
urban design assessment
ROKOKAURI NORTH
STRUCTURE PLAN AND PRIVATE PLAN CHANGE
REQUEST

for

GREEN SEED CONSULTANT LTD

by

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april 2019

executive summary

This report documents an independent urban design analysis of an application for a private plan change (“PPC”) to rezone approximately 140ha of Future Urban (“FUZ”) zoned land to Medium Density Residential Zone (“MDRZ”) and Business 6 Zone (“B6Z”) made by Green Seed Consultant Ltd (“GSCL”) on an area of land known as Rotokauri North, within the Hamilton City Council’s Rotokauri Structure Plan area. The application has been made to Hamilton City Council (“Council”) under the Resource Management Act 1991 (“RMA”). The key conclusions of this report are that:

- a. The PPC has been prepared following best-practice urban design principles and has benefited from a master plan-based design process. The master plan, although proposed to remain non-statutory, has demonstrated that the land can be subdivided logically and in a way that will support a high-quality neighbourhood, and also remain compatible with the Council’s Rotokauri Structure Plan.
- b. The PPC would provide for approximately 1,700 – 2,000 houses on sites typically ranging between 150m² up to 400m² (as a result of either subdivision which accords with a land use activity (e.g. of a duplex) or vacant fee simple subdivision). To support the needs of this neighbourhood, the PPC provides for a neighbourhood centre (B6Z) to help meet daily convenience needs in a way that will respect the wider centres hierarchy and support existing centres. Opportunity for a new primary school has also been identified, although the Ministry of Education (“MoE”) would follow a separate process to make any decisions in that regard and it is not proposed to zone or ‘lock in’ a future school through the PPC.
- c. Provision has also been made for recreation reserves, the protection of an existing area of notable bush, the needs of New Zealand Transport Agency (“NZTA”), and creation of a logical transport network that satisfies the Council’s strategic network imperatives for arterial and collector roads.
- d. The PPC has been based on the provision of affordable housing and a variety of housing typologies. To this end the Council’s existing MDRZ development controls have been reviewed and augmented so as to maximise the efficiency at which high-quality housing can be provided. This includes provision for an ‘acceptable solution’ approach to duplex housing. This model is considered to be industry-leading and is particularly supported.
- e. Changes proposed to the ‘standard’ MDRZ zone rules also seek to require higher standard of urban design quality, and well-laid out subdivisions that are walkable and safe. This includes attempts to minimise cul-de-sac roads and rear lots, and govern the maximum dimensions of urban blocks so as to not undermine pedestrian convenience and legibility.

On the basis of the above, the PPC is considered to result in few adverse urban design effects, many positive urban design effects, and is an effective and efficient means to enable the land’s development. The PPC could therefore be accepted on urban design grounds.

contents

1.	Introduction	4
2.	Scope and involvement	4
3.	Urban design framework	5
4.	Site analysis	7
5.	Rotokauri Structure Plan	9
6.	Concept master plans	10
7.	Proposed structure plan	14
8.	Proposed subdivision and development controls	17
9.	Acceptable Solution duplex housing	24
10.	Overall urban design assessment	27
11.	Conclusions	33

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1. introduction

- 1.1 This report documents an independent urban design analysis of an application for a private plan change (“PPC”) to rezone approximately 140ha of Future Urban (“FUZ”) zoned land to Medium Density Residential Zone (“MDRZ”) and Business 6 Zone (“B6Z”) made by Green Seed Consultant Ltd (“GSCL”) on an area of land known as Rotokauri North, within the Hamilton City Council’s Rotokauri Structure Plan area. The application has been made to Hamilton City Council (“Council”) under the Resource Management Act 1991 (“RMA”).
- 1.2 This report should be read in conjunction with the separate bundle of Figures titled “Rotokauri North: Urban Design Figures”.
- 1.3 For full details of the proposal, the PPC request documents prepared by Tollemache Consultants Ltd are referred to.

2. scope and involvement

- 2.1 I have been engaged by GSCL as its urban design consultant. GSCL is a subsidiary entity of Ma Development Enterprises Ltd (“MADE”). Since 2014 I have been MADE’s design leader, coordinating the design and built form outcomes of its developments across Auckland.
- 2.2 I visited the site in 2017 and have coordinated the design process since then in response to a brief set by GSCL. My brief was to ensure the land was efficiently planned in a manner that achieved best-practice urban design principles and would be an attractive and desirable destination for people to live in. Ensuring the provision for affordable housing was also a key part of my brief, based in part on the decision of the Council to recommend the Rotokauri North area as a Special Housing Area (“SHA”) under the Housing Accords and Special Housing Areas Act 2013 (“HASHAA”).
- 2.3 In fulfilling my brief I have worked closely with the following particular consultants:
 - a. Mark Tollemache and Renee Fraser-Smith, Tollemache Consultants Ltd (planners);
 - b. Steve Thorne, Design Urban Pty Ltd (master planner);
 - c. Leo Hills, Commute Consulting Ltd (traffic engineer);
 - d. Andrew Hunter, McKenzie & Co (engineer);
 - e. Rob Pryor, LA4 (landscape architect); and

f. Amy Hendry, Four Walls Architects Ltd (architect).

2.4 The process followed to arrive at the current proposal has been as follows:

- a. initial site visit;
- b. high-level pre-application with Council staff in 2017;
- c. analysis of Rotokauri Structure Plan, Hamilton City District Plan (“HCDP”), VISTA;
- d. formal site analysis;
- e. second site visit December 2017;
- f. design workshop 1, December 2017, which identified the first concept master plan and included input from Council staff;
- g. technical analysis of first concept master plan;
- h. design workshop 2, August 2018, which identified the second concept master plan, and possible planning rules for the zone, and including input from Council staff;
- i. technical analysis of second concept master plan;
- j. development of preferred urban design rules;
- k. refinement of the concept master plan and urban design rules;
- l. finalisation of proposed structure plan and plan provisions; and
- m. preparation and finalisation of this report.

3. urban design framework

- 3.1 Urban design has become a popular movement in New Zealand since the 1990s. In that time a substantial amount of literature and projects have occurred purporting to reflect ‘urban design thinking’. The rise of urban design has also overlapped with the simultaneous rise of ‘environmentally sustainable cities’ and a general focus on better, more ‘integrated planning’. These are mutually compatible but nonetheless independent things. This has overall created ambiguity regarding what urban design is inherently intending to do.
- 3.2 In consideration of a wide range of international and national urban design documents and in summary the essence of urban design can be regarded as

configuring development so as to enhance the quality, safety and comfort of public spaces, including the way that public spaces and development on adjoining private spaces integrate with one another.

- 3.3 GSCL briefed me to ensure that its Rotokauri North project was able to achieve best-practice urban design outcomes. Successful urban design has been linked across a number of well-substantiated studies¹ as being able to help urban development:
- a. create safer and more sociable neighbourhoods for people to enjoy;
 - b. contribute to public health outcomes primarily by promoting more active lifestyles and pedestrian behaviour and ensuring more consistent solar access to sites and buildings;
 - c. provide greater visual interest, amenity values, and built character within neighbourhoods;
 - d. result in neighbourhoods that are more resilient to environmental and social changes;
 - e. achieve better integration and prominence of public spaces, enabling greater utility to be extracted from those public assets; and
 - f. deliver greater variation in land use mix, density, and housing choice.
- 3.4 To ensure that Rotokauri North achieved all of the above, the design process has been guided by best-practice urban design principles at all times. These have been sourced from the following sources:
- a. Council VISTA;
 - b. New Zealand Urban Design Protocol;
 - c. People+Places+Spaces: A Design Guide for Urban New Zealand; and
 - d. HCDP.
- 3.5 The above documents discuss an extensive number of concepts and potential issues. However, across them a number of spatial outcomes or priorities are consistently expressed that are relevant to Rotokauri North.
- 3.6 In summary, the following overarching design principles have guided the PPC proposal:
- a. require a well-connected and walkable block and street network that recognises the road hierarchy and the needs of strategic through movement;

¹ For a representative synthesis, refer to Ministry for the Environment, 2005, *The Value of Urban Design*, Wellington.

- b. require development to activate and front public spaces, and have private space to the rear, and avoid lot frontages becoming dominated by vehicle access and parking functions;
- c. maximise housing choice and variety, including affordable housing;
- d. maximise the efficiency of development in a way that contributes to a high-quality built environment and new neighbourhood character;
- e. prominently integrate public open spaces and storm water facilities into the neighbourhood and have them contribute to its character;
- f. integrate logically into and otherwise be consistent with the Rotokauri Structure Plan;
- g. maximise solar access to lots and ensure a good standard of on-site amenity is achieved; and
- h. ensure the daily needs of residents are met as conveniently as is possible.

4. site analysis

- 4.1 The site is approximately 140ha and has been described in the planning report accompanying the PPC by Tollemache Consultants Ltd. Particular characteristics relevant to an urban design assessment are that:
- a. The site is at the north-western edge of Hamilton City; Te Kowhai Road (State Highway 39 ("SH39")), immediately north of the site, marks the boundary with Waikato District. Vehicle access to this edge will be necessarily limited. SH39 intersects with State Highway 1 ("SH1") at Te Kowhai Road roundabout near the site's north-eastern corner. This gives the site excellent visibility and accessibility, but limited direct access.
 - b. The site is very flat (although some minor hills rise in the site's southern area) and is in rural (predominantly pasture) / rural-residential use. The land is currently quite 'wet', with ponding readily visible after rain events. It is not possible to develop the land without providing storm water storage and conveyance facilities; due to the low-lying nature of the land and high water-table, these facilities will likely need to use horizontal width rather than vertical depth to meet storage needs, and hence may come to occupy a substantial part of the site area.
 - c. An existing stream, being a tributary of the Ohote catchment, runs east-west through the western part of the site, and passes under Exelby Road by way of a small culvert. A second stream, being a tributary of Te Otamanui catchment, runs north across SH39.

- d. Exelby Road marks the western boundary of the site (and Hamilton City). Burbush Road is the third existing road at this time. It runs through the site in a north-south alignment and then turns south-east towards the southern boundary of the site, as it curves to follow the rising slope. It intersects with Exelby Road beyond the site boundary.
- e. South-west of the SH1 / SH39 intersection and roundabout is an area of notable native forest – Significant Natural Area (“SNA”) in the HCDP. This remnant is the last remaining example of what likely prevailed prior to domestication of the land and it is of local significance. Provision for its ongoing protection (as is achieved through its current SNA zoning) and, if possible, enhancement will be necessary.
- f. The site otherwise lend itself to a variety of internal block and road layout options, with the undulating topography and need to accommodate storm water the key design constraint.
- g. The relevant planning guidance is from the Council’s Rotokauri Structure Plan (notified 2007 as Plan Variation 18, operative since 2011). The Structure Plan identified the land as suitable for residential activities. Land to the east of the site is identified for employment activity and this is likely, in the medium term, to provide employment opportunities to residents in Rotokauri North. The Structure Plan also identifies indicative open spaces and a high-level road network; that layout is not immediately understandable other than with reference to existing landform contours and shapes; this may not be an appropriate or efficient real-world approach to take but is at the level of a Structure Plan not inappropriate.
- h. In the wider environment, Hamilton City to the south includes the balance of the Rotokauri Structure Plan area and Lake Rotokauri. In the southern part of the area is live-zoned land being developed and including a commercial centre intended to be the ‘principal’ centre serving the Structure Plan land.
- i. To the east is the existing Hamilton City urban area. It includes extensive residential land as well as a north-south employment and commercial spine following SH1, railway, and arterial road corridors that run through Hamilton. Associated with these and relatively accessible from the site is Te Rapa / The Base, a regionally significant commercial centre and employment hub.
- j. It is unknown whether, over the longer term, a railway station may eventuate to serve what has been an ongoing speculation over an Auckland – Hamilton passenger line. Were this to occur, it is likely that the site would enjoy reasonably good access to this.

4.2 Overall and based on the above, the site forms part of a logical urban growth opportunity that will in time connect living, working, recreation and transportation. In urban design terms there are no reasons to suggest the suitability for urban

development and general residential use identified in the Council's Rotokauri Structure Plan is inaccurate, and no reasons that would warrant deferral of a PPC to up-zone the land at this time.

5. rotokauri structure plan

- 5.1 The Rotokauri Structure Plan (Figure 5.1) was prepared in 2007. It covers a land area of approximately 1,000ha and the PPC site accounts for approximately 14% of this. Parts of it have already been through a re-zoning process (Plan Variation 18) and are in the process of being developed.
- 5.2 Relevant to the site, the Structure Plan:
- a. Anticipates (standard) residential activity and identifies a ridgeline protection area associated with the natural hill system that runs across the Structure Plan area.
 - b. The ridgeline protection area is envisaged, based on documentation accompanying the Structure Plan (Figure 5.2), to be based on a model of retaining ridges and as much natural topography as possible by incorporating these into large rear garden spaces, placing dwelling downslope and near road frontages. It is not clear whether private boundary fences around properties were contemplated or whether the ridges would remain clear of fencing and be treated akin to a 'commons'.
 - c. Anticipates a surface-based stormwater management train draining land from the south into the site, connecting with a west-flowing facility that departs the site via the existing Exelby Road culvert (Figure 5.3).
 - d. Anticipates at least one district-scale recreational open space of several hectares, but provides for two such large spaces. These are connected to the key road network (likely to maximise legibility and accessibility).
 - e. Provides for a small community focal point south of the site adjacent to an extension of Arthur Pointer Drive Road that connects to Hamilton's urban area to the east, and a single primary Rotokauri commercial centre further south at Wairere Drive.
 - f. Relies on SH39 and Exelby Road as the urban boundary.
 - g. Provides for a sinuous network of arterial and collector roads in both north-south and east-west directions (Figure 5.4).
 - h. Provides for a relatively broad mixture of residential, commercial, employment, community, and recreational activities within the Structure Plan area. Higher amenity 'employment' zoned land is proposed to sit in a north-south ribbon between residential land (west) and industrial land (east).

- i. The existing area of SNA at the SH1 / SH39 intersection is to be protected.
 - j. Not shown, but understood to be expected at the time of development, are small-scale neighbourhood reserves and parks. It is understood that the Council's key expectation here is that such a park should not be more than a 5-minute walk; this would amount to a need for two or three such parks within the site.
 - k. The site is proposed to be part of "Stage 2" of the Structure Plan, in terms of land up-zoning.
 - l. Burbush Road is signalled to be realigned, making way for a new north-south spine road (east) connecting eventually from SH1 / SH39 south to the Rotokauri Centre.
 - m. It is not clear whether the green (storm water) corridors are or are not intended to be aligned with road corridors, however cycle-pedestrian routes are indicated as occurring along the roads and the green corridors.
 - n. In terms of the future road network, it is understood that these are to be provided for and negotiated with the Council at the time of development; no designations for their routes or functions exist.
 - o. In terms of the future road network, the Structure Plan identified four points where key roads would cross the site boundary with neighbouring land (south and east) that is not subject to the PPC.
- 5.3 Overall, the Rotokauri Structure Plan sets in place a relatively detailed planning strategy for the site. Although it is understood there is some flexibility in the final alignment and placement of the key elements shown, the Structure Plan provides a useful starting point to consider how to enable development on the PPC site.

6. concept master plans

- 6.1 Master plans are a technique at helping 'bridge the gap' between high-level structure planning and detailed subdivision design. I prefer using them whenever a site is large enough to require multiple blocks and roads, and where a variety of options may be available. Typically, this can be 10ha – 15ha+. Master plans are not as accurate as subdivision scheme plans but are drawn to scale and use realistic or intended dimensions and sizes. Their key benefit is how they are able to help test what real-world outcomes may or may not be possible, and why. They are focused on streets, blocks and land use types, but frequently also indicate individual lots or buildings.
- 6.2 For Rotokauri North, it is not proposed to make the concept master plan a statutory part of the HCDP. This is largely because as the design process shifts

into the next and more detailed level of subdivision planning (assuming the PPC is accepted) it is inevitable that some parts of it will change and refine over the life of the development. Nonetheless, the master plan is relied on by GSCL to make planning and investment decisions, and will form the basis of the site's subdivision.

6.3 Based on information relating to storm water and drainage needs, a concept master plan ("concept 1 master plan") was prepared through a 3-day workshop held in Hamilton in December 2017. This has been included as Figure 6.1. Its key characteristics were:

1. retention of an existing area of SNA near the Burbush Road and Te Kowhai Road intersection, and provision for two playing fields (an alternative 'plug in / plug out' providing five playing fields was also prepared;
2. provision of the key roads shown on the Rotokauri Structure Plan with some realignment, particularly to a north-south 'spine' road;
3. provision for storm water storage and conveyance areas based on projected needs, integrated where practicable with public road frontage (Figure 6.2);
4. retention of a hill / ridge feature identified on the Rotokauri Structure Plan following guidelines prepared on behalf of the Council prepared at the time of the Structure Plan:
 - a. Tests undertaken at the workshop to understand the significance of the features identified that they may not warrant protection;
 - b. A key issue was that retention of the hills markedly reduced opportunity for streets and blocks in these parts of the Structure Plan area and this was not regarded as inefficient; and
 - c. Cross sections prepared through the key feature within the PPC site identified that when developed it would be likely that the top of the hill would be mostly or entirely screened by the dwellings below the ridge (see Figure 6.3).
5. provision of north-south orientated street blocks where possible and practicable to optimise solar access;
6. provision of a small neighbourhood centre based on the key road network, with a north-south alignment, and access to the storm water 'green network';
7. provision of a potential primary school, located so as to have centrality within the site, access to the storm water 'green network', playing fields and the neighbourhood centre; and

8. provision for higher-density, rear-lane based housing along the key north-south road so as to make it safer for pedestrians and cyclists and to remove the safety conflict of reversing vehicles generally;
- 6.4 The concept 1 master plan delivered an indicative yield of 1,450 – 1,800 houses based on the following parameters:
1. 45% of the site (60ha) was available for development based on approximately 30% of the site for a well-connected road network and park-edge roads (roads that fronted public open spaces or waterways); 20% for storm water related facilities; and 5% for recreational open spaces.
 2. Provision being made for an approximately 3ha primary school and approximately 1ha of neighbourhood centre.
 3. Lot sizes ranging from 200m² to 800m², with an average or typical lot size of around 350m². Detached houses, duplex units and terraced housing units (*which fall under the definition of an “apartment” in the District Plan*) were considered likely to be supported by the local market and form almost all houses within the development. Occasional apartment living was provided for but not assumed to appeal to a large number of likely residents.
 4. Incorporation of rear-lanes along key roads and where higher density housing was sought (to avoid vehicle crossings, driveways and garages visually dominating streets and otherwise creating hazards for pedestrians and cyclists).
- 6.5 The concept 1 master plan identified a number of technical challenges to be addressed, including:
1. the requirements for managing on-site storm water treatment and / or conveyance;
 2. what ‘affordable housing’ may mean and following on from that, to what extent it could or could not be provided;
 3. market testing of different housing types and densities;
 4. the significance of a hill / ridge system across the Rotokauri Structure Plan area that extended into the Rotokauri North site;
 5. transportation needs and the likely width of roads; and
 6. the need for and provision of recreational open spaces within Rotokauri North.
- 6.6 Following on from the December 2017 workshop, and after completion of further technical investigations it was identified that the concept 1 master plan would not likely deliver a yield that was commercially feasible based on the costs

associated with the development, the challenges or providing 10% or more affordable housing, and the generally low proportion of the site likely to be available for development. It was also identified that the alteration to roading locations outside of the Rotokauri North site would raise practical issues in respect to the scope of the PPC request and the potential effects on third party landowners in the remainder of the Stage 2 Rotokauri Structure Plan area. Based on the work undertaken in the concept 1 master plan regarding the ridgeline protection area, LA4 Ltd undertook a landscape review to confirm the significance of the hills. LA4 Ltd concluded that the hills were not a significant or important part of the landscape and that it was not necessary to protect them as envisaged in the original Structure Plan.

6.7 A second 3-day design workshop was held in Hamilton in August 2018, based on re-visiting the concept 1 master plan with updated technical information, as well as a more specific consideration of the form of a PPC request, the extent of the recommended SHA, possible planning rules and requirements. This resulted in a concept 2 master plan (included as Figure 6.4), and then a more refined concept 3 master plan (Figure 6.5). Its key characteristics are:

1. retention of the concept 1 plan's general alignment for the north-south spine road, and greater east-west connectivity for storm water conveyance and for better access to planned employment land east of the site;
2. realignment of Burbush Road so as to provide a collector / arterial road shown on the Rotokauri Structure Plan within the site;
3. a revised neighbourhood centre placement in the eastern part of the site so as to relate well to Burbush Road and also future employment land in the east. This was aligned with east-west collector routes that will likely be used to cater to employee daily work trips as well as the key north-south spine from SH1;
4. a more centrally located potential primary school site serving the area;
5. provision of potential playing fields (intended to serve a District-catchment rather than just the residents of Rotokauri North) so as to be as accessible as possible to the wider Hamilton City;
6. realignment of the intersection of Te Kowhai Road and Exelby Road to make it safer;
7. provision of two local park reserves to meet the needs of residents within Rotokauri North;
8. provision of an access-restricted and landscape-buffer edge to Te Kowhai Road/SH39;
9. a greater emphasis on higher densities in the eastern part of the site in recognition of its greater accessibility to employment, the transport network, possible school and possible neighbourhood centre, and lower

density in the west. Following on from this, a higher concentration of affordable housing was identified as being more desirable in that higher density part of the site; and

10. a revised storm water management concept based on the principle of each site within the catchment providing for on-site management / detention. This provides a more equitable means of spreading the burden of urban stormwater across the Structure Plan area (Figure 6.6).

6.8 The concept 3 master plan delivered an indicative yield of 1,700 – 2,000 houses based on the following parameters:

1. 53% of the site (70ha) was available for development based on approximately 30% of the site for a well-connected road network and park-edge roads (roads that fronted public open spaces or waterways); 7% for storm water related facilities; and 11% for recreational open spaces.
2. Provision being made for an approximately 3ha primary school and approximately 1ha of neighbourhood centre.
3. Lot sizes ranging from 150m² to 600m², with an average or typical lot size of around 350m². Detached houses, duplex units and terraced housing units (*which fall under the definition of an “apartment” in the District Plan*) were considered likely to be supported by the local market and form almost all houses within the development. Occasional apartment living was provided for but not assumed to appeal to a large number of likely residents. Lot dimensions were indicatively planned at a typical 28m depth, with lot frontages varying from >10m (vehicle access from front), or <10m (rear lane access). A duplex concept based on a 12.5m x 28m (minimum) parent lot was also tested (producing two child free simple lots with subdivision):
 - a. A variety of lot configurations were tested against the HCDP MDRZ rules. This was to confirm what urban design effects different lot sizes (and hence different block dimensions in the master plan) would give rise to. This identified key concerns with the typical height in relation to boundary (“HiRB”) controls and some other rules, notably the service court and building coverage requirements (Figure 6.7);
 - b. A variety of duplex lots have been tested and lessons learned from other developments reflected on. It was identified that the most desirable duplex design is one that is “offset”, with one unit close to the street, and the other unit setback from the street behind the car parking spaces that serve both units. This configuration can achieve an urban design outcome almost indiscernible from a standard family house, and lends itself to ‘pepper potting’ affordable housing across normal subdivisions (Figure 6.8);

4. Incorporation of rear-lanes along key roads and where higher density housing was sought (to avoid vehicle crossings, driveways and garages visually dominating streets and otherwise creating hazards for pedestrians and cyclists) (Figure 6.9).
- 6.9 Subsequent to the second design workshop, ongoing technical work has identified further refinements to the amount of land required to accommodate storm water needs; affordable housing; planning rules; possible primary school needs; and general development efficiencies have been considered. This process resulted in the concept 4 master plan (Figure 6.10), and the concept 5 master plan (Figure 6.11).
- 6.10 The key differences between the concept 3 and concept 4 plans are:
1. Refinements of the internal block layout to improve land efficiency; and
 2. Enlargement and realignment of the village centre spanning between the two east-west collector roads.
- 6.11 The key differences between the concept 4 and the concept 5 plans are:
1. Removal of the potential school site reflecting that it might not be acquired by Ministry of Education;
 2. Removal of District playing fields, reflecting that these might not be acquired by the Council;
 3. Retention of existing Exelby Road intersection with State Highway 39, reflecting that closing or relocating it would require NZTA and existing third-party landowners outside of the Plan Change area;
 4. Removal of the northernmost east-west collector and replacement with a dedicated pedestrian / cycle / stormwater management area or 'community spine';
 5. Refinement of the eastern arterial road to straddle the site boundary;
 6. Provision of additional on-site stormwater space serving both the Ohute (attached to the east-west linear space in the site's west) and Te Otamanui (adjoining the protected bush area in the site's north-east) catchments;
 7. Reassignment of higher density housing to the eastern half to align with the proposed additional height overlay area and around the village centre;
 8. Realignment of the village centre to adjoin the northern east-west community open space spine; and
 9. General minimisation of rear-lane blocks, to improve land efficiency.

- 6.12 On the basis of the wide range of urban form outcomes that the master plan concepts have identified, all based on varying assumption regarding an eventual storm water solution, a final concept 6 master plan (Figure 6.12) has been prepared. Given the need to establish fixed land use zone areas, the concept 6 plan aims to bring together the key elements of the previous concept plans in a manner that could allow any of the concept plans 3, 4, or 5 (or 6) to be established, depending on what final storm water management preferences are reached. An augmentation of the concept 6 master plan has been included as Figure 6.13, which shows, indicatively, the preferred locations of a primary school and district playing fields, in the event that either or both did occur.
- 6.13 The key differences between the concept 5 plan and the concept 6 plan are:
1. Refinement of stormwater management areas;
 2. Conversion of the northern east-west collector / green spine route to include sections of road and sections of open space;
 3. Simplification of street and block network to improve land efficiency; and
 4. Re-introduction of the Exelby Rd / SH39 intersection realignment.
- 6.14 The concept 6 master plan has been used to reverse-engineer the proposed zone plan for Rotokauri North, presented in the next section of this report. By being based on a well-tested master plan, I consider that the zone plan and Structure Plan can be confidently relied on as representing an achievable starting point for subdivision.
- 6.15 The master plan tests have shown that, in a variety of different ways, the land can be efficiently and successfully developed. It is not proposed to include a master plan concept within the District Plan, even as an assessment matter or reference, because of the number of variables that affect what will be developed. These include uncertainty regarding the location of any public primary school, whether or not the Council seeks district playing fields on the site, and of course the major storm water management decisions to be made (primarily in terms of the maximum flow rate at the Exelby Road culvert). However, what the various master plans have shown is that subject to a number of 'fixed' elements, it will be possible to manage that diversity of outcomes without losing the ability to 'lock in' critical outcomes.
- 6.16 Nonetheless, the proposed structure plan includes additional detail to help compensate for the absence of a specific master plan concept and ensure that an urban form outcome consistent with what has been shown across the various concept master plans through the subdivision process.

7. proposed structure plan

- 7.1 The proposed zone / Structure Plan for Rotokauri North (Figure 7.1) has been derived from the concept 6 master plan and reflects its key components well, including:
- a. the key collector and eastern arterial roads;
 - b. specified access points to and direct property access restrictions and a building setback requirement along SH39;
 - c. specified access points to FUZ land south of the PPC site;
 - d. green corridors / storm water facilities, and indicative open spaces;
 - e. existing roads identified for potential closure (part of Burbush Road);
 - f. protection of the existing SNA;
 - g. MDRZ across the site and identification of an additional height opportunity in the eastern part of the PPC site; and
 - h. identification of a neighbourhood centre in the B6Z.
- 7.2 Not shown on the proposed zone plan and refined structure plan are the local road and street network, precise locations and shapes of local reserves, the detail design and integration of storm water / green corridors with streets, and the detail of any wetland or enhanced stream area in the western part of the site. These matters would be managed through the subsequent subdivision and land use consent processes, the Rotokauri North Integrated Catchment Management Plan ("ICMP") and the proposed zone rules. Also not included in the proposed zone plan is the potential primary school. MoE practice is to undertake its own site evaluation and selection processes, and then use RMA designation processes to provide for any future school(s) 'over the top of' any underlying land use zone; predetermining school sites and shapes via 'school' zones at the time of a plan change is not a favoured method within the industry.
- 7.3 The proposal includes a number of sites that sit outside of GSCL's control but which are proposed to be included in the re-zoning. This is from the point of view of ensuring a comprehensive and integrated planning outcome eventuates, and also simply because it makes good sense to include those small 'orphan' sites. These sites are (Figure 7.2):
- a. Lots 1 – 3 DP 314799;
 - b. Lots 1 & 3 DP 359488;
 - c. Lots 1 & 2 DPS 69074;
 - d. Lot 1 DPS 72047;

- e. Lot 1 DPS 46587; and
 - f. Lot 1 DPS 4129.
- 7.4 The predominant land use zone proposed is MDRZ. This is proposed to apply to effectively all of the site, although an additional height overlay is proposed in the eastern part of the site to reflect the superior accessibility of that part of Rotokauri North and the desirability of concentrating greater density there.
- 7.5 A small area of B6Z is also proposed based on the projected yield of the PPC and that a neighbourhood centre within Rotokauri North could complement the primary Rotokauri Centre in the southern part of the Structure Plan. The B6Z has been placed to align it with the internal collector road and green corridor networks as well as give it relative centrality within the future neighbourhood (in terms of employee access from the Structure Plan's identified employment land as well as just for residents).
- 7.6 Key collector and arterial roads are identified, however the Structure Plan's eastern arterial has been realigned slightly (from the operative Rotokauri Structure Plan) to make it more direct and bring it partially into the PPC area (this will help to ensure that it gets delivered between SH1 and the future Arthur Porter Drive in a planned manner). Other roads are also proposed to be realigned from the Rotokauri Structure Plan however the accessibility between the PPC site and adjacent sites identified within the Structure Plan have been maintained. The key 'internal' north-south collector road has been realigned to be further east, creating a more efficient spine that will run through the PPC site. One, more direct, east-west collector is also proposed (compared with the singular disconnected east-west route signalled in the Rotokauri Structure Plan) to as to enable a more efficient internal street network. Depending on design and storm water management decisions reached at the time of subdivision, a second de-facto east-west collector road would also eventuate along the green network corridor in the northern part of the site.
- 7.7 Stormwater conveyance issues have been identified, including by using road-based swales. This is so as to help provide public frontage of these facilities, as well as using them to add visual amenity to the streets.
- 7.8 Indicative neighbourhood parks have been identified (x 2) based on providing access to future houses within a 5-minute walk. These would be confirmed at the time of subdivision. A potential District Park has also been identified.
- 7.9 The area of SNA identified in the Structure Plan has been protected.
- 7.10 The ridgeline protection identified on the operative Rotokauri Structure Plan has not been included within the PPC on the basis of technical analysis by LA4 that identified the hills within the PPC site, although part of the wider hill and ridgeline network, are at the low commencement of the system. They are not visually prominent and cross section simulations identified that once developed, following the Structure Plan's subdivision model, it was unlikely the hilltops would

be visible behind dwellings in any event due to their low elevation. Removing this aspect of the design allows for a better future road network in the south-eastern part of the site in particular.

- 7.11 A large district-level recreational facility shown in the western part of the PPC site on the operative Rotokauri Structure Plan has not been carried through into the PPC. Analysis has identified that a reasonable allowance for this facility, should the Council seek to acquire it, can be met by a large potential open space area in the site's south-east, aligning with the future extension of Arthur Porter Drive, recreation facility and the community focal point identified on the Rotokauri Structure Plan. This was primarily to align the facility with the intended 'focal point' (an undefined term but understood to mean some form of important community significance or coming together), and make it as accessible as possible to its intended city-wide user audience (i.e. as far eastwards as possible). Should the Council wish to acquire land for a District facility, it would be able to acquire this through existing RMA or LGA (PWA) instruments.
- 7.12 In my opinion, the proposed zone framework and refined Structure Plan proposed as part of the PPC reflect the concept 6 master plan well and this gives me confidence that a successful subdivision outcome could be achieved based on it and the spatial distribution of elements shown. I also consider that it is consistent with, although proposes a number of updates or augmentations to, the Council's Rotokauri Structure Plan. Where updates or augmentations are proposed, I consider they have been justified by the technical analysis and master plan tests completed as part of developing the PPC.

8. proposed subdivision and development controls

- 8.1 The proposal is based on the existing relevant HCDP chapters (being Chapter 4- Residential and Chapter 23 – Subdivision, as they relate to the MDRZ). However, based on the specific needs and opportunities of Rotokauri North, it is proposed to vary those provisions. The changes were identified as a result of housing and typology tests undertaken at the same time the concept master plan work was occurring in terms of:
- a. visiting existing medium density housing developments in Hamilton and researching sales and construction cost data;
 - b. previous experience by GSCL's parent entity MADE's technical team in promoting affordable housing solutions that also achieve high-quality urban design outcomes;
 - c. achieving the best-practice urban design outcomes identified earlier in this report;
 - d. various lot design scenarios based on iterations of site width, site depth, and the HCC medium density residential controls; and

- e. architectural testing and validation of the technical team's preferred affordable housing solution (addressed in the Acceptable Solutions Code section).

8.2 The key consequence of the above was identification that an optimal lot depth in Hamilton would be 28m. This follows on to typical block depths of 56m, or 63m where a rear lane is required to allow vehicle access where it is not to be provided from a street frontage (e.g. where a vehicle access restriction applies as per the proposed PPC rule). The variable that in turn influences lot size will be the lot frontage width. Based on information from GSCL, and following on from its own discussions with the Council's staff regarding what parameters (including cost and price) would best suit affordable housing for the community, a number of typical lot dimensions have been identified for the PPC area. They are:

- a. 28m x >12.5m (more than 350m²) – these lots are likely to be detached fee simple lots accommodating standard (non-affordable) housing. These lots can also accommodate a double garage without the garaging and associated vehicle manoeuvring coming to dominate the street scape or the footpath.
- b. 28m x >12.5m as a duplex unit (minimum 350m², or 175m² net per unit) – these lots have been identified as being suitable for affordable housing and will be discussed in detail in the next section of the report. One key reason this dimension is suitable is that it is as efficient as possible (land area), but is wide enough to accommodate two cars (one per unit parked side-by-side) without creating any greater adverse street scape or pedestrian amenity effects than a standard house could.
- c. 28m x 10m-to-12.5m (280m² – 350m²) – these lots would be too narrow to accommodate the affordable duplex but could accommodate a standard dwelling subject to only having a single-garage and vehicle crossing width.
- d. 28m x 7m-to-10m (196m² – 280m²) – developed as a comprehensive development (e.g. terraced units) these lots could potentially accommodate front-loaded (i.e. vehicle access from a street) if car parking and garaging was managed and as part of a comprehensive residential development such as a terraced housing row. Such housing would need to be proposed concurrently with the subdivision and occur by way of re-subdivision of a superlot or several other lots being amalgamated. These lots could alternatively also occur as a rear-loaded typology, where vehicle access and car parking came from a rear lane or other solution.
- e. 28m x 4.5m-to-7m (126m² to 196m²) – developed as a comprehensive residential development, (e.g. terraced units) these lots would only be possible if rear-loaded garaging was provided off a rear lane, and would need to be proposed as part of a combined land use and subdivision resource consent proposal based on a superlot or several other lots being amalgamated.

8.3 The key changes to the standard MDRZ framework proposed, relevant to urban design, are:

- a. No requirement for a Comprehensive Development Plan. The core detail or guiding future development is contained on the Structure Plan, which was derived from a series of master-plan tests. The fine-detail of the development will be delivered via proposed changes to the subdivision standards including requirements to limit rear lots and cul-de-sacs, and to produce connected urban blocks within specified dimensions. This is considered an equally effective but more efficient urban design solution to the problem of ensuring logical, well-planned subdivisions.
- b. changes in the height in relation to boundary controls (“HiRB”, rule 4.6.3);

The proposed rule enables and passively encourages buildings to mass towards street frontages and rear lane edges (for garages), but to otherwise provide spacious and deep back gardens that can in turn accommodate outdoor living spaces.

This is in turn part of a development strategy seeking to encourage outdoor living spaces to the rear where they are genuinely private and do not lead to pressure for tall fences along road boundaries. The relaxation of HiRB at the side boundaries (other than for the rear 8m of lots) is to help promote a denser and more urban character of 2-storey buildings on efficient, narrow-width sites. Without the proposed rule, accommodating a 2-storey building of at least 6m height and with a frontage width of at least 11m, lots would need to be at least 18m wide or 504m². This is not considered efficient or even ‘medium density’ in urban design terms.

However, it is acknowledged that key complementary rules seeking to avoid rear lots where practicable and also provide a deeper rear yard will work in conjunction together to achieve this on a consistent whole-of-block basis.

It is also acknowledged that north-facing lots, where the outdoor living space may be more desirably located at the frontage or to the side of a dwelling, also justify a rules framework that does not seek to explicitly direct how outdoor living spaces are to be configured on sites.

- c. changes to maximum building / site coverage (rule 4.6.6);

The proposed rule enables more efficient development of terraced housing (where no side yards are provided between units), in particular where accessed via a rear-lane and where a detached garage is typically required and where more building coverage typically results. The urban design rules that encourage buildings to locate and mass

towards street frontages also means that where additional site coverage is proposed it is unlikely to be occur in a manner that has readily discernible effects in the wider environment.

- d. changes to the maximum height rule (rule 4.6.7);

The proposed rule provides for additional building height in the eastern part of the PPC area. This reflects the accessibility advantages of this are in terms of the PPC area's neighbourhood centre, identified employment area east of the PPC site, and the transport links that are readily available. This part of the site has an accessibility advantage over the western part of the site and the height variation rule signals this advantage. The rule gives greater direction that the optimal location of apartments within Rotokauri North will be in the eastern area and the rule enables an efficient, urban outcome that would be unlikely to exceed 4-storeys in height.

- e. provision for ancillary units (rule 4.7.1);

The proposed rule provides for ancillary units in locations where they can be accommodated without compromising on-site or neighbour amenity. These sites have outlook space on at least 2-sides and this can accommodate the additional ancillary household's needs. However, the rules do not provide for a circumstance where a duplex development also incorporates ancillary units.

Providing for ancillary units overlooking rear lanes provides not only an additional housing opportunity but a greater likelihood of the laneways being passively overlooked from adjacent units. Given the functional purpose of rear lanes, achieving such surveillance points at lane entrances and exits is in particular likely to passively contribute to safety within the lanes based on Crime Prevention Through Environmental Design principles.

- f. provision for duplex housing (rule 4.7.12);

This is a key feature of the PPC. It allows a mechanism where a minimum 12.5m x 28m lot can be developed as a duplex building (2-units), in a way where a high-quality urban design outcome can also be achieved. The method proposed is an Acceptable Solutions Code (next section of this report) included within the District Plan as a design appendix, that specifies spatially how the duplex is to be designed (where proposed to be a Permitted Activity). This will ensure the opportunity of a duplex can be given an enabling activity status without the risk of poor-quality outcomes eventuating.

A key complementary rule proposed for affordable duplex housing is a reduction in the car parking requirement from two parking spaces per unit to only one. Given that the objective is affordable houses, it is considered less likely that households that are affluent enough to

maintain two or more private cars would be in the market being aimed at to begin with.

But of urban design significance is the spatial requirements of car parking spaces. Not only are spatial dimensions fixed (approximately 14m² per space, or 56m² on a 350m² 'parent' duplex lot for 4 x spaces), car parks require particular gradients and manoeuvring paths to be functional. This can frequently result in such parking pads and garages visually dominating street frontages and creating undesirable low-amenity footpath conditions where pedestrians face extended lengths where vehicles frequently reverse across the path of the pedestrian. The typical approach in the City to overcome the frontage car parking problem is to establish duplexes in a 'sausage flat' arrangement along the length of sites, with car parking accessed from driveways along site side boundaries. This method is considered equally poor and undesirable in urban design terms. It results in de-facto rear lots within blocks which are not considered appropriate in a greenfields environment.

Reducing the duplex car parking requirement to 1 space per unit also enables the duplex to achieve a key urban design objective for this form of housing choice – that from the street the duplex unit appears at first glance to be very similar to a standard large family dwelling with two parking spaces. Achieving this sense of visual compatibility is considered an important factor in making the affordable duplex a viable solution that can be mixed around the subdivision pattern rather than be always visually identifiable and thus more likely to be spatially segregated from other forms of housing in the neighbourhood.

It is also noted that where a household wishes to maintain two vehicles, the duplex affordable housing solution is not the only one envisaged within Rotokauri North. Terraced housing rows accessed via rear lanes are also likely to be developed, including at an affordable housing price range, and which will (when at least 6m width) provide for two vehicle parking spaces.

g. Requirements for superlots / apartment sites (4.7.12)

The proposed rule provides for a 20m site width where 3+ units are proposed because that width provides for minimum side yard setback and then 3 units where, if each had a single garage in the front façade, the resultant elevation would not be visually dominated by garaging and car parking or manoeuvring. For a rear-accessed site where there would be no garage disruptions at the street, the minimum width drops to 15.5m, reflecting minimum side yard setbacks and three terraced units @ 4.5m unit width.

h. changes to building setbacks (rule 4.8.2);

The proposed rule requires a generous rear yard setback and limits what buildings can locate within it. This is to help provide a consistent placement of sunny and open corridors within blocks and where outdoor living spaces occur in groups so as to maximise spaciousness, sunlight access, and freedom from overlooking. It is fair to surmise that the rule has the effect of seeking a more uniform management of outdoor living spaces, across the lots within each block and this is considered appropriate in medium density housing settings given the increased potential for adverse nuisance effects between neighbours to occur.

The rule also enables un-enclosed, 1-storey tall verandahs up to 1m from the front boundary. This is intended to promote more efficient use of front yard space, and promote socialisation at the street. It also provides opportunity for secondary outdoor living spaces where the visual amenity of the street can be better taken advantage of by residents (this in turn is the basis of the proposal to reduce the front-yard permeable surface requirement from 50% to 40% in rule 4.6.5). Verandahs have been enabled because they are very useful architectural elements to:

- ▶ *Soften the bulk and scale of buildings by placing a small-scale and visually permeable (i.e. open-walled) structure in front of dwellings.*
- ▶ *Provide residents with a defensible and safe-feeling extension of their dwelling that they are more likely to occupy compared to a general front yard landscape area.*
- ▶ *Provide an all-weather (roofed) opportunity to add outdoor seating or other furniture that helps give the street the impression that it is occupied, with resultant Crime Prevention Through Environmental Design benefits.*

In conjunction with rule 4.8.3, The rule also requires the garage to be setback from the street to ensure that active parts of the dwellings are located forward on the inactive garage door. The rule requires a 5m minimum setback from the front boundary, and in addition at least 1m recess behind the front face of the dwelling. In other words, if the front face of the dwelling is itself 5m back from the front boundary, the garage would need to be at least 6m back. Where a garage may be located to side-on to the street, the same setback rules apply and in addition a requirement for windows within the garage's side façade apply. This package of rules intends to make sure that garaging cannot visually dominate or detract from the visual qualities of houses, and to in turn promote street scape and neighbourhood amenity values.

- i. changes in requirements relating to garage width and setbacks in front elevations (rule 4.8.3);

In addition to the above, the proposed rule provides for lot frontage widths below what could be otherwise acceptable by restricting garage width. This in turn allows a more efficient use of the PPC land without compromising the urban design quality and pedestrian amenity of streets.

This is regarded as a key urban design technique to allow housing choice and flexibility without compromising urban design quality. In a single-garage-width scenario, it would still be possible for a unit to accommodate two cars within a garage (stacked arrangement), and retain a parking pad for visitors in front of this.

Setbacks for garages also ensure that garage doors do not dominate street fronts.

- j. changes in the building separation and privacy rule (rule 4.8.4);

This rule reinforces the subdivision and lot layout approach of encouraging dwellings to face either streets or sunny back gardens / rear lanes. As it is likely that habitable windows will be predominantly orientated to the front and back, rather than the sides, a more refined requirement can apply that requires smaller side setbacks.

Key supporting rules relevant to this approach are the restriction on rear lots (subdivision) and the rear yard requirement. Rear lots create a number of nuisances within blocks, including a fracturing of the consistent 'what is public / what is private' spatial delineation. When rear lots exist in blocks, access driveways introduce frequent points of public access within blocks, spoiling privacy for adjacent lots.

Units built on rear lots also typically lack meaningful outlook space, such as across a street, and the risks of creating unappealing, low-amenity and 'enclosed' outlook outcomes increases significantly. By seeking to avoid rear lots where ever practicable, the need for extensive on-site outlook and privacy protections between side-to-side or side-to-rear neighbours. This is complemented by the rear yard rule that seeks, in the absence of a rear lane, an opportunity for outdoor living space to provide a secondary private outlook area that is entirely within the subject lot rather than across a neighbour's garden.

- k. reduction in required outdoor living space requirements (rule 4.8.5);

This rule enables outdoor living spaces that are generous by medium density housing standards across New Zealand's urban centres. In conjunction with complementary rules that promote these spaces to locate in the private rear garden space at the back in conjunction with a HiRB rule that promotes openness in these spaces, it is likely that these

will be consistently functional, attractive and well-used by residents in such a manner that the reduced area will not result in a reduction in actual amenity provided to residents.

In part this is due to the likely 'pooling' of outdoor living spaces adjacent to one another within blocks, reducing the proximity of buildings or potential overlooking, potential shadowing, or potential loss of spaciousness.

The rules also promote development of un-enclosed, 1-storey tall verandahs in the front yard and these can be pooled as a lot's overall combined area of outdoor living space, recognising the positive and public amenity outcomes possible through the provision of these spaces and practical real-world recognition of solar access variations that will result in the subdivision pattern.

- l. removal of service courts (rule 4.8.6);*
The service yard requirement is not considered necessary on lots larger than 300m², simply as a function of the size of the site and likelihood that space will be available. On sites smaller than 300m², the needs of affordability and promoting compact urban lots and blocks justify a different approach.

The requirements for outdoor living space are considered sufficient to accommodate a garden shed and fold-up washing line in a way that will not impinge on the usability of the space. It is also relevant to note that for affordable housing and medium density housing envisaged in Rotokauri North, while there will be some large multi-bedroom family homes, many future units will have two bedrooms and be occupied by a small household that will have less service yard and storage needs than the default HC DP assumption of a 'worst case' large family dwelling and ancillary housing unit on the same lot.

- m. changes to subdivision requirements (rule 23.3);*

The rules enable subdivision based on the lot sizes identified as being able to accommodate affordable housing and also achieve a high-quality urban design outcome. This includes subdivision of affordable duplex houses where they are in accordance with the conditions specified in the Acceptable Solutions Code (see next section). Compliance with a Code has been identified as a suitable method because design tests have identified that generically permitting two units on a 12.5m x 28m site may result in a number of poorly performing outcomes including rear sites and a muddle of public frontages and private spaces that diminish onsite amenity and public space quality.

- n. specification of requirements relating to road and block layout (rules 23.3 and 23.7.8).*

The land use outcomes identified as appropriate and on which the land use rules described above will be effective and efficient in urban design terms rely on certain assumptions regarding the arrangement of future lots in blocks. These rules will require an urban structure (roads and blocks) that will deliver the lot configurations that are being relied on. For example, the creation of a ‘rear lot’ (also known as a ‘battle axe lot’) would trigger a full Non-complying activity consent and would need to pass the proposed zone policies that focus on a well-connected block structure where direct lot frontage to streets is expected and rear-lots need to be justified as impractical to avoid.

The rules also specify maximum block dimensions so as to ensure a highly walkable and permeable outcome eventuates. In recognition that while there may be practical reasons that support occasional rear lots, it is not anticipated that any justification for impermeable and very inefficient pedestrian networks is likely and as such contravention of those block dimension rules would be a Discretionary activity.

- o. Vehicel Access restrictions (in Chapter 25)
Lastly, the rules preclude front / street-based vehicle access on roads that accommodate a cycle facility. This is to promote cyclist safety by reducing conflict with vehicles.*

9. acceptable solution duplex housing

- 9.1 As discussed previously, consideration was given to how to most effectively and efficiently provide for affordable housing within Rotokauri North. Analysis of a number of real-world developments in Hamilton and elsewhere, and development feasibility modelling, identified that 1-to-2-storey duplex houses were likely to be the most cost effective and high-quality means of accommodating affordable housing.
- 9.2 A key benefit from a well-designed duplex is that from the street it can be designed to look very similar to a standard detached house. In this way, affordable housing can be distributed equitably across the development rather than concentrated in one readily identifiable ‘cheaper’ part of the neighbourhood. In this respect, I set a goal to make duplex housing as indiscernible as possible within the development.
- 9.3 Based on a design I helped develop for MADE’s flagship Auranga development in Drury West, Auckland, and in recognition that duplex housing is likely to be a key part of GSCL’s provision of affordable housing in Rotokauri North, Mark Tollemache, Tollemache Consulting Ltd, and I worked together to identify the optimal way of streamlining the provision of this form of housing. It struck us as inefficient to require what is effectively the same planning issue to be resource consented every time it was proposed (which could be 100 times or more).

- 9.4 We identified that it would not be desirable to make duplex housing an outright permitted activity as this could unintentionally enable very-small-lot subdivision in a manner that did not tie it to a specific and acceptable design solution (i.e. if subdivision was based on a 'permitted baseline' development rather than a real one). We also identified that while a duplex development could achieve the proposed zone's urban design outcomes, it would also be possible to fail them depending on the design approach taken. Regardless of the resource consent activity status for a duplex, we agreed that subdivision should always require a resource consent given that it involves the creation of new allotments and potential development entitlements.
- 9.5 The key issue seemed to be how to 'lock in' a suitable design approach as well as just the 'activity' of a duplex unit.
- 9.5 We identified that a very effective and efficient solution would be to tie a permitted activity duplex to a specified site design and layout, and minimum site conditions. This led to the Rotokauri North Acceptable Solutions Code ("Acceptable Solutions Code"), proposed as part of the PPC and which would sit within the District Plan as a design appendix (inserted by the PPC in Appendix 1). The purpose of the Acceptable Solutions Code is to set out the conditions under which a duplex would be a permitted activity within Rotokauri North. Where these conditions are met, a building consent for the duplex can be sought and construction commenced on a lot. A subdivision consent for the resultant duplex could also be obtained, and to that end a specific consent matter has been proposed limiting the ability of a subdivision consent holder to commence such a subdivision consent until the pre-line (building) inspection of the building has been passed. This has been proposed to ensure that subdivision can only occur in relation to the acceptable duplex design on a site in the real-world, and not allow an unintended under-sized vacant fee simple subdivision outcome.
- 9.6 The key conditions that are required to be met in order for a duplex to be a permitted activity in Rotokauri North are:
1. the parent lot must have a frontage width of at least 12.5m and a depth of at least 28m;
 2. each unit shall have 1 parking space only, provided as a parking pad with each pad next to one another in the form of a double-width driveway and a double-width vehicle crossing (the pad cannot be enclosed as a carport or garage);
 3. the parking pads shall be provided on one side of the site and be contained entirely within 6.25m of the relevant site boundary;
 4. the duplex units must be 'off-set' such that 1 unit shall be located behind the parking pads and otherwise be no more than 6.5m from the front boundary to either the front of the unit or the front of a verandah, if one is provided, and the other unit no more than 3m from the front boundary to the front of the unit or the front of a verandah; and

5. all other relevant Rotokauri North rules must also be complied with.
- 9.7 As illustrated in the Acceptable Solutions Code / Appendix 1 (Section 1.4.10), a specific building design / façade design, materials, roof profile and colours are not subject to control. This is intentional so as to ensure variation results and avoid a generic or singular design outcome repeated over and over.
- 9.8 The Acceptable Solutions Code includes a variety of duplexes sizes and the number of bedrooms provided. These can be mixed and matched by an individual Lot owner to suit. This is to maximise choice.
- 9.9 Subdivision for lots to be formed as a result of an Acceptable Solutions Code duplex is proposed to be a Restricted Discretionary Activity. Although a Controlled Activity would be appropriate, Restricted Discretionary was chosen in consultation with Council officers regarding the more general approach taken to subdivision within the District Plan. Discretion is restricted to:
- a. engineering and infrastructure requirements;
 - b. conditions of consent relating to the administration of the consent; and
 - c. restricting the commencement of the subdivision consent until the Acceptable Solution duplex had at least passed a pre-line inspection for its Building Consent.
- 9.10 Restriction (a) relates to standard subdivision matters and is important to assure health and safety outcomes. Restriction (b) relates to standard consent administration (such as the payment of fees or to require site meetings or the submission of pre-or-post works reports). Restriction (c) is necessary to ensure that the Acceptable Solutions Code cannot, by enabling a permitted baseline, be used to create freehold lots that are of themselves unacceptably small.
- 9.11 For completeness, subdivision that was based on a duplex that did not meet the conditions of the Acceptable Solutions Code would be a Discretionary activity.
- 9.12 Overall, the Acceptable Solutions Code is considered to be an innovative way of enabling an affordable housing solution in Rotokauri North. It will provide certainty that an appropriate urban design quality will be achieved, but will also very effectively avoid the need for what could be potentially 100 or more unnecessarily repetitive separate resource consents to be obtained.

10. overall urban design assessment

require a well-connected and walkable block and street network that recognises the road hierarchy and the needs of strategic through movement

- 10.1 In my opinion, and informed by the concept master plans, the proposed zone and rules framework will successfully and appropriately provide for a well-connected and walkable block structure, as follows:
- a. The re-zoning plan requires an arterial road and numerous collector roads to be provided across Rotokauri North. This will ensure an appropriate road hierarchy and strategic connectivity occurs.
 - b. The re-zoning plan also specifies the maximum number and approximate location of road access points to Te Kowhai Road (State Highway 39). In recognition of the strategic needs of the Highway, it is proposed to limit direct property (lot) access to Te Kowhai Road, and also simplify the intersection of Te Kowhai Road and Burbush Road with the new north-south arterial along the zone's eastern edge.
 - c. Proposed subdivision rules require urban blocks that are of a size that will be readily walkable and provide a number of walking routes.
 - d. The provisions discourage rear lots, and this will help to keep the lateral depth of blocks low (also resulting in more streets and greater network permeability).
 - e. The provisions promote road frontage to public open spaces and the major storm water conveyance and storage devices. This will help connect these to the wider pedestrian and cycle network.
 - f. Where dedicated cycle paths or shared pedestrian / cycle paths are to be provided, the zone provisions limit direct vehicle access to lots. By requiring rear or alternative vehicle access, safety risks to pedestrians and cyclists (especially children) presented by reversing vehicles can be avoided.
 - g. The indicative road cross sections proposed, if followed in subdivision, would require footpaths on each side of streets and provision has been made for street trees and on-street parking so as to provide pedestrian comfort and visual interest.
 - h. Buildings are required to activate and front streets, providing visual interest and passive safety benefits for pedestrians and cyclists.
 - i. Where front-access is provided for vehicles, the proposed rules will ensure that footpaths do not become dominated by vehicle crossings and that buildings and front facades do not become dominated by car parking and garaging. This will contribute to walkability by enhancing comfort and visual amenity along streets.
- 10.2 Overall I consider that the PPC will result in a movement network that is walkable, safe and well-connected. I consider that any adverse urban design effects will be adequately avoided, remedied or mitigated.

require development to activate and front public spaces, and have private space to the rear, and avoid lot frontages becoming dominated by vehicle access and parking functions

- 10.3 In my opinion, and informed by the concept master plans, the proposed zone and rules framework will very successfully ensure development activates public spaces, has genuinely private spaces, and will have frontages that are not dominated by parking and vehicle access, as follows:
- a. The PPC discourages rear lots. This is the most effective means of ensuring blocks have a standard 2-lot depth, and will provide for the public fronts / private backs spatial arrangement that underpins successful urban structure outcomes.
 - b. The configuration of yard setbacks (including for storeys above ground level) encourages buildings to mass towards front boundaries.
 - c. The enablement of verandahs will promote socialisation of front yards and interaction at streets.
 - d. The exception to the above will be north-facing lots where outdoor living space at the frontage may be required. To minimise this, the concept master plan shows a maximisation of north-south orientated blocks, where practicable, so as to minimise north-facing lots.
 - e. Subdivision controls will ensure that lots less than 10m wide will require comprehensive resource consent; lots between 10m – 12.5m wide will be limited to a single-width garage and vehicle crossing, and only lots wider than 12.5m will be able to have a double garage. This will in turn ensure that garages will not dominate the frontage of lots.
 - f. Where individual lot frontage less than 10m are to be proposed this will be likely to be based on super-lot development and integrated housing developments. These are likely to include rear-access or another means of providing access without dominating street frontages. I expect that consent would be refused to development that was not able to perform adequately in this respect.
- 10.4 Overall, I consider that the PPC will result in well-activated, high-amenity public frontages. I consider that any adverse urban design effects will be adequately avoided, remedied or mitigated.

maximise housing choice and variety, including affordable housing

- 10.5 In my opinion, and informed by the concept master plans, the proposed zone and rules framework will successfully and appropriately provide for a wide variety of housing, as follows:
- a. The PPC rules framework requires a minimum of 10% housing to be affordable housing.
 - b. The proposed Acceptable Solutions Code provides guidance for appropriate design outcomes for duplex type dwellings (including those to be used to meet the 10% affordability criteria).
 - c. The medium density zone proposed provides for a wider range of housing typologies and sizes.
 - d. The site itself has characteristics that support a variety of lot sizes being promoted, from a more urban and connected condition in the east to a more conventional suburban residential area in the east.
 - e. The 28m lot depth that will be used in Rotokauri North lends itself to a variety of site sizes based on frontage width, from 280m² (10m wide) to 560m² (20m wide). Notwithstanding the developer's vision at the time of subdivision it would also be possible for purchasers to amalgamate lots of their own accord to make sites larger.
- 10.6 Overall, I consider that the PPC will result in a variety of housing choices and options being released to market. I consider that any adverse urban design effects will be adequately avoided, remedied or mitigated.

maximise the efficiency of development in a way that contributes to a high-quality built environment and new neighbourhood character

- 10.7 In my opinion, and informed by the concept master plans, the proposed zone and rules framework will ensure a high-quality built environment is achieved because:
- a. The urban design rules give emphasis on buildings massing towards and fronting streets.
 - b. The rules provide for rear lanes in instances where a high-frequency of driveways could diminish pedestrian amenity.
 - c. The concept master plans illustrate how a well-integrated network of open spaces can be achieved.

- d. Subdivision rules require a well-connected, easily walkable pattern that will be easily navigable and interesting to move through.
 - e. The rules provide for density to be maximised while not compromising urban design quality. The Acceptable Solutions Code demonstrates how quality can be safeguarded.
 - f. The neighbourhood centre will in time become a neighbourhood focal point and the PPC rules promote additional height here to reinforce that.
 - g. While density is sought to be maximised, the rules discourage cul-de-sacs and rear lots; these are traditional means of improving yield but in a way that diminishes quality and amenity values.
- 10.8 Overall, I consider that the PPC will result in a high-quality built environment. I consider that any adverse urban design effects will be adequately avoided, remedied or mitigated.

prominently integrate public open spaces and storm water facilities into the neighbourhood and have them contribute to its character

- 10.9 In my opinion, and informed by the concept master plans, the proposed zone and rules framework will successfully and appropriately provide for the daily needs of residents, as follows:
- a. The stormwater facilities will be dominant elements across the site and it is intended that other open spaces, roads and road-based swales will directly connect to these. This will be a key contributor to new neighbourhood character.
 - b. Where possible, road frontage along the sides of the green corridors will be provided, making these visually obvious within the development.
 - c. The existing bush has been protected and it likely to be expanded as a result of the subdivision process.
 - d. State Highway 39 has been integrated by way of vehicle access restrictions, a planned realignment of Exelby Road's intersection with it, and an open space setback / buffer from it.
 - e. Public reserves will be designed to be fronted by roads and development.
- 10.10 Overall, I consider that the PPC will result in well-integrated public open spaces and storm water facilities. I consider that any adverse urban design effects will be adequately avoided, remedied or mitigated.

integrate logically into and otherwise be consistent with the Rotokauri Structure Plan

- 10.11 In my opinion, and informed by the concept master plans, the proposed zone and rules framework is consistent with the Rotokauri Structure Plan, as follows:
- a. The proposal provides for the key road network indicated on the structure plan, and where links have been modified, links to neighbouring sites are still provided for.
 - b. The proposal provides residential development on the land as well as extensive green corridors for storm water purposes.
 - c. Cycle and pedestrian networks are proposed across the site.
 - d. A District-scale open space has been identified and could be established in a way that would also provide the community focal point identified on the structure plan.
 - e. The identified existing bush area is to be safeguarded.
 - f. The structure plan did not provide for a neighbourhood centre within the site however based on its likely small size and limited function, I consider it will not disrupt the centres hierarchy that the structure plan intended to contribute to.
 - g. The ridgeline protection area has not been provided for on the basis of technical analysis demonstrating that its protection in these low-level undulations is not warranted.
- 10.12 Overall, I consider that the PPC will be compatible with the Rotokauri Structure Plan and will in particular not undermine the ability of any adjoining or adjacent site to be developed as envisaged by the structure plan. I consider that any adverse urban design effects will be adequately avoided, remedied or mitigated.

maximise solar access to lots and ensure a good standard of on-site amenity is achieved

- 10.13 In my opinion, and informed by the concept master plans, the proposed zone and rules framework will successfully and appropriately provide for on-site amenity, as follows:
- a. The subdivision rules minimise rear lots and this allows all sites to face a street. The width of streets will in turn provide ample sun and daylight access.

- b. The subdivision rules encourage north-south orientated blocks. This in turn provides for east (morning sun) or west (evening sun) facing lots.
 - c. The rules package encourages buildings at the site frontage, maximising truly private and high-amenity outdoor living space at the rear.
 - d. The subdivision rules governing lot and block layouts will make it very unlikely that any lot is overlooked by another lot.
 - e. The rules package will ensure that lots are suitably sized and fit for purpose. Where higher density is enabled, this is limited to specified circumstances so as to ensure that an appropriate amenity outcome is assured.
- 10.14 Overall, I consider that the PPC will provide for appropriate on-site solar access and amenity. I consider that any adverse urban design effects will be adequately avoided, remedied or mitigated.

ensure the daily needs of residents are met as conveniently as is possible

- 10.15 In my opinion, and informed by the concept master plans, the proposed zone and rules framework will successfully and appropriately provide for the daily needs of residents, as follows:
- a. The land to be re-zoned is within an existing structure plan area earmarked for residential-based growth.
 - b. The zone plan requires key east-west and north-south road connections to be formed. This will facilitate access (including in the future by way of bus routes) from Rotokauri North to adjacent employment areas, centres and other destinations including major transport infrastructure.
 - c. A neighbourhood centre has been provided in a logical location likely to be accessible to locals as well as passing traffic (in terms of maximising the prospects that the centre will remain commercially viable over the long term).
 - d. Local recreation reserves (indicative) have been identified in two locations so as to maximise the proportion of residents that will be within a 5-minute walk of a reserve. These have also been planned to integrate logically into the wider 'green network' of open spaces in the site. It is however noted that the final location of reserves will be determined at the subdivision stage.
 - e. The additional height overlay promotes higher density to locate in the eastern part of the site, where accessibility to daily need activities and employment land will be highest.

- f. An opportunity for a primary school in Rotokauri North has been identified where it would be as accessible as possible to residents. This is however a matter entirely under the control of the Ministry of Education and cannot be taken further.
- 10.16 Overall, I consider that the PPC has demonstrated how adverse environmental effects relating to the daily needs of residents have been avoided, remedied or mitigated.

overall urban design merit

- 10.17 Overall and for the reasons above, the PPC is well-considered and has demonstrated a logical response to the site and its wider context.
- 10.18 The PPC will enable subdivision and development that will achieve outcomes in line with accepted best-practice urban design outcomes.
- 10.19 The proposed zone framework and planning provisions are considered efficient and effective in urban design terms, and will be suitable to manage the land's development.

11. conclusions

- 11.1 This report documents an independent urban design analysis of an application for a private plan change ("PPC") to rezone approximately 140ha of Future Urban ("FUZ") zoned land to Medium Density Residential Zone ("MDRZ") and Business 6 Zone ("B6Z") made by Green Seed Consultant Ltd ("GSCL") on an area of land known as Rotokauri North, within the Hamilton City Council's Rotokauri Structure Plan area. The application has been made to Hamilton City Council ("Council") under the Resource Management Act 1991 ("RMA"). The key conclusions of this report are that:
- a. The PPC has been prepared following best-practice urban design principles and has benefited from a master plan-based design process. The master plan, although proposed to remain non-statutory, has demonstrated that the land can be subdivided logically and in a way that will support a high-quality neighbourhood, and also remain compatible with the Council's Rotokauri Structure Plan.
 - b. The PPC would provide for approximately 1,700 – 2,000 houses on sites typically ranging between 150m² up to 400m² (as a result of either subdivision which accords with a land use activity (e.g. of a duplex) or vacant fee simple subdivision). To support the needs of this neighbourhood, the PPC provides for a neighbourhood centre (B6Z) to help meet daily convenience needs in a way that will respect the wider

centres hierarchy and support existing centres. Opportunity for a new primary school has also been identified, although the Ministry of Education (“MoE”) would follow a separate process to make any decisions in that regard and it is not proposed to zone or ‘lock in’ a future school through the PPC.

- c. Provision has also been made for recreation reserves, the protection of an existing area of notable bush, the needs of New Zealand Transport Agency (“NZTA”), and creation of a logical transport network that satisfies the Council’s strategic network imperatives for arterial and collector roads.
- d. The PPC has been based on the provision of affordable housing and a variety of housing typologies and to this end the Council’s existing MDRZ development controls have been reviewed and augmented so as to maximise the efficiency at which high-quality housing can be provided. This includes provision for an ‘acceptable solution’ approach to duplex housing. This model is considered to be industry-leading and is particularly supported.
- e. Changes proposed to the ‘standard’ MDRZ zone rules also seek to require higher standard of urban design quality, and well-laid out subdivisions that are walkable and safe. This includes attempts to minimise cul-de-sac roads and rear lots, and govern the maximum dimensions of urban blocks so as to not undermine pedestrian convenience and legibility.

11.2 On the basis of the above, the PPC is considered to result in few adverse urban design effects, many positive urban design effects, and is an effective and efficient means to enable the land’s development. The PPC could therefore be accepted on urban design grounds.

FIGURE 5.1 - ROTOKAURI STRUCTURE PLAN. SOURCE: HAMILTON CITY COUNCIL

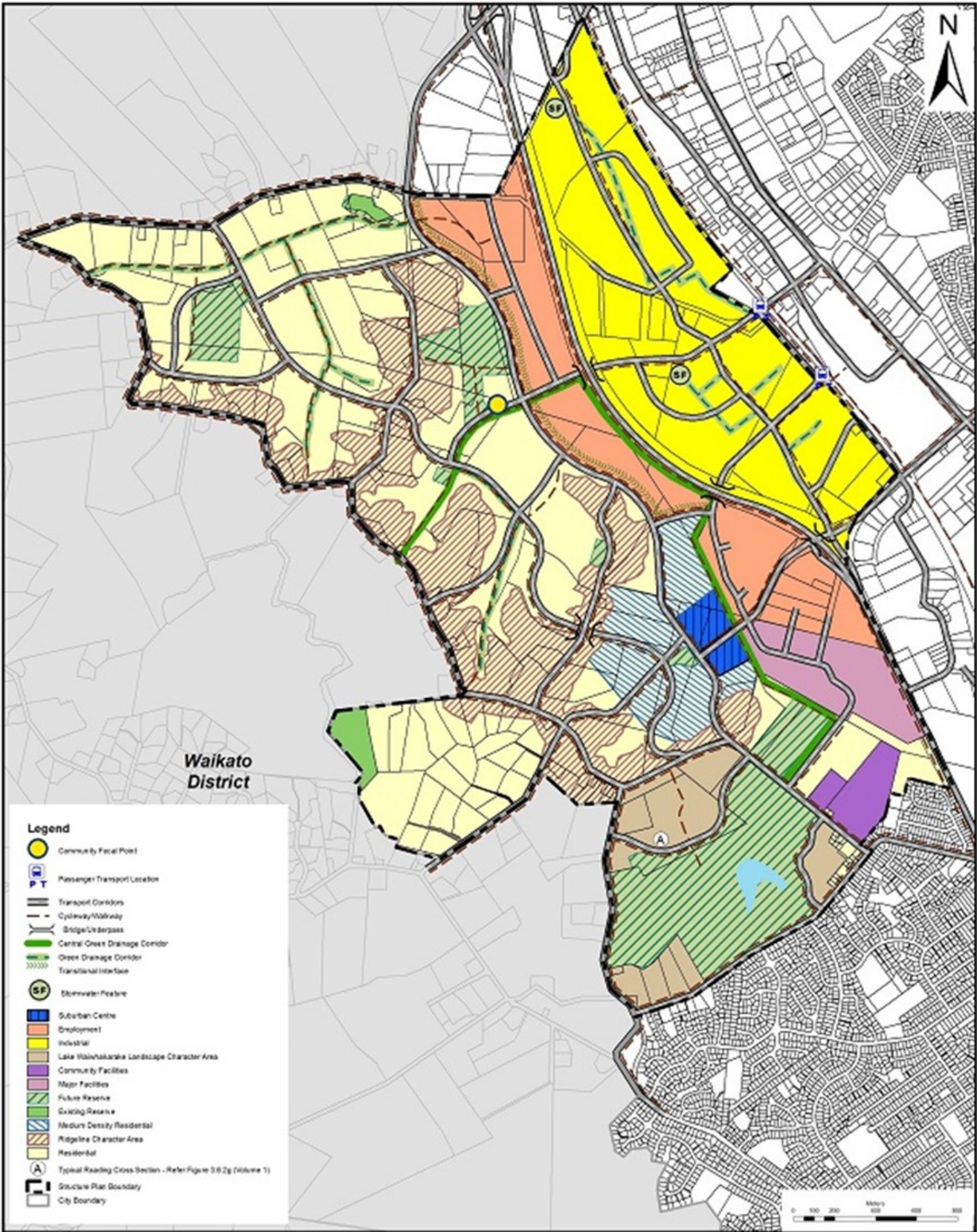


FIGURE 5.2 - RIDGELINE PROTECTION CONCEPT. SOURCE: HAMILTON CITY COUNCIL



FIGURE 5.3 - ROTOKAURI NORTH STORMWATER CONCEPT MAP SOURCE: HAMILTON CITY COUNCIL
Stormwater storage and conveyance concept identified in blue

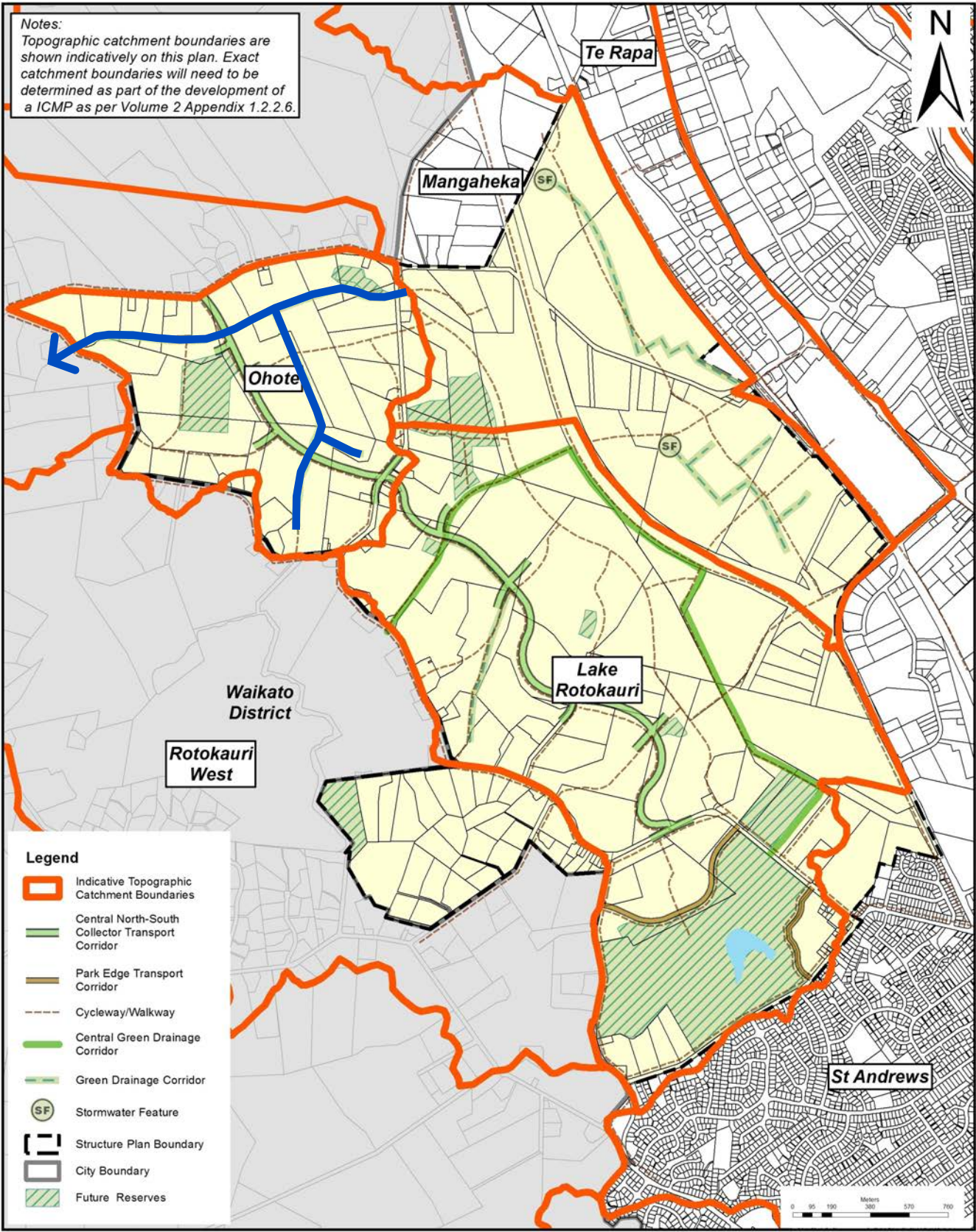


FIGURE 5.4 - ROTOKAURI STRUCTURE PLAN ROAD NETWORK. SOURCE: HAMILTON CITY COUNCIL

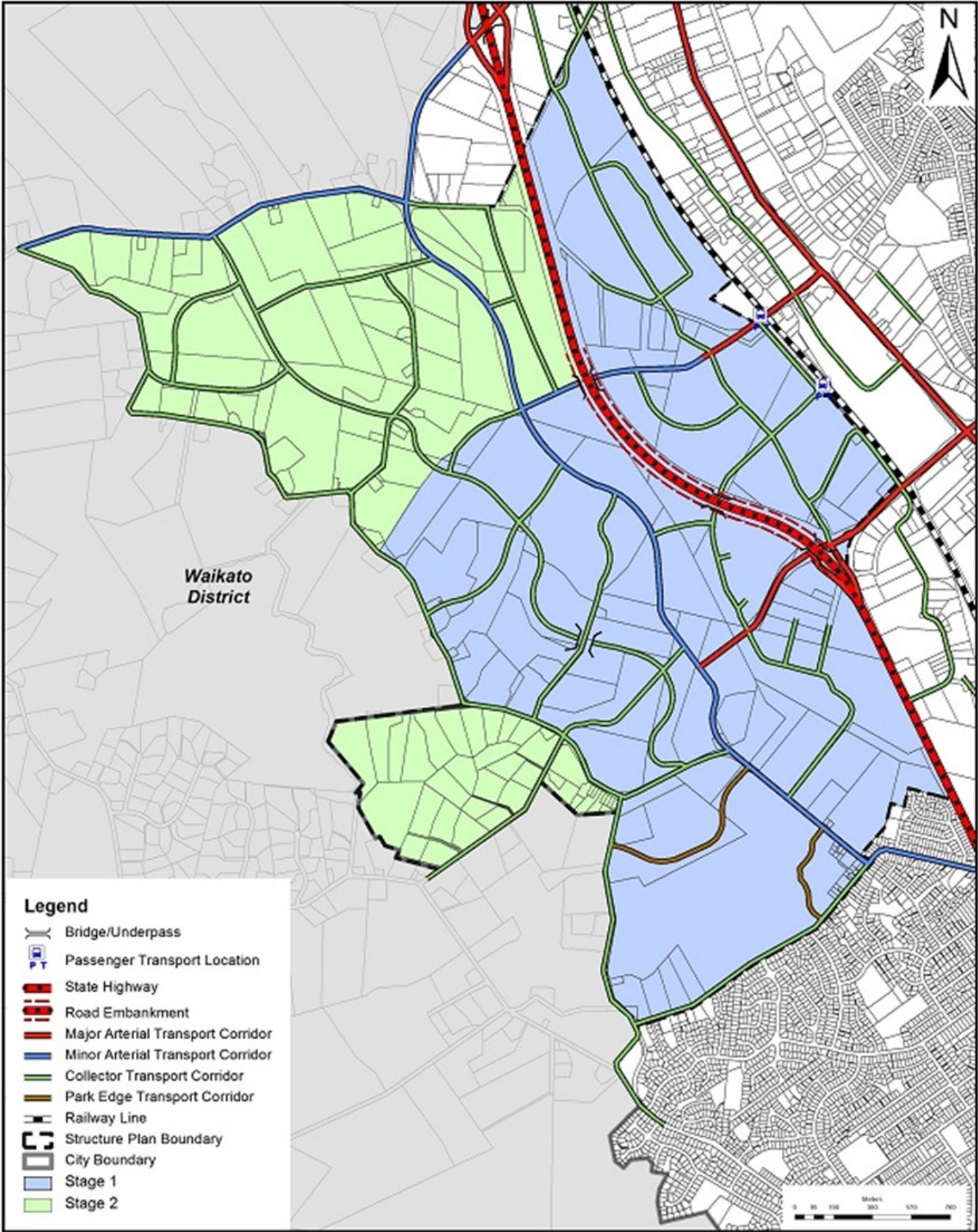


FIGURE 6.1 - CONCEPT 1 MASTER PLAN, NO SCALE. SOURCE: DESIGNURBAN PTY LTD



FIGURE 6.2 - CONCEPT 1 MASTER PLAN - STORM WATER MANAGEMENT CONCEPT, NO SCALE.
SOURCE: TOP: ROTOKAURI ICMP (COUNICL); BOTTOM: CKL LTD

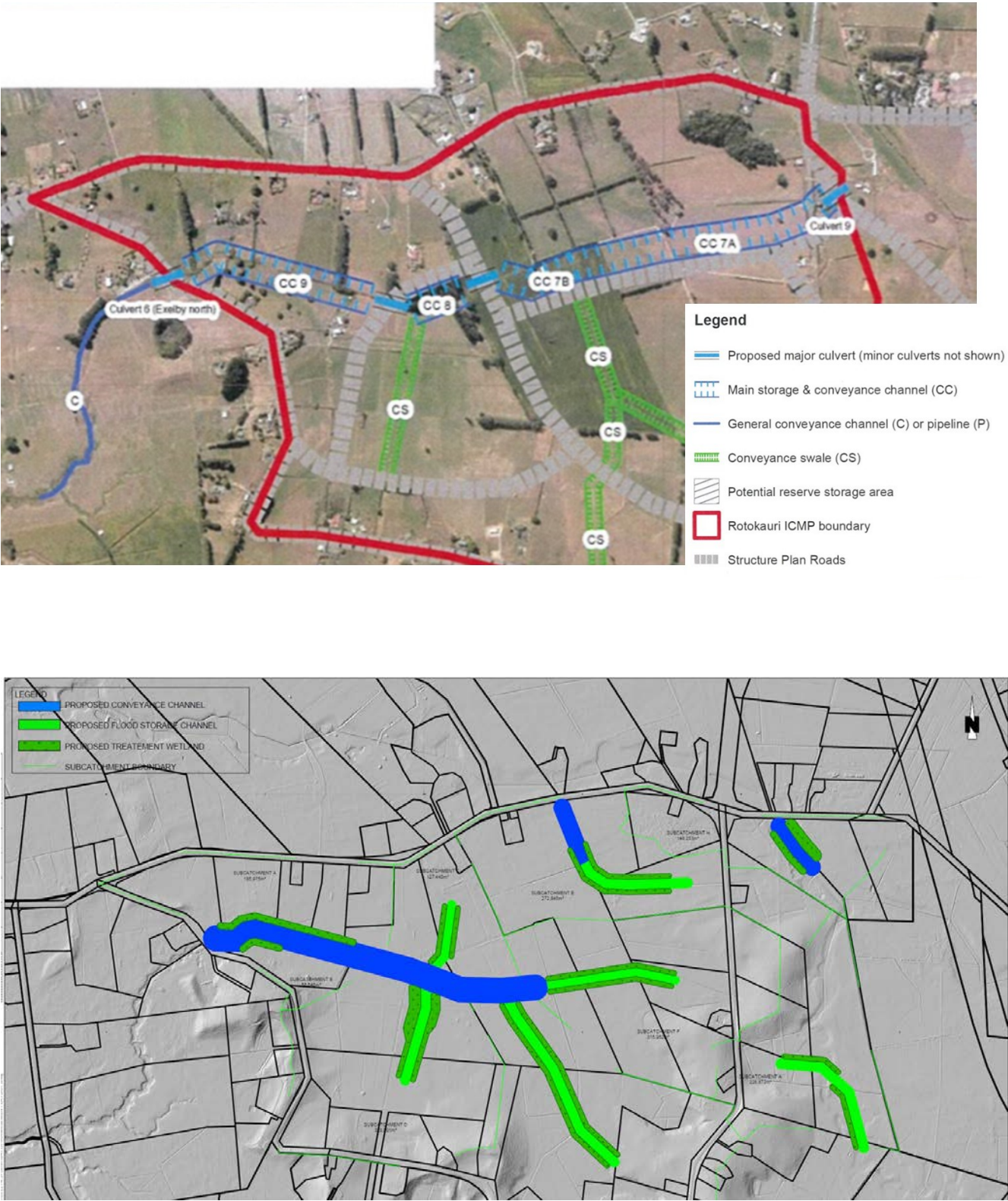


FIGURE 6.3 - DESIGN WORKSHOP TESTS OF RIDGELINE PROTECTION IN PRACTICE

Example of ridgeline protection design (LEFT), from Hamilton City Council; and example from Concept 1 Master Plan (RIGHT) showing incorporation of the concept (the green strip denotes a protected ridgeline area)



Overlay of the Structure Plan ridgeline protection area on the Concept 1 Master Plan and key cross section reference



Cross section showing likelihood that placement of houses will block views of the hill and ridge.

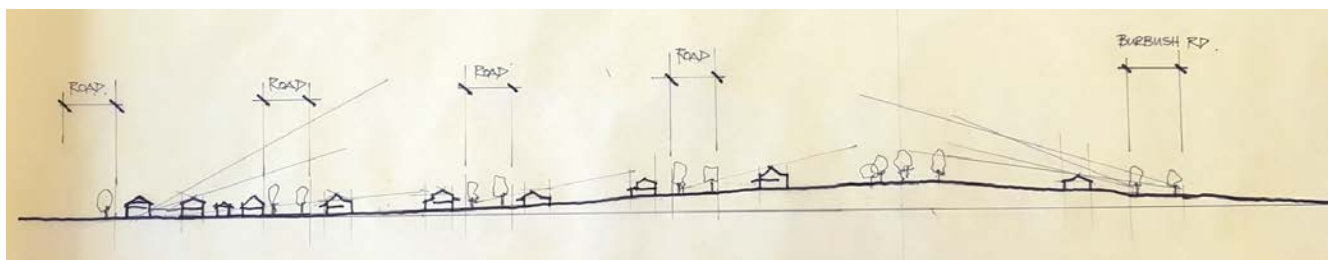


FIGURE 6.5 - CONCEPT 3 MASTER PLAN, NO SCALE. SOURCE: DESIGNURBAN PTY LTD.

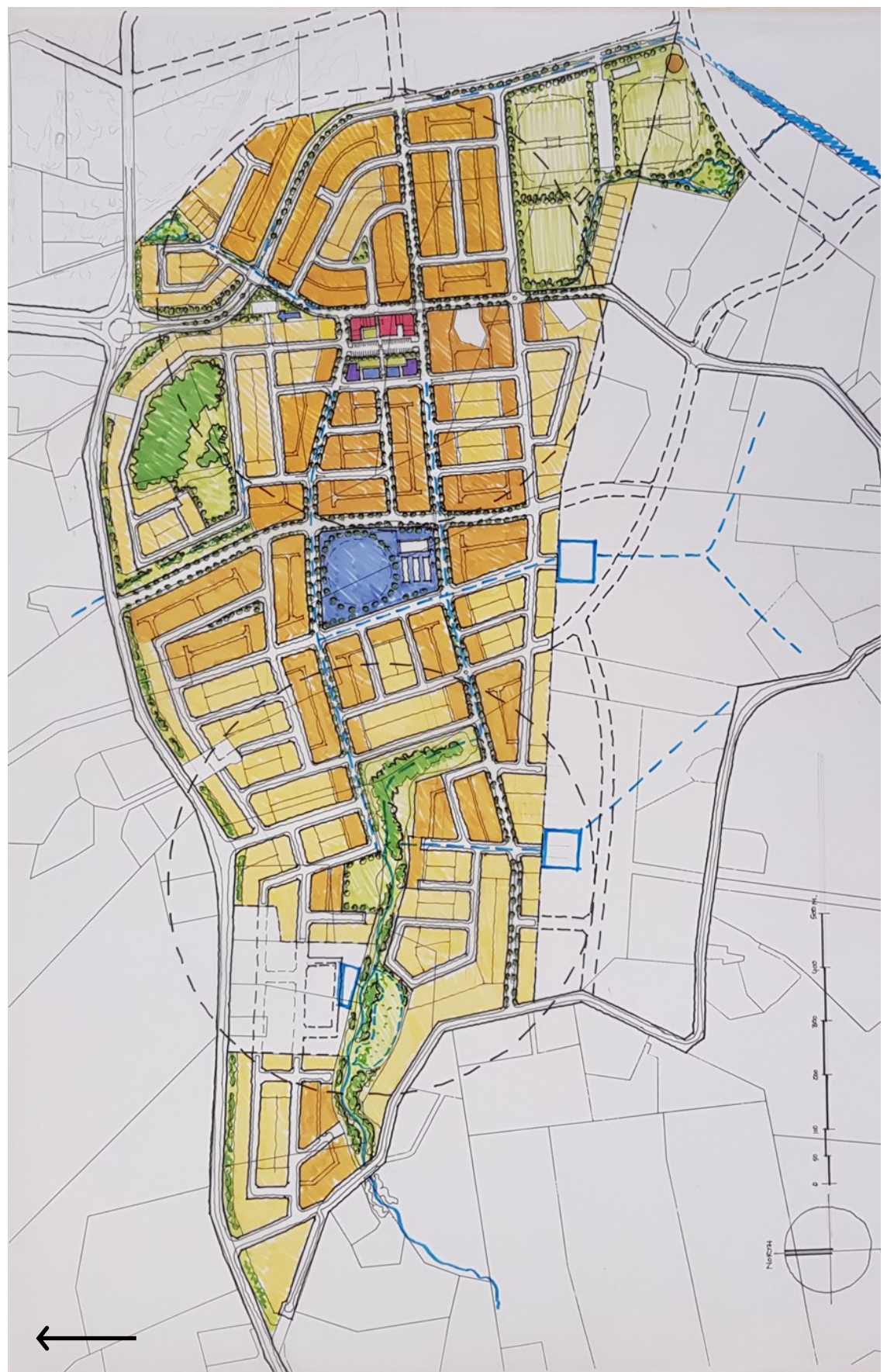


FIGURE 6.6 - CONCEPT 3 MASTER PLAN STORMWATER MANAGEMENT CONCEPT, NO SCALE.
SOURCE: MCKENZIE & CO. LTD.



FIGURE 6.7 - EXAMPLES OF LOT AND LAYOUT TESTS UNDERTAKEN IN CONJUNCTION WITH THE CONCEPT 3 MASTER PLAN

Examples testing rule compliance and unit layout options and configurations, and potential urban design issues / effects.

Specific example showing impact of HiRB on narrow lots

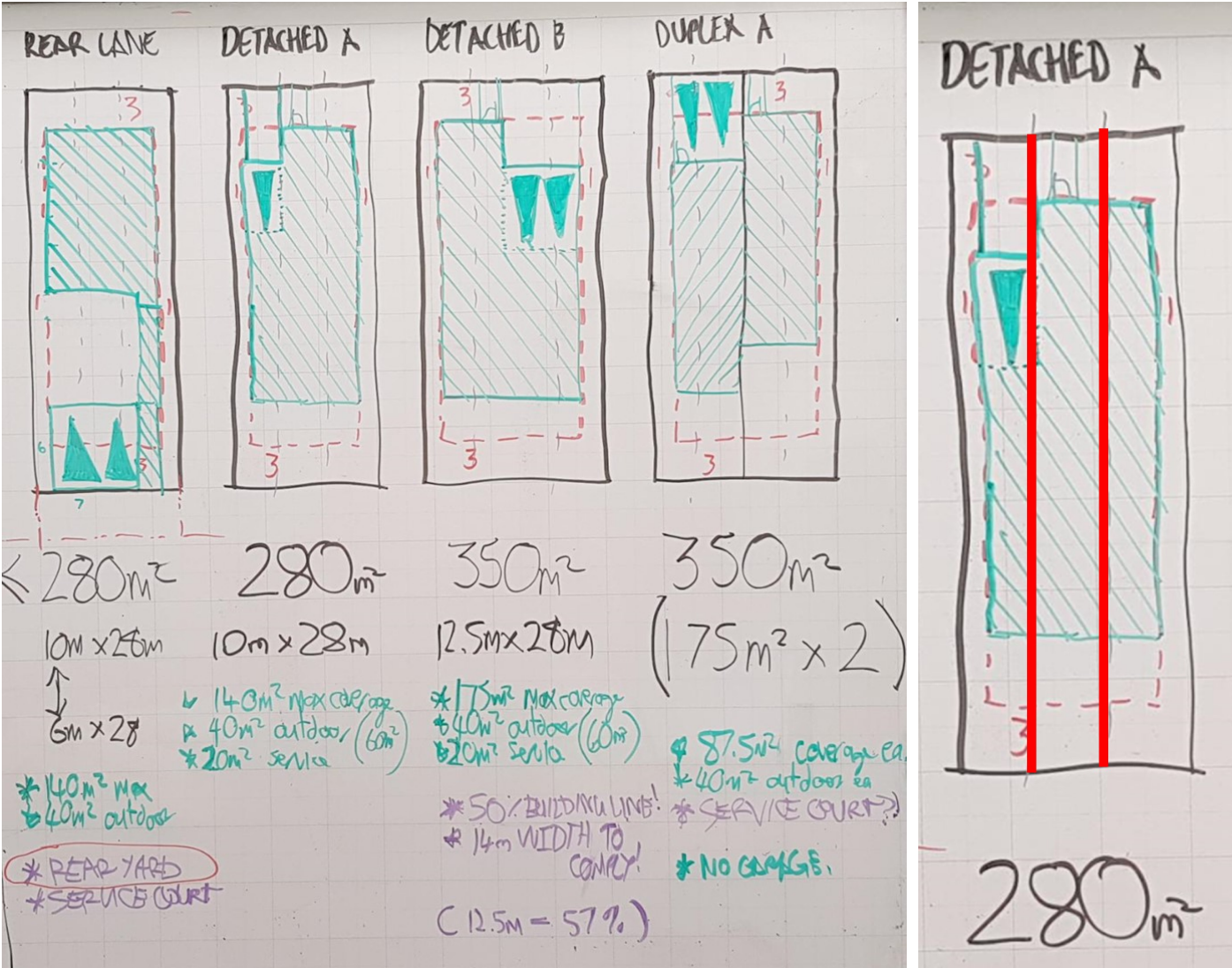


FIGURE 6.8 - EXAMPLE OF SUCCESSFUL “OFFSET” AFFORDABLE DUPLEX DEVELOPED BY MADE IN AURANGA, DRURY.



FIGURE 6.9 - EXAMPLE OF SUCCESSFUL REAR LANE-BASED DEVELOPMENT AND ITS PEDESTRIAN / CYCLE ADVANTAGES ALONG STREETS

Example of medium density residential housing where the lot frontage width is not able to accommodate vehicle access without significantly undermining pedestrian and cycle amenity along streets (Arrowsmith Drive, Flat Bush, Auckland).



Example of medium density residential housing where provision of rear lanes to manage vehicle access provides high quality, pedestrian and cycle-friendly streets (Hakawai Avenue, Takanini, Auckland).



FIGURE 6.10 - CONCEPT 4 MASTER PLAN, NO SCALE. SOURCE: DESIGNURBAN PTY LTD.

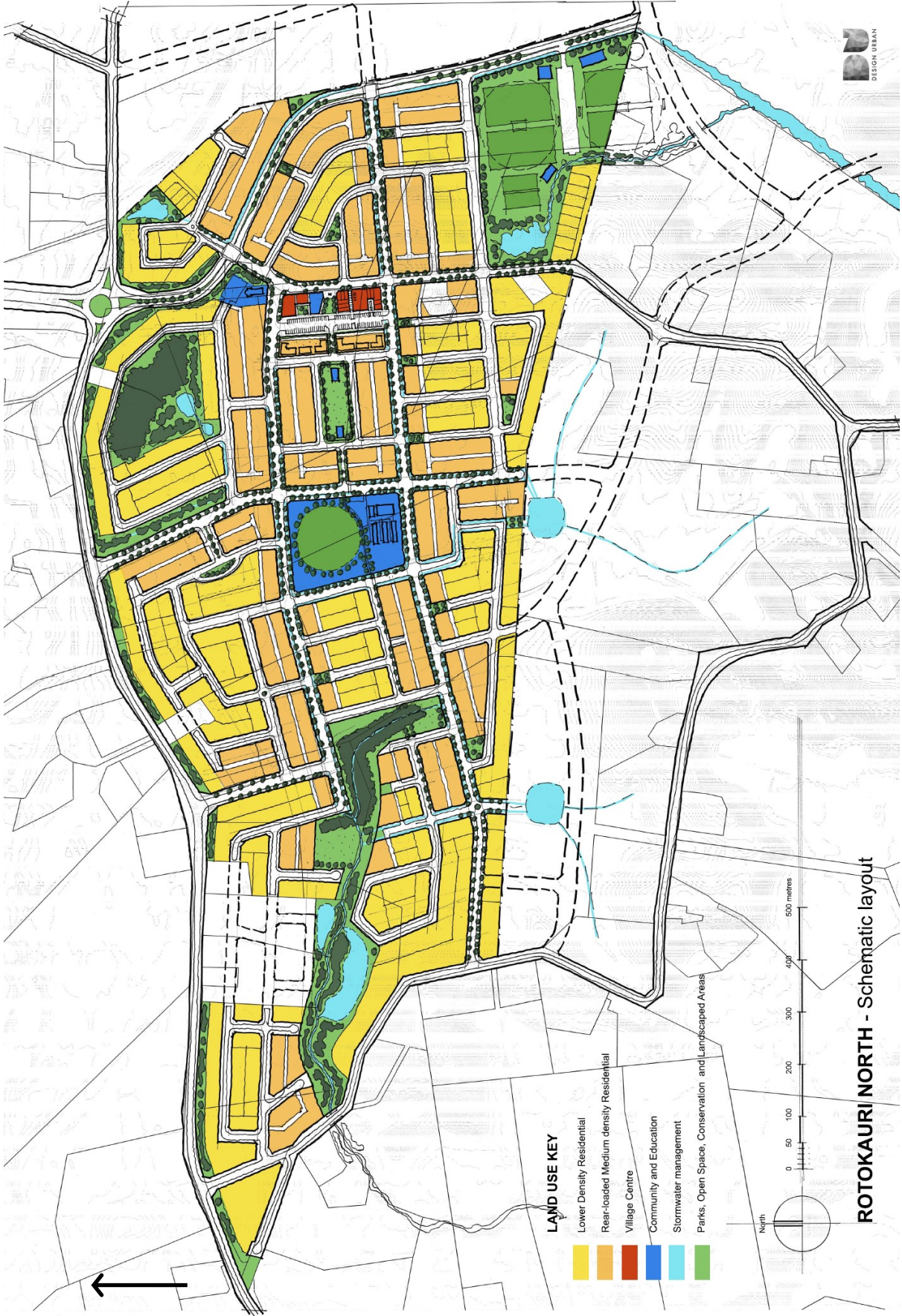


FIGURE 6.11 - CONCEPT 5 MASTER PLAN, NO SCALE. SOURCE: DESIGNURBAN PTY LTD.

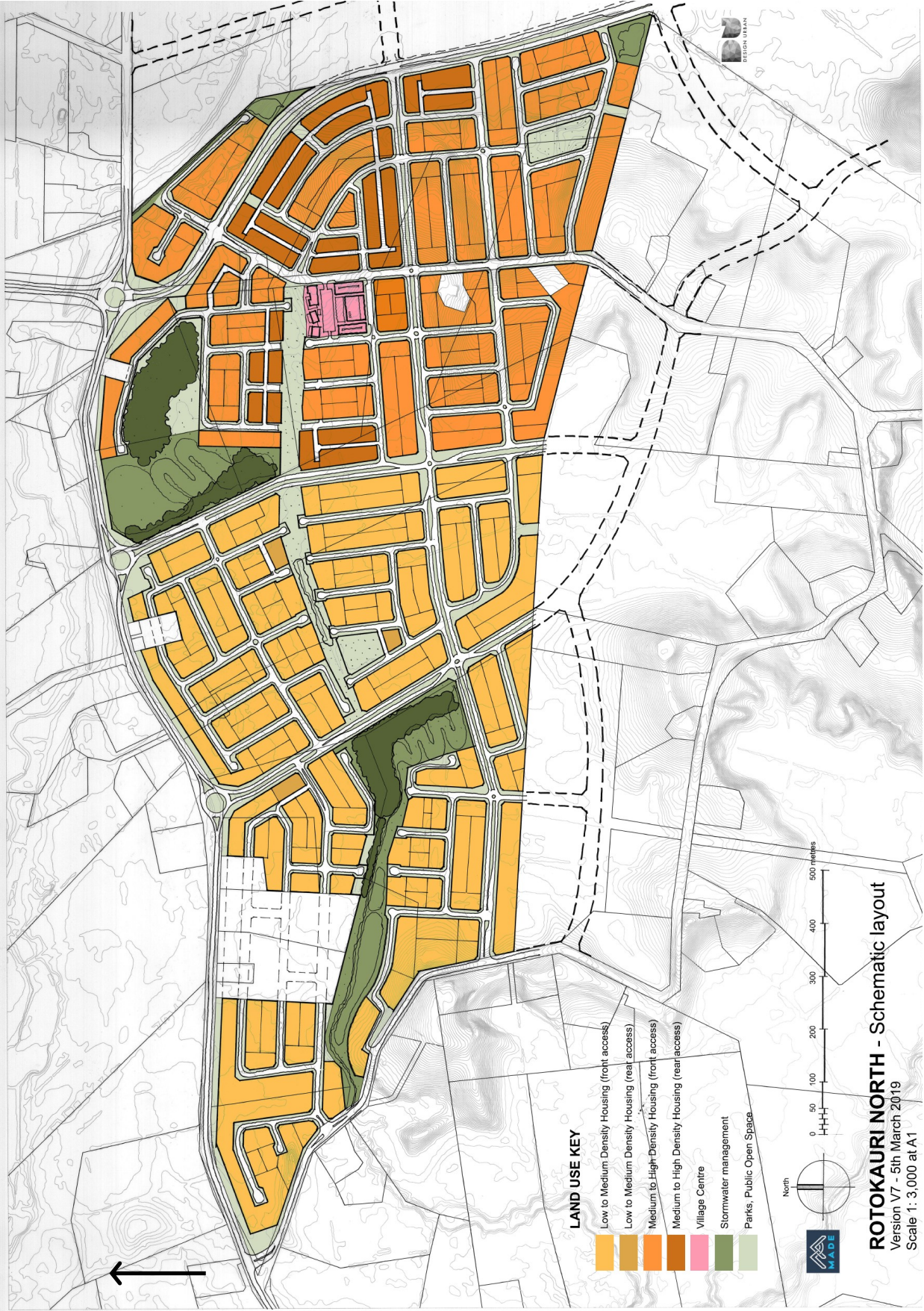


FIGURE 6.12 - CONCEPT 6 MASTER PLAN, NO SCALE. SOURCE: DESIGNURBAN PTY LTD.

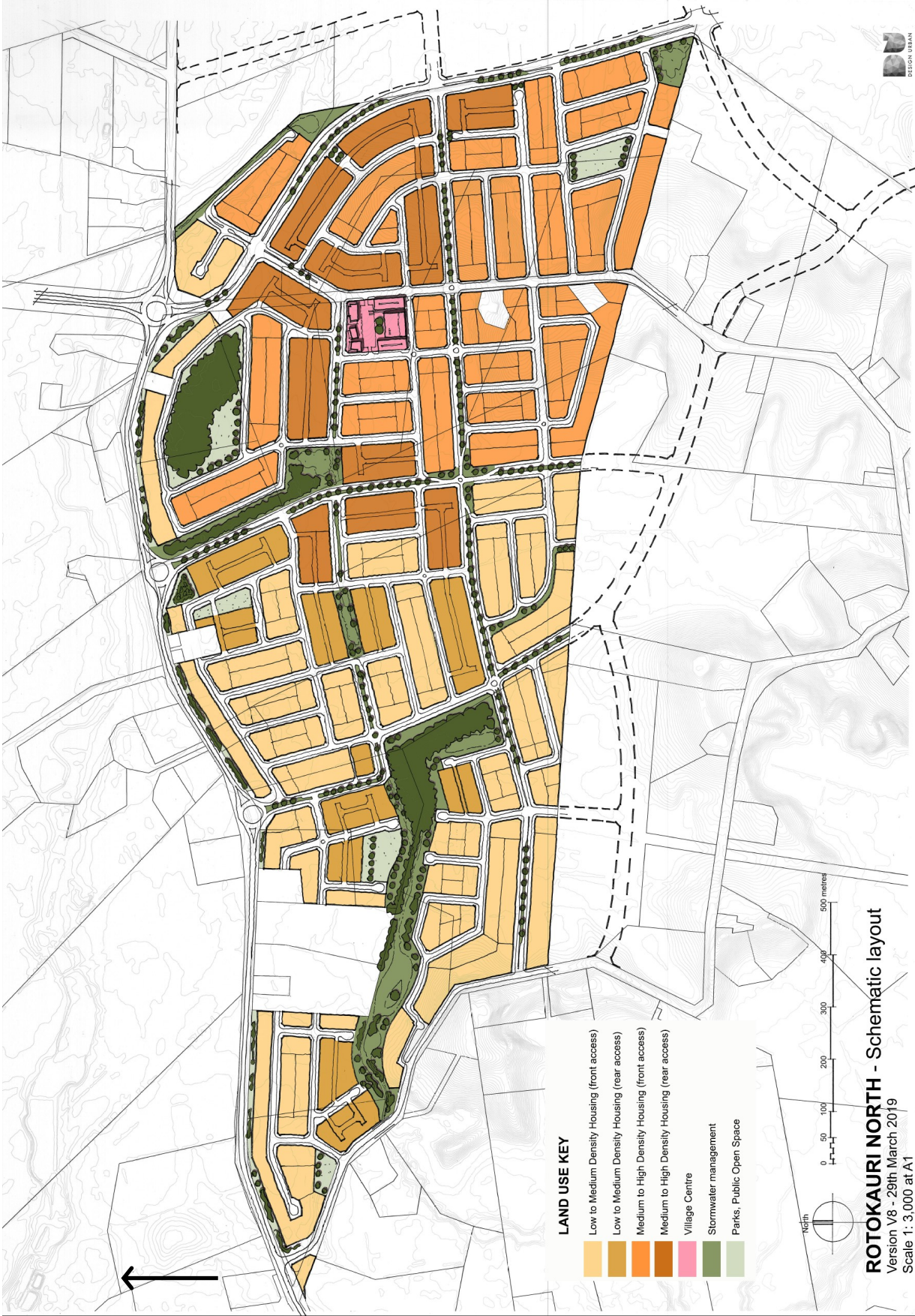


FIGURE 6.13 - CONCEPT 6 MASTER PLAN, INDICATIVE SCHOOL AND DISTRICT PLAYING FIELDS, NO SCALE.

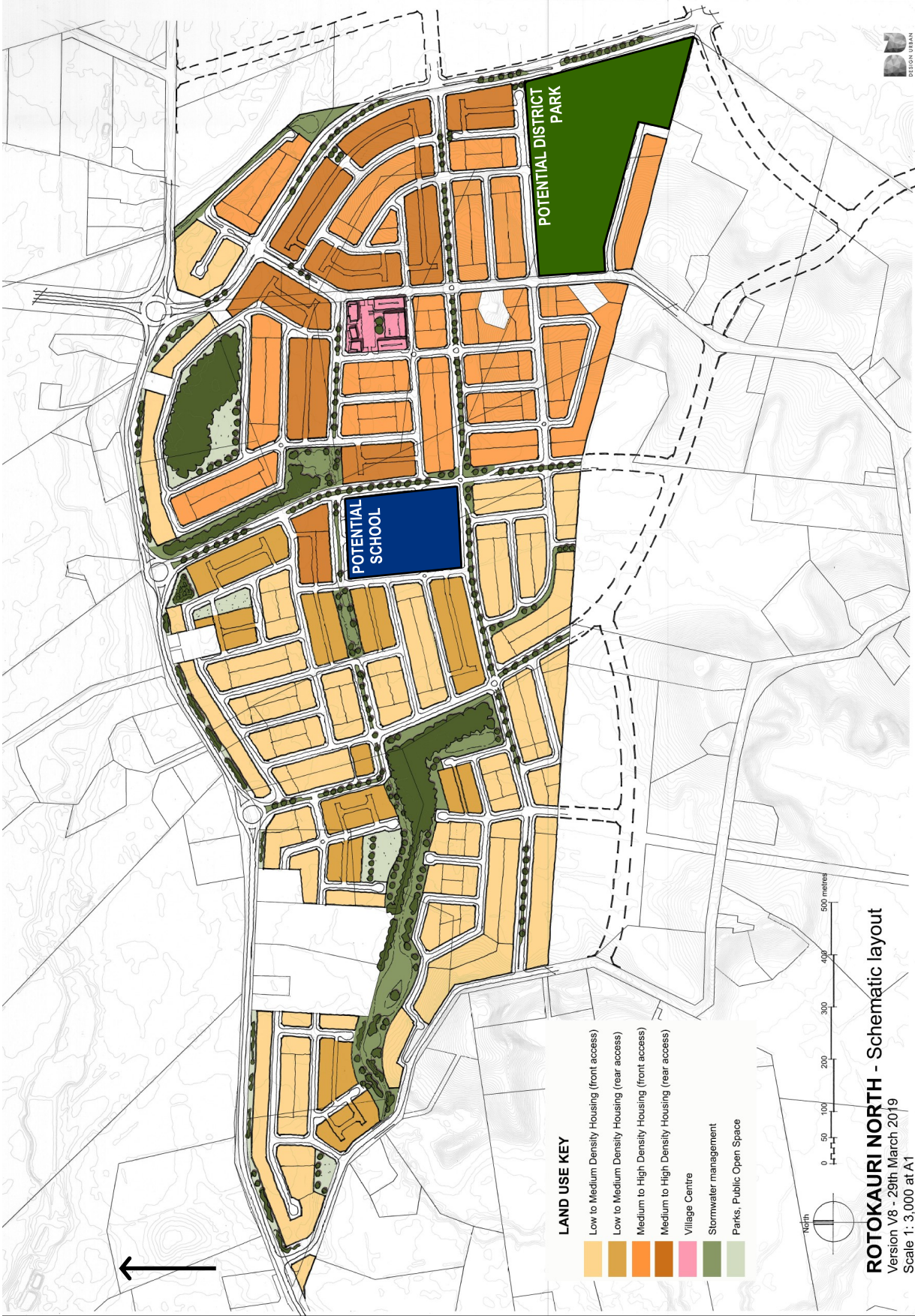


FIGURE 7.1 - PROPOSED STRUCTURE PLAN FOR ROTOKAURI NORTH

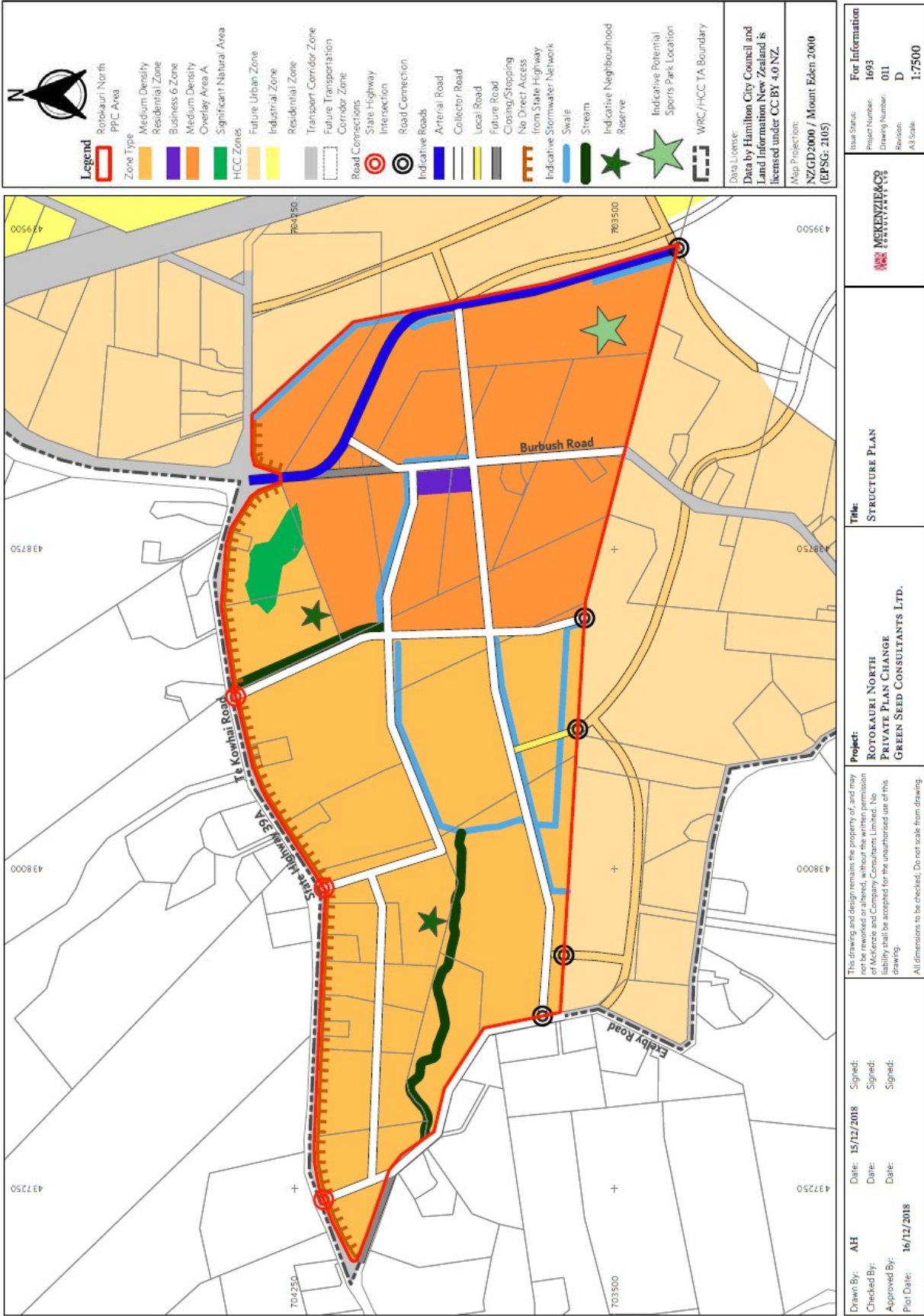


FIGURE 7.2 - IDENTIFICATION OF THIRD-PARTY SITES PROPOSED TO BE RE-ZONED

