Introduction

How well a development fits into Tauranga will have an impact on the whole community - the way streets, blocks and buildings relate will influence the quality of the wider environment, and therefore the wellbeing of residents. All development requires well considered site design no matter what the scale is.

This guide is for everyone, from interested members of the public to decision makers in the site design process.

Good urban design requires consideration of the site in its wider context, before examining attributes of the site itself. The 'site' refers to an area of land under development. It may be vacant or have buildings on it, be an individual lot or just a part of one, an amalgamation of adjoining lots or a large multi-lot subdivision. Sometimes a site and building is fully designed at the time of development. In other instances the land is modified in preparation for future development and then sold to others.

Analysis to inform design

Different development sites in Tauranga will offer varied combinations of characteristics such as landform, local character, and potential hazards. These characteristics relate to a variety of scales at which the nature and role of a site can be understood, from the widest landscape and city setting, through local neighbourhoods and networks down to the individual site and the land adjoining it.

Prior to undertaking any development, a context and site analysis must be undertaken to understand the potential of the site. Analysis is necessary if the principles of high quality urban design are to be put into practice. This is particularly important for proposed activities which have not been anticipated in a particular location.

Site analysis can be undertaken using mapping, photography and empirical evidence such as statistics. Developers and designers are encouraged to contact Tauranga City Council for access to the City’s maps, databases and contacts for support in this process.

All development requires well considered site design no matter the scale. The design process moves from the large scale picture to the particular details of the specific site, and back to the wider context to understand what effects will result.

The design of developments requires balancing various factors within the limitations identified by the site analysis. There are significant crossovers between the themes discussed in this section, and how they may be addressed. Ultimately, design should aim to deliver development which positively integrates as many of these considerations as possible.
Tauranga’s unique identity

Tauranga’s major asset is its natural environment – the land form, climate and associated ecology. It is also a place rich in cultural heritage, important to the identity of the place and its people.

The lifestyle which attracts many people to live here depends on these attributes. It is important for our City’s future that development protects and enhances the natural and urban environments.

Landscape setting

Tauranga’s landscape features coastal dune systems, narrow peninsulas, steep escarpments to river valleys and undulating hills. Development designs need to consider:

• Protection of natural heritage, including retention and enhancement of distinctive landforms.
• Protection of soil quality, sensitive ecology and habitats.
• Positive management of resources such as water, wind and sun.
• Awareness and management of hazards such as flooding and erosion, noise, airborne pollutants and ground contamination.

Urban environment

Tauranga’s urban environment is the result of complex layers of economic, social, cultural and environmental interactions. Good development is more likely to result when developers take account of:

• Tauranga’s pattern of settlement and urban growth around the harbour, port and transport links.
• Tauranga’s particular mix of rural, suburban or urban land uses which have different patterns of building in relation to open space, built form and planting for instance.
• Tauranga’s cultural and built heritage associated with distinctive phases of New Zealand’s history.
• The social impact of the development on the community, particularly when redeveloping.
• Contribution of amenity, character and identity to the neighbourhood.
• Movement networks - existing or potential walking, cycling and road links and access to public transport.
• Access to jobs, facilities, leisure and social opportunities locally without reliance on a car.
• Market conditions, including economic viability.

Guiding frameworks

Preparation of site designs should include reference to strategies and plans administered by the Tauranga City Council - see Appendix.
Topography and ecology

- Respond to the natural landform of the site in the layout, design and appearance of development. Use the landform, orientation and drainage patterns to influence the shape and layout of streets and blocks to create a genuine distinctiveness to the development.
- Massing and topography can be a highly sensitive public issue. Discussion with the Council whether a particular approach is appropriate at an early stage, and whether consultation would be beneficial.
- Accept and work with the limitations of the site. Engineered and artificial solutions will often transfer limitations to another part of the environment.
- Retain existing landscape features such as ecological areas, mature trees, and distinctive contours within public or communal land or through private covenant. Protect the most sensitive areas such as dune systems, wetlands and unstable cliffs from intrusion and development.
- Incorporate ecological features into open spaces or walking and cycling linkages. Make sure development fronts on to them rather than creating less-safe rear spaces.
- Create green links between open spaces so wildlife can move through developments with the same or better convenience as pre-development. Use indigenous, locally sourced vegetation species within these links to provide food for native fauna, and to enhance local identity.
- Plan stormwater catchments to work with overland flow paths, wetlands and streams. Consider swales, rain gardens and constructed wetlands to treat stormwater on-site where appropriate.
- Minimise the risk of natural hazards such as flooding. Opening up waterways rather than piping them can add to the amenity value and character of the area.
- Protect and enhance the aquatic habitat within any waterway by ensuring sufficient shade and water flow. Avoid a design that collects sediments - especially excess nutrients. Retain and restore streams or watercourses in their natural state.

Above: integrating watercourses and other ecological features into streets and public spaces maximises amenity, accessibility and safety.

Rolling sand dune system characteristic of the Maunganui Peninsula (not to scale).

Steep escarpment to flat ridge characteristic of the Te Papa Peninsula (not to scale).

Above: Tauranga has many different topographic profiles which development should integrate sensitively with.
Location

- Assess site options for economic and social viability, environmental impact and accessibility. Good outcomes cannot be delivered if the site is not appropriate for the proposed use.
- The location and inter-relationship of land uses, open spaces and services is key to creating good urban places and to maximise social and economic value.
- The built environment needs to be easily understood by users. Locate and design open spaces, landmarks and community amenities so that people can readily see them.
- Businesses, open spaces and services along main routes will benefit from exposure to passing traffic and not suffer an amenity loss from the noise and intensity nuisance. They can also help act as a buffer to residential zones ‘one street back’. Commercial uses are the most sensitive to location, whereas housing can fit in a wider range of settings.
- Increased residential densities are suitable where the site is within walking distance of a number of amenities such as shops, bus routes, schools, parks, libraries and community halls. Intensify around centres where it is easier to undertake daily activities by a convenient walk or short bus trip.
- Consider and design in response to the uses around your site. Hospitals, fire stations, and community halls can offer choice and convenience, but can also be busy at all hours and sometimes create a traffic and noise nuisance.
- Small workplaces and home offices which have good road frontage, adequate parking for visitors to the side or rear of the site, and sufficient living space for residents can be suitable in residential areas.
- Open space needs to be overlooked to be safe for users. Surround parks with movement paths to allow easy access.

Views and outlook

- Protect and enhance valued views of landmarks such as Te Awanui (the Harbour) and Matakanui Island, the sea and Mauao (Mt Maunganui), the Papamoa hills and Kaimai range. Align roads along key view axes if possible, and ensure built forms complement views rather than block them.
- Protect and enhance valued views from public spaces and streets first - where many people can enjoy them - then consider private views for residents and finally for workers.
- Design for short and long views, making the length of outlook as long as possible. Create a diversity of views, with some focused on busy urban places and others looking towards natural landscape views.
- Locate distinctive built landmarks or natural features at the end of long views down streets, to help people navigate more intuitively. Use street trees to reinforce key views to the sea and hills.

![Diagram of neighborhood context]

This park is central, accessible and prominent with land uses fronting onto it for better safety.
Movement networks

- Analyse and understand existing links between local destinations. Design streets to integrate new development with existing places.
- Focus on reducing vehicle trips by promoting alternatives which benefit the environment, people’s health, and the local economy.
- Aim to achieve a good connection to desirable local destinations within a 10 minute walk (typically 800m) of each building.
- People are more likely walk, cycle or catch the bus if there are direct routes with attractive and safe street environments.
- Recognise and support the function and character of different streets. Reinforce the city and neighbourhood street hierarchy with appropriate streetscape designs.
- Loose grids provide better connection and more alternative routes than a pattern of many cul de sacs and few through roads. Connect streets to form blocks of 150m maximum length and no more than 60-80m deep.
- Provide for future local road connections to adjoining undeveloped sites by extending key roads to site boundaries. Collaborate with adjacent landowners to facilitate connections.
- Cul de sacs are only appropriate where they are needed to efficiently use a site with awkward shape or due to other constraint such as topography. They should be kept short. Avoid rear-lot development and long right of ways.
- The default street type should provide for all modes of transport, with layouts and elements which support public transport, walking and cycling. A critical advantage of streets is lighting which enables night-time use.
- Consider providing rear lanes or slip lanes parallel to the main traffic route if property access or parking is difficult or unsafe due to traffic speeds or volumes.
- Minimise the visual, noise, and pollutant impacts of car parks by locating them sensitively and with landscaping to screen vehicles. Ensure pedestrian routes through car parks are safe and well defined.
Infrastructure and services networks

- Design to connect efficiently with existing infrastructure. Allow for future connections with adjacent sites.
- Consider the existing capacity. Planned network infrastructure changes or upgrades may have a bearing on what is built where, when, and how.
- Areas of Tauranga that are not serviced will be difficult to develop without a comprehensively designed alternative. Consider on-site and low impact services where appropriate.
- Consider the long-term maintenance costs of infrastructure as well as just the up-front capital costs.
- Stormwater can be a major issue in Tauranga due to its climate and topography. Consider floor heights and impermeable surface areas very carefully.

Tauranga is particularly sensitive to stormwater volume; network capacity is a critical issue to check.

Incorporate on-site stormwater treatment and detention features in developments such as stormwater ponds.
Character and identity

- Design developments to fit into existing patterns between built and natural elements. Local character is often mistaken as being about shapes, materials, and colour; it is more about how the built environment feels and functions, and why.
- Identify and acknowledge local patterns of land use, the open space network and streetscape to reinforce local character.
- Respond to the wider neighbourhood character by using similar lot and block sizes and shapes, separation distances and street widths.
- Make heritage sites such as pa, historic buildings and paths a focus within a development to provide character value. Arrange layouts to keep important features within public space or in prominent and accessible positions.
- Ensure the development contributes to the neighbourhood with a design that acknowledges, rather than imitates, local identifiers such as the location of buildings relative to the street, use of local materials, roof form, position of entrances, verandas, window proportions and details such as balustrades.
- Create identity for the neighbourhood through the design of ‘signature’ buildings and focal points which are clearly visible. Take design cues from adjacent structures and spaces.
- Retain historical associations with previous uses and events. Use place names that have historical and cultural references particular to Tauranga.
- Retain and reuse historic buildings in good condition. Be sensitive to architectural form, materials and details such as window proportions of adjacent historic buildings.
- Local Tangata Whenua mythology and oral tradition can inform development to create identity, interest, and value.
Microclimate

- Successful spaces and buildings are designed to work with all aspects of the local climate - sun, wind, rain, temperature.
- Analyse local climate data to inform design decisions, taking note of both the typical conditions and the extremes.
- Relaxed outdoor living is a part of the Tauranga lifestyle for many residents. Manage variable climatic conditions by creating sheltered and sunny transition spaces such as verandas, decks and balconies between indoors and outside.

Sun

- Ensure all lots are oriented to receive good sunlight. Ensure that building placement will not reduce solar access to adjacent sites. Take into account shading from topography.
- North-south streets are preferable to east-west ones, as they offer lots with a long north-facing side boundary and good street frontage conditions.
- Residential lots on the south side of a street should be wider, allowing solar access to some private space at the side of the house with a privacy buffer to create a good street frontage.
- As a minimum standard, it is particularly important that developments receive good continuous sunlight between the hours of 10:00am - 2:00pm as measured on 21 June. Calculation should show the impact from maximum future development on adjacent lots, not just existing arrangements.
- Consider taller stud heights and taller windows for buildings to let sunlight penetrate deeper into rooms.

Wind

- Use site layout, building forms and planting to create shelter where required, based on analysis of prevailing winds. Integrate solar considerations when locating wind shelter.
- Avoid layouts that may create ‘wind tunnels’ through streets and public spaces due to the mass and form of buildings.
- Ensure the south faces of buildings and any recesses receive good natural breeze from the dominant wind flow pattern to prevent persistent damp conditions establishing.
- Locate internal rooms and openings to allow ‘natural’ ventilation flow, especially for kitchens and bathrooms.

Rain

- Tauranga has a high annual rainfall. Use generous eaves, canopies and sails to shelter doors and windows so they can remain open during showers.
SITE ANALYSIS

Public realm design

- The public realm requires substantial design consideration. The form and finish of public spaces, places and streets should attract people and encourage occupation and enjoyment of them.
- Ensure sites are accessible to all people of all ages.
- Ensure that the proportions and scale of a street or space and its various elements are related to the activity and land use expected at the street edge.
- Streets need to balance a wide range of demands within a limited space. Allocation of space for different users and the detailed design layout, finishes and fittings are critical factors.
- Create a high level of amenity for all street users - pedestrians, cyclists and drivers.
- Design roads so drivers instinctively drive at speeds appropriate to the type of road. Use traffic calming measures such as trees to close down the visual width of slow speed local streets.
- Pedestrian routes need to have non-slip, non-tripping surfaces. Provide highly visible and safe pedestrian crossings.

Safety, security and privacy

- Design lots so buildings can have their entrance and an active living space facing the street. ‘Passive surveillance’ encourages use of the street for walking and other positive activities.
- Surround open spaces with streets which in turn should be fronted by land uses to provide surveillance. Avoid locating open space and pedestrian or cycle ways at the rear.
- Front yards are an intermediary space that forms a buffer between the public street and the private building. They are not ideally suited for use as private outdoor living spaces due to noise and privacy issues.
- Private space should adjoin other private space. Provide outdoor living areas to the rear or at the side of buildings so that high, solid front fences are not required to achieve privacy and security.
- Fencing to the street should allow overlooking of the street, either by limiting height to a maximum of 1.2m or by using a fence type which is at least 50 per cent visually permeable.
SITE ANALYSIS

Lot formation

- Consideration of the underlying topography and views (pages 3 and 4) and creating good movement networks (page 5) will largely determine site layouts.
- Lot sizes and shapes should also depend on microclimate, security and privacy considerations. Avoid creating lots that are too small, irregular or exposed to the public realm.
- Limit the scope and effects of any earthworks required to create building platforms. Reduce exposed retaining structures by using split levels within buildings to follow existing slopes more closely.
- Avoid using intrusive earthwork techniques, such as high retaining walls, to create useable lots.

Hard and soft landscape

- Ensure that landscape designs work with topography, ecology and green networks, as well as site uses and structures.
- Ensure development is laid out to provide for the long-term health and wellbeing of vegetation, including mature trees. Focus on quality rather than quantity.
- Use a combination of soft and hard surfaces to provide useable open space, amenity and benefits to the environment.
- Reflect the landscape character on adjoining sites by selecting compatible planting.
- Use plant species that are well suited to local conditions, easily maintained and require little additional water and fertiliser.
- Use exotic species when they are more practical for desired function or form as part of an established landscape character.
- Consider the visual attributes of different plant and tree types such as shape, mature height, bark, leaf and flower. Evergreens provide solid all-year shade whereas deciduous trees create a dappled summer shade but allow winter sun through.
- Plant street trees at regular intervals or in clusters in adequate grass berms or tree pits. Locate to avoid conflicts with lighting, services, access and parking bays. Ensure street tree species are appropriate to the context and will not overly interfere with sun access to adjacent properties or block drains with litter.
- Use low planting or trees that can be pruned to retain sightlines for personal and road safety. Use trees that have a canopy spread starting higher than 1.6m. Avoid locating shrubs where they may block views or create entrapment spots.
- Provide opportunities for residents to grow vegetables on-site.
- Use locally sourced materials to contribute to the character of an area and reduce transportation impacts.
- Consider future maintenance costs when designing water elements or other features.
Low impact building

- Minimise energy use for cooling and heating by designing for the sun and wind (see page 8).
- Use efficient designs to minimise the use of space and ease of adapting spaces at a later date.
- Reduce road and driveway widths and combine vehicle crossings to limit impervious surfaces (such as poured concrete and asphalt) that prevent rainwater being absorbed on site. Use pavers with open joints, gravel, and other porous materials for patios, driveways, car parks and paths to reduce runoff.
- Use recycled and locally-made materials where appropriate. Limit the use of energy from non-renewable resources (gas, diesel, petroleum, coal) during construction and operation of the building.
- Maximise local water ‘treatment trains’ e.g. from a roof or road to on-site tanks to a rain garden or swale to a constructed wetland. Ensure rain tanks are accessible but not prominently located.
- Avoid using products which contaminate stormwater and damage downstream habitats. Design to collect toxic chemicals such as from vehicle or paint brush washing and other activities on site.
- Avoid using products which produce pollutants during manufacture, building operation and at disposal. Find out how products have been manufactured and transported, how they weather in use and how they are disposed of.

Site infrastructure and services

- Design the site layouts in conjunction with underground service layouts to avoid conflicts.
- Ensure access paths necessary for the operation and maintenance of network infrastructure are retained.
- The increasing use of satellites for television, wireless networks and high-speed internet access, and micro cell phone sites may influence the location of living spaces and receivers.
- Make sure to accurately map the position of all services on site for future users.
Quality of analysis means more than quantity

- This list is not exhaustive, but outlines the general key issues that should be considered in site and context analyses.
- Each site will present its own circumstances that will make various specific issues more or less important than others.
- The key purpose of doing this analysis is to identify the logic and design implications of how to take best advantage of opportunities and best respect constraints.

### Context analysis

<table>
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<tr>
<th>Context analysis</th>
<th>Checklist</th>
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<tbody>
<tr>
<td>Movement networks for pedestrians, cyclists, drivers, public transport users</td>
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<tr>
<td>Traffic conditions on streets (e.g. is it a major arterial with minimal pedestrian crossing opportunities or is it a pedestrian friendly local street?)</td>
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<tr>
<td>Distance to community facilities such as schools, shops, library – 200, 400 and 800m walkable routes</td>
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<td>Neighbourhood character, building patterns and identifiers</td>
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<tr>
<td>Land use type and density in the locale</td>
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<td>Heritage sites and buildings</td>
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<td>Cultural importance of locale</td>
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<tr>
<td>Distance to open space (size of open space feature and facilities)</td>
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<tr>
<td>Landscape</td>
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<td>Local ecology</td>
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### Site analysis

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<th>Site analysis</th>
<th>Checklist</th>
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<td>Logical locations for access into the site</td>
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<td>Topography</td>
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<td>Soil type and stability</td>
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<td>Prevailing wind</td>
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<td>Access to sun during daily and yearly cycle</td>
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<td>Surface water and overland flow paths, waterways including ephemeral streams and flooding risks</td>
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<td>View shafts to natural and cultural features and other opportunities for outlook</td>
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<td>Previous land use – potential contamination</td>
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<tr>
<td>Location and condition of on-site infrastructure services</td>
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<tr>
<td>Access to and capacity of existing off-site services for new connections – power, water supply, sewerage, stormwater system</td>
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<tr>
<td>Analysis of what is happening on neighbouring sites. In particular land use type and orientation (consider fronts, backs and visual privacy issues)</td>
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### Additional building design considerations

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<th>Additional building design considerations</th>
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<td>Contribution to Tauranga’s built environment and community amenity</td>
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<td>Provision of prominent public open space</td>
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<td>Provision of sheltered and screened private open space</td>
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<td>Quality of streetscape - contribution to walkability and safety</td>
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<tr>
<td>Fit with neighbourhood character</td>
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<td>Low impact low energy options – minimise earthworks, incorporate stormwater treatment devices</td>
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<tr>
<td>Durable, local low-maintenance materials</td>
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<td>Locally sourced and ecologically appropriate plant species</td>
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<td>Safety and surveillance</td>
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<tr>
<td>Building designs are responsive to their setting - coastal, urban, rural</td>
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These diagrams illustrate how typical site and context analysis maps could look.

**Context analysis**

Key context features include:
- Suburban development
- Primary school
- Bus stops
- Commercial area (shops, public transport routes, library)
- 400m distance to activity centre - flat and very walkable
- Main arterial road

**Site analysis**

Key site features include:
- Stream
- Link to future development?
- Area appropriate for open space?
- Potential medium density housing facing open space?
- Consider interface with existing residential
- Sun movement
- Retain geological formation?
- Logical place for road?
- Retain large trees?
- Prevailing winds
- Retain existing house?
- Important to get good frontage to street, maintain a compatible scale and get sunlight into the rear of properties
WORKED SITE DESIGN EXAMPLE

This site example shows a context and site and then presents two alternative design outcomes. The first design is a historical approach that ignores context, focuses only on the site, and misses opportunities to fit with the land uses around it. Some developments like this can be seen in Tauranga. The second design has been prepared in accordance with the site design principles of this site design guide. The design responds to wider context and issues, then responds with a layout that looks to actively improves the local condition as well as delivering a quality, profitable development of the site itself.

Wider context

This site is located on the coast but has not been developed previously for any number of reasons.

It is in a residential area but is only a few hundred metres from a town centre with community facilities and services.

Bus stops and a main road are not far away, but not easily accessed from the site.

Site context

Key site characteristics include:

- Residential ‘backs’ and fences along north boundary.
- Street front along southern boundary.
- Public open space park treated mostly as a ‘back’ with tall solid fences by existing development.
- High amenity coastal edge along eastern boundary with no specific public access.
- Coastal sand dunes and associated ecology across the site.
A: Historical approach that ignores context

Key design characteristics include:

- Site is laid out to maximise lot yield: 40 lots of approximately identical ‘product’ size and type.
- No connectivity through site.
- Additional open space provided as an ‘area’ requirement of land along the coast, but in a low quality, not very usable manner.
- Coastal dune system is preserved where it is expedient, but otherwise developed.
- Existing open space condition worsened with more ‘backs’ and fences.
- Coastal edge is privatised.

B: Tauranga’s current approach based on responding to context

Key design characteristics include:

- Connectivity is improved with better street links.
- Medium density lots located by open spaces and coast: 54 mixed lots in total provided.
- Maximum public access to the coast with road and new open space. Existing open space reduced (swapped with new space at coast), surrounded by medium density housing to provide safer, higher quality ‘front’ condition.
- Feature ‘swale’ road with planted median connects open spaces and maximises views.
- Dunes protected and kept clear of buildings.