

APPENDIX 54.15B

Subdivision Design Assessment Criteria
For Residential 2 Zone (excluding the Town Centre
Overlay Area), Light Industrial Zone and Industrial
2 Zone within the Pokeno Structure Plan Area

Purpose of Appendix 54.15B

Within the Pokeno Structure Plan Area, applications for restricted discretionary activity subdivision resource consent will be assessed in terms of a series of matters, to which the Council will restrict the exercise of its discretion. One of the matters which the Council will have regard to is:

"Design and Layout

Whether the subdivision is in accordance with the relevant subdivision design assessment criteria in Part 54 as relevant ..."

The criteria will be utilised for the consideration of subdivision in the:

- *Residential 2 Zone (excluding the Town Centre Overlay Area – refer Appendix 54.15A and Planning Maps 105b and 105c)*
- *Light Industrial and Industrial 2 Zones in Pokeno (Design Elements 5 and 6)*

In addition, the criteria will also be used in the consideration of discretionary activity applications for subdivision, as appropriate.

The Appendix sets out assessment criteria under several "Design Elements". Accompanying illustrations are intended to support the text and represent good design solutions, but are not intended to represent the only design solution. All illustrations are illustrative and indicative only.

Each Design Element includes an explanation that summarises the rationale for the particular Design Element, and expands on the individual criteria. The explanation should be used as further guidance in interpreting the intention of the criteria and assessing the extent to which the proposal accords with them. Any references in the explanations to the "Pokeno Structure Plan" refer to Appendix 54.15A.

Information Requirements

The applicant shall provide a written assessment describing how the criteria for each Design Element are addressed. Applicants will have to demonstrate that the provisions of the criteria have been acknowledged.

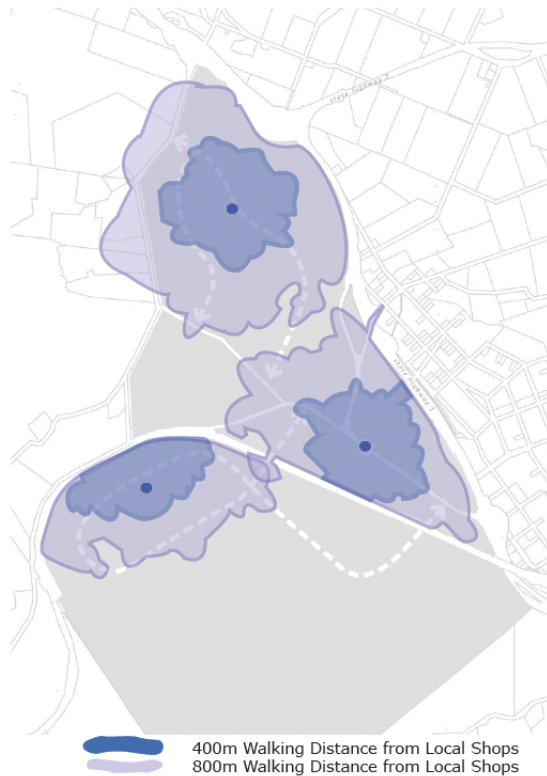
It is recognised that certain proposals will not achieve absolute accordance with all criteria. Where necessary, in regard to a criterion demonstrably not met, the applicant shall explain with reference to the explanation for the particular Design Element:

- *whether site constraints inhibit the ability to address the criterion, and/or;*
- *how the intention of the criterion is met by the proposal, and/or;*
- *whether the proposal represents a better design solution than that suggested by the criterion.*

Planting plans and maintenance plans for stormwater reserves and riparian margins will need to be submitted with applications and approved by Council.

Design Element 1: Road, Reserve and Access Networks

1. *Roading, development patterns and earthworks should respond to and reinforce identified topographical features and landscape patterns.*
2. *Earthworks should be undertaken principally at the initial subdivision stage, and where appropriate, the creation of reasonably flat sites should occur at the bulk earthworks stage (subject to avoiding excessively high retaining walls).*
3. *The design of roading and open space networks should achieve connectivity within and between neighbourhoods.*
4. *Road patterns should maximise convenient access to arterial and collector roads, Pokeno School, parks/reserves, Neighbourhood Centres and the Town Centre.*



Indicative "Pedestrian Sheds" to Town Centre and Neighbourhood Centres

5. *Road patterns should cater for a future bus route located within convenient walking distance of residents.*
6. *Neighbourhood Centres should be located on collector roads, a future bus route, and directly about the relevant Neighbourhood Park.*
7. *Road patterns should be logical and contribute to the legibility of the area.*
8. *Road patterns should avoid situations where industrial traffic uses residential roads.*
9. *Layout design should achieve an interconnected open space and movement network.*
10. *Safe pedestrian and cycle routes should be integrated with road and reserve design and should match desire lines*
11. *Layouts should retain existing mature trees, preferably in reserve or road, where these contribute to amenity.*



Indicative Bus Route

Explanation:

Design Element 1 pertains to the general layout of the networks of roads, reserves and other access linkages that make up the public space of a subdivision. These public routes should be considered in an integrated fashion together with the development blocks they create.

Criterion 1 reinforces the distinct character of Pokeno. For the residential growth areas this character is predominantly derived from the landscape setting, rolling topography (often incised with gullies), and particular landscape features (eg. two existing knolls). The enhancement and reinforcement of natural stream networks is sought. The nature of the rolling contour generally, incised with some steep gullies in the Helenslee Block (located northwest of the existing town centre, north and east of Helenslee Road) and lesser gullies in the Hitchen Block (located southwest of the existing town centre and south of the North Island Main Trunk Railway) generally will, and should, dictate the roading pattern. Following natural drainage patterns and topography should inform the layouts. Earthworks should be designed to create a blending with the slope of existing features.

Criterion 2 encourages the undertaking of earthworks to create building sites that are as flat as can be practically achieved given the contour. If appropriate, flat building platforms should be created at the initial subdivision stage, as this is more efficient, the effects of such earthworks can be more effectively controlled, and the total extent of retaining can be reduced (relative to extensive site-by-site earthworks and retaining undertaken by builders).

Criterion 3 refers to connectivity - (i.e. multiple road linkages between points so that there are a number of travel routes to choose from) which should be one of the key aims of any subdivision, as it reduces the length of trips and reduces fuel usage and emissions, and promotes convenience, safety and social interaction. In general this will mean that as many roads as possible should be through routes. Recognising the rolling topography of the land means acknowledging that culs-de-sac may also be included. Cul-de-sac should be generally limited in length, ideally serving fewer than 15 households. Very short court-style culs-de-sac are preferred over longer ones, as the former are better able to promote a sense of community and safety. Cul-de-sac should only be used to improve land use efficiency or overcome topographical issues.

In considering the appropriate degree and nature of connections in regard to Criteria 3 and 4, consideration should be given to probable destination. For the Residential 2 Zone outside the Town Centre Overlay, connections to the Town Centre and nearest Neighbourhood Centre, to Pokeno School, and in the Helenslee Block to any open space (stormwater reserve) network, are a particular priority. In practice this will be achieved by roads and pedestrian and cycle routes including interconnected reserves and roads. The road connections and indicative linkages shown on the Structure Plan should form a starting point for the layout of any subdivision proposals – there will be a much more extensive roading network than the key routes shown on the Structure Plan. In order to achieve the identified connected pattern, connections to adjoining undeveloped blocks of land will be required upon subdivision.

Regarding Criteria 5 and 6, the Pokeno Structure Plan Document identifies a suitable indicative route for a future bus route which would cater for almost all residents. A route of this nature should be allowed for in layout design and roading detailing, such that the bus route is located within a 400m walk of the majority of households. The positioning of the two Neighbourhood Centres, on that route, also aims to ensure that many residents are within either a 400m (5 minute) walking distance from local shops, or at most an 800m (10 minute) walk, as shown on the diagram on the previous page.

A legible road pattern, as called for in Criterion 7, is one that is easily understood by the people that use it. Consistent road designs and landscape themes can further emphasise the position of each street in the road hierarchy and in the wider area. Road patterns that are logical and easy to understand and navigate make a neighbourhood feel more comfortable and help provide a sense of identity for it. Long, straight roads with long sight lines can encourage speeding. Bends that limit driver sightlines to 100m on arterials and collectors, or 75m on local roads will be encouraged.

The Helenslee Block is characterised by a network of gully-based watercourses and ponding areas which have the potential to form part of an integrated open space and movement network sought under Criterion 9. This should be realised to the fullest extent practical. Integration of the open space network in the Hitchen and School Blocks should be achieved with greater recourse to legible road linkages between and along the edge of the recreational and stormwater-based open spaces within these blocks.

Within Pokeno cycling and walking are expected to be a safe and viable option, and routes should incorporate pedestrian and cycle facilities (Criterion 10). Pedestrians should generally be accommodated on roads

rather than along segregated routes, as being seen by drivers affords a greater sense of security. Where links are provided separately from vehicular traffic routes they should be short, wide and direct (refer to Design Element 4) and through the utilisation of links through reserves, will often result in a shorter travelling distance between destinations than by road. Pedestrian crossings, cycle ways and walkways should be co-ordinated to create an integrated and free-flowing cycle way and walkway system.

Layouts that are actively planned to incorporate existing mature trees (Criterion 11) can also ensure an "instant amenity" for the subdivision, and so are encouraged. Trees and groups of trees identified in the Inventory of Historic Buildings, Structures, Trees and Areas should be retained in the design of layouts.

Design Element 2: Block Size, Lot Type and Orientation

1. *Blocks should be of a scale and shape to achieve a permeable street layout.*
2. *Blocks and lots should be designed to enable future dwellings with good solar access.*
3. *As many lots as possible should front onto and be accessed directly from a legal road. Rear lots should generally be avoided.*
4. *Through lots (lots with dual road frontage) should be avoided.*
5. *Corner lots should be designed to maximise opportunities to create private outdoor space on-site without the need for high front fences.*
6. *A variety of lot sizes should be provided. Larger lots should generally be located furthest from open space amenity features and Neighbourhood Centres, and smaller lots closer to them.*
7. *A suitably-sized lot for a Neighbourhood Centre should be set aside in locations shown on the Structure Plan.*
8. *Lots intended for medium density housing should be of an appropriate size, shape and orientation and should have adequate frontage with a road to support the development of medium density housing in accordance with the design assessment criteria of Part 27B.*



-  *Neighbourhood Centre (smallest lots nearest this)*
-  *North-South block orientation where possible, for optimum solar access*
-  *Wider lots on corner sites maintain on-site space with privacy from road*
-  *Blocks have two lot depth (50-60m) to limit the number of rear lots*
-  *Rear Lots (minimised)*
-  *Medium Density Housing Development Parent Lots*



Wider lots on corner sites to maximise private spaces screened from road by the house

Explanation:

Design Element 2 describes principles for consideration in the layout of blocks and lots within a subdivision, and is mostly relevant to vacant lot subdivision (where residential subdivision applications are accompanied or preceded by a land use consent application the house designs and layout will determine lot size and shape).

To accord with Criteria 1 and 2, blocks should be generally not more than 250m long. Elongating blocks in a north-south direction minimises the number of "south-facing" lots and so is encouraged. However, it should be recognised that for the Residential 2 Zone's growth areas the reality of the rolling topography and the intentions to retain landscape features and will affect the ability to achieve these in many locations.

Blocks should not be more than two lots deep (i.e. lots fronting roads only) to achieve Criterion 3. Maximising the potential number of dwellings that can front the road, and minimising the use of rear lots adds to safety, orientation and streetscape amenity, so as a guide subdivisions should be designed such that not less than 80% of lots in a subdivision will be front lots.

Vacant lots with dual road frontage at the front and the rear should be avoided because of interface issues where a rear area intended for private use abuts a second road.

Corner lots should be typically larger than nearby mid-block lots and the size and proportion of corner lots should also be carefully considered in the light of front yard controls potentially affecting the ability to achieve houses with private open space on-site.

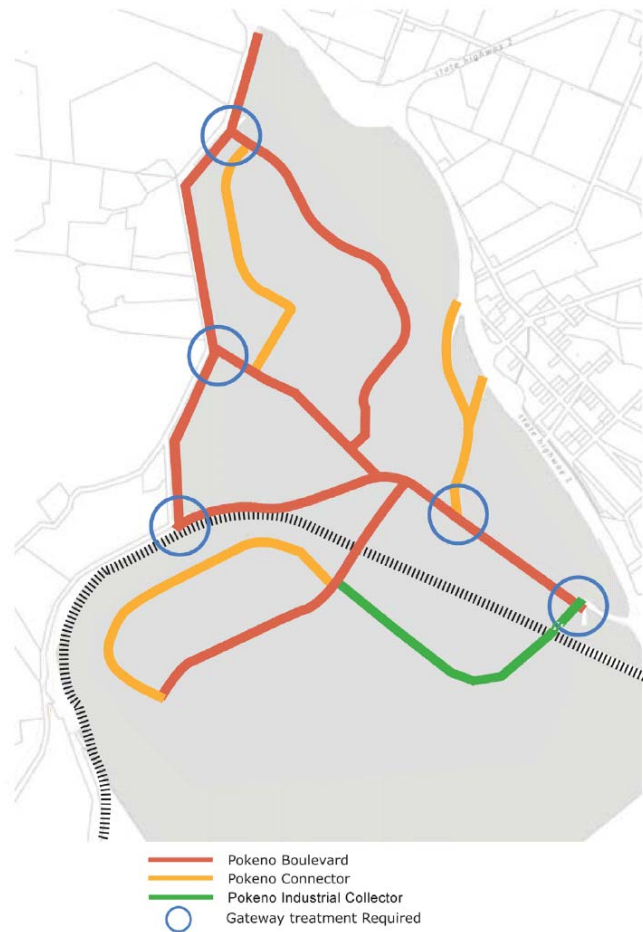
For vacant lot proposals, a wide variety of lot sizes and shapes should be provided to avoid monotony and ensure a variety of living options in Pokeno. As a guide, lots smaller than, for example, 500m² should be located adjacent to or opposite an open space.

The Structure Plan identifies the location of two Neighbourhood Centres. At the time of subdivision around these locations, a site should be set aside for a Neighbourhood Centre. If the exact future use is not known at the time of subdivision, regard should be had for the Design Assessment Criteria in Appendix 29D.1 and the relevant Objectives and Policies in Part 19 for Neighbourhood Centres as appropriate when determining a suitable size, shape and location. As a guide, the lot should be at least 2500m² in area, and located with a boundary to the Neighbourhood Park, a boundary to a collector road and a boundary to at least one other road.

Criterion 8 would be achieved by lots intended for medium density housing being designed in a manner that ensures that future development can be undertaken in accordance with the design assessment criteria of Part 27B.

Design Element 3: Roads and Accessways

1. *In addition to transport engineering and NZS4404:2010 requirements, road cross-sections should be appropriate to the nature of the service they provide and also reflect urban design legibility considerations.*
2. *Parking should be provided clear of traffic lanes on both "Boulevard" and "Connector" roads clearly demarcated from the moving lanes, and positioned with regard to probable driveway positions on adjacent lots. Parking should be provided informally on lesser roads.*
3. *Cyclists should generally be accommodated on the carriageway.*
4. *Local traffic management measures such as road narrowing, tightened intersection corners, chicanes, raised table pedestrian crossing points and material differentiation should be applied to limit the speed of vehicles on local roads to enhance safety, movement and amenity for pedestrians and cyclists.*
5. *A consistent palette of traffic management tools should be used in a development area or neighbourhood.*



Road Treatment Diagram

6. Generous avenue planting should be provided on "Boulevard" and "Connector" roads and street tree planting should be provided on all roads.



19 - 45m wide road width

Boulevard

7. Street trees and landscaping with slender trunks and foliage 1.5m to 1.8m should be utilised.



20 - 25m wide road width

Boulevard at Urban - Rural Interface

8. Where jointly-owned accessways are required, they should be generous in width, and comply with Council's standards.



21 - 20m wide road width

Connector

9. Key junctions (as identified in the diagram above) should be designed to recognise a "gateway" function. Gateways can be created in a number of ways, including but not limited to:

- Signaling the change through feature planting such as groups of trees and shrubs that are different to those used in the street;
- Feature signage and / or public art;
- Memorable architectural forms.

10. For road types with identified parking bays, the position of parking bays should be designed to take account of the likely position of driveway crossings onto lots.



22 - 25m wide road width

Industrial Collector

17 - 20m wide road width

Local Connector



18 - 20m wide road width

Local Road

Explanation:

Design Element 3 pertains to principles for the design of road treatments and private vehicle accessways within subdivisions.

The proposed main road treatment diagram is shown on the previous page. Note that from a traffic perspective only the state highways are defined as strategic routes. Pokeno Road is a collector road (which may be upgraded in the future). Helenslee Road (as well as the future main roads that penetrate the North and South of the railway) are classified as collector roads.

Whilst the primary function of the road network is to allow free flowing and safe movement between places, the road network contributes greatly to the character of the area. This character is defined not only by the carriageway and footpaths, but also the parking arrangements, street trees, planting and lighting. The road reserve offers opportunities to help establish the look and feel of an environment and make it legible for users.

For the Pokeno Structure Plan, the envisaged road treatments are of six broad types:

- 1. Boulevard*
- 2. Boulevard at Urban - Rural Interface*
- 3. Connector*
- 4. Industrial Collector*
- 5. Local Connector*
- 6. Local Road*

The road cross sections above are recommended as the main cross section treatments. Further design differentiation may be appropriate in the consideration of resource consent applications for subdivision. Council will exercise discretion in respect of NZS4404:2010 and the Pokeno Structure Plan. Should development seek to depart from this treatment, the cross sections on the previous page may be used as a guide in assessment of proposals. They have been derived recognising that roading should be appropriate to function and specific location and provide practical widths for vehicles, planting, and services. People should be able to easily interpret that they are on a main road or a local road.

Indicative locations for the main routes are shown on the diagram on the previous page and on the Structure Plan. All remaining roads should be regarded as local roads.

*The **Boulevard** treatment has an important function in terms of through traffic but is also a showcase for the town, contributing to the overall image. This type of road treatment is intended to be applied to the existing routes of Pokeno Road and parts of Helenslee Road, and the new main collector routes within the residential growth areas. These routes are often aligned with ridgelines and spurs and as such have a strong part to play in defining the image of Pokeno. Street tree planting themes will play a significant role in defining the boulevards as more significant streets.*

As the Boulevard would be a connecting element through various character areas, the dimensions and placement of trees and street features should remain generally consistent, but species of trees should be related to the adjacent neighbourhood.

The Boulevard treatment is also applied to the already existing (reserve width 20m) routes of Munro Road and Helenslee Road. It defines the western boundary of the structure plan area and is therefore "one-sided" in terms of urban development. A specific adaptation to its treatment would therefore be expected.

***Connector Roads** are of a higher order than normal local roads as they loop through and connect the neighbourhoods to the collectors and arterials.*

***Local Roads** provide for the movement of vehicular traffic and road treatments that encourage slower speeds and create high amenity environments for pedestrians and cyclists.*

All roads should generally be through roads - cul-de-sac roads should serve a maximum of 15 houses.

Criteria 4 and 5 note further that local traffic management measures may be appropriate in the Local Roads, where a slower traffic environment is sought. A consistent palette of tools should be utilised in a given development area so that drivers become accustomed to them.

Criteria 6 and 7 note that street trees should be utilised to differentiate areas from one another. Street trees provide amenity, shelter, mitigate pollutants and carbon. The provision of a holistic landscaping approach including a themed street tree planting plan will be sought by Council. Such an approach should reinforce the individual character of the separate parts of Pokeno and assist residents and visitors intuitively understand and navigate their way through the town. Slender trees with higher canopies are sought to maintain sight lines and avoid potential entrapment spots.

Regarding Criterion 8, jointly-owned accessways should be of generous legal width, ideally straight (sharp bends should be avoided at least) and with appropriately dimensioned sealed carriageways. Sharing access between rear lots is encouraged to minimise paved areas.

Criterion 9 recognises that certain existing and future intersections should be designed with a gateway function in mind, to help define the identity of Pokeno.

The Boulevard and Connector road types may include specifically formed parking bays. Criterion 10 notes the importance of designing these parking bays in conjunction with the adjoining lots, so that development on the lots in future does not result in vehicle crossings in positions that leave short unusable sections of bay. In general, the location of the driveway at the southern side of the frontage should be assumed. Council may require demonstration and assurance that the future driveways will be located in the preferred positions. Legal mechanisms may be necessary to protect the parking bays from the development of inappropriate driveway crossings.

Design Element 4: Pedestrian Links and Routes

- 1. Pedestrian and cycle paths should be primarily accommodated on roads.*
- 2. Links should be short (no greater than 60 to 80 metres in length), wide (6 metre wide corridor accommodating a 2 metre wide footpath) and direct, match desire lines as closely as possible, be of easy gradient (without steps and not exceeding a gradient of 1:12), and include clear and coherent signage.*
- 3. Links should run along the fronts of lots if possible, the sides where necessary, and never the rear.*
- 4. Where lots abut links, these should be designed so that boundary fences of not more than 1.2m height can be provided along the significant majority of the boundary without compromising privacy on adjacent lots.*
- 5. Adequate lighting provision for links should be made for safe night time use.*
- 6. Where the pedestrian network has to cross heavily trafficked roads, appropriate surface level crossings should be provided. Underpass crossings should be avoided, and footbridges only used for railway crossings.*
- 7. Cycle routes off-street should be safe, direct, barrier-free, have smooth surfaces, and be located above the average yearly storm event.*
- 8. Cycle storage facilities should be provided at appropriate locations.*



- A** Neighbourhood Park
- Pedestrian & Cycle Link
- Fencing to 1.2m provided along through-link edge
- Surface Level Crossing provided (eg pinch point)

Explanation:

Design Element 4 pertains to matters for consideration for locating, sizing and designing pedestrian and cycle links.

Designing for walking is an integral intention of the Pokeno Structure Plan, giving residents the option of accessing jobs, retail, services, public transport, community facilities and recreational opportunities on foot, in a direct, safe and enjoyable manner.

The term link principally refers to pathway routes which are a genuine "short cut" for pedestrian or cyclists and thus anticipated to be an important part of the pedestrian network and, through the utilisation of links through reserves, will often result a shorter travelling distance between destinations than by road.

Other routes through reserves are also envisaged, for amenity and recreational purposes.

As noted in Criterion 1, pedestrian and cycle paths should primarily be accommodated on roads. Where links and routes are provided separately from vehicular traffic routes, they should be designed to ensure that an appropriate level of personal security of users is a first priority.

Criterion 2 calls for links that are short, wide and direct. Ensuring that the link is straight allows visual connection from end to end, and avoids dangerous entrapments spots. Planting should also be cognisant of retaining these views.

Criteria 3 and 4 also note that boundary treatment and location relative to lots is important. The aim is that pedestrian routes should be safe, and overlooked by adjacent housing or other active land uses. Council may require demonstration of typical house position and orientation to satisfy Criterion 3 and may require covenants on titles to prevent later development of high fences on lots as described under Criterion 4.

Lighting, as called for by Criterion 5, may need to be low-level bollard lighting to avoid creating nuisances in adjacent properties.

Pokeno Road and the Main Trunk Railway Line are anticipated under the Structure Plan to require pedestrian crossings at key points. Criterion 6 recommends the appropriate design outcome.

Criteria 7 and 8 highlight also that Pokeno is also intended to be a town that it is easy and safe to get around by cycle. Storage facilities for cycles (typically bike racks) should be included in the design of the Sports Park, Neighbourhood Parks (refer Design Elements 5 and 6) and at Neighbourhood Centres.

Design Element 5: Reserves

1. Reserves should be distributed throughout the Residential 2 Zone in accordance with the locations and types shown on the Pokeno Structure Plan, and as described further in the explanation below, to provide a variety of recreation opportunities.
2. Neighbourhood parks, excluding those identified as knolls on the Pokeno Structure Plan, should generally be reasonably flat, and be designed and located to provide a focal point for the neighbourhood.
3. Neighbourhood parks associated with Neighbourhood Centres should be larger (say 2500m² in area) than other neighbourhood parks (excluding those identified as knolls on the Pokeno Structure Plan) in recognition of their central community function.
4. Clear sight lines into all areas of reserves should generally be available from public roads (as a first priority) or nearby dwellings. Neighbourhood parks should generally be fronted by two public roads.
5. Trees and any structures should be positioned for winter shelter and summer shade, to maximise the focal qualities of any reserve, and to reinforce any linkages from the reserve to other areas.
6. Reserves should be located and designed to retain any existing significant vegetation and to promote the regeneration of existing bush remnants. Notwithstanding the protection of significant vegetation, sufficient land should be available outside the protected vegetation to ensure that the recreation needs of the community can be fulfilled by the neighbourhood park.
7. Reserves should have relatively low maintenance planting.



Neighbourhood Park and Neighbourhood Centre Concept (Helenslee Block)

Key



Existing Totaras to be retained



Views into park from public road



Neighbourhood Park and Neighbourhood Centre Concept (Hitchen Block)



Smaller Neighbourhood Park Concept (Helenslee Block)

Explanation:

Design Element 5 pertains to matters for consideration for locating, sizing and designing all reserves within subdivisions. Regard should also be had to Design Element 8 when considering reserves and their relationship to roads and lots.

The Pokeno Structure Plan identifies the general location of all neighbourhood parks and a Sports Park. These were derived with reference to the Franklin District Reserves Acquisition and Development (RAD) Plan. Further criteria for stormwater reserves are described in Design Element 6. The development of the Sports Park will be undertaken under processes outside the District Plan.

Neighbourhood parks are described in the RAD Plan as "contoured, developed and maintained as places for active and passive recreation for the surrounding residential neighbourhood." The Structure Plan proposes that two neighbourhood parks be located within the new residential areas of Helenslee and Hitchen Blocks adjacent to the envisaged neighbourhood centres - i.e. small groups of local shops serving the respective blocks – with which they should have a strong visual and physical link. An existing stand of significant totara trees, central to the Helenslee Block, provides the basis for a large neighbourhood park in the Helenslee Block.

Other neighbourhood parks shown on the Pokeno Structure Plan may also be the focus of residential medium density overlay areas. They are intended for informal passive amenity with seating, and provide a focus for the surrounding housing. Appropriate locations for these parks are proposed in the Structure Plan, with two situated in the Helenslee Block and two within the Hitchen Block.

The Structure Plan also shows two neighbourhood parks in locations associated with existing knolls which are landmarks in the local areas of Helenslee and Hitchen and contribute significantly to local character and site identity. These are intended to maintain the raised landform and natural topography and thus allow residents to enjoy passive recreation and lookout opportunities across Pokeno and to the rural backdrop. Tree planting should be sensitive to the lookout function of the park. Footpaths/accessways should follow the contour up the hill for minimal disturbance, with lookout areas/rest spots along the way as well as at the top.

As noted by Criterion 2, particular attention should be given to the design of the parks in terms of their importance as focal points for nearby residents. A small, well-proportioned flat reserve designed as a focal point for a small neighbourhood through the use of planting, shelters, pergolas etc is almost always more appropriate than a large area of "leftover" rolling rear land.

Criterion 4 calls for careful consideration of the park, whichever type, in terms of ensuring that as much as possible of it is highly visible from public spaces as a priority, and also from lots. This will help ensure it is seen and valued by the nearby neighbourhood. This is also important from a personal security and crime prevention perspective.

Criterion 5 stresses the importance of tree selection and positioning and position of structures to reinforce a number of functions, particularly of the Neighbourhood Parks. As noted, the neighbourhood park adjacent to the Neighbourhood Centre for Helenslee will encompass most or all of a stand of totara.

Design Element 6: Stormwater Reserves

1. Stormwater detention treatment devices and associated reserves and linkages should be distributed throughout the Pokeno Structure Plan Area in general accordance with the locations shown on the Pokeno Structure Plan, and in general accordance with the adopted Catchment Management Plan, NZS4404: 2010, relevant regional technical publications and as described further below.
2. The Helenslee Block stormwater reserves should be developed as a connected system with pedestrian access along the whole system, creating green corridors to enhance the ecology of the area and providing a visual connection of green network to the surrounding rural areas.
3. Where the Tanitewhiora Stream and the Helenslee Stream channels are identified as "perennial stream with riparian margin" on the Structure Plan, they should be retained and a vegetated buffer should be provided on both sides of the channel.
4. Vegetated buffers should also be provided on the margins of streams, ponds and wetlands which should:
 - Include native specimen trees on the lower and upper banks of ponds predominantly to the north and west of the pond to provide shade;
 - Provide a minimum 10m of native planting including shallow water rushes and sedges;
 - For wetlands and ponds include native wetland species planted in the different planting zones within wetlands as per Environment Waikato's wetland planting guide.
5. Stormwater ponds should be designed to fit in with the surrounding landscape and appear as a natural component of the overall setting.
6. Walkways through buffer vegetation should be designed to minimise any impacts on any ecological function of the pond or buffer, and personal security should be a priority in walkway design.
7. Vegetated buffers in close proximity to lots should be designed to minimise shading effects on probable living areas and to allow visual connection with any walkway passing through the buffer.



Concept for Stormwater Reserve in Helenslee Block

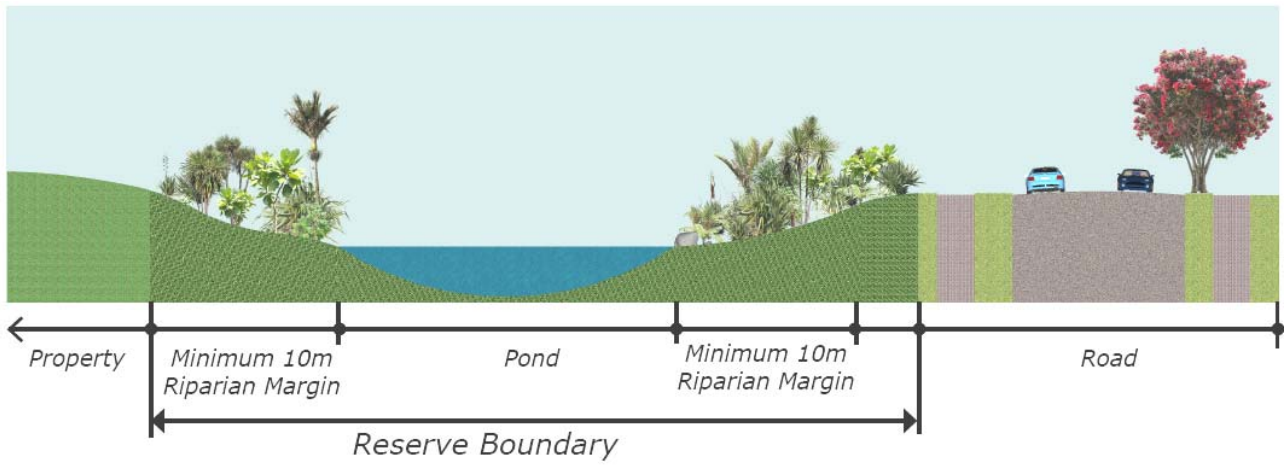


Concept for Stormwater Reserve in Hitchen Block

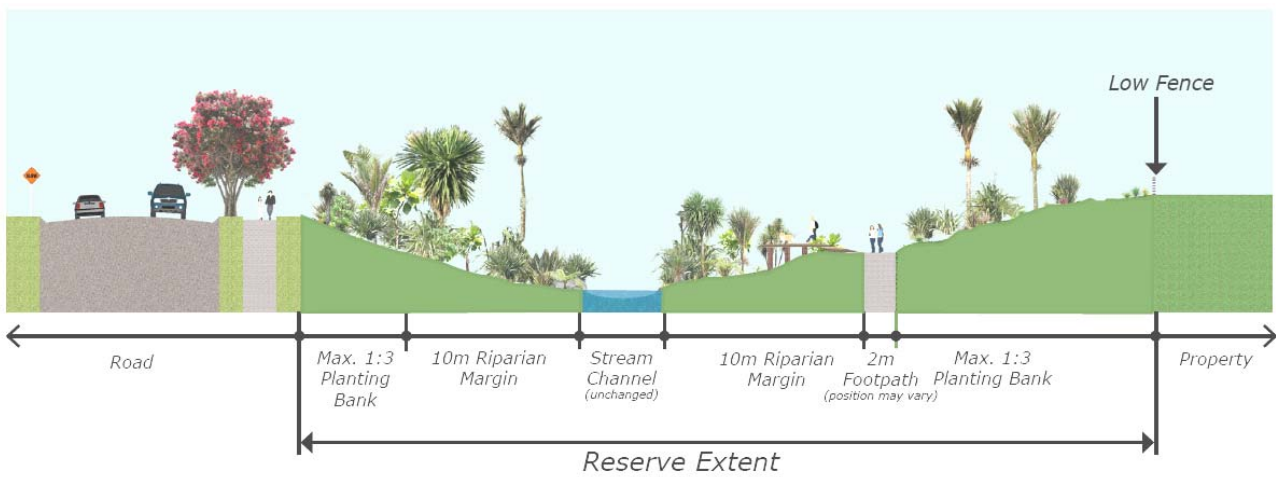
Key:

-  Pedestrian Access
-  Green Corridors

Typical Cross Section – Pond or Wetland



Typical Cross Section – Stream (where included in reserve)



Explanation:

Design Element 6 pertains to matters for consideration for locating and designing stormwater reserves and their planted margins.

The Structure Plan area is bisected by two streams, referred to as the Tanitewhiora Stream and the Helenslee Stream. These streams are important ecological corridors and should therefore be retained and enhanced. They flow through to the Mangatawhiri Swamp/Wetland which in turn feeds the Waikato River. The wetland is regarded as one of the rarest and most at-risk ecosystems and the Waikato River also has ecological significance.

The proposed stormwater reserves can provide residents with passive recreation opportunities, and (particularly in the case of the linear stream areas in the Helenslee Block) may form part of the pedestrian and cycle, and passive recreation, networks. Design of related walkways requires careful consideration in respect of potential impacts on buffer vegetation, and on making the experience safe and pleasant for users (Criteria 2, 6 and 7).

The Catchment Management Plan requires that the perennial watercourses (as shown on the Structure Plan) be re-vegetated with riparian planting, as also sought by Criterion 3. Farm stream crossings will need to be removed.

Planting on the northern and western side of any ponds provides shade and the intention of the buffer planting should also be to enable more self-sustaining habitat once established (Criterion 4). Planting should also take into account the relationship of the stormwater reserve to adjoining lots and, as with walkways, design and selection of species for vegetated buffers should maximise personal safety and surveillance and minimise loss of light to adjoining properties (Criterion 7).

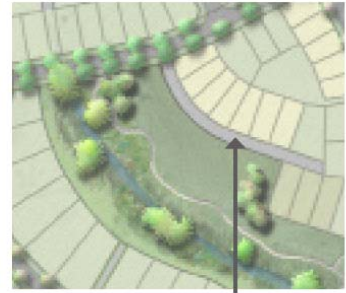
Design Element 7: Interface Design

Reserve Interface

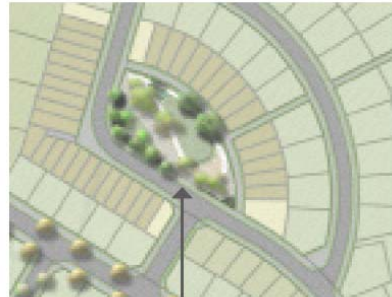
1. Reserves/Parks should be bounded by public roads as much as possible given topographical constraints.
2. Where a road boundary is not practical, the lot layout should ensure that the fronts of houses face onto the reserve across driveways as a next preference, and these driveways must remain unfenced so a clear line of sight and physical access is maintained.
3. If lots "back on" to reserves, they should only do so on the southern edges of the reserve, maximising the likelihood that the house will provide north-facing glazing looking onto the reserve.



Road around reserve edge where possible



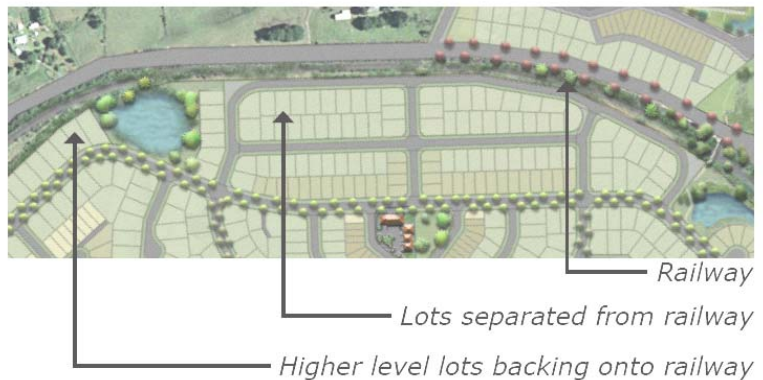
Where lots back on to the south side of a reserve, ensure road or at least driveway edge to the north side



Road around south edge, driveway round north edge

Railway Interface

1. Residential subdivision in the vicinity of the North Island Main Trunk Railway line should either:
 - As a preference be separated from the Railway by a road running along the edge of the railway; or
 - Back onto the railway boundary (only where the land being subdivided is higher than the level of the railway).



Railway

Lots separated from railway

Higher level lots backing onto railway

Explanation:

Design Element 7 pertains to design matters which arise with development at the interface with certain urban elements in the Residential 2 Zone growth areas, namely reserves and the North Island Main Trunk Railway Line.

Reserve Interface

Reserves that are largely bounded by public roads are more secure, because of informal surveillance from the road and from the houses nearby, and are thus likely to discourage crimes against people, vandalism, burglary, dumping, and littering. In such locations, and clearly visible to as many properties as possible, they are likely to attract the maximum number of users and be more valued by the community enhance surveillance and safety for pedestrians and cyclists using the open-space system. Ideally, reserves should not directly adjoin residential lots, (Criterion 1) but as a guide, not less than half the total length of legal boundary of any reserve should adjoin legal road. However, given the topography of the Residential 2 Zone growth areas, it is recognised that there are other ways to provide an active edge (Criterion 2) and that there are certain circumstances and orientations where directly “backing” a lot onto a reserve boundary is appropriate (Criterion 3).

Railway Interface

The Pokeno Structure Plan Area is bisected by the North Island Main Trunk Railway Line. In terms of those parts of the Residential 2 Zone outside the Town Centre Overlay Area, the NIMT forms a curved boundary for the Hitchen Block. This, together with varied topography, means that a variety of edge conditions have to be considered.

The criterion recognises this and sets out relative preferences.