

# WHISKEY CREEK

## Urban Design and Landscape Report



local | McIndoe Urban



Prepared for: **Flygers Line Investment Group**

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# 1. Introduction



Figure 1. Site location

Whiskey Creek Private Plan Change (formerly Flygers Line) is acknowledged in the council's Housing and Future Development Plan (2018/21) as a future growth area subject to "zoning adjustments". This Urban Design and Landscape Report presents a summary of the design work undertaken to support the plan change and structure plan.

The structure plan and plan change area (the Site) is currently flat farmland, located north of the Mangaone stream. The alluvial soils of the Whiskey Creek catchment are subject to regular flooding and this limits the land's capacity for housing. However, parts of the Site to the south east sit outside of the "floodway" as identified by Horizons Regional Council. This south east quadrant - adjacent to Meadowbrook Drive and Rangitikei Line - comprises the site of the proposed development.

A new urban edge to the city will be formed at the Site fulfilling important gateway functions on approach along Rangitikei Line. The presentation of new homes fronting onto a revitalised waterway with diversified ecology will establish a clear and attractive identity for the new community.

# 2. Context

## 2.1 Location

The Site is positioned at the intersection of Rangitikei Line and Flyers Line, adjacent to the city's current urban edge along Meadowbrook Drive and Benmore Avenue. Located some 3km from Te Marae O Hine / The Square, the Site is notably closer to the CBD than other designated growth areas. Benefits associated with this close proximity include the potential for greater take-up of active movement modes and increased accessibility of amenities, while consolidation of the city's urban footprint up to the northern floodplain resolves the city's edge along Rangitikei Line.

SH3 (Rangitikei Line) provides excellent north-south connectivity into the city and out towards the future NZTA ring road that will service the planned Regional Freight Hub. Flyers Line provides an east-west link that accesses the airport and the future growth area of Kākātangiata.

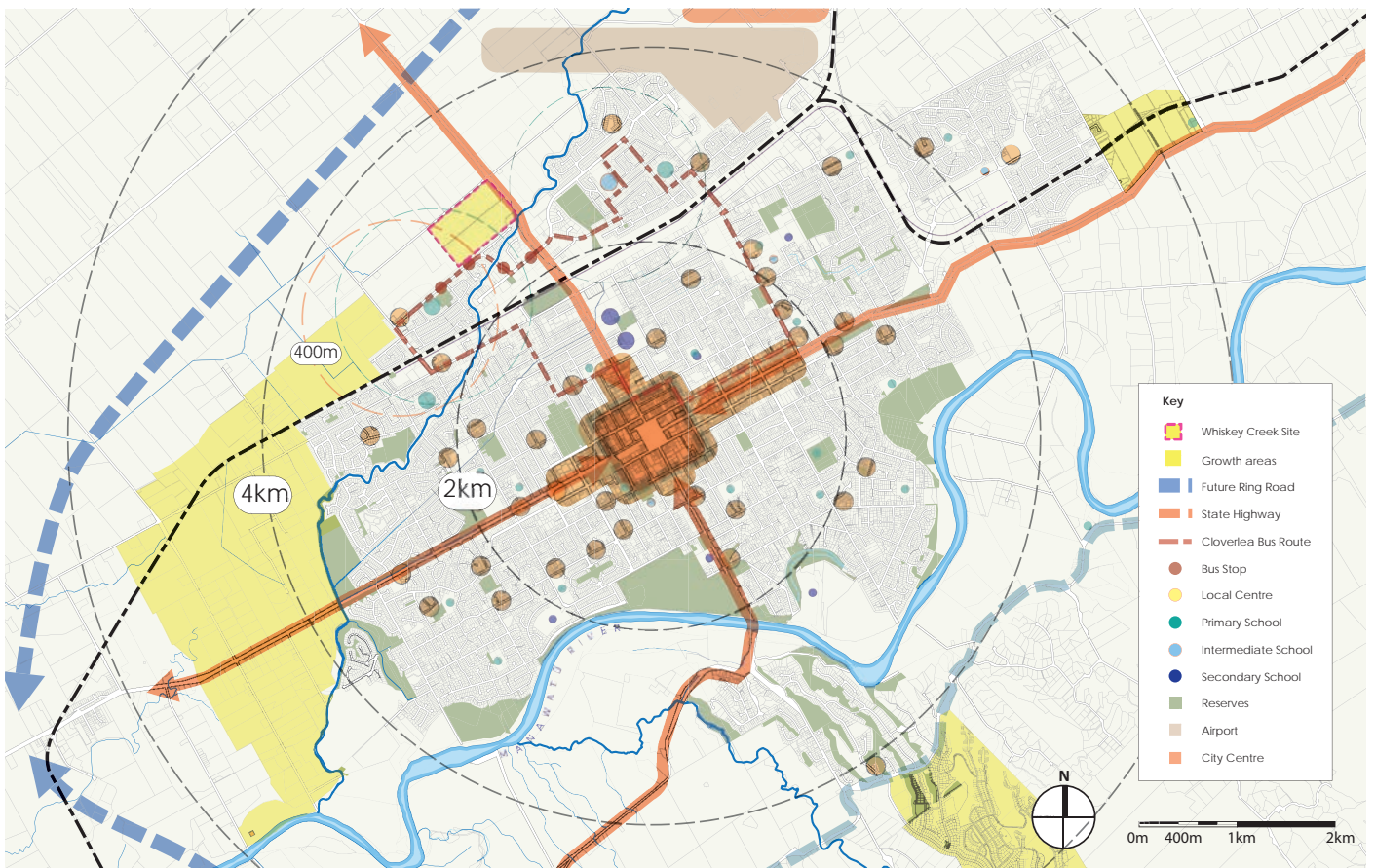


Figure 2. City-Wide Context



## 2.2 Cultural significance

The site encompasses a 40ha area of the wider Whiskey Creek floodplain, adjacent to the Mangaone Stream corridor. Figure 3 below shows there are no significant Mana Whenua sites or important structures on the Site.

Swamp forest historically covered most of the alluvial plains across the Manawatū. Dominant tree species in these forests were kahikatea (*Dacrycarpus dacrydioides*) and pukatea (*Laurelia novae-zelandiae*), with swamp maire (*Syzygium maire*). These forests were biodiversity hotspots, offering year-round resources for nearby kāinga in the form of eels, other fish and birds. Rongoā and raranga plants were found across the extensive lowland forests. Around 98% of this floodplain ecosystem was cleared and drained and the main part of the catchment's mid and lower reaches has less than 1% indigenous vegetation left. Notable trees are limited to the established urban areas and are mostly exotics.

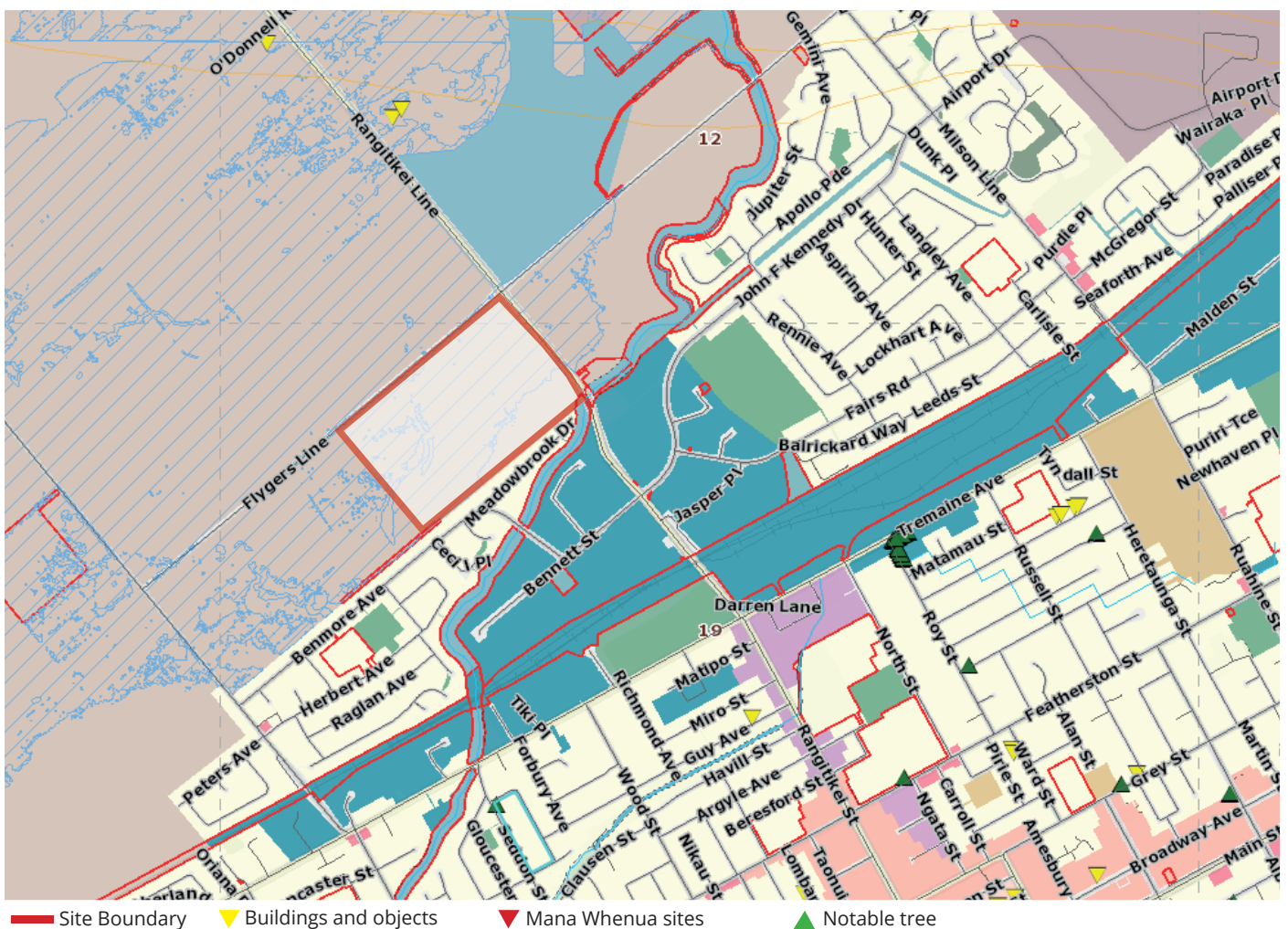


Figure 3. Sites of Cultural Significance (PNCC Geomaps, not to scale)





Scorched forest farm, No. 1 Line, 1896

The Square in 1878, with the original land cover of lowland forest in the background

Kahikatea swamp forest

**Figure 4. Historic photographs**

### CULTURAL IMPACT ASSESSMENT

A Cultural Impact Assessment has been prepared by Rangitāne o Manawatū. This was undertaken using a Whānau Ora Framework. A summary of key value outcomes is presented below:

1. Rangitāne o Manawatū exercise rangatiratanga by collaborating in planning for ngā Atua Māori.
2. Rangitāne contribute to the understanding of the cultural landscape, including identifying and providing for their values and relationships with whenua, wai, taonga, and wāhi tapu.
3. Rangitāne o Manawatū are aware of their interests in assets held in common and have a clear idea of their opportunities, rights and responsibilities.
4. Whānau are able to actively participate in a sustainable economy.
5. Whānau are able to support their hinengaro, physical wellbeing, and their wairua.
6. Whānau have access to and can safely interact with wai, whenua, taonga, and wāhi tapu.
7. Whānau can afford to buy and rent houses, in safe locations that allow them to fully interact within the community.
8. Te ao Kōrero Māori/Māori language is visible and celebrated in the wider community.
9. Street and place names acknowledge Māori place names, values, significant sites and tupuna (ancestors).

## 2.3 Strategic Growth Context

Palmerston North's population is expanding and the Council anticipates an annual increase of 1.0% over the next ten years followed by more moderate growth of 0.6% to 0.7% per annum. The number of households will increase even faster. Predictions are that the city requires up to 500 new dwellings per year until 2043.

Council's intentions towards housing growth across the city are that for the city as a whole, construction of 9,440 new dwellings is anticipated in the 30 years to 2048. Half of these are expected to be built on greenfield land. Three major growth locations are being pursued by Council: Whakaronga, Kākātangiata (formerly City West and Anders Road / Racecourse), and Aokautere. Council projections at Aokautere are for some 1,200 additional dwellings beyond those currently zoned, 500 dwellings at Whakaronga and 5,000+ at Kākātangiata. In this context, Whiskey Creek is relatively small (157 dwellings) but contributes to the picture of growth around the city's edge.

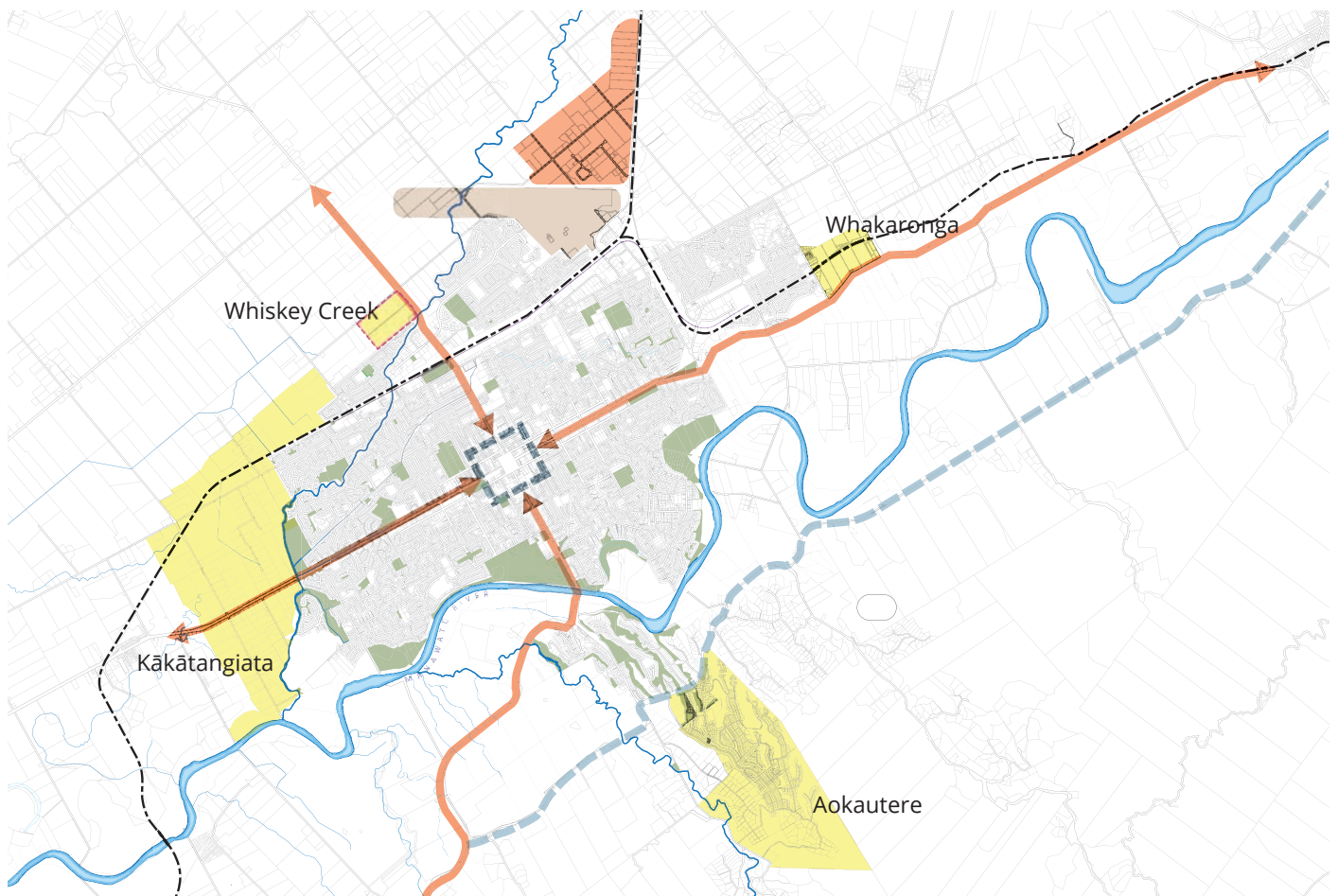


Figure 5. Future Growth Areas



## 2.4 Urban Structure

The wider urban structure around the Site is influenced by the nature of the predominant land uses, namely residential and industrial areas meeting farmed rural landscapes. Residential areas display a relatively fine grain street and block pattern though the north edge of Benmore Avenue and Meadowbrook Drive presents a long and unbroken suburban 'barrier' to the rural landscape, exacerbated by a back fence condition as shown on Figure 6 below. Extending a fine grain walkable block structure across the Site is important. Industrial areas separate residential neighbourhoods from Rangitikei Line and the quality of access for residents is reduced as a result. Achieving access directly off Rangitikei Line (albeit left-in, left-out) provides improved connections for the Site.

Mangaone Stream is an important feature that intersects with the south eastern corner of the Site and providing quality recreational links is an important outcome.

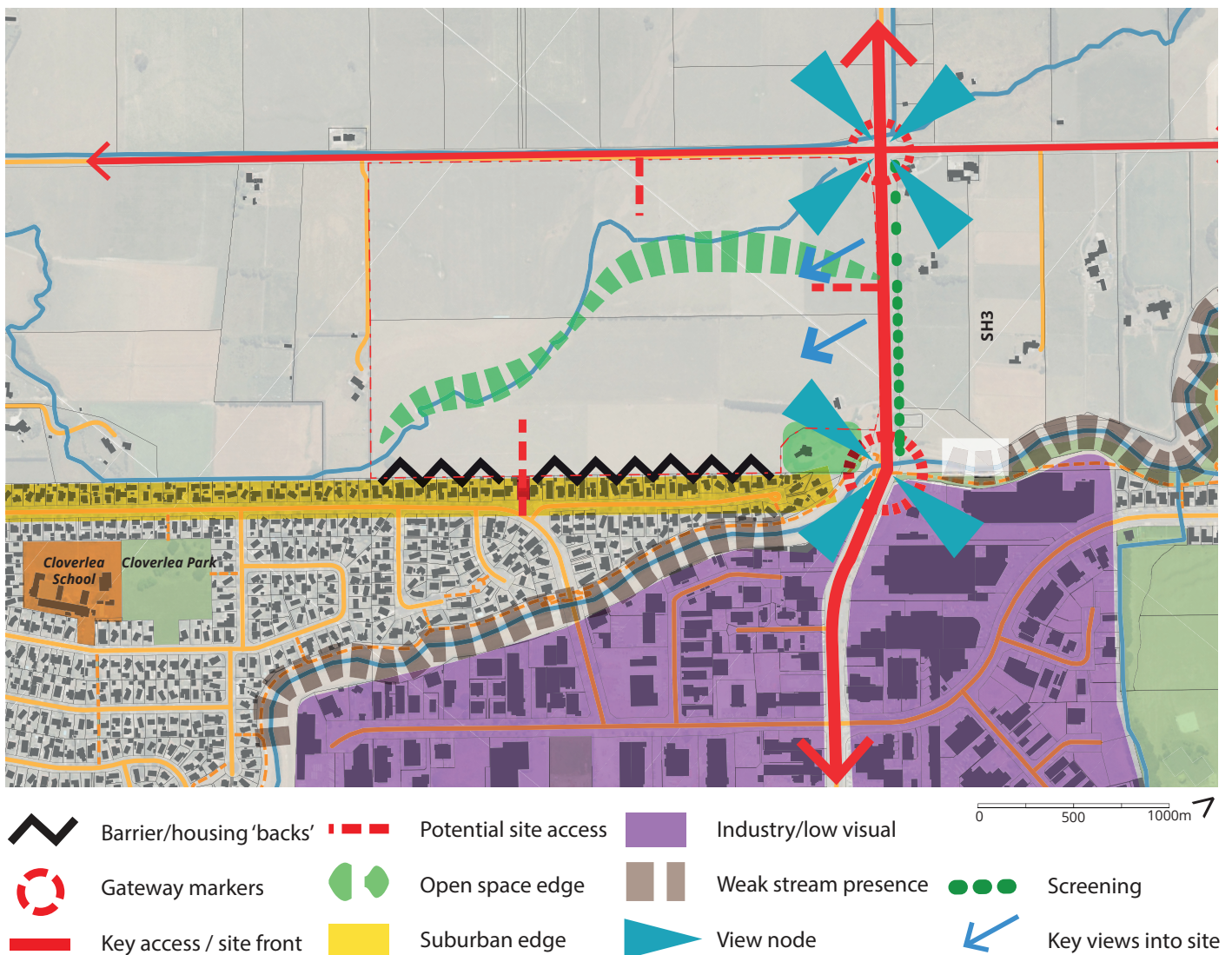


Figure 6. Site Context, 1:10,000 @A4

The SH3 bridge over Mangaone Stream emphasises the northern gateway to the city and future development on the Site must enhance the visual quality of this area.

## ACCESS AND MOVEMENT

The Site is provided with excellent strategic connectivity. A direct link to SH3 provides access to the proposed NZTA ring road that will service the planned Regional Freight Hub. East-west movement is provided by Flyers Line. This connects to the airport via Milson Line and Airport Drive. Western links via Benmore Ave and Flyers Line connect via Gillespies Line to Cloverlea and the planned Kākātangiata growth area.

Local site connections are provided via the proposed Road 1 that connects with Benmore Ave. This is described further in the Transport Impact Assessment. Generally, local movement is affected by the natural barrier of Mangaone Stream. This has caused numerous cul-de-sacs and a single connection over the stream via Benmore Ave. The stream corridor itself provides city-wide walking and cycling connections that are proposed to link into the Site.

Public transport is readily available with the No. 105 Cloverlea via Wood Street bus route. This runs along Benmore Avenue, passing the intersection with the proposed Road 1. Route No. 105 links the Site to The Square and to the hospital via Ruahine Street.

## 2.5 Green & Blue Infrastructure

Much of the ecological significance in the Manawatū relates to its rivers and waterways, as over 98% of the original land cover of lowland forests has been cleared since the 19th century. The ecology and green infrastructure of the northern gateway therefore strongly relates to the blue infrastructure. Open spaces along waterways are important to establish future green corridors, as highlighted in the City Development Strategy

## FLOOD RISK

The existing edge of the residential area at Cloverlea has largely been determined by the land that is flood prone as a result of the Flyers Line Floodway and the wider Manawatū Drainage Scheme.



As previously noted, the area designated for development sits higher than the surrounding floodplain and is therefore not flood prone. Investigations show that this area can be extended by using earthworks to create a secure development platform. This can be achieved without adversely affecting the operation of the drainage scheme. Changes in ground level of less than 1m would increase the developable area while maintaining the flood ponding function. The floodway is required about once every ten years and involves water crossing Rangitikei Line from the north east. This aspect of the proposal has been carefully studied. Modeling has confirmed that - with specific design - the flood hydrology can be maintained.

### WHISKEY CREEK

Whiskey Creek once played an important role as part of the Manawatū catchment. Despite being largely modified and confined to farm drains and trenches, the creek corridor preserves important habitat. Most water has been diverted into trenches along Flyers Line. As a result, this section of creek is currently an ephemeral waterway, which crosses the Site in a northeast-southwest direction. The stream bed is a significant morphological feature, mostly surrounded by intensive farmland and lined with exotic vegetation. There's potential to partially restore the creek as part of the proposed green corridor along the development edge.

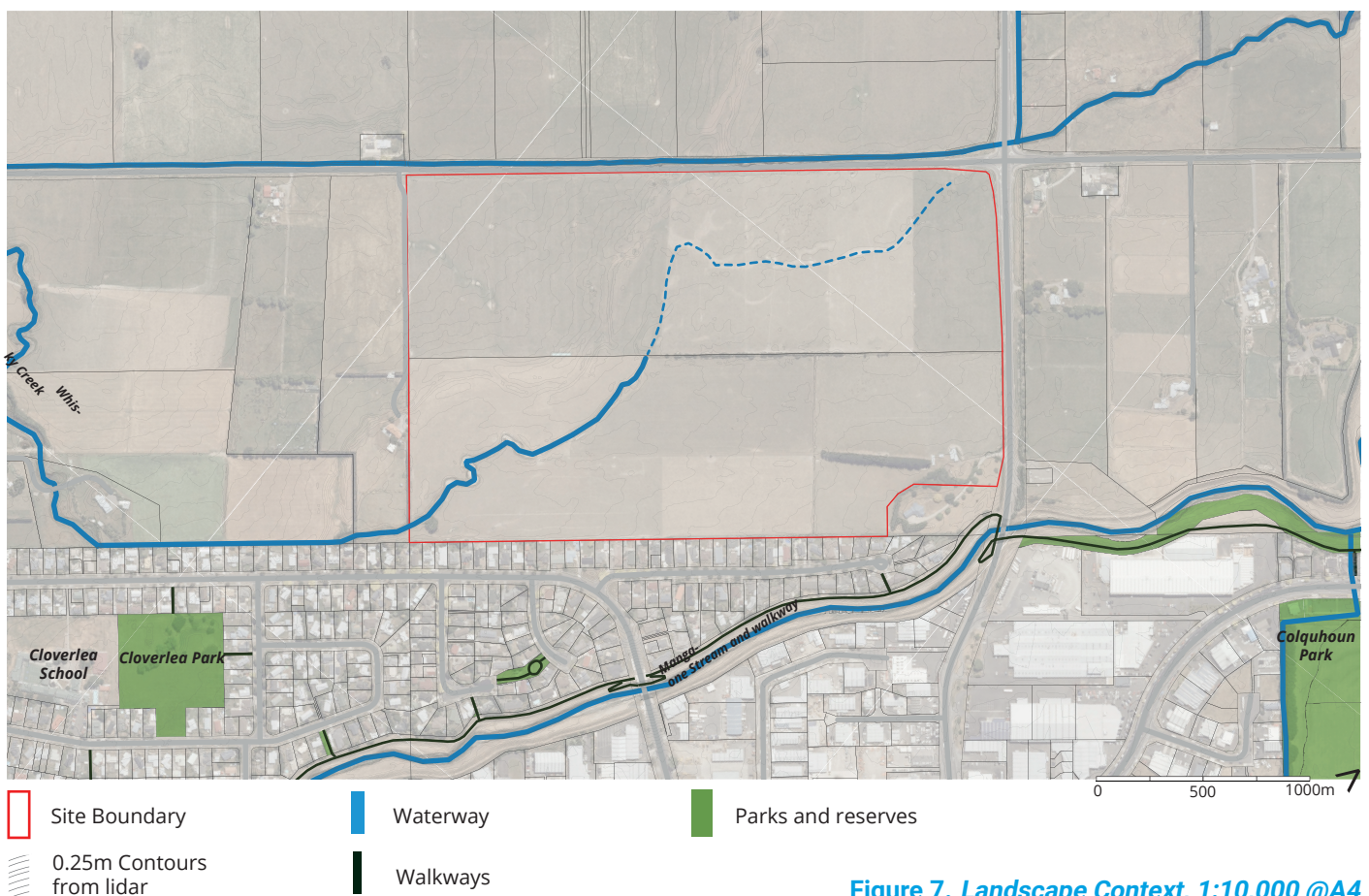


Figure 7. Landscape Context, 1:10,000 @A4

## OPEN SPACE NETWORK

The map on the previous page shows local parks and reserves, i.e. areas zoned for recreational use in the District Plan. [Cloverlea Park](#) is easily accessible from via Benmore Avenue. It contains a playground and an area for informal ball games.

[Colquhoun Park](#) is accessible from the project site along the Mangaone Stream Corridor. This reserve is dedicated almost entirely to active recreation. It was recently upgraded for the 2020 Junior Men's Softball World Championship. The park caters for summer and winter sports including softball, tennis, basketball, rugby and football. The diverse facilities make Colquhoun Park one of the busiest in Palmerston North. A pavilion, public toilets and a play area are also located here.

[Waltham park](#) is a small neighbourhood park connecting two cul-de-sacs. It has a modest playground.

The rural land immediately north of the site is flat, intensively farmed land and offers expansive views towards the north. Mt Ruapehu is visible on clear days. 500m north along SH3, Orlando Country Golf Course forms an isolated pocket within the surrounding farmland. The Lakehouse is a well known venue with its own open space amenity.



Figure 8. Aerial image of Colquhoun Park



## VEGETATION AND ECOLOGY

The study area is in the oceanic climate zone (Cfb, Köppen-Geiger) characterised by around 980mm annual rainfall and high fertility alluvial soils. The original land cover of lowland kahikatea-pukatea forest has been cleared and the arable land is currently used for crop production. The once extensive wetland system related to Whiskey Creek and Mangaone Stream has disappeared, with fragments surviving in trenches and confined to a few low lying areas. The last notable natural feature of the site is the ephemeral bed of Whiskey Creek, where remnant sedge specimens are still present.

The agricultural use of the surrounding area means large shelter belts of predominantly exotic species has been established. These shelter belts typically follow property boundaries including those at the interface between rural and residential parcels. Typical species include pines (most frequently *Pinus radiata*), macrocarpa (*Cupressus macrocarpa*), Casuarina, Eucalyptus and poplar (*Populus*). Internal boundaries and road edges are often lined with large scale shelter belts and privacy planting. This vegetation isolates dwellings visually from the high speed traffic environment. A significant hawthorn hedge is located in the middle of the property, indicating the location of a former boundary.

Many of the residential properties to the south of the site contain a variety of exotic and native vegetation, smaller scale amenity planting is often located around dwellings and driveways. Meadowbrook Drive and Benmore Avenue have significant street trees.



Hawthorne hedge



Exotic shelter belts (poplars show)



Maize stubble after harvest



Remnant sedges along Whiskey Creek

## 2.6 Activities & Amenities

The Site is integrated into the city's wider street structure via Rangitikei Line and, more locally, via Benmore Avenue. These routes afford access to local and city-wide amenities that are generally found to the south of the Site.

### LOCAL SERVICES & AMENITIES

Cloverlea Primary School and Cloverlea Park are located some 700m from the main access point to the Site. As a result, existing educational facilities and open space can be accessed on foot via Benmore Avenue, Bendigo Street and Rosedale Crescent. The nearest local centre is approximately 1.3km away at Herbert Ave, i.e. beyond comfortable walking distance. As a result, the proposed plan change includes new commercial activities (convenience retail) that are positioned with both existing and future residents in mind.

City-wide amenities such as high schools, the CBD and supermarkets are accessible by public transport or by the Benmore Ave connections into Rangitikei Street and the wider city street network. The Mangaone Stream walkway provides quality walking and cycling connections to the south-west. These will eventually connect with planned town and local centres within Kākātangiata.

### INDUSTRIAL AND EMPLOYMENT ACTIVITIES

The area to the south of the site across Mangaone Stream is zoned for industry; part of a wider industrial area to the northeast of the city. This zone provides locally accessible employment opportunities. It also offers some specialised recreational activities (e.g. indoor karting).



Figure 9. Plan Change Area (PNCC)



## MANGAONE STREAM CORRIDOR

The Mangaone Stream is a culturally significant waterway running generally northeast-southwest and emptying into the Manawatū River at Awapuni. The stream corridor is a designated Flood Protection area in the District Plan and plays an important role in the stormwater management of the city. A section of the stream is accessible from the Site, providing the proposed development with city-wide walking and cycling connections.

The stream itself is confined between stopbanks and has been stripped of its original riparian vegetation. The corridor separates industrial and residential zones along Cloverlea's southern boundary, although grassed banks provide weak visual buffering. Past stormwater management practices have lined the stream margins with exotic grasses and invasive species. However, the waterway has the potential to become an important green corridor, boosting the ecology of Cloverlea. Restored ecology and a well-developed shared path system could enhance the Mangaone's amenity value and transform the stream corridor into a visitor destination with a range of recreational activities.



The stream in flood



Degraded riparian habitat and walkway along Mangaone Stream



Channelised stream bed



Bridge over the channelised stream

## 2.7 Easements

The Plan Change area is currently zoned Rural in the District Plan, and a 100 km/h speed limit applies to the adjacent section of Rangitikei Line (SH3).

### NOISE

Waka Kotahi/NZTA requires a 40m noise setback along the boundary with SH3. The easement can be narrowed if noise management tools such as sound walls or mounds are applied, but this could hinder visibility / access to the site. Part of the easement could potentially become an extended vegetated road reserve along Rangitikei Line. The remainder of the setback could be private land subject to building restrictions.



Figure 10. Rangitikei Line (SH3)

### GAS MAIN

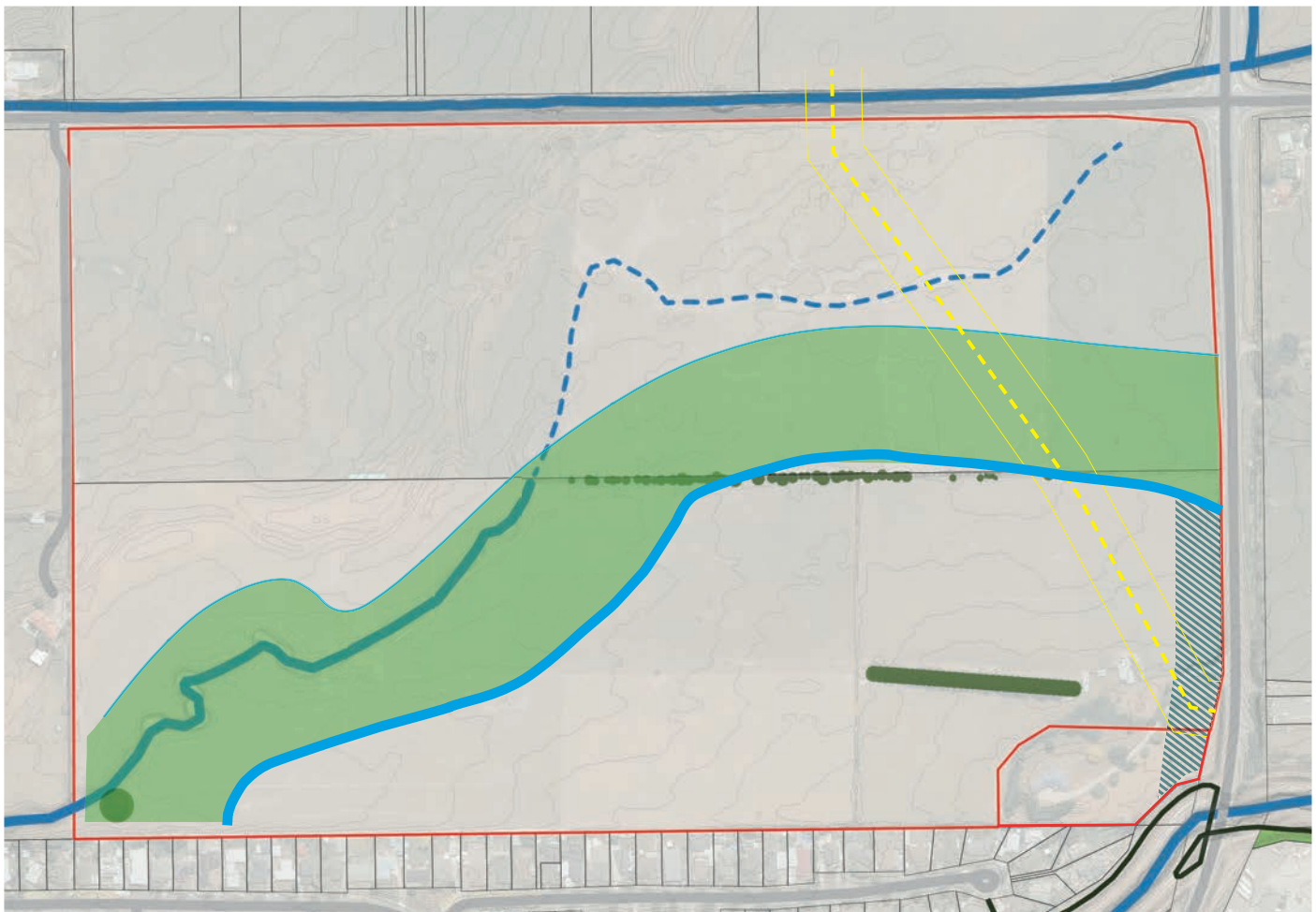
A section of high pressure gas transmission pipeline owned by First Gas crosses the property in a north-west-southeast direction. An easement of 6m in both directions from the centreline of the gas main is required. Building restrictions apply within 20 m of the centreline.

### FLOOD LINE

The boundary of the flood prone area associated with the Flyers Line Floodway is shown in the District Plan. Due to the low lying alluvial nature of the site, even a slight change in the contours displaces this flood line. The effect of these changes has been modelled and carefully studied. A revised flood line boundary is shown on the proposed Structure Plan.

## LIQUEFACTION

Geotechnical assessments have established that the Site's soils are similar to other alluvial areas within the floodplain. To prevent erosion and liquefaction, a 55m easement is required between any watercourse (temporary or permanent) and the development.



- Indicative Boundary of Floodable Area
- Liquefaction Easement (55m from dwellings)
- Noise Setback (40m)
- Gas Main Easement (20m from centreline)

Figure 11. Easements



## 2.8 Existing site conditions

The 40ha site is zoned 'Rural' and is currently used to grow maize. Open, arable land offers uninterrupted views to the north. To the south, the outlook is less attractive because it includes the backs of existing housing. Other than maize, vegetation is confined to shelter belts along some property boundaries and exotic, invasive species along the old Whiskey Creek streambed. An old growth hawthorn hedge in the middle of the Site indicates a former property line or a change in land use.

Currently the land is accessible only from Flyers Line, where there are two site entrances.

Aerial imagery indicates subtle changes in landform and soil types/colours. These relate to occasional sheet flows across Rangitikei Line during major flood events. The old Whiskey Creek streambed is an important morphological feature being a remnant of the original lowland native ecosystem prior to European settlement.

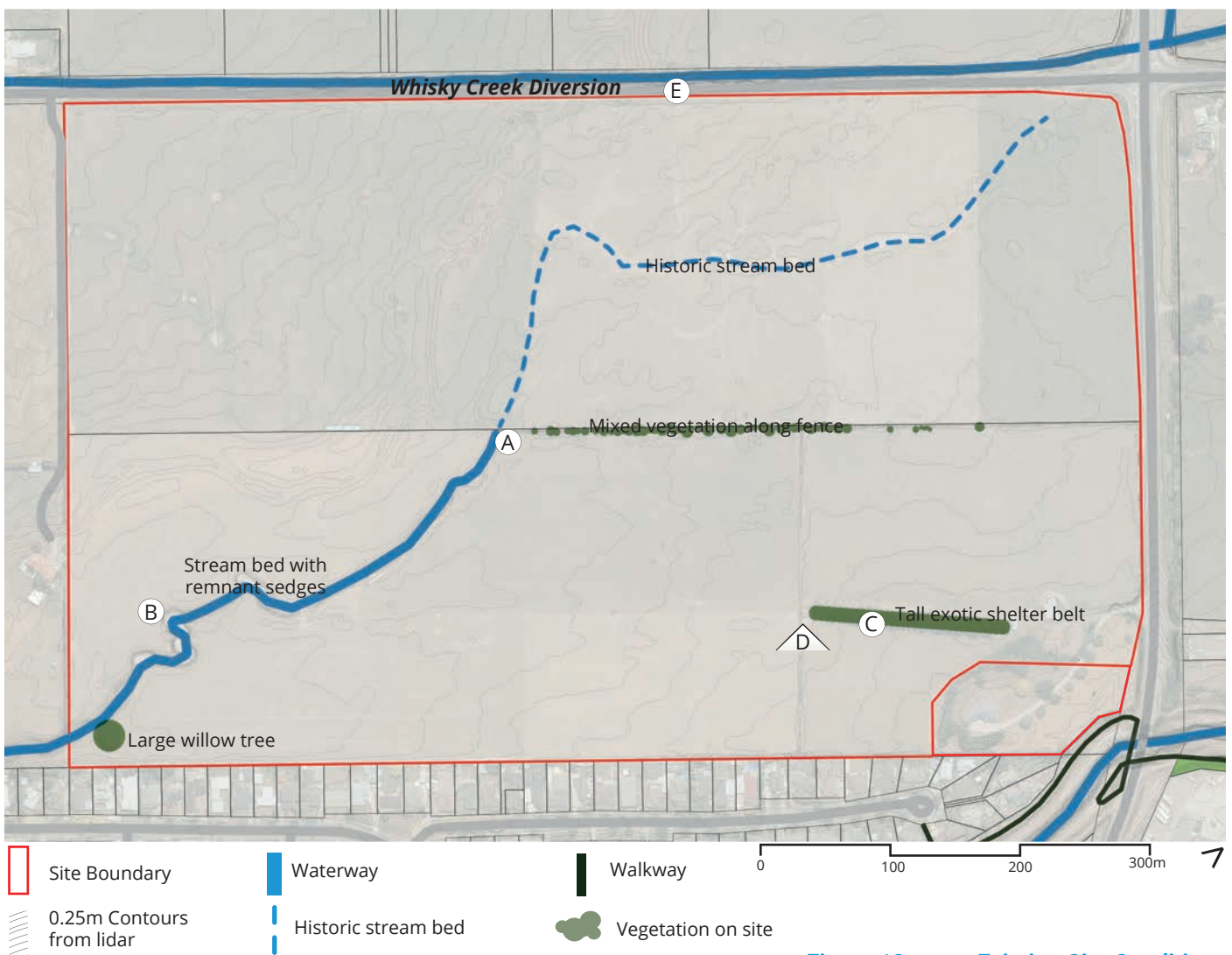


Figure 12. Existing Site Conditions





Whiskey Creek stream bed



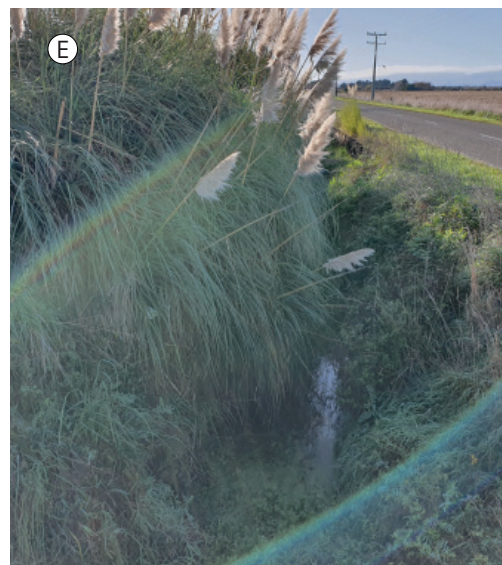
Whiskey Creek stream bed



Existing residential boundary



Exotic shelter belts



Channelised Whiskey Creek diversion

**Figure 13.** *Site photographs*

## 2.9 Site Characteristics - Summary

### SUMMARY OBSERVATIONS AND IMPLICATIONS FOR DEVELOPMENT

- **STRATEGIC GROWTH LOCATION:** identified in the Housing and Future Development Plan 2018/21 as an area suitable for housing expansion.
- **NEW CITY EDGE:** The northern floodplain establishes the absolute extent of urban development. Whiskey Creek will become the new urban city limit. Quality housing fronting onto a revitalised re-vegetated stream will establish new identity.
- **ACCESS & MOVEMENT:** SH3 provides excellent strategic north-south connectivity while Flyers Line provides east-west links to the airport and the future growth area of Kakatangiata. Walking and cycling connections will connect the Site to Mangaone Stream, and public transport is readily available.
- **URBAN STRUCTURE:** A fine-grain, walkable block structure is proposed, connecting with Benmore Avenue and Rangitikei Line. The latter route offers an alternative to the current approach, which passes through an industrial area.
- **LOCAL AMENITIES:** Cloverlea School and Cloverlea Park offer walkable educational facilities and play spaces. New on-site commercial/retail services are necessary because the Herbert Ave shops are over 1 km away.
- **FLYERS LINE FLOODWAY:** The floodway activates about once every ten years and involves water crossing Rangitikei Line from the north east. Careful modeling has confirmed that with specific design existing flood hydrology can be maintained.
- **FLOOD RISK:** the area designated for development sits higher than the surrounding floodplain and is therefore not flood prone.
- **WHISKEY CREEK:** The section of creek crossing the Site in a northeast-southwest direction is currently an ephemeral waterway with most of its water diverted to trenches along Flyers Line. Revitalisation of this stream will be an important outcome for the plan change, complemented by new native planting.

- OPEN SPACE NETWORK: new recreational paths within the Whiskey Creek reserve will connect to the Mangaone Stream. Cloverlea Park and Colquhoun Park are located nearby.
- VEGETATION & ECOLOGY: The Site is used for growing maize. Exotic shelter belts exist along some property boundaries and a few native sedges remain in the streambed. It is important to reintroduce ecologically diverse planting and habitat along Whiskey Creek.
- EASEMENTS: noise restrictions along SH3, gas main easement, flood boundary and easement for liquefaction all affect the potential for housing development.



# 3. Planning & Design Intentions

This section presents an outline of the land owners' requirements and aspirations along with key constraints on development. Following the Brief, nine Design Principles are identified. These emerged during the Discovery and Analysis stage of the project and were used to guide development options and inform criteria for the subsequent Multi-Criteria Analysis (MCA). Subsequently, a set of Design Strategies are identified. These describe six key moves within the illustrative masterplan, which in turn generates the Structure Plan. Lastly, this chapter introduces a range of planning and design scenarios that were developed prior to the final preferred masterplan.

## 3.1 Development Brief

### MARKET RELEVANCE AND FEASIBILITY

The proposed Masterplan and Structure Plan respond to the landowners' requirements to deliver a primarily residential development. Yield recognises that the developable area is restricted by flood plain requirements. Over most of the plan, 'conventional' suburban lots average 450sq.m in area. Medium-density lots measuring 220-330sq.m are envisaged in higher-amenity parts of the site. In these areas, the council's Multi Unit Housing Area (MUHA) overlay is anticipated to apply with modified controls that align with emerging structure plans at Roxburgh Crescent and Aokautere. To support new residential activity - recognising the relative remoteness of the location and the lack of walkable convenience retail - the project calls for a quantum of commercial activity. This is positioned to serve existing housing as well as the new development.

The landowners' requirements for the structure plan called for alignment with local housing market demand having regard for projected population growth (set out in part 2 of this report) and demographic change (smaller households, compact dwellings, housing affordability, greater choice and multi-unit developments). The brief therefore sought consistency with national and city strategies, and in particular:

- A mix of housing density offering choice of housing type and pricepoint.
- The size of urban blocks dimensioned to accommodate a range of lot sizes and dwelling types whilst achieving efficient roading layouts.

- A variety of housing that would be attractive to a wider demographic and that allows for changes in housing market demand.
- Identified areas of multi-unit housing in locations of high amenity, supporting the plan's wider character outcomes.

## GOOD NEIGHBOURS

The Site shares an extensive common boundary with adjoining suburban housing along Benmore Avenue and Meadowbrook Drive. The proposed development seeks a positive relationship between new and existing housing. Sensitive integration along the southern boundary is achieved by:

- Aligning proposed lot boundaries with those of existing lots where possible.
- Limiting height to 5m (single storey) on new lots that adjoin existing parcels.
- Achieving larger lots (500-550sqm) along the common boundary to allow for more generous yards and appropriate positioning of dwellings.
- Generally matching the scale, alignment and orientation of new development to existing patterns.
- Ensuring all flood mitigation is managed on the Site with no adverse flooding effects on neighbouring properties.
- Establishing an attractive, safe road connection from Benmore Ave into the Site.
- Providing for an appropriately located small convenience retail/cafe facility near the connection with Benmore Ave.

## CREEK REVITALISATION AND FLOODING

Parts of the Site are subject to flooding, with the majority of the Plan Change area sitting within the regional council's designated "floodway" (see stormwater report by DHI). District and Regional Council documents (One Plan) identify design requirements for the development's stormwater system. These requirements limit housing to a portion of the Site, i.e. the south-east quadrant. Further earthworks are required to adjust levels across this quadrant and establish a suitable base for any new roads and buildings. Towards the flood line, the Site will be raised by up to 1m. Adjacent to existing housing, the ground will remain at current levels. An existing storm drain along the common boundary will need to be re-engineered to ensure there are no adverse flooding effects on neighbours.

**Figure 14.** *Reserve Edge Condition*

Revitalisation of Whiskey Creek is to form part of the structure plan, returning the stream to a functioning waterway that is re-vegetated and ecologically diverse. This area will become an attractive reserve and an urban wetland amenity for local residents and visitors using the path network.

## SUSTAINABLE NEIGHBOURHOOD

The structure plan is to set the conditions for a sustainable and liveable neighbourhood that provides a high level of amenity for residents and visitors. Important attributes of this are:

- A coherent, permeable network of streets and open spaces that create attractive walking and cycling environments.
- Good connectivity with the 'host' neighbourhood.
- Attractive and accessible public outdoor recreational areas and appropriate private on-site open spaces.
- Walkable local neighbourhood centre-type opportunities.
- Quality footpath connections to public transport.
- Managed relationships between different housing densities and between new and existing residential areas.

## QUALITY PUBLIC & PRIVATE OUTCOMES

Both public and private realms are designed to provide high quality outcomes. Exchanges between private domains and streets or other public spaces are the generator of activation and visual interest. Key outcomes include:

- Ensuring lots have adequate street frontages enabling a positive relationship between dwellings and the street; promoting community engagement, legibility and confident street edges.
- Integrating stormwater management and ecological revitalisation into the design of streets and open spaces.
- Locating higher density housing in areas of high outdoor amenity where such forms can be more readily absorbed and where there is more need for overlooking and activation.





### 3.2 *Design Principles*

The structure plan identifies nine Design Principles that provide terms of reference for key elements and relationships within the Whiskey Creek development. By jointly addressing functional and aesthetic imperatives, the principles direct the project towards high-quality outcomes in the natural and built environment. They generate urban wetlands and a network of off-road recreational trails along with a network of streets and neighbourhood parks. The resulting public domain supports amenity-rich private living environments. In combination, the principles help to establish a memorable identity for the new neighbourhood.



**Figure 15.** *Multi-unit housing*

## 1. STRATEGIC ALIGNMENT

- Whiskey Creek aligns with National Policy Statement on Urban Development (2020).
- Development helps to implement high-level PNCC strategies and plans.
- Whiskey Creek establishes a more logical northern growth limit.

Palmerston North's growth strategy concentrates greenfield residential development in Aokautere, Kākātangiata and Whakaronga. Collectively, smaller subdivisions such as Hokowhitu, Roxburgh Crescent and Whiskey Creek also make a significant contribution to housing supply. Although the number of new dwellings supplied is relatively modest, Whiskey Creek brings new housing options to an established residential area with good transport connections, schools and open space amenities.

## 2. CONNECTIVITY

- Fully connected movement network.
- Recreational pathways forming circuits.
- Proximity to public transport.

A hierarchy of interconnected streets creates a legible movement network. Off-road recreational pathways promote walking and cycling particularly when these routes form circuits with varying lengths and different experiences. Joining these loops to the Mangaone Stream corridor provides the development with access to a city-wide trail network. The Cloverlea bus route is within walking distance and provides a connections to The Square.

## 3. PLACE-BASED IDENTITY

- Legible spatial structure.
- Distinctive elements with clear relationships to one another.
- Intuitively understood street hierarchy.

The location of the site offers a significant opportunity to draw on the natural character of the area and incorporate design elements to express a unique place-based identity. An intuitive street hierarchy and legible spatial structure allow easy orientation and the establishment of prominent sightlines.



Creating distinctive 'place' elements allows differentiation between individual streets, blocks and stages of development. The natural character of the northern edge presents a unique selling point and gives Whiskey Creek the potential to become a city-wide destination. Recreation areas present an opportunity for cultural signage, information boards and mahi toi, which share Rangitāne o Manawatū values and connections with land and waterways.



**Figure 16.** *Wetland park at Hobsonville Point, Auckland*



#### 4. ABSOLUTE URBAN EDGE

- Sharply defined urban edge creates a new northern gateway.
- Permanent edge condition creates special character and amenity.
- Restoration of Whiskey Creek draws attention to flood plain.

Establishing a new neighbourhood on the edge of the city allows strong connections to be forged with adjacent natural and rural environments. The current residential boundary appears arbitrary and is marred by back fences. The proposed new urban edge is defined by the Flyers Line Floodway. Drawing from the natural history of the site, the floodplain can become a green corridor, expressing the floodplain threshold and boosting the biodiversity of the area.

#### 5. NEIGHBOURLINESS

- Proposed spatial structure connects to the city at macro and micro scales.
- Lot and dwelling types acknowledge existing subdivision patterns.
- Street layout creates positive front/back relationships with existing houses.

Although Whiskey Creek represents a logical extension to an established residential area, the development necessarily changes the setting of houses on Benmore Avenue and Meadowbrook Drive. The proposed subdivision reduces impacts on existing residents by matching lot pattern and dwelling type to those found in neighbouring streets. The layout of streets and parcels produces a complementary back-to-back relationship between new and existing properties along the site's southern boundary.

#### 6. FLEXIBILITY, DIVERSITY & CHOICE

- Proposed plan offers a range of densities and dwelling types.
- Development delivers various amenities within walking distance.
- Potential exists for connections to further development on the northern margin.

Changing lifestyles, demographic shifts and reduced affordability all stimulate demand for more diverse housing stock. New housing preferences create a market for smaller dwellings on compact sites especially in high-amenity locations. Whiskey Creek increases housing choices by introducing a variety of new dwellings to the edge of an established residential area. Specifically, the development accommodates a mix of fully attached, semi-detached and fully detached houses.

## 7. MIXED USE ACTIVATION

- Different densities and dwelling types increase housing capacity and choice
- Strong local destinations encourage residents to walk and ride.
- Well-used amenities and public spaces attract further visitation.

Mixing uses promotes the activation of streets and open spaces and increases the carrying capacity of the development. Likewise, a range of densities helps to differentiate among blocks and gives weight to the hierarchy of streets. The structure plan anticipates a mix of lot sizes and dwelling types, including a zone where commercial elements can be present. These commercial components help the activation of surrounding open spaces and play an important role in creating destinations.



**Figure 17.** *Urban wetland at Barry Curtis Park, Auckland*

## 8. ENVIRONMENTAL DESIGN

- Stormwater management is an integral part of spatial planning.
- Proposal promotes restoration and naturalisation of waterways.
- Proposal enhances biodiversity and extends green corridors.

Innovative infrastructure solutions reduce environmental footprint and establish strong spatial and ecological connections with the surrounding landscape. These connections contribute to a distinctive place-based identity and differentiate the development from other neighbourhoods. When stormwater management is fully integrated with streetscape and public reserves, maintenance costs reduce and outcomes are more resilient than traditional piped networks.



The re-vegetation of the stream corridor has potential to provide significant ecological benefits in terms of water quality, habitat (both aquatic and terrestrial) and food source for fauna, as well as the ability to recreate a measure of the original forest cover. The site can provide a 'stepping stone' for fauna (most notably birds) moving within the suburban landscape and between significant ecological areas such as Manderson's Bush.

Stepping stones are important to the ecological health of an area, as these allow animals to find shelter and food or rest on their journey between larger forested areas. This allows populations to build resilience and - on a tangible level - increases the likelihood of people seeing native birds in their backyards.





kahikatea (*Dacrycarpus dacrydioides*)



pukatea (*Laurelia novae-zelandiae*)



harakeke (*Phormium tenax*) and  
raupo (*Typha orinetalis*) swamp



bellbird (*Anthornis melanura*)



tui (*Prosthemadera novaeseelandiae*)



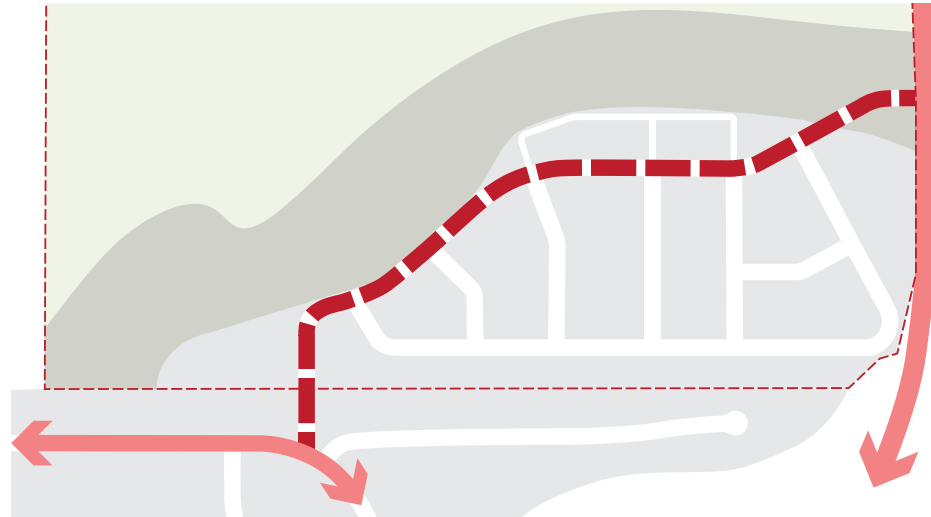
kereru (*Hemiphaga novaeseelandiae*)

### 3.3 Design Strategies

The structure plan employs six main Design Strategies. Although these are described sequentially, all the strategies are mutually supportive and combine to produce a coherent spatial structure. No strategy is more important than another. Some strategies – such as Connectivity - are applicable in some form to any urban location. These have been re-interpreted and adapted to suit the context of Whiskey Creek. Other strategies – such Absolute Urban Edge – are more particular to this development and its environs. These help to give a unique character to the new subdivision.

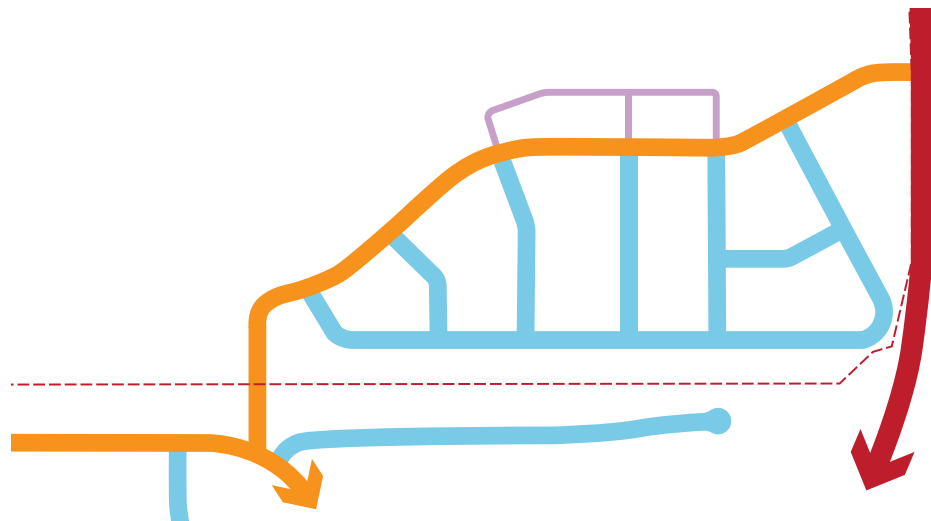






### EXTERNAL LINKAGES

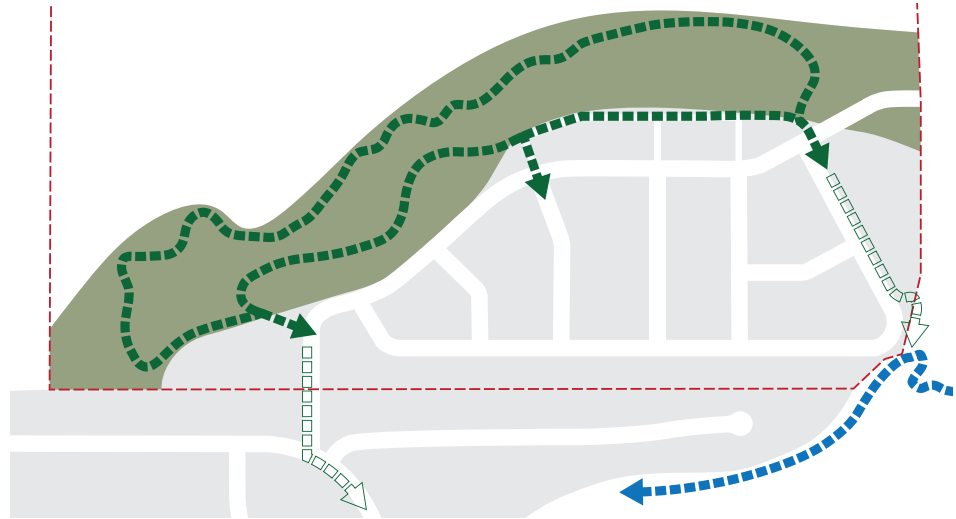
Whiskey Creek is accessed from Benmore Avenue and Rangitikei Line. Located at the plan's extremities, these two gateways ensure that the development is an integral addition to existing urban fabric. The Benmore Avenue link is city-facing and reinforces Whiskey Creek's status as a logical extension to established residential areas. The left-in left-out intersection with Rangitikei Line anchors the development to Palmerston North's north-south axis and connects residents with the future freight hub and other strategic initiatives on city's north-eastern fringe.



### STREET HIERARCHY

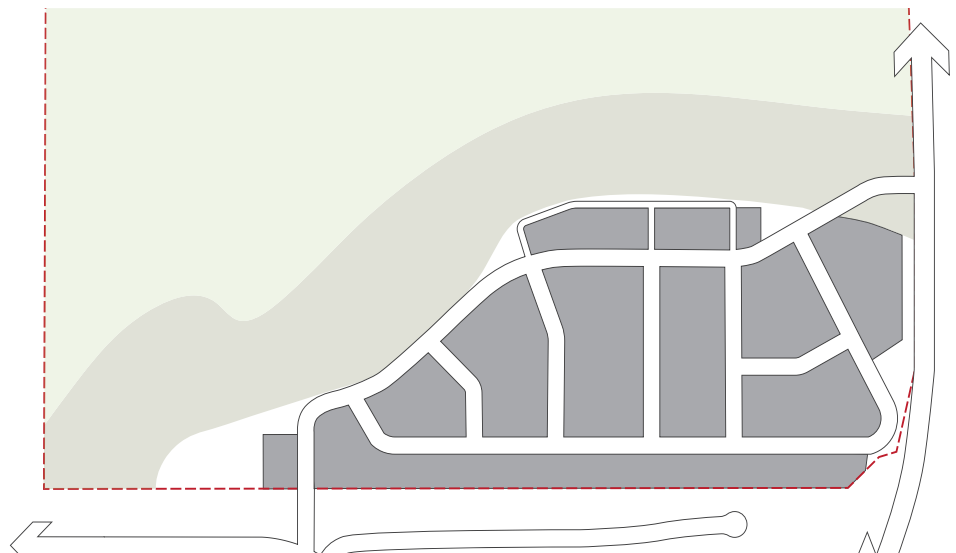
A clear street hierarchy organises movement and strengthens place-based identity. As the only through-route, Road 1 (orange) serves as a primary collector and offers all residents a common experience. Its curved trajectory traces out the edge of the flood plain and orients travellers to the adjacent rural landscape. Local streets (blue) are more regular and share an angular geometry. However, each thoroughfare has a characteristic alignment or inflection. A lane (purple) brings public access and a north-facing frontage to the edge of the flood plain reserve.





### OFF-ROAD TRAILS

Recreational pathways are established within the regenerating vegetation of Whiskey Creek. At intervals, these off-road trails connect to the local street network. In this way, the development provides a precedent for further trails to east and west. The Whiskey Creek subdivision bridges between the northern floodplain and the Mangaone Stream corridor. Designated residential streets join the trail systems associated with these important natural features. The resulting network introduces valuable recreational circuits to this part of the city.



### BLOCK PATTERN

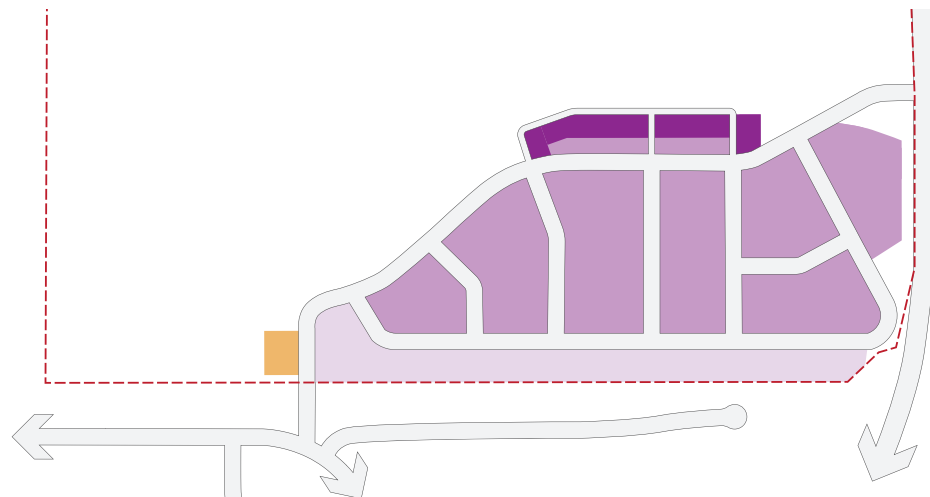
Small blocks and joined up streets create a permeable neighbourhood with travel choices and built-in resilience. By adding frontage, the multiplicity of routes reduces the need for rear lots. Most streets have a north-south alignment, providing direct access to Road 1 and the flood plane reserve. Because they are oriented east-west, most residential lots enjoy good morning and afternoon sun. Southern aspects are minimised. The principal exception is Road 2, which complements the existing subdivision pattern along Benmore Avenue and Meadowbrook Drive.





### OPEN SPACES

A flood plain limits further urban expansion to the north. This absolute boundary is expressed as a broad reserve along Whiskey Creek. As the development's principal ecological and recreational asset, this open space contains regenerating riparian vegetation and off-road trails. The green corridor is keyed into the local street system as a series of neighbourhood parks and stormwater detention areas. The largest of these hosts a mixed-use building at the western end of the site. A 30m setback from the eastern boundary reduces the impact of traffic on Rangitikei Line.



### LOT TYPE & DENSITY

Most parcels are conventional suburban lots, which are suitable for detached dwellings of one or two storeys. Special conditions apply along the northern and southern boundaries of the plan. On the edge of the Whiskey Creek reserve, medium density development enjoys unobstructed views and direct access to recreational open space. Here, the plan anticipates two and three-storey semi-detached and fully attached dwellings. On the southern boundary, single-storey detached dwellings match the fabric of Benmore Avenue and Meadowbrook Drive.

### 3.4 Indicative planning and design options

Design development and site planning were undertaken at two levels. The first level considered broad land use scenarios: (i) existing rural zoning, (ii) rural residential and (iii) suburban residential. These are presented in Appendix A. The second level of design development explored different masterplan options for a 'suburban residential' scenario. These options are presented below. Both levels were subject to a Multi-Criteria Assessment, which is included within the section 32 analysis.

#### OPTION 1 - Business as usual

A hybrid geometry option to maximise the number of standard lots with uniform lot orientation. Connection to Flyers Line across the floodplain was investigated.

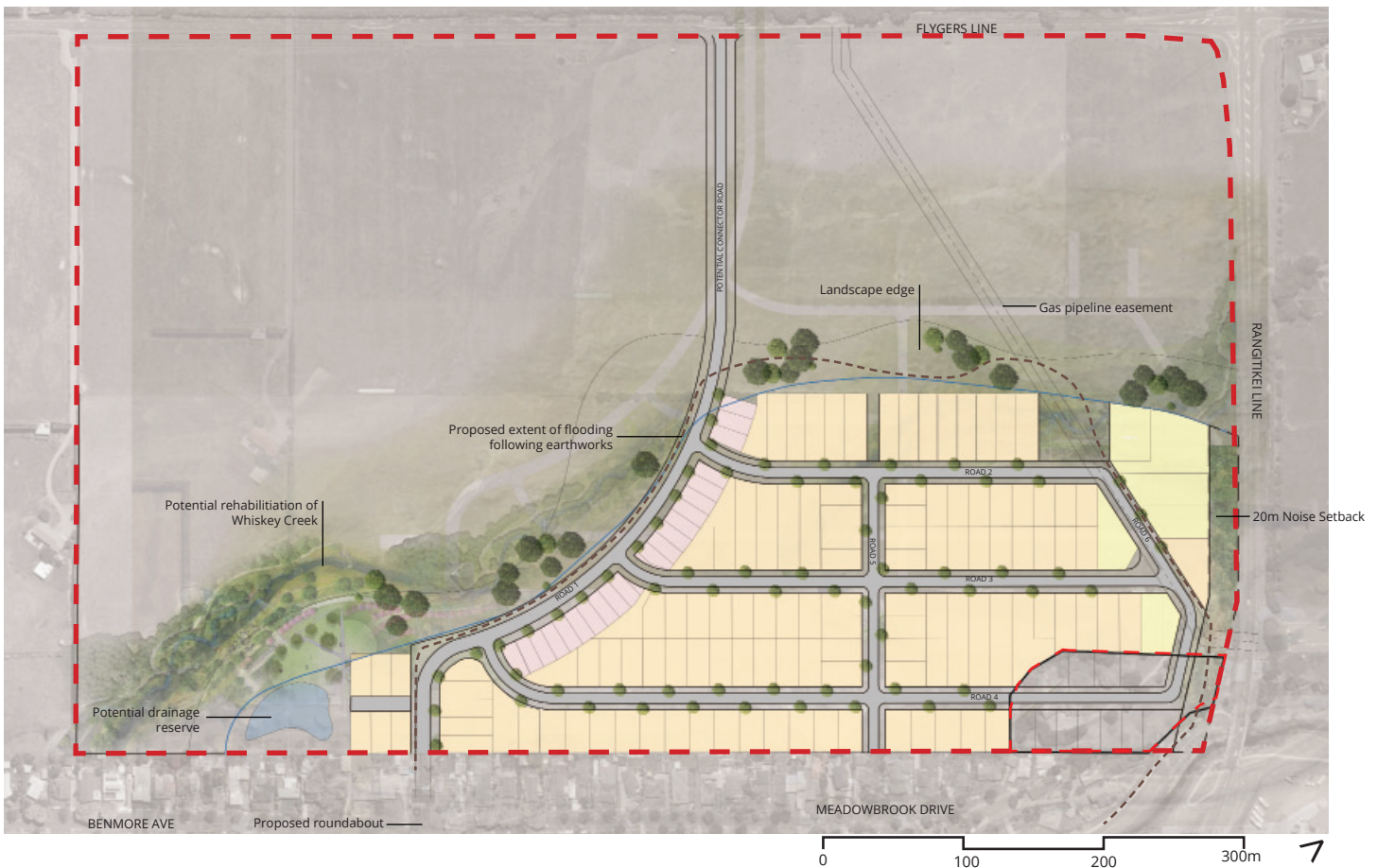


Figure 18. Development Option 1

#### Key characteristics:

- Low-moderate market risk, some variation/mix in density and dwelling type.
- Predominantly north-south lots with sub-optimal sun access.
- Good levels of open space amenity.
- Partly responsive to local landscape but discontinuous edge.
- Allows for ecological corridors.
- No local centre. Moderate external connectivity (Benmore Avenue, Flyers Line).
- Legible street pattern (clear geometry, range of street types).
- Potential for high-quality streetscape (range of street types).



## OPTION 2 - Landscape-led approach

A 'distorted grid' street structure that provides views of the stream corridor at the end of each street and establishes clear sightlines. A continuous green amenity corridor along the boundary was tested.

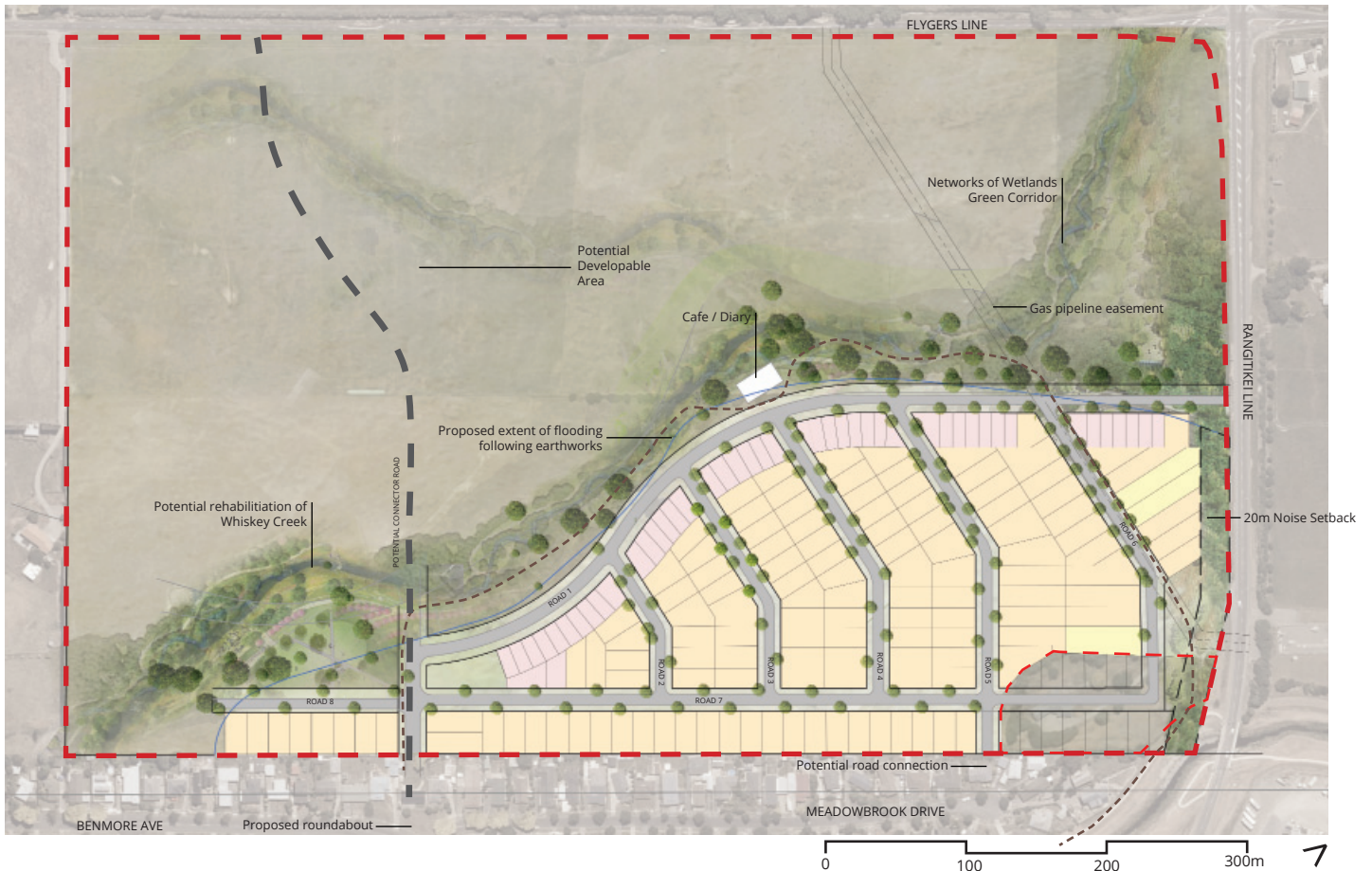


Figure 19. Development Option 2

### Key characteristics:

- Moderate-high housing yield, moderate market risk (multi-unit housing).
- Significant variation/mix in density and dwelling type and local centre provision.
- Predominantly east-west lots offering good orientation for sun.
- High levels of open space amenity.
- Responsive to local landscape (flood plain, waterway).
- Naturalisation of Whiskey Creek corridor, extension of ecological corridors.
- Integrated low-impact SW management.
- Significantly improved urban edge.
- Good external connectivity (Benmore Avenue, Rangitikei Line).
- Strong support for PT/active modes (including walking).
- Extension to recreational trails (including Mangaone Stream).
- Moderate internal connectivity (no cul-de-sacs) but limited east-west connection.
- Legible street pattern (clear geometry).
- Potential for high-quality streetscape.

### SCENARIO 3 - Neighbourhood network

A formal grid structure was tested to establish different densities, lot orientations and bring open spaces into the developed area.

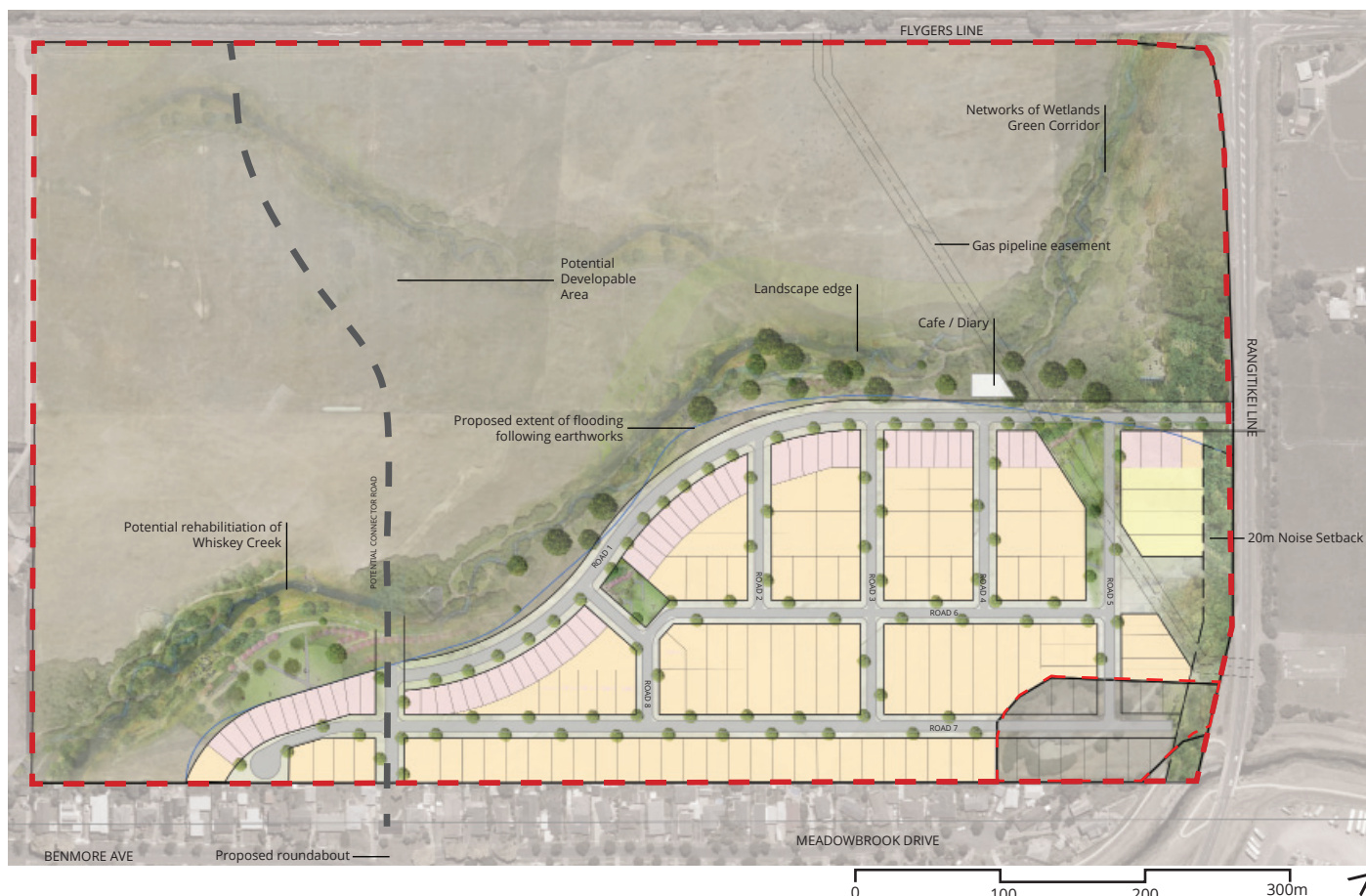


Figure 20. Development Option 3

#### Key characteristics:

- Moderate-high housing yield, moderate-high market risk (multi-unit housing).
- Local centre provision.
- Significant variation/mix in density and dwelling type.
- Very high open space amenity (formal/informal).
- Responsive to local landscape (flood plain, waterway).
- Naturalisation of Whiskey Creek corridor, extension to ecological corridors.
- Integrated low-impact SW management.
- Significantly improved urban edge.
- Good external connectivity (Benmore Avenue, Rangitikei Line).
- Strong support for PT/active modes (including walking).
- Extension to recreational trails (including Mangaone Stream).
- High internal connectivity (small blocks, no cul-de-sacs).
- Legible street pattern (varied blocks, range of street types).
- Potential for high-quality streetscape (range of street types).

## SUMMARY - OPTIONS DEVELOPMENT

- **YIELD, DENSITY AND MARKET RISK:** The amount and location of multi-unit housing is a key difference among the options. These factors play an important role in defining the absolute urban edge. However, they also pose a potential risk to developers because multi-unit housing is not common at edge locations in Palmerston North.
- **LANDSCAPE CONNECTION AND AMENITY:** Establishing a green corridor between the developed land and the agricultural land is a key consideration. This would provide amenity and improve ecology. All three options include this corridor. However, the extent and configuration varies slightly.
- **RESPONSE TO FLOOD PLAIN:** The area of developable land was a given, as the modified flood line was carefully modelled and taken into consideration for all three options. Therefore all options address Whiskey Creek and combine blue and green infrastructure along the boundary of the flood plain.
- **EXTERNAL CONNECTIVITY:** Connection to Benmore Avenue is common to all options along with a new proposed roundabout as the main link to the existing street network. Across the three options, connections to Rangitikei Line and Flyers Line were investigated. From multiple standpoints - roading, economic and urban design - a Rangitikei Line connection is favoured.
- **INTERNAL CONNECTIVITY:** Three different development patterns were investigated to combine maximum yield and an efficient internal movement network. The final preferred street network draws on the best outcomes of all three options, as seen in the illustrative masterplan overleaf.



### 3.5 Illustrative Masterplan

The indicative masterplan is presented in Figure 21 below. The masterplan emerged from testing various options presented in the preceding section. The plan features a widened stream corridor to enhance ecological outcomes and address potential liquefaction. Yield and block layout have been optimised within the developable portion of the Site as dictated by the revised flood line. The masterplan provides a through-site connection between Benmore Avenue and Rangitikei Line. Multi-unit housing occurs along a portion of the stream corridor, and a mixed use area is located near the intersection with Benmore Avenue.

Stormwater detention areas (in the form of wetlands) sit above the flood line. In low-flow events, these have potential contribute to the ephemeral Whiskey Creek. The gas pipe easement, SH3 noise buffer and flood boundary have been incorporated in the masterplan.

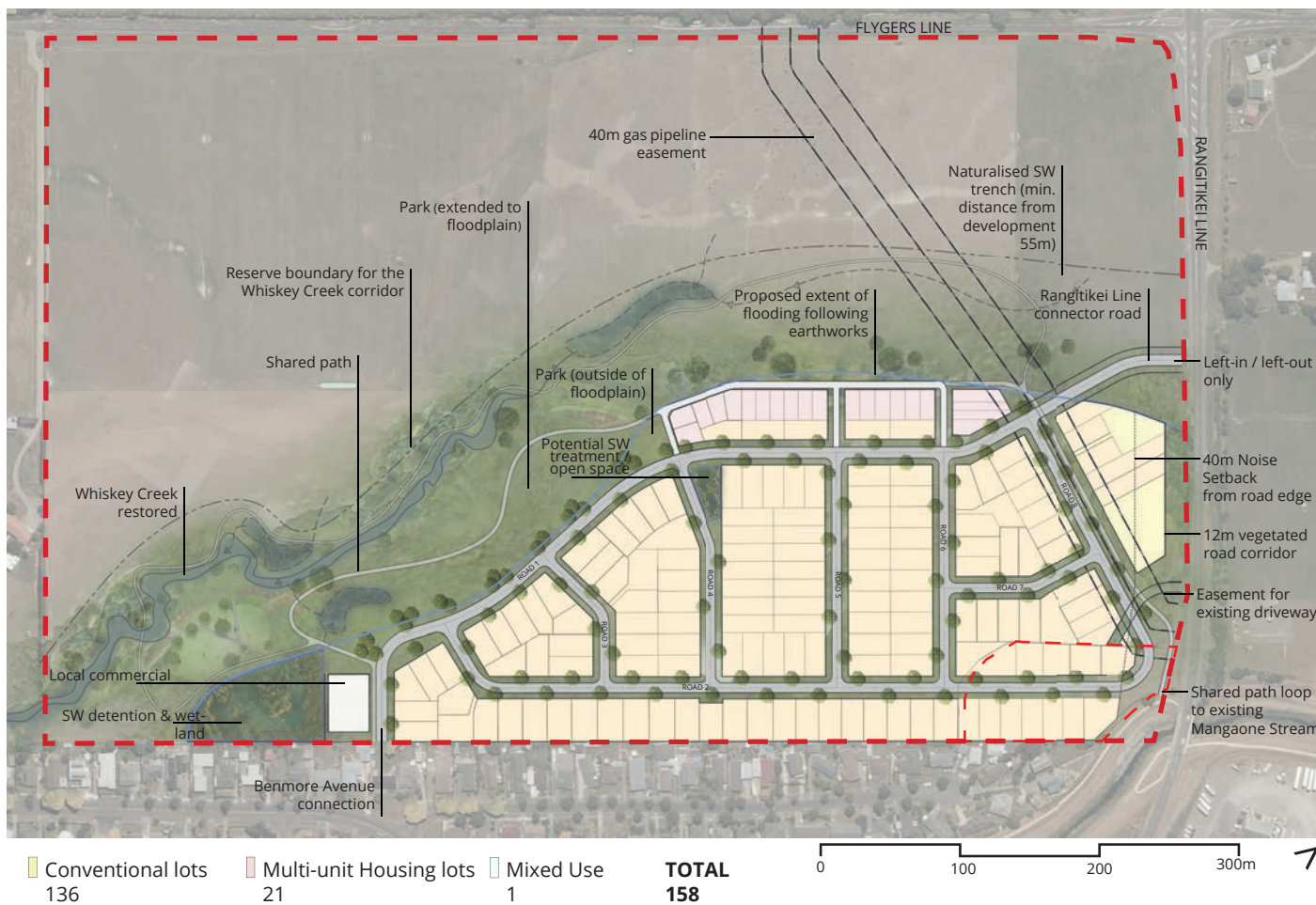


Figure 21. Illustrative Masterplan

### *Key masterplan characteristics:*

**CHOICE, FLEXIBILITY AND DIVERSITY:** The masterplan indicates a mix of densities and uses. Multi-unit housing is located along Road 1 at the Rangitikei entrance / Whiskey Creek Reserve edge. A mixed-use area is located near the Benmore Avenue link. The mixed use area and graded densities provide choice, flexibility and diversity. They also promote activation and definition of the 'absolute urban edge'. Lot configuration along the southern boundary allows a complementary relationship with the existing urban fabric.

**HIGH LEVEL OF EXTERNAL AND INTERNAL CONNECTIVITY:** The masterplan combines the best aspects of the three scenarios to produce three key outcomes: (i) a connected spatial network, (ii) a legible spatial structure and (iii) a street hierarchy with external connections to Rangitikei Line and Benmore Avenue.

**OPTIMISED AND PERMEABLE GRID:** A street and block structure connects the Site with Whiskey Creek reserve and avoids the need for cul-de-sacs. Efficiently sized north-south blocks create east-west lots that maximise sun.

**LANDSCAPE CONNECTIONS, AMENITY AND IDENTITY:** An extended green corridor - at least 50m wide - is proposed along the revitalised Whiskey Creek corridor. A shared path and walkway system provides recreational loops and connections to the Mangaone Stream walkway. Formal and informal play spaces and observation areas are incorporated into the reserve. Combined with the local street network, well-connected open spaces create characterful 'place elements' that contribute to a unique Whiskey Creek identity.

**ENVIRONMENTAL DESIGN:** The masterplan provides new blue and green infrastructure for the Site integrated into the overall development. Stormwater detention areas are located outside of the floodplain and allow low flow back into Whiskey Creek through a set of wetlands. These improve water quality and revitalise the ephemeral stream bed. The street cross sections allow for open channels (SUDs) to be combined with traditional piped systems. The size of most private lots allows individual, on-site water storage and management to occur.

**ECOLOGY AND BIODIVERSITY:** The Whiskey Creek green corridor with its ephemeral wetlands, stream bed and restored area of lowland forest could become a significant habitat node to the north of the city. It can function as a stepping stone connecting areas such as Manderson's Bush with the suburban environment. The planting palette for streets and private lots will draw on the surrounding natural environment to provide a food source and shelter for returning fauna.

# 4. Planning Controls

## 4.1 Structure Plan

The structure plan is derived from the preferred planning and design outcome. It embodies the requirements of the client brief, design principles and design strategies identified earlier in this report.



Figure 22. Structure Plan



## STRUCTURE PLAN - KEY FEATURES

- New local collector street (Road 1) linking Benmore Avenue to Rangitikei Line: 16.2m wide legal road corridor (13.6m wide adjacent to reserve).
- New local roads (Roads 2-8): 15.2m wide legal road corridor.
- New shared street lanes: 4.5m wide carriageway.
- New roundabout connection with Benmore Avenue and left-in / left-out connection with Rangitikei Line.
- Sustainable Urban Drainage (SUD) network integrated into the street and open space system.
- Variation in housing density - conventional suburban lots (ranging from 450-550sqm) and a Multi-Unit Housing Area overlay along part of the Reserve edge.
- Whiskey Creek Reserve including a revitalised waterway and planting to achieve an ecologically diverse and rich area.
- Public shared pathways throughout the area and connecting Mangaone Stream to Whiskey Creek Reserve.
- Incorporation of gas pipeline easement, SH3 setback/buffer and flood boundary.
- Area of restricted height for lots adjoining existing Meadowbrook Drive properties to achieve sensitive transition and protect amenity.

## 4.2 Development Standards

In general, PNCC residential zone standards apply to the Whiskey Creek Structure Plan. A Multi-Unit Housing Area (MUHA) overlay is proposed for part of the Plan. Specific development objectives require several new or modified standards to be introduced. These are summarised in tabular form at the end of this report.

### STREET HIERARCHY

*LOCAL COLLECTOR ROAD:* Road 1 is the backbone of the development, connecting the roundabout at Benmore Avenue to a left-in /left-out intersection with Rangitikei Line. Road 1 also creates connections between residential blocks and the Whiskey Creek corridor. A carriageway width of 6.5m is proposed with varied parking / planting to help reduce speed. Additional traffic calming may include raised table crossings. On Road 1, visitor car parking is unobtrusive, and there is enhanced street planting along the reserve edge.

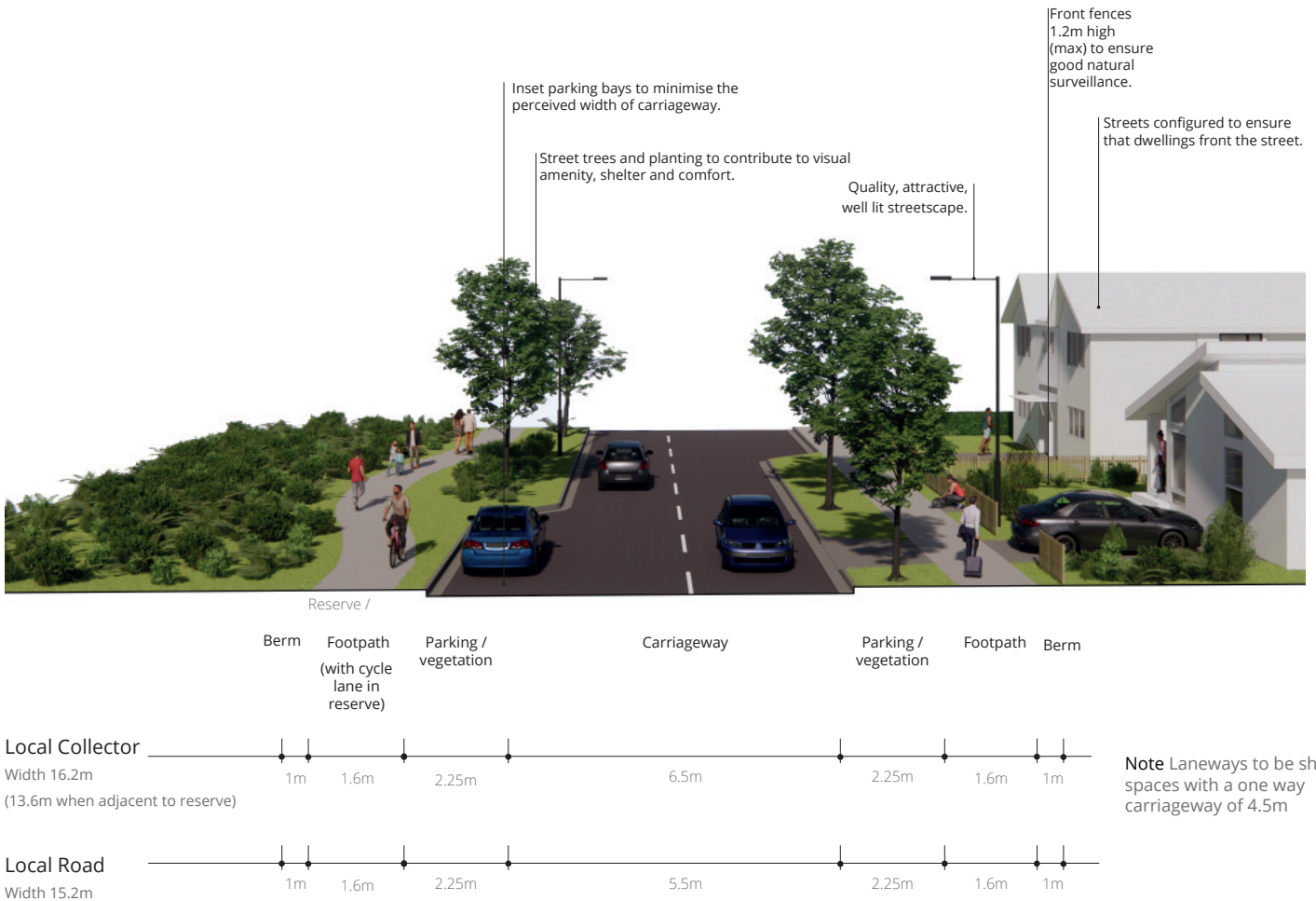
*LOCAL ROAD:* Roads 2-8 are local roads with a proposed carriageway width of 5.5m. These streets allow for integrated low-impact stormwater management features within the road reserve and enhanced street planting to promote ecological connections and walkability. The streets provide clear sightlines, including visual links to Whiskey Creek Reserve. Streetscape consists of simple, high-quality treatments.

*LANE:* Lanes are confined to the multi-unit housing area and form an integral part of the shared path network. Lanes are designed as shared streets along the reserve boundary and strengthen the landscape connection between the reserve and the development, performing well as part of the mobility network. The shared street carriageway is generally one-way with a width of 4.5m, permeable paving solutions are encouraged to minimise impact on the reserve.

*SHARED PATHS:* A shared path network provides walking and cycling connections within the development and creates external connections to Benmore Avenue and the Mangaone Stream corridor. The typical width of the shared path network is 3m with a hard surface to allow permanent use throughout the year.

### SUSTAINABLE AND RESILIENT BLUE AND GREEN INFRASTRUCTURE

*STORMWATER:* a combination of traditional piped connections, open channels and rain gardens create a resilient, environmentally friendly network. The stormwater system is connected into detention areas which are constructed as shallow, planted areas / ephemeral wetlands. This naturalised network of wetlands and open channels has potential to deliver temporary base flows to the enhanced Whiskey



**Figure 23. Illustrative street cross section**

Creek stream bed, which would allow an increased amount of water to be present in the system, especially after rain events. Sustainability and resilience are important factors and the network will be developed using water sensitive design.

*RESERVES, ECOLOGY AND VEGETATION:* Future ecology on the site is focused on the Whiskey Creek corridor. This presents an opportunity to re-establish stands of once-present lowland kahikatea swamp forest. Eco-sourced native planting in the reserves and wetland areas are important to boost biodiversity.

The planting palette is to be developed collaboratively with Council’s biodiversity team and Rangitāne-o-Manawatū to provide year-round resource, food and shelter for native wildlife, most notably birds. The reserves also provide benefits for residents in the form of māra, indigenous plants and fruit trees. The installation of iwi-designed signs, bollards and other landscape elements would allow for Rangitāne storytelling, highlighting their history and relationships with the landscape and waterways. Working with mana whenua, the council needs to identify appropriate locations for show-casing mahi toi art and features like pou.



## MINIMUM NET SITE AREA

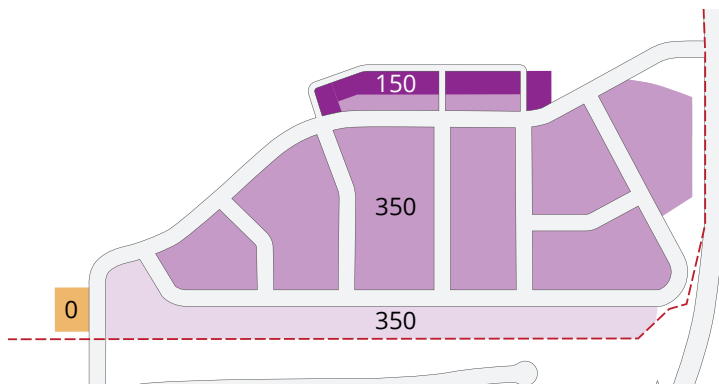
The range in housing density is shown on the structure plan and on the indicative masterplan described earlier in this report.

Within conventional suburban areas, existing District Plan Performance Standards apply, i.e. a min 350sq.m lot size. The Greenfield Residential Area average lot size of 500-550 is proposed to be adjusted to 400-500sq.m. Within MUHA overlay the District Plan standard minimum net site area per dwelling of 150sqm applies although in these areas a general lot size range of 220sqm to 330sqm is anticipated.

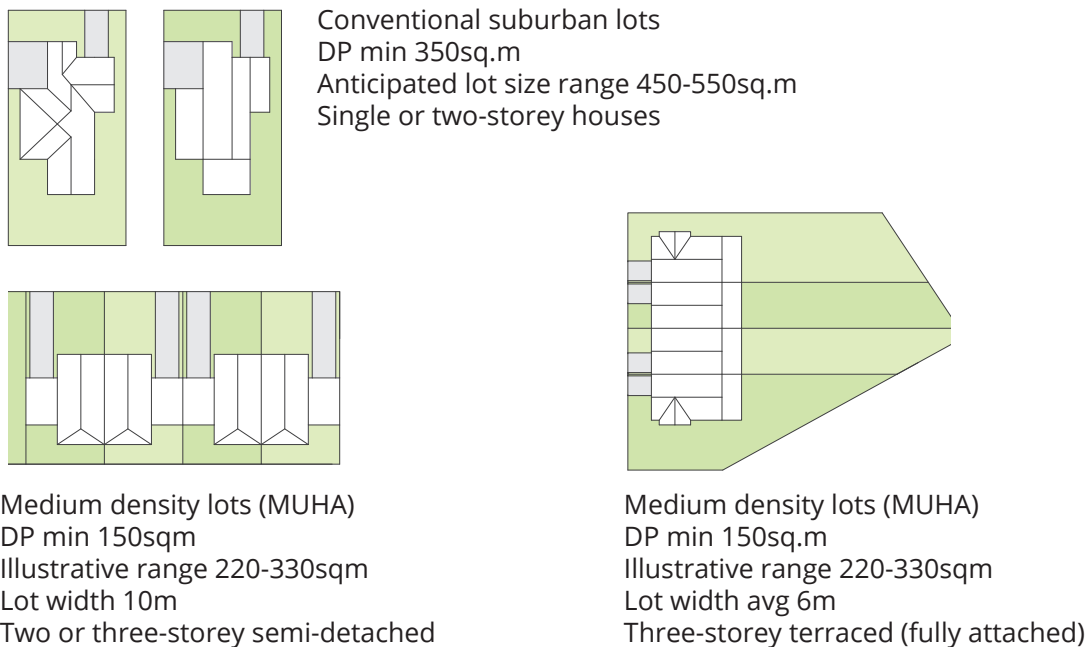
*CONVENTIONAL SUBURBAN LOTS:* These lot types occupy the majority of the Plan. Measuring at least 450m<sup>2</sup>, they continue established planning and development practices and create a sympathetic relationship to existing built up areas. Additional constraints on lot alignment occur along the interface with existing Meadowbrook Drive lots where lot lines are aligned whenever possible. Careful attention to block size and street layout has resulted in only four rear lots.

*MUHA LOTS:* Medium Density housing occupies parts of the Plan facing Whiskey Creek Reserve. These are generally north-facing lots accessed via a shared street laneway. They accommodate the plan's smallest residential lots. With a District Plan minimum net site area per dwelling of 150sqm (and an general range of 220-330sqm), these Lots combine the benefits of more intense / low maintenance living within a semi-rural experience. This format extends housing options not just at Whiskey Creek but within Palmerston North as a whole and reflects the approach taken at Aokautere.

*COMMERCIAL LOT:* A single local commercial area is proposed (within the residential zone) fronting Road 1 close to Benmore Avenue. This area is suitable for subdivision into smaller commercial tenancies if required. In this location the plan anticipates ground-floor commercial accommodation with the potential for residential apartments above if market demand exists for these types of accommodation. There is no restriction on lot size.



**Figure 24.** Minimum lot areas (sqm)



**Figure 25.** Illustrative lot size and development outcomes

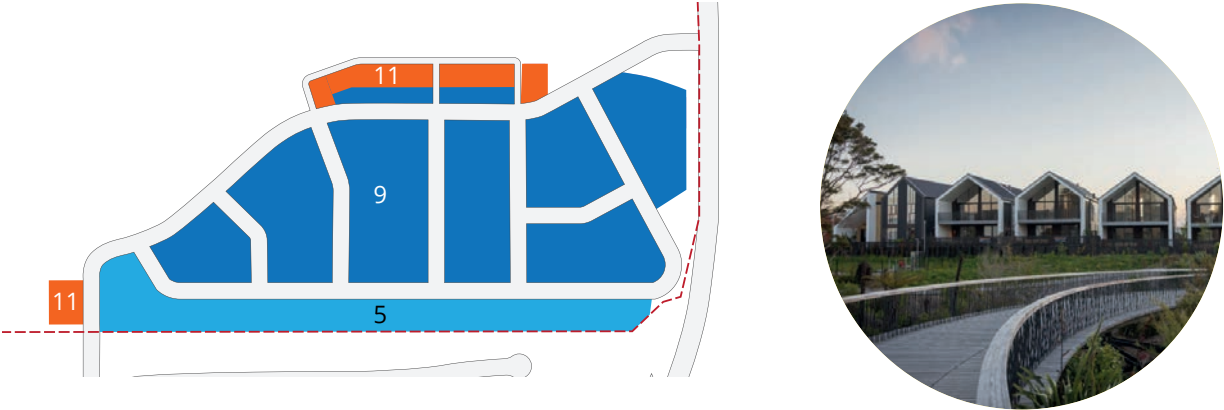
## MAXIMUM BUILDING HEIGHT

Most of the Plan area is subject to the standard 9m residential height limit. However, a proposed maximum height of 11 metres applies to MUHA overlay areas.

A 9m height limit comfortably accommodates two-storey detached houses. The proposed 11m limit enables three-storey construction that is commonly associated

with semi-detached dwellings and terraced houses on narrower lots. These dwelling types frequently contain a ground-level garage with two floors of living accommodation above. In general terms, the additional height encourages compact medium-density development and a wider range of dwelling types.

Within the proposed MUHA area, the 11m height limit encourages stronger spatial definition of the Whiskey Creek Reserve and wetlands. Also, taller development takes advantage of the exceptional visual quality of the new public reserve.



**Figure 26.** *Proposed maximum building heights (m)*

### BOUNDARY CONTROLS

The Whiskey Creek Structure Plan employs a wider range of boundary controls than the Operative District Plan. Within Medium Density areas (MUHA overlay) along the northern edge of the development more permissive boundary controls enable semi-detached and fully attached (terraced) dwellings within comprehensively designed developments. Existing Residential Zone boundary controls apply to the Conventional Suburban Lots that comprise the bulk of the Plan.

Narrow lots make efficient use of high-amenity locations overlooking Whiskey Creek. Semi-detached and fully attached dwellings are well-suited to such locations. To facilitate this subdivision pattern and associated housing types, height recession planes and separation distances are relaxed or omitted. Relaxing these controls is contingent upon coordinated planning and careful design.

To facilitate semi-detached dwellings, the Plan permits zero separation distance along a single shared side boundary within a coordinated development on two

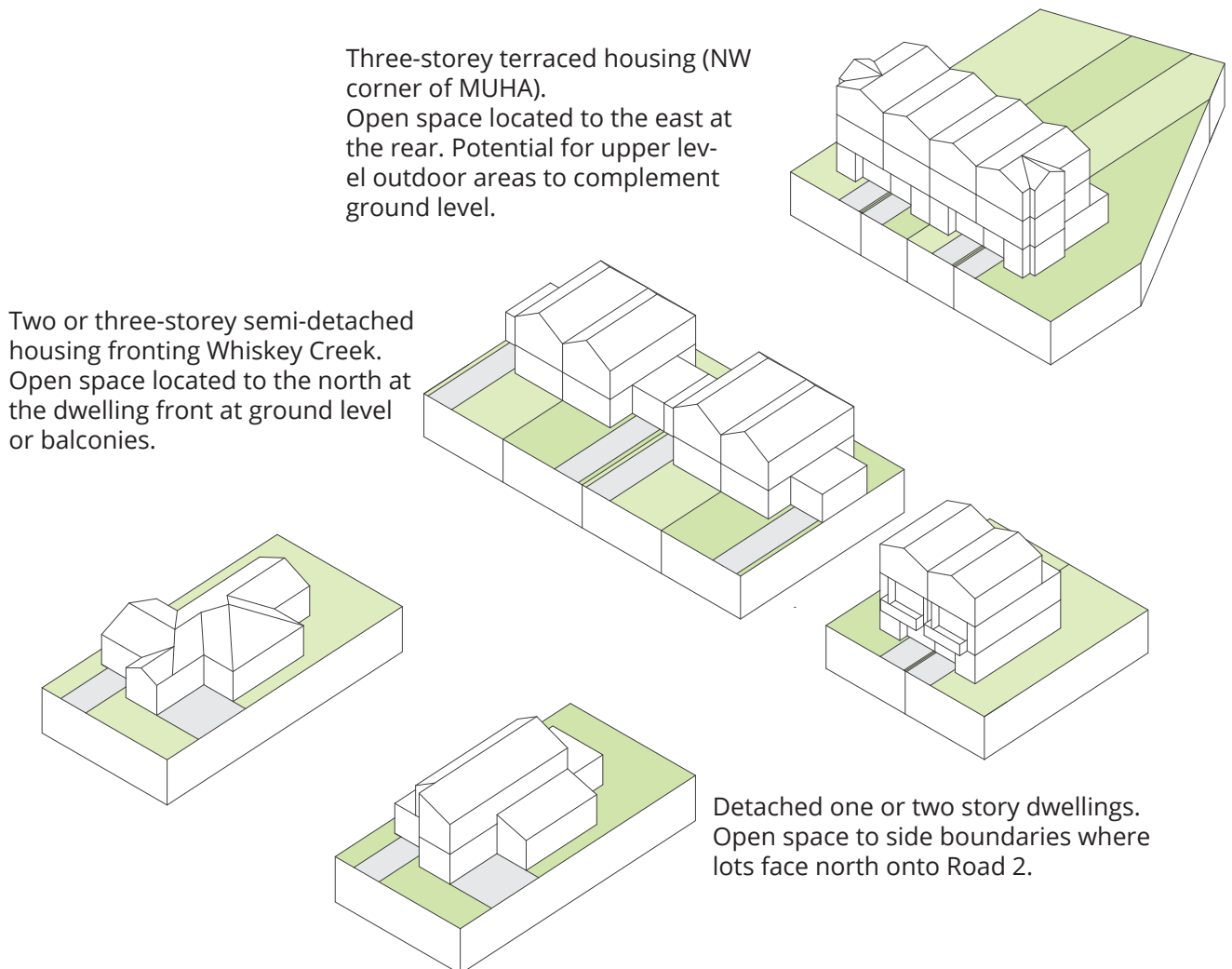




or more adjoining parcels. This provision also applies to Accessory Buildings and Additional Minor Dwellings. To facilitate fully attached dwellings, the Plan permits zero separation distance along all shared side boundaries within a coordinated development on multiple adjoining parcels.

A height recession plane does not apply along a shared side boundary where the zero separation provision is activated. In effect, a pair of semi-detached dwellings – or a row of fully attached townhouses – is treated as one building.

To accommodate two and three-storey dwellings on narrow lots, the height recession plane is proposed to be steeper and more elevated. The plane commences 3m above ground and inclines upwards at an angle of 60 degrees to the horizontal. Once again, coordinated planning and careful design are required to mitigate effects on neighbouring sites. Restricted discretionary Assessment Criteria (R10.6.3.3 and R10.6.3.1) will also apply to ensure amenity effects are addressed.



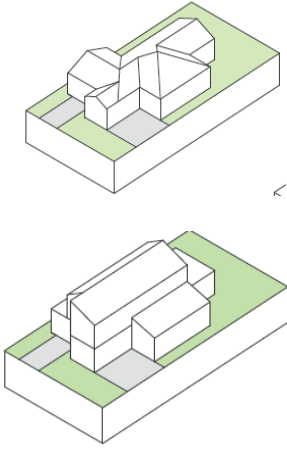
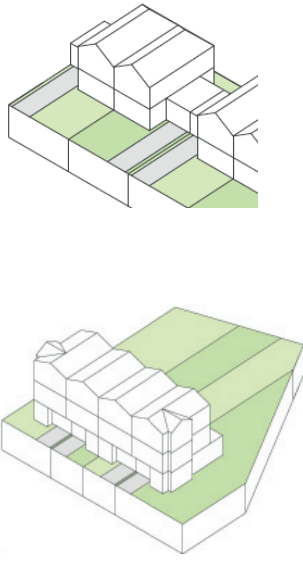
**Figure 27. Illustrative dwellings - setback, massing, open space**

## PRIVATE OUTDOOR AMENITY

Where the 11m maximum building height applies, private outdoor amenity areas may be elevated above ground level. The 11m height limit anticipates three-storey dwellings with first-floor living spaces. In this case, a well-oriented generously proportioned deck or balcony may complement ground-level garden spaces. An elevated outdoor area can deliver better views and support passive surveillance of adjacent public space.



## SUMMARY OF DEVELOPMENT STANDARDS

| LOT/BUILDING TYPE  | Greenfield Residential replacing Conventional Suburban   |   |   |
|--|--|---|---|
|   |  | <b>Existing Standards</b>   | <b>Whiskey Creek Plan Change</b>                                |
|  | Min Lot Size (sq.m)  | 350   | No change   |
|  | Avg Lot Size (sq.m)  | 500-550   | 400-500   |
|  | Max Coverage (%)   | 40 on sites < 500m <sup>2</sup><br>200m <sup>2</sup> on sites 500-572 m <sup>2</sup><br>35 on site >5762 m <sup>2</sup> | No change   |
|  | Min Front Setback (m <sup>2</sup> )  | 3 (6 for garage/carport)  | No change   |
|  | Min Separation (m <sup>2</sup> )   | 1.5   | No change   |
|  | Max Height (m)   | 9   | No change except 5m at interface with existing Meadowbrook lots |
|  | Recession Plane  | 45° at 2.8m   | No change   |
|  | Min Amenity Area (m <sup>2</sup> /unit)  | 36  | No change   |
|  | Fencing (m)  | 0.9   | No change   |
|  | <b>Description:</b>  |   |   |
|  | <p>Enables 1 and 2-storey detached dwellings.</p> <p>Dwellings match the scale and character of adjacent established residential areas. Larger lots on corner sites allow flexibility for dwelling design to address both streets and accommodate alternative access arrangements.</p> <p>Larger lots introduce more room for vegetation along boundaries.</p> |   |   |
|  |   |   | <b>Existing Standards</b>                                       |
| Min Lot Size (m <sup>2</sup> )   |  | Nil or 150  | 150   |
| Min unit size (m <sup>2</sup> )  |  | 40 or 60  | 60  |
| Max Coverage (%)   |  | 40  | No change   |
| Min Front Setback (m)  |  | 3 (6 for garage/carport)  | No change   |
| Min Separation (m)   |  | 1.5*  | 1.5**   |
| Max Height (m)   |  | 9   | 11  |
| Recession Plane  |  | 45° at 2.8m   | 60° at 3m**   |
| Min Amenity Area (m <sup>2</sup> /unit)  |  | 30  | No change ***   |
| Fencing (m)  |  | 0.9   | No change   |
| <b>Description:</b>  |  |   |   |
| <p>Enables 2 and 3-storey terraced or semi-detached townhouses.</p> <p>Attached typologies and narrower lots increases yield and optimises very high open space amenity locations onto the proposed reserve.</p> <p>Townhouse shared street design establishes clear identity and sense of place at transition to Whiskey Creek Reserve with safe recreational trail access.</p> <p>A 6m street setback allows for front yard open space for north-facing lots but has the negative effect of increasing visual presence of cars. A 3m setback reduces vehicle presence on shared streets and provide sense of enclosure to lanes. With reduced north-facing front yards, balconies supplement at-grade open space when main living area is elevated.</p> <p>Assessment required against Multi-Unit design criteria.</p> |  |   |   |

\* Does not apply when two dwellings are joined by their respective garages.

\*\* Does not apply to a party wall boundary between two or more comprehensively designed dwellings.

\*\*\* Min 8sq.m balcony/decks to complement ground level opens space if living area is above ground.



## 5. Conclusions

The Whiskey Creek proposed Structure Plan and Plan Change has been developed over a 10 month period from May 2020 with expert input from a multi-disciplinary team. Positive engagement and feedback has been received from PNCC that has led to various Plan adjustments; notably decisions around stormwater, open space provision and roading. Engagement has also taken place with local residents. This resulted in amendments to the residential interface with existing Meadowbrook dwellings; namely a reduction of maximum height to 5m and aligning of property boundaries wherever possible.

The Site is suitable for a combination of conventional suburban housing and multi-unit medium-density housing with a range of dwelling types. A high level of amenity will be created through a revitalised Whiskey Creek. This will create an attractive northern edge to the city along with generous wetland parks and public recreational trails. A new local centre-type facility adds further amenity.

Overall, the proposed structure plan and anticipated development performs positively from an urban design and landscape perspective for the reasons summarised below:

1. Comprehensive planning produces a high-quality, walkable public realm with visual and physical connections between the development and Whiskey Creek. The local street system is complemented by a network of off-road trails, which link residential properties to city-wide corridors (Mangaone Stream).
2. Coordinated development incorporates medium-density housing (as a proposed MUHA overlay) with a range of lot sizes and dwelling types as well as conventional housing.
3. Local centre-type facilities are proposed in an appropriate location accessible to both existing and future residents as well as general public users of the planned Whiskey Creek ecological corridor.
4. Targeted development standards have been established to address the relationship with existing housing and to ensure the effects of multi-unit housing are mitigated.

5. New site-specific standards include: 400-500sqm average net site areas; the reduction of some separation distances; and the relaxation of some height recession planes. These provisions encourage narrow lots with street-facing housing and the capacity to accommodate a range of housing types. An 11m maximum building height is proposed in high-amenity MUHA-capable areas. This provision accommodates two and three-storey dwellings, which make better use of the most favourable locations.
6. A revitalised Whiskey Creek corridor includes riparian planting, the introduction of new wetland features and enhanced Whiskey Creek water flows. Throughout this corridor a variety of new pedestrian and cycle paths are proposed linking with the wider street network and Mangaone Stream.
7. The proposed street network presents a street hierarchy that is consistent with Council's direction elsewhere (Aokautere and Roxburgh Crescent). High amenity, connected streets are proposed that include street tree planting and sustainable urban drainage. Streets are configured to connect visually and physically with the Whiskey Creek corridor.
8. Open spaces are provided across the development area offering public recreational opportunities including walking and play. All lots are sized and designed to allow for District Plan private open space requirements.
9. Stormwater management has been carefully considered (see separate report by DHI), and a solution provided that integrates water flows with the design of streets and open spaces. Detention ponds and reticulation are incorporated as positive wetland features in the plan.