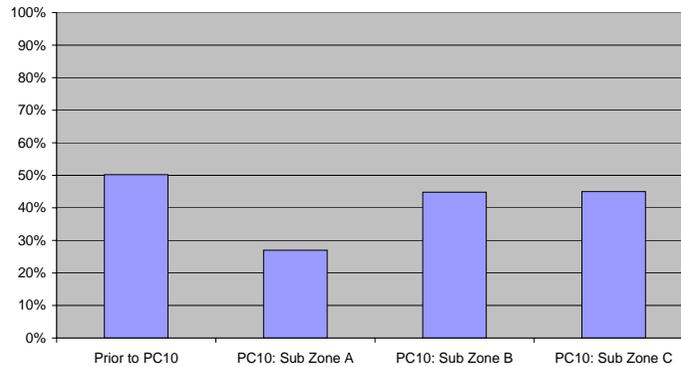
SCENARIO 1a – FLAT SITE



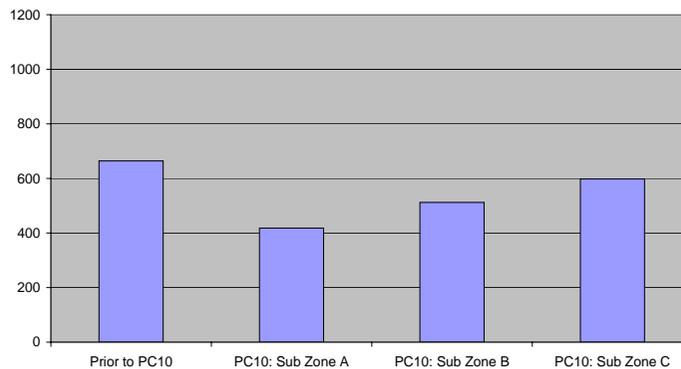
	Prior to PC10	PC10: Sub Zone A	PC10: Sub Zone B	PC10: Sub Zone C
Number of Units	7	6	4	2
Site Density (sqm/unit)	143	167	250	500
Building Coverage (%)	50%	27%	45%	45%
Gross Floor Area (sqm)	664	418	512	598
Landscape Coverage (%)	23%	29%	34%	41%
Access Way Widths (m)	5	12	4.5	4.5
Car Parking (spaces)	7	12	8	4

SCENARIO 1a – FLAT SITE

Scenario 1a - Building Coverage



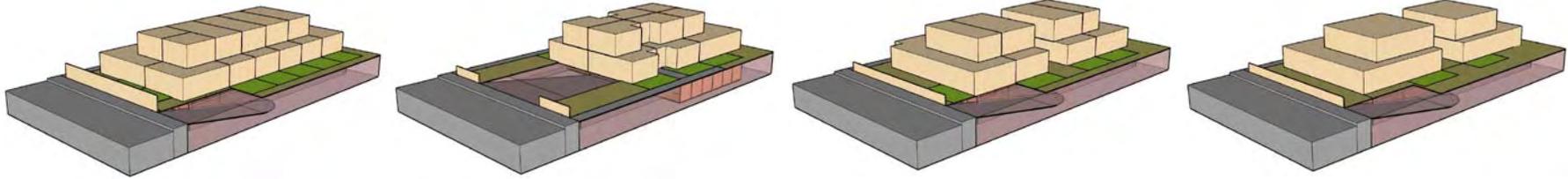
Scenario 1a - Gross Floor Area (sqm)



FINDINGS:

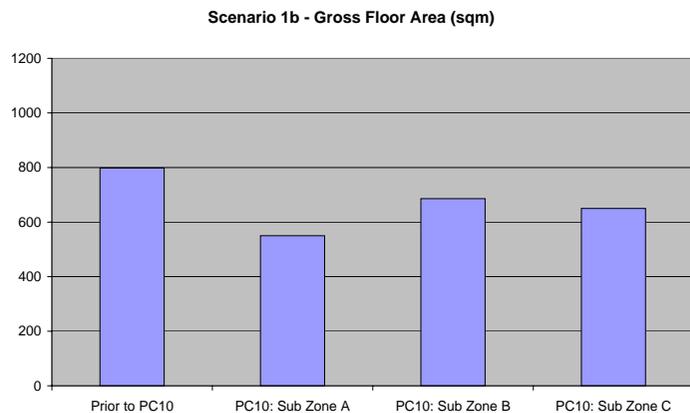
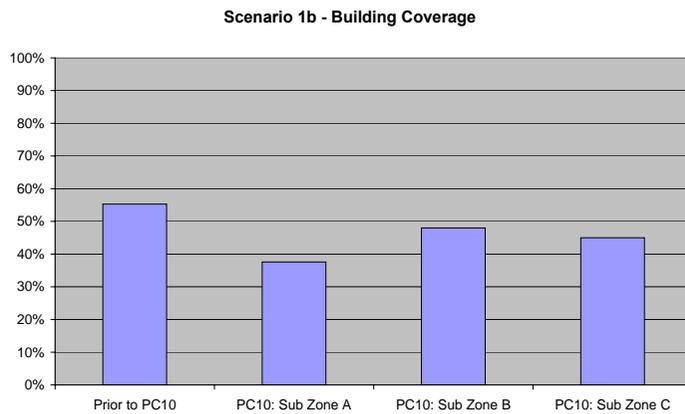
- At least 7 units possible prior to PC10.
- Maximum units achieved in all sub zones.
- Unit sizes increase from Sub Zones A to C.
- 2 standard storey heights.
- Recession planes restrict upper storeys, favouring terraced or semi-detached units.
- Setbacks, access and parking restrict building coverage for Sub Zones A and B.
- Greatest combined effect on Sub Zone A.
- Building bulk generally reduced through PC10 but frontage widths remain similar.
- Landscape coverage comfortably achieved

SCENARIO 1b – FLAT SITE WITH ALLOWANCE FOR EXCAVATION



	Prior to PC10	PC10: Sub Zone A	PC10: Sub Zone B	PC10: Sub Zone C
Number of Units	7	6	4	2
Site Density (sqm/unit)	143	167	250	500
Building Coverage (%)	55%	38%	48%	45%
Gross Floor Area (sqm)	798	550	686	650
Landscape Coverage (%)	23%	36%	42%	49%
Access Way Widths (m)	5	12	4.5	4.5
Car Parking (spaces)	7	12	8	4

SCENARIO 1b – FLAT SITE WITH ALLOWANCE FOR EXCAVATION

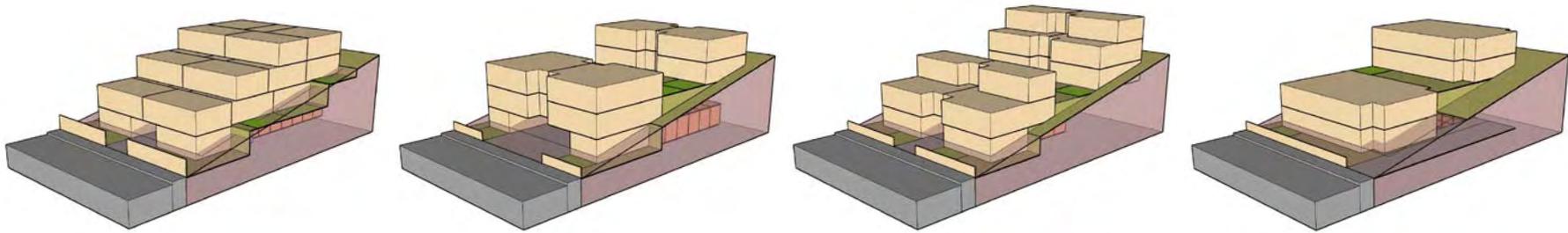


FINDINGS

Findings similar to Scenario 1a except:

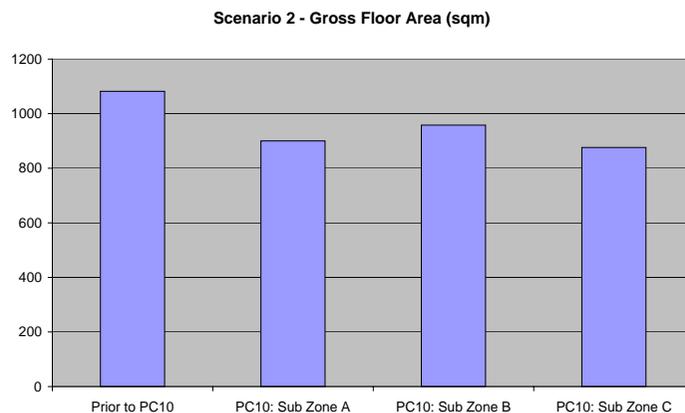
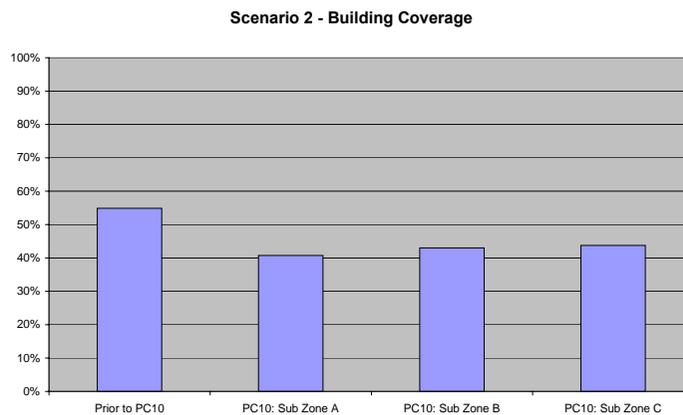
- Moderate increase in building coverage and GFA from less access and parking.
- Sub Zone A remains considerably effected due to ramp clearance.
- Setbacks still restrict maximum building coverage for Sub Zones A and B.

SCENARIO 2 – 12° SLOPING SITE WITH ALLOWANCE FOR EXCAVATION



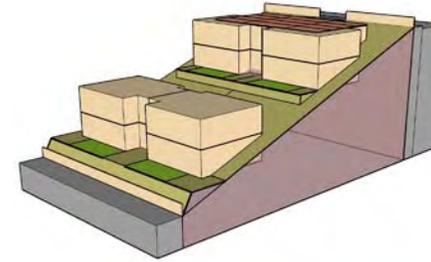
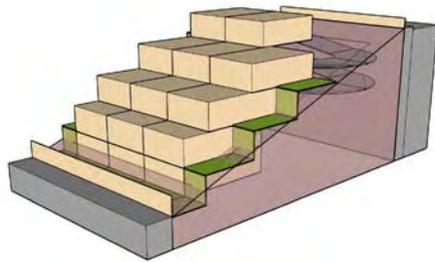
	Prior to PC10	PC10: Sub Zone A	PC10: Sub Zone B	PC10: Sub Zone C
Number of Units	18	6	4	2
Site Density (sqm/unit)	56	167	250	500
Building Coverage (%)	55%	41%	43%	44%
Gross Floor Area (sqm)	1082	900	958	876
Landscape Coverage (%)	41%	51%	44%	47%
Access Way Widths (m)	5	12	4.5	4.5
Car Parking (spaces)	18	12	8	4

SCENARIO 2 – 12° SLOPING SITE WITH ALLOWANCE FOR EXCAVATION



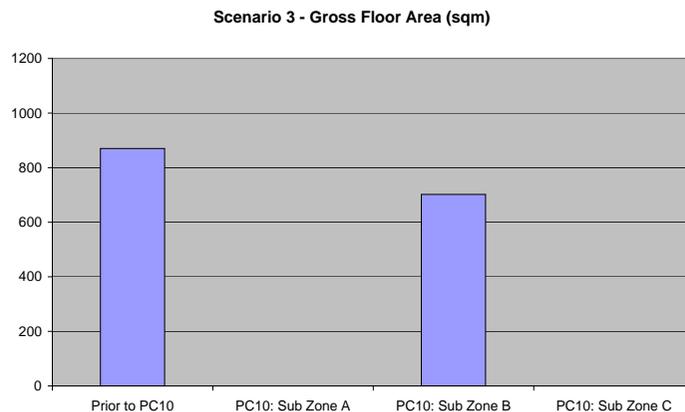
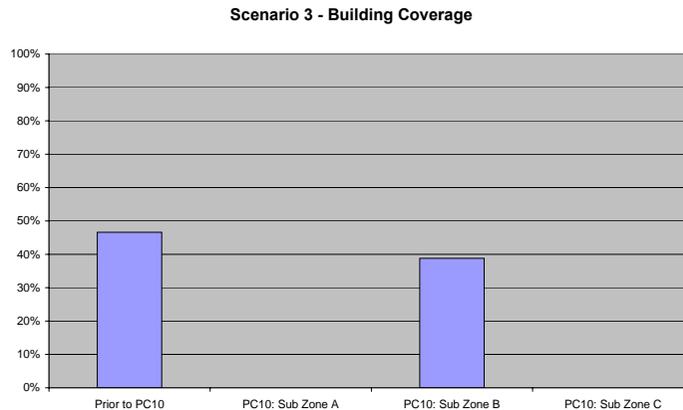
- At least 18 units possible prior to PC10.
- Maximum units achieved in all sub zones.
- Unit sizes increase from Sub Zones A to C.
- No recession plane rules allow building width and height to be maximised, favouring apartment or semi-detached units.
- Building coverage similar to Scenario 1b but GFA increases considerably.
- 4 standard storey heights across site (3 storeys along road frontage).
- Building bulk generally reduced through PC10 but frontage widths remain similar.
- Landscape coverage comfortably achieved.

SCENARIO 3 – 20° FRANKTON ROAD SITE WITH ALLOWANCE FOR EXCAVATION



	Prior to PC10	PC10: Sub Zone A	PC10: Sub Zone B	PC10: Sub Zone C
Number of Units	14		4	
Site Density (sqm/unit)	71		250	
Building Coverage (%)	47%		39%	
Gross Floor Area (sqm)	870		702	
Landscape Coverage (%)	25%		53%	
Access Way Widths (m)	5		4.5	
Car Parking (spaces)	14		8	

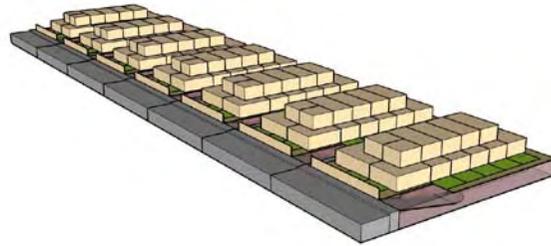
SCENARIO 3 – 20° FRANKTON ROAD SITE WITH ALLOWANCE FOR EXCAVATION



Findings similar to Scenario 2 except:

- At least 14 units possible prior to PC10.
- Only Sub Zone B affected.
- Steeper sites allow greater storey heights (up to 5 storeys prior to PC10).
- Proposed height and elevation restrictions along Frankton Road/Track limit this to 4 storeys across site (2 storeys along track frontage).
- Substantial vehicle ramps required to establish covered parking below Frankton Road.
- Favours rooftop/ surface parking for lower numbers of car parking spaces.

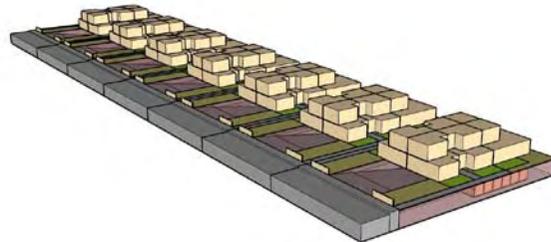
Models in Context – Flat Site



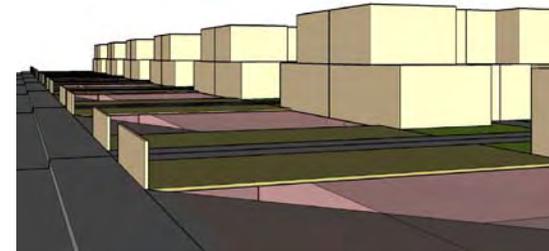
Axonometric
Prior to PC10



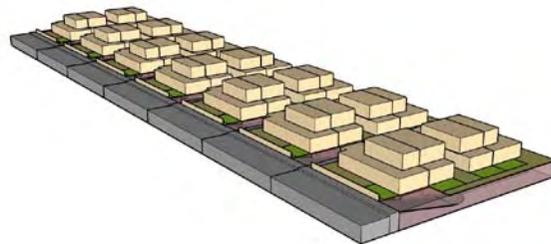
Street Scene



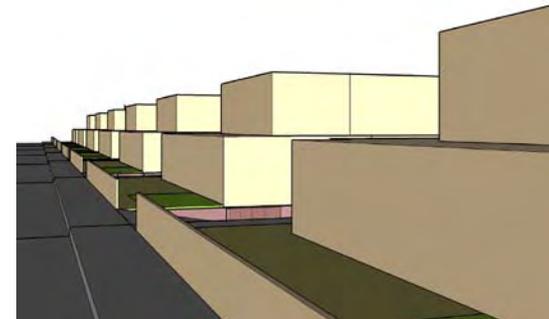
Axonometric
PC10: Sub Zone A



Street Scene

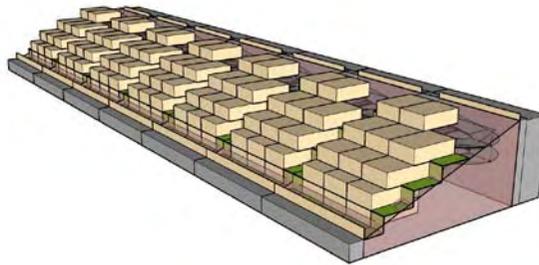


Axonometric
PC10: Sub Zone B

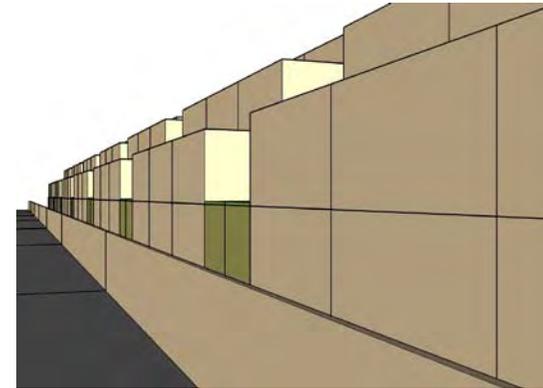


Street Scene

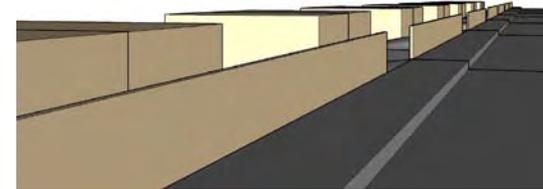
Models in Context – 20° Site (Frankton Rd)



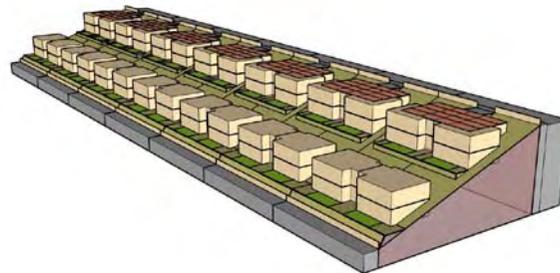
Axonometric
Prior to PC10



Track Scene



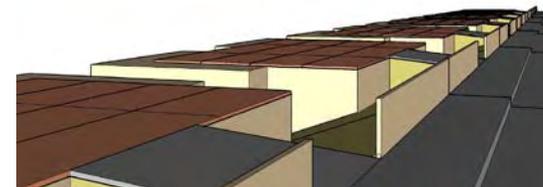
Street Scene



Axonometric
PC10: Sub Zone B



Track Scene



Street Scene

GENERAL FINDINGS

- No significant difference in building coverage across sub zones.
- Landscape coverage rule is rarely a limiting factor for building coverage but minimum 3m depth of outdoor living space increases building setbacks.
- Proposed 12m access way widths for sites containing at or over 5 units have greatest effect on Sub Zone A. On flat sites coverage is less than Sub Zone C.
- Maximum site density cannot be met in PC10 sub zones (exceeded prior to rule change on sloping sites)

GENERAL FINDINGS

- Unit sizes increase considerably with restrictions on unit numbers. GFA remain generally constant across sub zones (except where excavation rules apply).
- Earthworks rule is impractical for steeper sites and disincentive for underground parking
- Recession planes are a limiting factor for buildings on flat sites and will appear inconsistent to those on adjacent sloping sites.
- Building mass generally reduced through PC10 but frontage width/bulk remain similar.

ZONE RULE COMPARISON

Activity	HDRZ Rules prior to PC10	Plan Change 10 – Current HDRZ Rules			Current LDRZ Rules
	No Sub-Zones	Sub-Zone A	Sub-Zone B	Sub-Zone C	No Sub-Zones
No of units per site	No minimum or maximum	Max no. of 6	Max no. of 4	Max no. of 2	1 unit per 450m ²
Building coverage	Permitted - 55% Discretionary < 55% Non-complying < 70%	Max – 65%	Max – 55%	Max – 45%	Max – 40%
Continuous building length	16m; if exceeds then (a) entire building setback 0.5 metres for every additional 6m of length, or (b) That part of the building that exceeds 16m shall be progressively setback 0.5m for every 6m of length	No unbroken building length shall exceed 16m. Breaks shall be 2m in depth and 4m in width. And no aggregate building length including breaks shall exceed 30m.	No unbroken building length shall exceed 16m. Breaks shall be 2m in depth and 4m in width. And no aggregate building length including breaks shall exceed 30m.	No unbroken building length shall exceed 16m. Breaks shall be 2m in depth and 4m in width. And no aggregate building length including breaks shall exceed 30m.	16m; if exceeds then (a) entire building setback 0.5 metres for every additional 6m of length, or (b) That part of the building that exceeds 16m shall be progressively setback 0.5m for every 6m of length



ZONE RULE COMPARISON



Activity	HDRZ Rules prior to PC10	Plan Change 10 – Current HDRZ Rules			Current LDRZ Rules
	No Sub-Zones	Sub-Zone A	Sub-Zone B	Sub-Zone C	No Sub-Zones
Set-back of buildings from roads	4.5 m excluding garages	4.5 m including garages	4.5 m including garages	4.5 m including garages	4.5 m excluding garages
Set-back of buildings from internal boundaries	Front site – one setback of 4.5m And all others of 2m Rear site – two setbacks of 4.5m, remaining to be 2m	No change Except when two or more buildings are located on a single lot, the mutual setbacks apply as if an internal boundary separates the buildings.	No change Except when two or more buildings are located on a single lot, the mutual setbacks apply as if an internal boundary separates the buildings.	No change Except when two or more buildings are located on a single lot, the mutual setbacks apply as if an internal boundary separates the buildings.	No setback is required from an internal boundary where buildings share a common wall on that internal boundary.
Landscape coverage	None	Min coverage of 20%	Min coverage of 30%	Min coverage of 40%	None
Fence Heights	None	No fence within the road setback shall exceed 1.2m above ground level	No fence within the road setback shall exceed 1.2m above ground level	No fence within the road setback shall exceed 1.2m above ground level	No fence within the road setback shall exceed 1.2m above ground level

ZONE RULE COMPARISON

Activity	HDRZ Rules prior to PC10	Plan Change 10 – Current HDRZ Rules			Current LDRZ Rules
	No Sub-Zones	Sub-Zone A	Sub-Zone B	Sub-Zone C	No Sub-Zones
Height and Elevation Restrictions along Frankton Road and Frankton Track	None	Site Standards (a) No building or building element on the south side of Frankton Road (SH6A) shall rise above the roadway centreline (b) No building floor plane to the north side of the Frankton Track shall be constructed less than two metres above the centerline of the Track.	N/A	N/A	N/A
Site density	None	1 residential unit per 100m ²	1 residential unit per 150m ²	1 residential unit per 200m ²	1 residential unit per 450m ²

