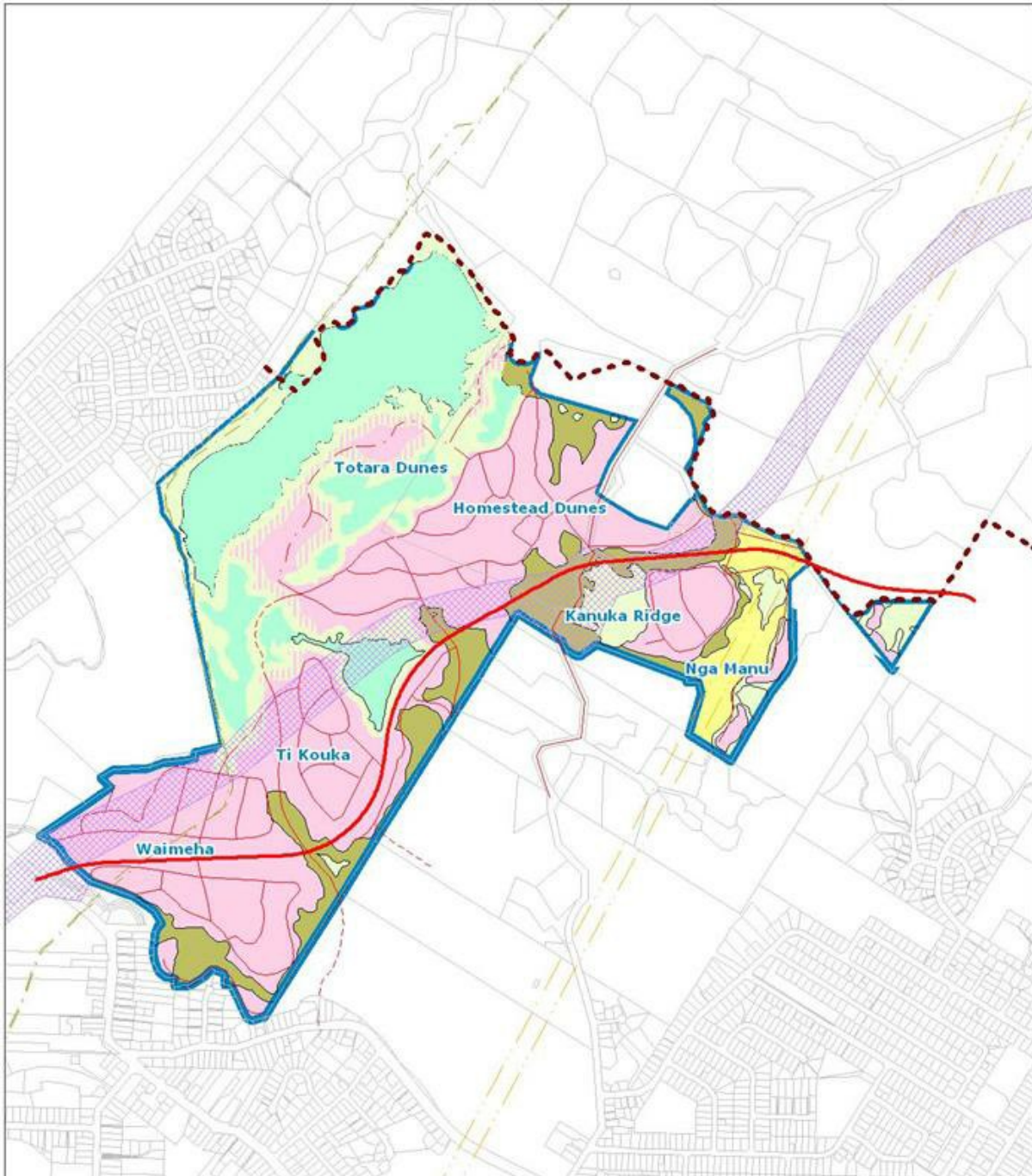


Appendix 7

Ngārara Development Area Structure Plan



Ngārara Development Area Structure Plan

Legend:

 Neighbourhoods	 Conservation Zone	 Transmission Lines
 Open Space - Conservation Wetland	 Commercial Zone	 Urban Edge
 Open Space - Wetland Buffer	 Airport Zone	 Unsealed Road
 Open Space - Forest	 Town Centre Zone	 Potential Road Connection
 Open Space - Pasture	 Ecological Sites	
 Open Space - Wetland Buffer 50m	 Western Link Designation	



Map Projection NZMG
Last Ammended 8 May 2009

Appendix 7 - Ngārara Development Area - Neighbourhood Development Areas

Neighbourhood Development Areas

The following outlines a description, Environmental Objectives and anticipated form for the respective Neighbourhood Development Areas. Also provided are indicative maps. These matters are to be taken into account in assessing any resource consent application, and in determining conditions of consent.

Waimeha North Neighbourhood

Waimeha North is a small-sized local centre that offers a range of services and facilities. It is the southern gateway to the development and provides an interface to the existing Waikanae settlement and to all of the development blocks on the farm and interfaces with the existing Waikanae town.

Environmental outcomes

The key components anticipated for Waimeha North include:

- At the entrance to Waimeha North is a small-scale retail and commercial opportunity. Taewapirau frames the gateway providing a natural and culturally significant entrance statement and sense of place.
- A range of residential built forms is provided along the dunes, down to the Ngārara link road (NLR), linked by a strong series of open space connections and a central greenway to knit the first village together.
- A higher density residential neighbourhood is located at the centre, which includes terraces, apartments and generous public parks, reserves, shared courts and a system of intimate neighbourhood streets.
- The hilltop village providing for Waimeha and the rest of the Ngārara Neighbourhoods sits in the hill overlooking the wetland and sea.
- Surrounding lower density residential dune areas that incorporate strict revegetated buffer covenants
- A community park and playing field is provided with the development of the Linear Park. This provides a range of local public open space opportunities including shared spaces overlooked by properties.
- Kawakahia Wetland public reserve that is overlooked by higher density residential development.
- A school and potential preschool is able to be provided, which provides a local educational amenity within Waimeha and also servicing wider neighbourhoods.

Anticipated form

Activities

Activities and built form in the Waimeha North Neighbourhood Development Area are anticipated to be within the following five typologies:

1. Mixed Use Area (Mixed Use A and B)
2. Apartment and intensive Residential Area (Residential A)
3. Medium Residential Area (Residential B)
4. Low Residential Area (Residential C)

5. Open Space Areas

These are identified in the Waimeha Concept Plan below:



Built form

A palette of appropriate built forms is suggested for the Waimeha area ranging from a higher density mixed-use centre and urban basin, to residential buildings on surrounding dunes.

Appropriate built forms for the specific areas within Waimeha North are as follows, key development controls for each typology are provided in the subsequent section:

- a. Mixed Use Area (Mixed Use A) — Primary use is commercial and retail, with some community services and high density apartments. Mixed use buildings are proposed at the Gateway to Waimeha and at the Hilltop Village providing for the main commercial area. There is some flexibility for community activities such as a childcare centre or medical practice. These buildings will include ground floors with generous floor to floor heights to allow for possible retail on the ground floor and at corners on the main street providing a pedestrian friendly environment. Upper floors will be designed to accommodate residential uses with the possibility for commercial use over time. Key design features are:

- i. Primary use is commercial activities. Typical size expected to be 60m²/retail premise
 - ii. High quality public realm that is a hub of activity and is pedestrian friendly
 - iii. Residential activity permitted above the ground floor. Typical floor area expected to be 100m²/unit
 - iv. High quality design, especially at the ground floor. Buildings designed to allow active at grade street fronts and building entrances, while allowing private balcony areas above ground level
 - v. Consolidated parking and service facilities to the rear of the buildings or in naturally ventilated semi-basement levels
 - vi. Flexibility to have community activities e.g. a child care centre or medical practice
- b. Mixed Use Area (Mixed Use B) — Consists of higher density residential apartments adjoining the Linear Park that allow for small scale or home-based retail and/or business uses such as corner cafe/hairdresser may be permitted where appropriate on the ground floor. They provide shared common space for parking, utilities and facilities. Each residential unit is required to have a deck, or private courtyard for personal outdoor living. An alternative use in this zone is for a school or other community facilities. Key design features are:
- i. Apartment buildings which are primarily residential; providing the highest residential density within Waimeha. Can have a range of unit sizes, but the typical unit is expected to be 100m², providing 40HHU/Ha.
 - ii. Buildings adjoin public open space areas to provide for amenity and recreation
 - iii. Business (commercial, retail, cafes) permitted on the ground floor
 - iv. Shared common space for the like of parking, utilities and facilities. For larger apartments, it is encouraged that these services be provided in naturally ventilated semi-basement parking levels
 - v. Shared common amenity area. Apartment buildings are developed around this space
 - vi. Integrated buildings into the wider landscape grounds
 - vii. Each residential unit has a private deck or courtyard for personal outdoor living
 - viii. An alternative use in this zone is for a school
- c. Intensive Residential Area (Residential A) - Residential 'A' areas are high density, exclusively residential areas with a predominance of terrace, semi-detached and townhouse developments. There is one dwelling per lot and no provision for business activities on the ground floor and each unit is required to have a ground floor outdoor living area (which can be supplemented with balconies or roof gardens). There are no side yard requirements and buildings are ideally located close to the street to create a strong streetscape. Key design features are:
- a. Medium density residential situated around high amenity public spaces to achieve an efficient use of land
 - b. Lot sizes range from 200-400m², averaging 300m² / 30HHU/Ha; and a typical unit size is 140-180m² (over 2 storeys).
 - c. Apartments are a subset of Residential A and will have a smaller than average lot size, for example 156m² for the Residential A typology lots neighbouring Pocket Park.
 - d. Uniform terraced and semidetached residential buildings. Building height will follow the slope of the land and be maximised along Te Ara Kawakahia, adjacent to open space and on corners
 - e. Generally one unit per lot. However, each lot within the area directly adjoining the pocket park and directly adjoining the Mixed Use B apartments (by the linear park) can contain two units. Where there are two units within one lot, they will be contained within one dwelling building, having one unit per storey.
 - f. Buildings located close to the street frontage (around 2m setback) and have a strong streetscape
 - g. Space is provided for ground level outdoor living areas (which can be supplemented with balconies and roof gardens)
 - h. Buildings close to and overlooking open space to provide amenity

- i. Site access and parking is off lanes or right-of-ways at the rear of the site, in order to enhance the street appeal.
- d. Residential Area (Residential B) - Residential 'B' areas are exclusively residential, providing a 'medium' level of density. Dwellings are typically two storey standalone, one per lot, and orientated to capture sunlight. Primary outdoor living areas, north or west facing of approximately 100m² provide discrete, sunny and semi-private spaces with high amenity. Key design features include:
 - a. Medium density residential to achieve an efficient use of land and suitable on site amenity
 - b. Lot sizes range from 250-500m², averaging 400m² / 25HHU/Ha; and a typical unit size is 180-200m² (over 2 storeys, and including inbuilt garages)
 - c. Primarily two storey stand-alone dwellings
 - d. One unit per site
 - e. Primary outdoor living areas which are small (approx. 100m²), discrete, sunny and semi-private, with high amenity
 - f. Buildings shall relate positively to the street, without garages or fences being prominent.
- e. Low Density Residential (Residential C) - Residential 'C' areas provide for low density, exclusively residential development. Dwellings will typically be one or two storeys and allow for most housing company products as well as relocatable dwellings (subject to approval). Key design features include:
 - a. Low density residential
 - b. Lot sizes range from 500-750m², averaging 600m² / 10-15HHU/Ha.
 - c. Larger sections to cater for more outdoor open space and on-site amenity
 - d. One unit per site
 - e. Flexibility for a range of house designs, including single and double storey stand-alone dwellings.
 - f. In some cases, lot size may exceed 750m² depending on market demand and environmental factors (for example, the Residential C typology lots in Waimeha Stage 1 next to the golf course).

Wetland response

The development has taken account of the extent of the Kawakahia Wetland (K066). A minimum 20m buffer has been provided at this location and a 50m open space buffer has been provided to private dwellings. Anticipated within the open space:

- is a transition of existing mahoe scrub that is regenerating in the wetland
- the collector road will be reduced to allow for more native planting and less road neighbouring the covenant
- people will be able to experience the wetland as they bike and walk alongside this slow moving movement corridor
- walkways may be able to be provided along the northwest of the
- wetland as people go towards the beach
- stormwater will discharge away from the wetland towards the linear park

Open Space Network

A comprehensive open space network is proposed through Waimeha North providing physical, visual and ecological spaces and connections through the design.

A variety of different types of spaces are anticipated including:

- Taewapirau (cultural)
- Pocket Park (passive recreation)
- Linear Park (stormwater and community facilities)
- Greenway (pedestrian and cycle connection)
- Dune walkway
- Village green (community)

Greenway

The greenway is anticipated to be a 6m corridor which links Taewapirau in the south through to the Hilltop village and wetland in the north. The path is linear but varies in gradient as it rises over and down existing dunes. The path would be formed using permeable materials and would form a key off road pedestrian and cycle link throughout the neighbourhood. Planting would be minimal allowing views into the corridor from adjoining properties and there would be a covenant restricting fencing being installed along its boundary.

There is the potential for the greenway to be used as an overland flow path for stormwater and a timber edge may be constructed along its edge to direct water. This would also assist with delineating property boundaries while retaining an open character to meet CPTED principles.

Landscaping edge will be secured through covenants on private properties.

Planting palette

The primary focus of planting should be using indigenous species. Species should be carefully selected to ensure that they are not likely to pose a threat to the ecological values of adjacent wetland remnants. Planting mixture should be appropriately sited to minimise shading and canopy overhang on surrounding residential properties while assisting with providing privacy between dwellings. All species should be planted at suitable densities to reduce maintenance/weed issues. Further plant species can be added to the list which share similar ecological conditions as outlined in this planting palette. Final landscape plans for public areas and road ways will need to be submitted to Council for approval prior to construction.

Street Hierarchy

The Ngārara Link Road will form a logical and direct route through Waimeha North and forms part of a north-south pedestrian, cycle and vehicle corridor linking all parts of Ngarara together. Sections of this collector road are designed as a 'Main Street' where it passes through mixed use/village areas, to create activity hubs suitable for reduced traffic speeds, allocated parking, crossing points, drop off areas and a pedestrian friendly local street environment. This provides opportunities for retail and/or commercial activity as well as community amenities (e.g. a school or childcare facilities), focal points (e.g. Kawakahia Wetland) and places of cultural importance. The suggested reserve width varies from 14m to 23m depending on its location.

Residential streets and lanes are provided in Waimeha North. These range from wider streets incorporating parking and street trees to rear lanes serving residential and commercial lots in medium to higher residential areas. Suggested road reserves ranges from 5-7m for lanes and 10-15m for residential streets.

Neighbourhood streets will respond to natural and topographical features such as valleys, vegetation and dunes, providing limited traffic flows especially along the dunes. These streets will be characterised by: narrow carriageway widths, planting either side of the carriageway; and the use of swales and semi-permeable surface materials such as crushed aggregate gravels. Suggested reserve width of 10.4m. This is to include 6m carriageway and a 4.4m corridor for swales and planting.

Waimeha South Neighbourhood

Waimeha South is a small-sized local centre that offers a range of services and facilities. It is the Southern gateway to the development and provides an interface to the existing Waikanae settlement, to all of the development blocks on the farm, and interfaces with the existing Waikanae Town. The unique character of Waimeha will be achieved through the creation of a main street with mixed use active edges so that social, cultural and employment benefits are provided for the local and wider Ngārara community. The surrounding residential areas within Waimeha basin as well as along the dune hillsides help to reinforce Waimeha as an integrated and mixed-use neighbourhood. It is envisaged the neighbourhood will provide recreation, entertainment, social and economic opportunities, providing a variety of housing choice, with easy access to surrounding amenities such as the golf course, beach and Waikanae Park.

Environmental Outcomes

- A higher density residential neighbourhood at the centre that includes terraces, apartments and generous public parks, reserves, shared courts and a system of intimate neighbourhood streets.
- Surrounding lower density residential dune areas that incorporate strict revegetated buffer covenants.
- A community park and playing field that is overlooked by both a local school and residential lots.
- A landscaped gateway to the Ngārara Settlement at the southern entrance.
- An urban gateway at the Waimeha main street intersection, using smaller building setbacks, higher buildings and robust urban forms to create a visual entrance statement.
- A series of greenways within the Waimeha neighbourhood. These provide a connected area of vegetation along dune tops and on private lot boundaries and potentially along the Kawakahia Wetland.
- A pedestrian, cycle and bridle corridor that occurs alongside the Expressway between Raumati and Waikanae North providing a north-south recreational route. This corridor opens to form a generous linear space on either side of the NLR, lined with a tight edge of residential terraces and tree boulevards on either side. The width of the corridor tightens as it reaches the Waimeha centre Main road intersection. All private lots situated adjacent to this section of the Ngārara Link Road Corridor will be designed to provide a level of passive surveillance onto the corridor.
- An existing open space/hill which is accessed from a parking area off the main street and which forms part of the pedestrian network.
- A continuous wetland buffer separating Waimeha from the Kawakahia Wetland.
- The Kawakahia Wetland that is overlooked by residential development.
- A primary or secondary school with associated preschool which provides a local educational amenity within Waimeha.
- A linear Reserve that runs along the existing gas pipe lines. This provides a range of local public open space opportunities including shared allotments overlooked by properties
 - i. an urban plaza off the main street
 - ii. and small pocket parks within residential blocks
- The total number of households in this neighbourhood will not exceed 780.

Anticipated form

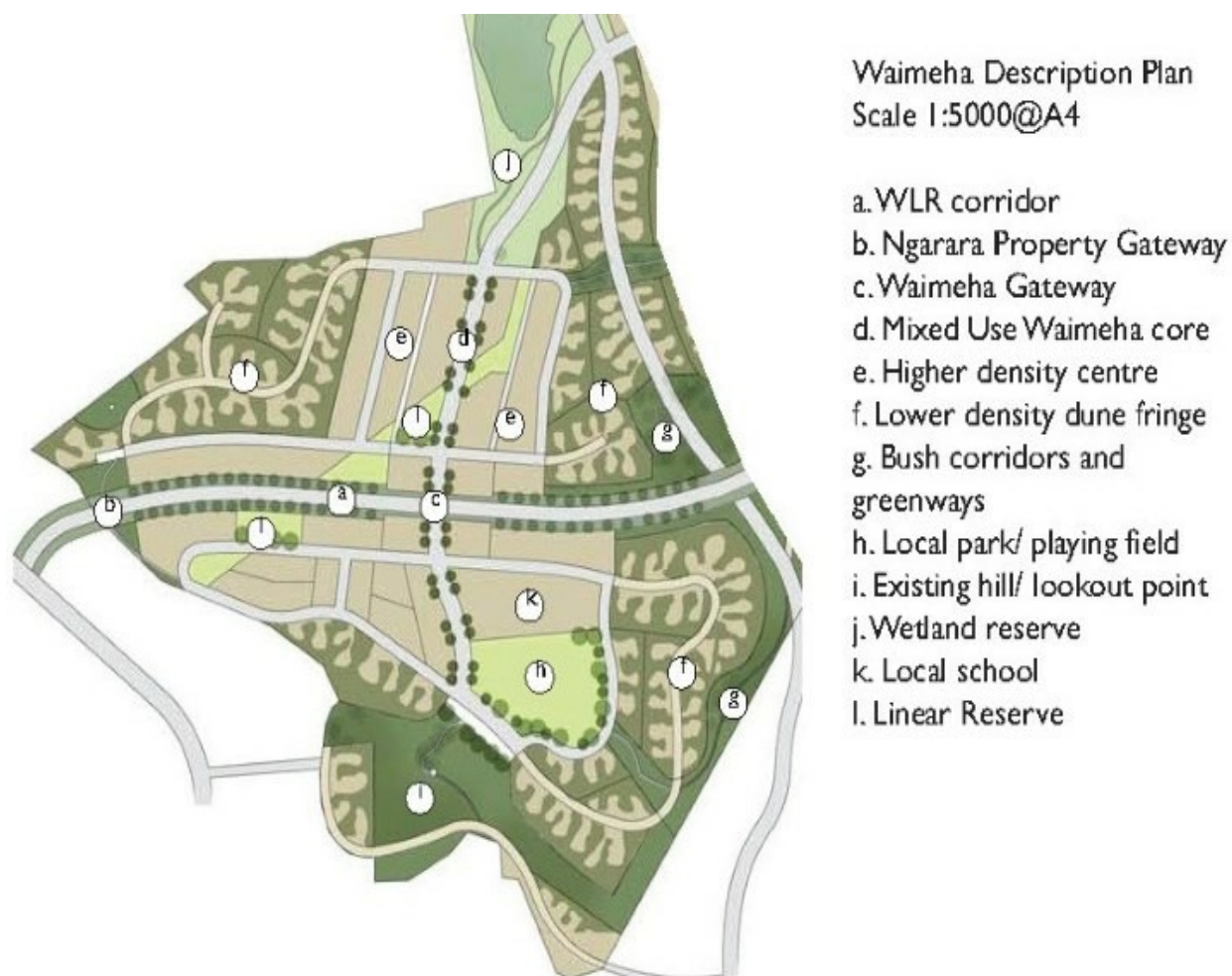
Activities

Mixed uses are anticipated within Waimeha South with the following five areas identified within the Neighbourhood Development Area:

- Mixed Use Area (Area d) — provide the basis for mixed land uses in the future should the market require it, and until then the area will be used as predominately intensive residential.
- Intensive Residential Area (Area e)
- Residential Area (Area e)
- Community Area
- Dunes Area (Area f)
- Open Space Areas

These areas are indicated in the conceptual plan below:

Note: This plan is indicative only and applies to Waimeha South only. The final layout will be determined at the Neighbourhood Development Stage



Built Form

A palette of appropriate built forms is suggested for the Waimeha area ranging from a higher density mixed-use centre and urban basin, to residential buildings on surrounding dunes.

Appropriate built forms for the specific areas within Waimeha are as follows:

- Mixed Use Area (Area d) - High density core (mixed land use comprising apartment and commercial buildings) with a maximum height of three storeys (up to 12m), an average density of 65HHU/Ha, and a maximum site coverage of 50%. 0-3m setbacks are envisaged along the front boundary with no setback required on side or rear boundaries. Overall, buildings will be characterised by larger massed buildings commanding a strong built presence on the front street edge. Parking is to be accommodated within parking courts to the rear of buildings or in natural ventilated semi-basement parking levels. Key architectural elements include: Predominantly pitched roofs with flat roofs at corners; approved colour-steel sheeting or asphalt shingles; covered verandas along sidewalks; celebrated entrances; balconies overlooking the main street; strong building layering of heavy base, middle and light top; a mix of solid materials such as solid plastered blockwork and light materials such as weatherboard and modern timber panelling; full height glazed openings on ground floor; predominantly natural timber fenestration; a palette of muted earth exterior tones limited use of accent colours.
- Intensive Residential Area (Area e) — Higher density residential land uses in the form of terraces, townhouses and apartments adjacent to the core with a maximum of 2-3 storeys (8m—10m) and densities ranging between 30 — 100 HHU/Ha and an average density of 40HHU/Ha. Small-scale or home-based retail and/or business uses such as a corner café/hairdresser may be permitted where appropriate on ground floor. A maximum site coverage of 60% is envisaged for lots smaller than 200m², and 40% for 200-350m² lots. 0-4m setbacks are envisaged along the front boundary with no setback required on side boundaries, and a minimum of 2m along rear boundaries. Building height will be most generous adjacent to prominent public areas such as the wetland reserve, main street and the Ngārara Link Road. These larger massed apartment buildings will have a strong built presence on street edges and opening onto shared private open spaces to the front or rear of the building. Key architectural elements include mono or double pitched approved colour-steel sheeting or asphalt-shingle roofs; strong building layering of heavy base, middle and light top within apartments; a mix of solid materials such as solid plastered blockwork and light materials such as weatherboard and modern timber panelling; use of roof terraces and courtyard gardens; predominantly natural timber fenestration; and a palette of muted earth exterior tones and natural timber finishes.
- Residential Area (Area e) — Residential land uses within the eastern basin of Waimeha allowing for a medium density urban neighbourhood, bridging between the higher density local centre and the surrounding lower density dunes. Only residential uses are appropriate in this area. A maximum of 2-3 storeys (8-10m) is envisaged with densities ranging between 20 — 40 HHU/Ha and an average density of 25HHU/Ha, allowing for lot sizes between 250-500m², with an average of 400m². A maximum site coverage of 40% is envisaged for lots 250-350m² lots, and 25% for 350-500m² 2 - 6m setbacks are envisaged along the front boundary with no setback required on side boundaries, and a minimum of 10m from rear boundaries. Larger lots will predominantly contain stand-alone houses with reduced building footprints over 2 floors and generous rear yards. Semi-detached dwellings on smaller lots allow for sunny side-yard courtyard gardens, while creating unified streetscapes through similar scaled and massed building forms. Key architectural elements envisaged include pitched approved colour-steel sheeting or asphalt shingle roofs; a mix of light materials such as weather/linear board and modern timber panelling in conjunction with solid construction such as plastered brick or block; use of low-walled small front yard gardens and courtyards that respond to the street edge; use of building elements such as lean-to roofs, verandas, porticos and decks to create external living areas; predominantly natural timber fenestration; and a palette of muted earth tones and natural timber finishes.
- Community Area — Community facilities including a local primary or secondary school within Waimeha. Related facilities such as meeting rooms, community hall, swimming pool, playschool and playgrounds may be associated with this. A maximum of 2-3 storeys (8m—10m) is envisaged, with building heights maximised along the main street, at the school entrance and at street corners. A maximum site coverage of 50% is envisaged. 4m setbacks are envisaged along all boundaries.

The school buildings will be characterised by a series of connected buildings creating a positive front street edge, while opening to the rear of the property to provide safe private spaces. Key architectural elements envisaged include double or mono-pitched approved colour-steel sheeting or asphalt-shingle roofs; celebrated entrances; a strong building layering of heavy base, middle and light top; a mix of solid materials such as solid plastered blockwork and light materials such as weatherboard and modern timber panelling; use of large door openings on the ground floor; sunny courtyard spaces between buildings; a palette of muted earth exterior tones with accent colours used only in limited statement areas such as the entranceways; predominantly natural timber fenestration; and hard landscaped areas incorporating seating, tree planters, steps and paving.

- Dune Area (Area f) — This land use area occurs along the existing dune topography surrounding the Waimeha basin and allows for residential development of varying densities, with strict planting covenants on each private lot and within street reserves. No mixed use, retail, commercial or community land uses are suited to these sensitive topographies. Densities would range from 7-20 HHU/Ha. This range allows for lot sizes between 500-1500m². Average 10 HHU/Ha (1000m² lots) in the dunes adjacent to the golf course. Average 15 HHU/Ha (650m² lots) in all remaining dunes. A maximum of 2 storeys (8m) is envisaged. Site coverage would be governed (and covenanted) by the following guidelines - Maximum building coverage of 25% or maximum 200m², whichever is the smaller area; Maximum 25% of each private lot will be landscaped for private external uses such as flowerbeds, paths, decks, driveways and lawns. These areas will be predominantly permeable for natural drainage. Minimum 50% of each private lot to be planted (approved planting only) along all side and rear boundaries (and front boundaries where adjacent to a bush corridor). Minimum 4m setbacks are envisaged along the front boundary, 3m along the side boundaries, and a minimum of 10m from rear boundaries. All lots will contain stand-alone houses with modest building footprints that are not visually dominant over the landscape. Buildings will consist of smaller masses that sit individually on dune slopes, linked through steps, corridors and atria. This allows for broken-up smaller building masses that reduce the visual and ecological impact on the dunes and that allow planting to be integrated into and in-between the built forms, not just around them, merging internal and external spaces. This results in a dune architectural style that is unique to Ngārara. Key architectural elements envisaged include predominantly mono-pitched and lean-to approved colour-steel sheeting or asphalt shingle roofs; use of light materials such as weather/linear board and modern timber cladding; solid materials such as solid plastered or bagged block wall elements as opposed to entire buildings; clerestory windows or brickwork limited to individual and full height glazed walls offering views; use of building elements such as verandas, decks, steps and courtyards to create stepped external living areas; predominantly natural timber fenestration; and a palette of muted earth tones and natural timber finishes; avoidance of any large dominant architectural features that are visually dominant against the dune slope.

Open Space and Conservation

Key conservation and open space principles concern connection of open space areas, and protection of natural edges. Key principles for Waimeha include:

Connect Open Spaces:

- Bush corridors will provide circulation routes (ecological, pedestrian and recreational) and greenways which will link the regenerated bush, forest and wetland areas within and outside the Waimeha boundaries. Existing native vegetated areas such as mahoe hillsides and wetland edges will be maintained and incorporated.
- The urban layout will allow access to the adjacent wetland area which integrates and incorporates recreational, environmental and educational value Open Space Wetland Buffers will be incorporated into the layout between the Kawakahia Wetland and Waimeha.
- A linear park runs along the existing gas lines. This provides a range of local public open space including shared allotments overlooked by properties, an urban plaza off the main street and small

pocket parks within residential blocks.

- The plaza and pocket parks will incorporate more formal planting arrangements, medium tree specimens and hard landscaping such as seating, pedestrian walkways and lighting, while the allotment area will contain secure managed productive food planting areas that are overlooked by adjacent private properties.
- Properties abutting the linear park will be designed to include private open spaces that front onto this shared space so that it is overlooked through passive surveillance as well as being locally managed.
- Important vistas to the coast, golf course, mountain range and wetlands will be strengthened from publicly accessible areas.
- All private lots situated adjacent to the Ngārara Link Road Corridor will be designed to provide a level of passive surveillance onto of the pedestrian/cycle and bridle path.

Protection of natural edges:

- **Open Space Wetland Buffer:** - Edges between the Kawakahia Wetland area and Waimeha will contain a Open Space Wetland buffer allowing for sufficient progression from public natural habitat to private urban settlement via pedestrian/cycle and vehicular access points into public viewing and recreational areas. No private properties will abut the wetland area directly.
- **Bush Corridor and Greenway Edges:** - Private lots that are positioned against more ecologically sensitive areas such as the dunes and bush corridor will be covenanted to include revegetated buffers on lot boundaries and on upper slopes of lots which reach the tops of dunes. The buffers will assist in creating a seamless edge between the Waimeha development and the greenways, reducing the visual impact of the built forms against the dunes. The buffers will consist of new and/or revegetated native planting, using species consistent with the proposed revegetation plant palette.
- **Existing Waimeha Reserve Edge:** - The Ngārara Development boundary edge adjoining the Waikanae Park will be landscaped using similar plant species to those plant communities in the existing reserve. This is aimed at providing a seamless transition between public reserve and private development, while providing a natural gateway.

Services

Water: The site will be serviced by a reticulated water system, incorporating a range of management tools to reduce per capita water use. These include:

- The installation of rainwater collection (tanks) for all residential dwellings.
- Greywater reuse for underground garden irrigation.
- In house water conservation devices (such as dual flush toilets and low flow shower heads).
- A reduction in the size of privately owned land parcels.
- A landscape plan that encourages use of local, drought resistant species.
- The collection of stormwater runoff for non potable

Stormwater: The focus of stormwater management on the site is two-fold: ensuring the design of stormwater treatment facilities that add to the ecology and amenity of public open space and have a water quality treatment component; and mitigating the impact of urbanisation on potential flooding, both within and surrounding the site.

Stormwater management on site is to be primarily through low impact stormwater design, with the focus being on managing as much stormwater runoff “on site” as practicably possible.

Wastewater: Disposal will be via the existing Council reticulation system.

Roading: A series of roads are anticipated through Waimeha. Key features and principles include:

- Primary Connections

- a. The Ngārara Link Road (NLR) will form a logical and direct route through Waimeha and forms part of a north-south pedestrian, cycle and bridleway recreational corridor that occurs alongside the NLR between Raumati in the South and the future Waikanae town extension to the north. Where the NLR passes Waimeha, it opens to form a generous linear space on either side of the NLR, lined with a tight edge of residential terraces and tree boulevards on either side. The width of the corridor narrows as it reaches the Waimeha centre Main road intersection. All private lots situated adjacent to this section of the Ngārara Link Road Corridor will be designed to provide a level of passive surveillance of the corridor.
 - b. The Main Street will be accessed directly from the NLR creating an activity hub on either side of the NLR, suitable for reduced traffic speeds, allocated parking, crossing points, drop off areas and a pedestrian-friendly local street environment. This provides opportunities for retail and/or commercial activity as well as community amenities (e.g. the school), focal points (e.g. the Kawakahia Wetland) and places of cultural importance (e.g. the Pa).
 - c. A connector Road is situated between Waimeha and Ti Kouka Neighbourhoods and links the NLR to the Main Street. Suggested Reserve width: 17m to accommodate swales, planting, pedestrian, cycle and bridle paths and parking.
- Secondary Connections
 - Residential streets and lanes are situated within the more urban residential centre.
 - Wider streets (incorporating parking and tree Boulevards) 10-17m reserve width
 - Rear lanes (serving residential and commercial lots) in medium to higher density areas 5-7m to allow for turning manoeuvres
 - Neighbourhood streets will respond to natural and topographic features (i.e.; dunes) and characterised by: narrow carriageway widths, avoidance of long straight road stretches, planting either side of the carriageway and use of swales and semi-permeable surface materials. Suggested reserve width: 10-15m. This is to include a narrow carriageway width and space either side for swales and planting.
 - Pedestrian, bridle and cycle pathways will create an integrated network with the street pattern linking with all major public open spaces such as the park, wetland and bush corridors.

Ti Kouka Neighbourhood

Ti Kouka is situated on the outlying area of Waimeha, providing a small vibrant community set within a distinctive and intact natural environment. In Ti Kouka the natural environment dominates in terms of views, development responses and vegetation types, resulting in informal boundaries between urban and natural areas within Ti Kouka.

Environmental Outcomes

- A community domain providing a local public park within Ti Kouka adjacent to the Wetland reserve.
- Higher density residential Ti Kouka core surrounding the domain and positioned alongside the north-facing wetland reserve. Each apartment or terrace development will be designed to overlook the reserve.
- A medium density residential area situated within the flatter Ti Kouka basin.
- A continuous Open Space Wetland Buffer providing a generous north-facing public open space reserve between Ti Kouka wetland and residential areas.
- A restored Ti Kouka wetland.
- Potential linkage across the Ti Kouka wetland to Homestead Dunes;
- Lower density residential development on elevated dunes that incorporate strict revegetated buffer covenants on each lot.
- A series of interconnected revegetated bush corridors and smaller greenways within and

- surrounding Ti Kouka providing continuous native revegetation along dune ridges.
- The NLR recreational corridor incorporating cycle, bridle and pedestrian routes.
- The Ti Kouka Main Street which passes through the centre and provides parking and pedestrian/cycle opportunities for locals and visitors.
- Connector Roads linking past the neighbourhood and onto other areas.
- Main cycle, pedestrian and bridle routes alongside connector roads, within the neighbourhood and through ecological bush corridors. Routes through sensitive bush will be pedestrian-only boardwalks.
- The total number of households in this neighbourhood will not exceed 300.

Anticipated form

Activities

Anticipated activities within Ti Kouka include community domain with open spaces, and mixed density residential including intensive, medium and lower residential density (Areas b, c and g respectively).

These areas are indicated in the conceptual plan below:

Note: This plan is indicative only. The final layout will be determined at the Neighbourhood Development Stage



Ti Kouka Description Plan
Scale 1:5000@A4

- a. Village Domain
- b. Higher Density Village Core
- c. Residential Basin
- d. Wetland Buffer Reserve
- e. Wetland
- f. Pedestrian-only boardwalks
- g. Dune houses
- h. Bush corridors and greenways
- i. Western Link Road Corridor
- j. Ti Kouka Main Street
- k. Connector Roads
- l. Cycle, pedestrian and Bridle routes

Built Form

A palette of appropriate built forms is suggested for the residential Ti Kouka area. Three degrees of residential density are anticipated:

- Intensive Residential Area (Area b) — Small pockets of intensive residential land use adjacent to the domain, allowing for an average density of 40 HHU/Ha. Dwelling heights of between 2-3 storeys (8-12) in height are envisaged.
- Residential Area (Area c) — Small area of residential development at an average density of 25

HHU/Ha. Dwelling heights of between 2-3 storeys (8-12) in height are envisaged.

- Low Density Residential Area (Area g) — The majority of the Ti Kouka area will be lower density detached residential development over steeper dune area at an average of 10-16 HHU/Ha. Dwelling heights of between 1-2 storeys (8m) in height are envisaged.

Open Space and Conservation

Key conservation and open space principles concern connection of open space areas, and protection of natural edges. Key principles for Ti Kouka include:

- Dominant natural environment.
- Open Space Wetland Buffer adjoining the Kawakahia wetland.
- Natural vistas to surrounds.
- Informal boundaries between natural and developed areas.
- Connections between Ti Kouka wetland and Kawakahia wetland.
- Extensive well established public open space along the wetland and dunes.

Services

Water: The site will be serviced by a reticulated water system, incorporating a range of management tools to reduce per capita water use. These include:

- The installation of rainwater collection (in tanks) for all residential dwellings.
- Greywater reuse for underground garden irrigation.
- In house water conservation devices (such as dual flush toilets and low flow shower heads).
- A reduction in the size of privately owned land parcels.
- A landscape plan that encourages local, drought resistant species.
- The collection of stormwater runoff for non potable

Stormwater: The focus of stormwater management on the site is two-fold: ensuring the design of stormwater treatment facilities that add to the ecology and the amenity of public open space and have a water quality treatment component; and mitigating the impact of urbanisation on potential flooding, both within and surrounding the site.

Stormwater management on site is to be primarily through low impact stormwater design, with the focus being on managing as much stormwater runoff “on site” as practicably possible.

Wastewater: Disposal will be via the existing Council reticulation system.

Roading: A series of roads are anticipated through Ti Kouka. Key features and principles include:

- Primary Connections
 - a. The Ngārara Link Road (NLR) will form a logical and direct route through Ti Kouka and forms part of a north-south pedestrian, cycle and bridleway recreational corridor that occurs alongside the NLR between Raumati in the South and the future Waikanae town extension to the north. Where the NLR passes Ti Kouka, it opens to form a generous linear space on either side of the NLR, lined with a tight edge of residential terraces and tree boulevards on either side. All private lots situated adjacent to this section of the Ngārara Link Road Corridor will be designed to provide a level of passive surveillance for the corridor.
 - b. A connector Road is situated between Waimeha and Ti Kouka Neighbourhoods and links the NLR to the Main Street. Suggested Reserve width: 17m to accommodate swales, planting, pedestrian, cycle and bridle paths and parking located in clusters.

- Secondary Connections
 - a. Neighbourhood streets will respond to natural and topographic features (i.e.; dunes) and characterised by: narrow carriageways, avoidance of long straight road stretches, planting either side of the carriageway and use of swales and natural semi-permeable surface materials. Suggested reserve width: 10-15m. This is to include a narrow carriageway width and space either side for swales and planting.
 - b. Pedestrian, bridle and cycle pathways will create an integrated network with the street pattern linking with all major public open spaces such as the park, wetland and bush corridors.

Homestead Dunes Neighbourhood

Homestead Dunes is designed in direct response to the environmental constraints of the dune topography within the Ngārara Development and its suitability for urban development. This area offers the opportunity for best practice urban design that minimises impacts on vegetation clearance while keeping the dune systems ecologically and visually intact.

Environmental Outcomes

- A continuous Open Space Wetland Buffer around the perimeter of the Kawakahia Wetland.
- Kawakahia and Ti Kouka Wetlands providing generous public open space for walking, cycling and recreational activities.
- Residential development along the wetland edges that respond to their prime locations. These provide good views across the wetlands, frontage onto public Kawakahia buffer reserves and strict planting covenants on lots. Each private house adjacent to the buffer will be designed to overlooking the Kawakahia Wetland and may include a private access path that links into the pedestrian route within the buffer reserve.
- Mai Mai housing sits lightly on non-covenanted wetland areas, allowing for smaller lot sizes which directly abut the Kawakahia Wetland. Mai mai's will have building set-backs from Kawakahia Wetland, being visually integrated by purposeful extension of wetland vegetation.
- A series of private lot landscape covenants that create bush corridors along dune ridges. These connect to create a contiguous revegetation system along the dunes, helping to maintain undeveloped dune-tops and minimise visual impact along the dune slopes.
- A low to medium density residential area along the dunes characterised by strict buffer revegetation covenants.
- A series of small local nodes that are centred on valley basins within the dunes.
- These provide opportunities for higher density residential development around pocket parks.
- The 'Woolshed' local node that provides opportunities for mixed uses such as a boutique working art/community centre with surrounding grounds.
- The existing forest character zone.
- Low density residential development within the forest block that helps to link the forest character area across the site. This incorporates large sections, tight building footprints and strict planting covenants on all lot boundaries to ensure a contiguous forest canopy cover.
- The NLR recreational corridor incorporating cycle, bridle and pedestrian routes.
- A network of streets within the dune neighbourhood that provide opportunities for slow vehicular traffic as well as cycle, bridle and pedestrian-friendly access.
- Pedestrian-only boardwalk routes within the wetland buffer reserve.
- The total number of households in this neighbourhood will not exceed 340.

Anticipated form

Activities

Anticipated activities within Homestead Dunes include mixed density residential including intensive, medium and lower residential density, and mixed uses such as boutique working art/community centres - (Areas f; i and e; b and c; and g respectively).

These areas are indicated in the conceptual plan below:

Note: This plan is indicative only. The final layout will be determined at the Neighbourhood Development Stage



Homestead Dunes Description Plan
Scale 1:5000@A4

- a. Wetland Reserve Buffer
- b. Wetland houses
- c. Mai Mai houses
- d. Greenways along dune ridges
- e. Dune hones
- f. Local nodes
- g. The woolshed
- h. Forest Character zone
- i. Forest block
- j. Wetland
- k. Western Link Road
- l. Network of streets
- m. Pedestrian boardwalks

Built Form

A palette of appropriate built forms is suggested for the Homestead Dunes relating to residential structures. Three degrees of residential density are anticipated:

- Intensive Residential Area (Area f) — Small pockets of residential land use allowing for an average density of 25 HHU/Ha. Semi detached and detached dwellings are envisaged with heights of between 2-3 storeys (8-12).
- Residential Area (Areas i and e) — The majority of the Homestead Dune area will provide for residential development comprising detached dwellings at an average density of 7-20HHU/Ha, and heights of between 1-2 storeys (8m).
- Low Density Residential Area (Areas b and c) - Lower density residential development around wetland fringe at an average density of 8 HHU/Ha. Detached dwellings are envisaged, typically 1-2 storeys (8m) in height.

Open Space and Conservation

Key conservation and open space principles concern connection of open space areas, and protection of natural edges. Key principles for Homestead Dunes include:

- Vegetation corridors and the Open Space Wetland Buffer area around the Kawakahia Wetland will have ecological and recreational functions, linking the wetlands, forest areas and beyond.

Services

Water: The site will be serviced by a reticulated water system, incorporating a range of management tools to reduce per capita water use. These include:

- The installation of rainwater collection (in tanks) for all residential dwellings.
- Greywater reuse for underground garden irrigation.
- In house water conservation devices (such as dual flush toilets and low flow shower heads).
- A reduction in the size of privately owned land parcels.
- A landscape plan that encourages the use of local, drought resistant species.
- The collection of stormwater runoff for non potable reuse.

Stormwater: The focus of stormwater management on the site is two-fold: ensuring the design of stormwater treatment facilities that add to the ecology and the amenity of public open space and have a water quality treatment component; and mitigating the impact of urbanisation on potential flooding, both within and surrounding the site.

Stormwater management on site is to be primarily through low impact stormwater design, with the focus being on managing as much stormwater runoff “on site” as practicably possible.

Wastewater: Disposal will be via the existing Council reticulation system.

Roading: Within Homestead Dunes, the emphasis will be on a network of streets that provide for slow vehicular traffic as well as cycle, bridle and pedestrian-friendly access.

Totara Dunes Neighbourhood

Totara Dunes is one of the most ecologically sensitive, lowest density and least formal areas within the Ngārara Development. The development within this area is defined by the existing dune topography and

an urban structure that permits only the highest level of ecologically responsive building and open space controls. The organic urban form relates directly to the topography and unique natural features of the surrounding Kawakahia Wetlands that abut its boundaries. The development provides for restricted residential land use opportunities only, with an informal arrangement of low-density dwellings with small footprints, sustainable construction techniques and alternate solutions to power and water infrastructure provision.

Environmental Outcomes

- Strengthening and enhancing the existing Kawakahia covenanted wetland reserve.
- The Kawakahia wetland. provides both a visual attribute and a character-base for Totara Dunes, resulting in a unique sustainably controlled living opportunity.
- Extensive Open Space Wetland Buffers and building set-backs that separate the neighbourhood and associated development from the wetland.
- Kawakahia Open Space Wetland Buffers provides public provision for pedestrian use only along designated boardwalks and/or walkways, and with both walking/cycling along the other wetlands, as an alternative detour route to the Ngārara Link Road Recreational Corridor.
- An organic arrangement of low-density, low-impact wetland eco dwellings that is set back from the Kawakahia Wetland buffer reserve. These provide a unique sensitive coastal architecture with strong visual links and views across the wetland to the coast.
- Housing typologies reduce visual and ecological impacts on surrounding ecologically sensitive areas.
- Low-impact development of roading infrastructure and building sites that retain the natural dune topography.
- The buildings utilise light construction techniques to enable a contiguous transition of wetland to dune topography within the private lots. Each dwelling will be designed to overlook the Open Space Wetland Buffer to provide surveillance and will include a private access path that links into the pedestrian route within the buffer reserve.
- A pedestrian-only public path and/or boardwalk viewing deck that allows people to access the wetland edge.
- Narrow permeable road access into the neighbourhood that isolates the ecologically sensitive area from potentially damaging public vehicular traffic and helps to reduce traffic speeds. Pedestrian-only path and/or boardwalk access within the buffer reserve.
- The total number of households in this neighbourhood will not exceed 30
- Structures located in small clusters accessed by one common access way and parking court, with garaging and car ports separated from the houses and wetland.

Anticipated form

Activities

Development activities within Totara Dunes are restricted to low density residential dwellings with small footprints, sustainable construction techniques and alternate solutions to power and water infrastructure provision, with the objective that any development affects the existing habitat as little as possible.

The preservation and enhancement of the existing Kawakahia wetland reserve is a main feature of the area.

Built form envisaged for Totara Dune:

- Wetland eco dwellings, lower density residential development at an average of 8 HHU/Ha.

These areas are indicated in the conceptual plan below:

Note: This plan is indicative only. The final layout will be determined at the Neighbourhood Development Stage



Built Form

Appropriate built forms for the specific areas within Totara Dunes are as follows:

Development adjacent to the covenanted wetland buffers reserves/Kawakahia Wetlands is restricted to:

- Small private residential lots with strict building rules, small built footprints, restrictions on impermeable surfaces on each lot, tight planting covenants and large setbacks. Large-scale residential, retail, commercial and tourist developments are not permitted.
- A maximum of 1-2 storeys (8m); maximum footprint of 110m² is envisaged with building heights to follow the slope of the land and surrounding dune topography and not dominate the surrounding landscape.

- Each lot is covenanted by the following coverage guidelines: building (max 25%), landscape (max 10%) and revegetated buffers (min 65%). 5m minimum no-build setbacks are envisaged along the front boundary, 3m setbacks for side boundaries, and a minimum of 10m from rear boundaries. These setbacks are in addition to the minimum buffer zone surrounding the wetland.
- All lots will contain stand-alone houses with small building footprints that are not visually dominant. Buildings will be consistent in scale and landscaping treatment throughout the neighbourhood and will consist of smaller masses that sit individually on dune slopes, linked through steps, corridors and atria. This allows for broken-up smaller building masses that reduce the visual and ecological impact on the wetlands and that allow planting to be integrated into and in-between the built forms, not just around them, merging internal and external spaces and creating privacy.
- Key architectural elements include predominantly mono-pitched and lean-to approved colour-steel sheeting or asphalt-shingle roofs that follow the slopes; use of light materials such as weather/linear board and modern timber cladding; clerestory windows and glazed walls offering views; use of building elements such as verandas, decks, steps and courtyards to create stepped external living areas; predominantly natural timber fenestration; and a palette of muted earth tones and natural timber finishes; avoidance of any large dominant architectural features that are visually dominant against the dune slope.
- Housing designed to reduce light spill, with outdoor lighting minimised. Where outdoor lighting is necessary, the use of low lux, and sky- shielded lights is envisaged.
- Gardens are to have only native endemic species, and should not have managed grasses or lawns.
- Structures and Buildings are to be constructed following best practice low impact principles, including minimum disturbance to topography and habitat during construction, low energy use housing, low water use, water tanks supplementing water supply, low energy embodied materials, construction using light frame (pole foundation and timber framing). Reference should be made to Management Principle 5 — Built Form contained within Appendix 8.

Conservation and Open space

Key conservation and open space principles concern connection of open space areas, and protection of natural edges. Key principles for Totara Dunes include:

Connection of open spaces

- The Kawakahia Wetland will provide a high level of natural amenity for the Totara Dunes Community. It is essentially what defines Totara Dunes, providing a covenanted area onto which properties overlook.
- The Open Space Wetland Buffer surrounding the Kawakahia Wetland provides a limited access area for public recreational activities such as walking along raised boardwalks and/or pathways. Due to the reason that the Kawakahia Wetland is largely inaccessible; this area is will provide an important natural public open space for the local community and for the wider Ngārara and Waikanae residents and visitors. Each Private house that sits adjacent to the buffer will be designed to include a private access path that links into the pedestrian route within the buffer reserve.
- Physical connection between different parts of the wetlands will be strengthened through creating a logical transition from covenanted Kawakahia Wetlands, to buffer areas and new constructed wetland areas, back to covenanted wetland areas. Visual connectivity through the wetlands will be strengthened by creating visual axes from the pedestrian viewing areas in both Totara Dunes and the adjacent Homestead Dunes Neighbourhood.
- Pedestrian-only boardwalks and/or walkways within the public buffer areas will form clear constrained and logical routes along the wetlands.

Protection of Natural Edges

- Edges between the Kawakahia Wetland area and Totara Dunes will contain a minimum 20m and 50m (50m buffer extent is shown on the Structure Plan) natural reserve buffer strip (Open Space

Wetland Buffer) allowing for sufficient progression from public natural habitat to private urban neighbourhood.

- No private properties will abut the Kawakahia Wetland area directly.
- Boundaries between public and private land will be informal but well defined.
- The Open Space Wetland Buffer will provide opportunities for accessibility to the wetland edge, including raised public viewing areas and information boards.
- Private lots that are positioned adjacent to the Open Space Wetland Buffer will be covenanted to include exclusive revegetated buffer zones on inter-lot boundaries and on front boundaries that abut the buffer reserve.
- The buffers are intended to assist in creating a seamless edge between the urban development and the wetlands and to reduce the visual and ecological impacts of the built forms against the existing natural landscape.
- The Open Space Wetland Buffer will consist of native revegetation and open areas using eco-sourced species appropriate to the site and the existing wetland plant community.
- These edges will be further protected by preventing any vehicular traffic access to the buffer area and by ensuring pedestrian access to the reserves are informal and lightly constructed.

Services

All infrastructure systems within Totara Dunes will be designed to create sustainable and efficient solutions that are as self-sufficient as possible with as little reliance on council reticulated systems as possible. All residential dwellings within Totara Dunes will utilise photovoltaic generated power for private use. Solar roof panels will also be used within each dwelling for water heating. Totara Dunes will encompass the New Zealand Green Building Code (NZGBC) category green star rating of 6 stars (i.e. 75-100 score) to ensure it is developed as an ecologically sustainable development of an international level.

Water:

Collected and filtered roof water will provide a primary supply of potable water for this area. A limited potable supply of council-supplied water will be installed within Totara Dunes. In addition, integrated greywater filtering systems within each residential unit will be installed to allow for waste to be reused effectively within each residential dwelling and externally within private lots.

Wastewater:

Disposal will generally be via the existing Council reticulation system. Where appropriate, residential units may use composting toilets that are treated on-site. If composting toilets are to be used, waste disposal elements will be fully contained to ensure no leakage or groundwater infiltration into the wetland, and comply with relevant guidelines. Where composting toilets are not a viable option reticulation will be provided.

Stormwater:

A total water cycle management system will be implemented within the Totara Dunes area including ensuring that rainwater is captured on-site and is returned to the groundwater system as close to its source as possible. This includes the use of only semi-permeable road, pedestrian, decking and parking surfaces.

Roading:

- A narrow, permeable local road is proposed for this area, limiting traffic into the neighbourhood and forming a visual boundary to this sensitive wetland neighbourhood. Two entry roads lead into the neighbourhood, providing the only road connections into and out of the neighbourhood and result in a

flat hierarchy of streets which have a similar size and design. These will be developed to retain the natural and topographic features of the site such as dunes and vegetation. Access roads will be designed to reveal important vistas of the wetlands and provide pedestrian and cycle routes through the neighbourhood. These local roads are characterised by narrow carriage widths; avoidance of long straight road stretches; planting and landscaping to either side of the carriageway to retain natural dune formations; and use of swales and natural semi-permeable surface materials such as crushed gravel.

- Parking clusters will be situated along the local roads, providing a consolidated parking solution within the Neighbourhood in opposition to private on-site parking or garages. This is to limit vehicular distance travel within the area and to limit excessive infrastructure such as driveways and internal garages.
- Pedestrian-only routes will be provided on boardwalks and/or walkways within the buffer reserve. This is to ensure that no bridle or cycle paths can adversely affect the sensitive wetland ecological habitats within this area. Cycling can, however, take place within the private access road. Each Private house that sits adjacent to the buffer will be designed to include a private access path that links into the pedestrian route within the buffer reserve.

Kanuka Ridge Neighbourhood

Kanuka Ridge is characterised by a seamless integration between the built environment and an enhanced wetland landscape. This is achieved by retaining the existing wetland system and avoiding built forms that are visually intrusive, while ensuring strict controls on coverage, construction techniques and indigenous regenerative planting within each private lot.

Environmental Outcomes

- The existing wetland to the east and two artificial wetland areas provide a high quality environment supporting an abundance of indigenous fauna and flora.
- Mai-Mai dwellings may be located along the wetlands and utilise lot boundaries that extend beyond the wetland edge in some locations, allowing buildings to sit lightly over the artificial wetlands. In addition, light construction techniques and small building footprints are enforced to enable contiguous wetland topography to extend into the private lots. Mai-Mai lots are covenanted to incorporate high lot coverage of indigenous planting areas and a minimum coverage of built and landscaped areas on each site.
- A perimeter residential development along the surrounding dunes overlooking the existing and enhanced low-lying (peat) valley. Like the Mai-Mai dwellings, these buildings utilise light construction techniques to enable a contiguous transition of wetland to dune topography within the private lots.
- A surrounding revegetated bush area encompassing the Kanuka Ridge Neighbourhood.
- Pedestrian access points lead from the perimeter road to each wetland, allowing a viewing platform between private lots over the wetlands.
- A pedestrian, bridle and cycle recreational corridor that occurs alongside the NLR between Raumati and Waikanae North. This corridor is buffered on the southern edge of the NLR using indigenous planting suited to the surrounding wetland habitat. To the north of the NLR, the corridor opens up visually and physically to the adjacent valley system.
- The total number of households in this neighbourhood will not exceed 80.

Anticipated form

Activities

Development activities within Kanuka Ridge Mai Mai are restricted to low density residential dwellings

including Mai-Mai dwellings (Area b) and a perimeter residential development (Area c) along the surrounding dunes overlooking the existing and enhanced low-lying valley. The two artificial wetlands will support an abundance of indigenous fauna and flora.

These areas are indicated in the conceptual plan below:

Note: This plan is indicative only. The final layout will be determined at the Neighbourhood Development Stage



Mai Mai Description Plan Scale 1:5000@A4

- a. Artificial wetlands
- b Mai Mais
- c. Surrounding development
- d. Surrounding native revegetation
- e. Viewing platform
- f. Western Link Road Corridor

Built Form

- Residential development — A low density approach with an average density of 8-14HHU/Ha will be adopted for this area with housing located along the dune ridges. Dwellings in this area will be 1-2 storeys (8m) in height, detached housing to be located along the wetland margin, with some sitting out above the artificially constructed wetlands.
- The Mai-Mai dwellings (Area b) are located along the wetlands and utilise lot boundaries that extend beyond the wetland edge, allowing buildings to sit lightly over the wetlands. Mai-Mai lots are covenanted to incorporate a high lot coverage of indigenous planting areas and a minimum coverage

- of built and landscaped areas on each site.
- Perimeter residential development (Area c) along the surrounding dunes overlooking the existing and enhanced low-lying valley.
- Light construction techniques and small building footprints will be adopted to enable contiguous wetland areas to extend into private lots.

Conservation and Open space

Key conservation and open space principles concern connection of open space areas, and protection of natural edges and surrounding sensitive wetland areas. Key principles for Kanuka Ridge include:

Connection of open spaces

- The existing wetland/Swamp forest wetland will provide a high level of natural amenity for the Kanuka Ridge Community.
- A Open Space Wetland Buffer minimum of 20m provides a limited access area for public recreational activities such as walking along raised boardwalks and pathways. Where appropriate, each private house that sits adjacent to the Open Space Wetland Buffer will be designed to include a private access path that links into the pedestrian route within the buffer reserve.
- Pedestrian-only boardwalks and walkways within the Open Space Wetland Buffers will form clear constrained and logical routes around the wetland connecting areas of open space.

Protection of Natural Edges

- Edges between the existing wetland area and Kanuka Ridge will contain a natural Open Space Wetland Buffer allowing for sufficient progression from public natural habitat to private urban neighbourhood.
- No private properties will abut the existing wetland area directly, although they will abut the artificially constructed wetlands.
- Boundaries between public and private land will be informal but well defined.
- Private lots that are positioned adjacent to the Open Space Wetland Buffer will be covenanted to include exclusive revegetated buffer zones on inter-lot boundaries and on front boundaries that abut the buffer reserve.
- The Open Space Wetland Buffers are intended to assist in creating a seamless edge between the urban development and the wetlands and to reduce the visual and ecological impact of the built forms against the existing natural landscape.
- The Open Space Wetland Buffers will consist of native revegetation and open areas using eco-sourced species appropriate to the site and with the existing wetland plant community.
- These edges will be further protected by preventing any vehicular traffic access to the buffer area and by ensuring pedestrian access to the buffer reserves are informal and lightly constructed.

Services

Water: The site will be serviced by a reticulated water system, incorporating a range of management tools to reduce per capita water use. These include:

- The installation of rainwater collection (in tanks) for all residential dwellings.
- Greywater reuse for underground garden irrigation.
- In house water conservation devices (such as dual flush toilets and low flow shower heads).
- A reduction in the size of privately owned land parcels.
- A landscape plan that encourages the use of local, drought resistant species.
- The collection of stormwater runoff for non potable

Stormwater: The focus of stormwater management on the site is two-fold: ensuring the design of

stormwater treatment facilities that add to the ecology and the amenity of public open space and have a water quality treatment component; and mitigating the impact of urbanisation on potential flooding, both within and surrounding the site.

Stormwater management on site is to be primarily through low impact stormwater design, with the focus being on managing as much stormwater runoff “on site” as practicably possible.

Wastewater: Disposal will be via the existing Council reticulation system.

Roading: An access will be via an intersection with the Ngārara link road.

Nga Manu Eco Commercial/ Mixed Use Neighbourhood

This compact area of development within existing and regenerating bush provides for a mixed use opportunities for a Visitor Centre and self-catering bush lodges linked to the adjacent Nga Manu Nature Reserve. Situated along the eastern slope of the dunes, the lodges are characterised by small building footprints set within large connected expanses of bush, offering views east over the sanctuary to the mountains.

Environmental Outcomes

- Existing and regenerating bush that extends from Nga Manu Nature Reserve on the east of the dunes, to the lower valley system on the western edge of the development. The regenerating bush area ensures an extension of tree cover from the sanctuary that supports native birdlife, as well as providing a visual buffer to the pylons that run adjacent to this area.
- A Nature Hub Visitor Centre showcases the local natural assets as well as the potential to become a regional centre to show case sustainable development.
- This could also be linked into the Nga Manu Nature Reserve which may manage visitors in association with a possible wetland restoration heritage program and riparian restoration program. This could also include potential private and public sector business ‘pod’ centred on nature and sustainability focused businesses as well as a restaurant, cycle hire, eco source native plants, static displays and studios that showcase leading edge eco and building technologies.
- A series of small lodges within a managed private bush lot that seamlessly integrates into the surrounding landscape. These buildings are nestled into the side of the hillside to ensure visual continuity from Nga Manu across the dunes.
- They will be characterised by timber constructed buildings that sit above the ground, within bush and trees. These may be used by students, study groups, volunteers or backpackers who are involved in the local wetland restoration programs.
- The total number of dwelling or accommodation units associated with visitor centre will not exceed 15.

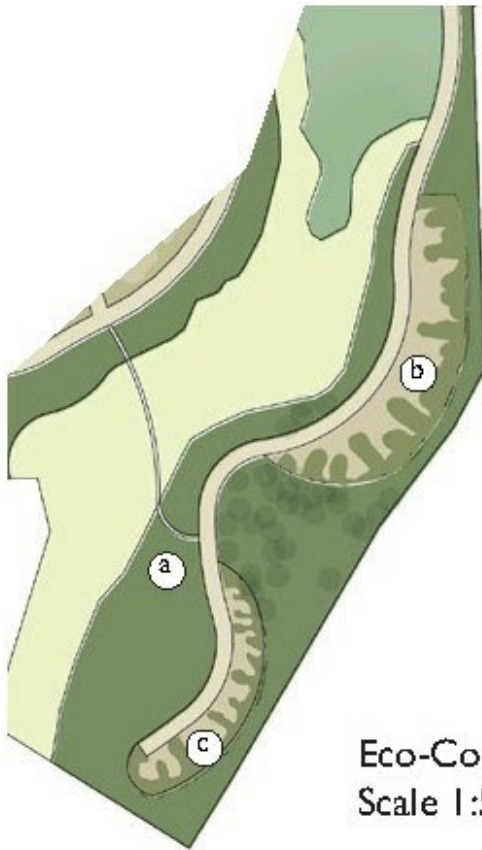
Anticipated form

Activities

Development activities within Nga Manu Eco Commercial are centred on self catering bush lodge accommodation (Area c) and a visitor centre (Area b).

These areas are indicated in the conceptual plan below:

Note: This plan is indicative only. The final layout will be determined at the Neighbourhood Development Stage



Eco-Commercial Description Plan
Scale 1:5000@A4

- a. Revegetated Bush Corridor
- b. Eco-Tourism Visitor Centre
- c. Bush Lodges

Built Form

Careful selection of building form, orientation and siting will be necessary to ensure that the building sits 'lightly' and harmoniously against the Nga Manu forest backdrop.

Light construction techniques and use of substantial planting to provide both screening from the transmission lines and to assist in integrating the buildings into the landscape setting. The building or series of buildings will be designed around sustainable principles such as rainwater harvesting and solar water heating.

Conservation and Open space

Key conservation and open space principles concern connection of open space areas, and protection of natural edges. Existing and regenerating bush extends from Nga Manu Nature Reserve on the east of the dunes, to the lower valley system on the western edge of the development. Small building footprints are to be set within large interconnected bush corridors, offering views east over the sanctuary to the mountains.

Services

Water: The site will be serviced by a reticulated water system, incorporating a range of management tools to reduce per capita water use. These include:

- The installation of rainwater collection (in tanks) for all residential dwellings.
- Greywater reuse for underground garden irrigation.
- In house water conservation devices (such as dual flush toilets and low flow shower heads).
- A reduction in the size of privately owned land parcels.
- A landscape plan that encourages local, drought resistant species.
- The collection of stormwater runoff for non potable reuse.

Stormwater: The focus of stormwater management on the site is two-fold: ensuring the design of stormwater treatment facilities that add to the ecology and the amenity of public open space and have a water quality treatment component; and mitigating the impact of urbanisation on potential flooding, both within and surrounding the site.

Stormwater management on site is to be primarily through low impact stormwater design, with the focus being on managing as much stormwater runoff “on site” as practicably possible.

Wastewater: Disposal will be via the existing Council reticulation system.

Roading: An access will be via an intersection with the Ngārara Link Road.