APPENDIX 17B SUBDIVISION DESIGN ASSESSMENT CRITERIA

Purpose of Appendix 17B

In the Residential 9 Zone 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*
> *The extent to which the subdivision is in accordance with the Subdivision Design Assessment Criteria in Appendix 17B".*

The criteria will be considered for vacant lot subdivision and for subdivision in relation to a preceding or concurrent land use consent involving household units. In addition, the criteria will also be used as appropriate in the consideration of discretionary activity applications for subdivision.

Design Element 3 will also be considered as appropriate to assist in the assessment of road design in the Mixed Use 1 Zone.

Structure of Appendix 17B

The Appendix sets out the assessment criteria under five "Design Elements", which are the design and layout matters to which the Council's discretion is restricted for restricted discretionary applications, namely:

- Road, Reserve and Access Networks
- Block Size and Lot Type
- Design of Roads and Access Routes
- Design of Reserves
- Design of Margins

The criteria listed under each Design Element are intended to give flexibility, enabling site responsive subdivision designs, while ensuring that the subdivision contributes to the efficient development and amenity of the Hingaia Structure Plan Area.

The criteria are intended to guide development rather than prescribe exact design and layout. Most criteria are illustrated. The illustrations are intended to support the text and are representative of good design solutions, but are not necessarily intended to represent the only design solution.

Each Design Element includes an explanation that summarises the rationale for the particular Design Element, and expands on the individual criteria. The explanation may be used as further guidance in interpreting the intention of the criteria and assessing the extent to which the proposal accords with them.

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.

Design Element 1: Road, Reserve and Access Networks

1. Subdivision design should achieve connectivity within and between neighbourhoods.

2. Street patterns should maximise convenient access to principal and collector roads, passenger transport stops, reserves, community facilities and the Mixed Use 1 Zone.

3. Street patterns should be logical and contribute to the legibility of the area.

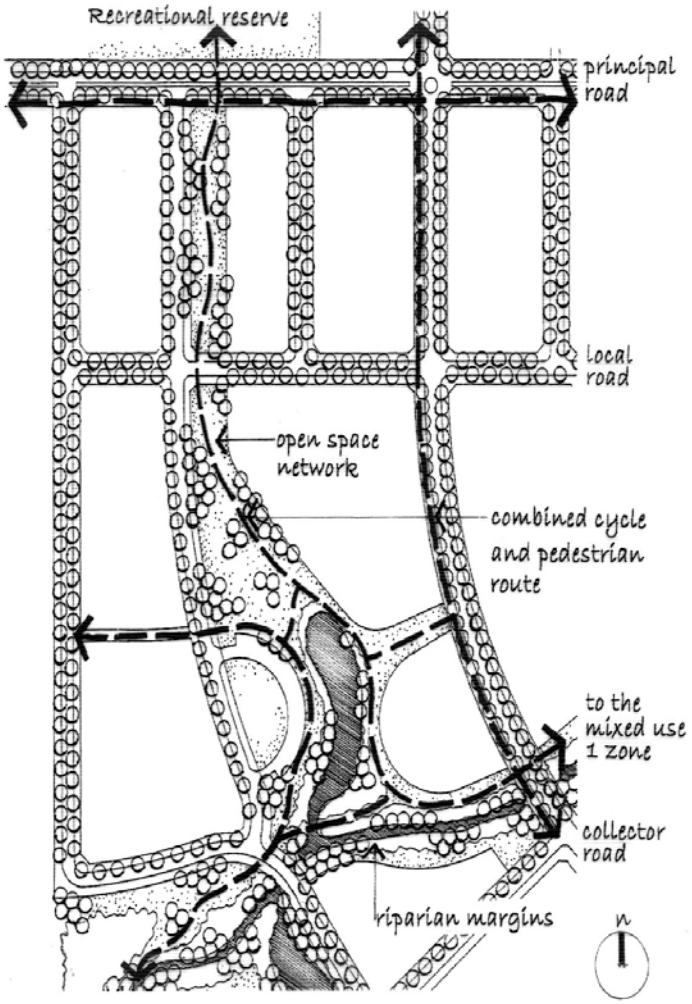
4. Subdivision design should help achieve an interconnected open space network including stream and coastal riparian margins.

5. Safe pedestrian and cycle routes should be generally integrated with road and reserve design.

6. Layouts should retain any existing mature trees, preferably in road or reserve, where these contribute to existing site amenity.

7. Subdivision design should create connected networks of reserves and open space that provide protection for existing significant natural values and creates new habitats for bird and wildlife.

8. Reserve areas adjacent to coastal esplanade reserves should enhance public recreation opportunities and / or mitigate land stability issues and environmental concerns.



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.

Connectivity - i.e. multiple linkages between points - should be one of the key aims of any subdivision as it promotes convenience, energy efficiency, safety and social interaction. In general this will mean that many roads, particularly within 800m of the focal point of the Mixed Use 1 Zone, will be through routes. Provided that pedestrian and visual connectivity is generally maintained, culs-de-sac may also be included as they can minimise traffic movement and provide greater safety for children. Culs-de-sac limited in length to 100m are appropriate in locations well removed from the Mixed Use 1 Zone and Hingaia Road, such as in the northern part of the Residential 9 zone.

In considering the appropriate degree and nature of connections, regard should be had to probable destination. For the Residential 9 Zone connections to Mixed Use 1 Zone, and to Hingaia Road is a particular priority. In practice this will be achieved by collector roads and pedestrian and cycle routes, Including interconnected reserves (as shown generally as 'green linkages' on the Hingaia East Structure Plan). The road connections, coastal margins, stream channels and green linkages shown thereon should form the starting point for the layout of any subdivision proposals. Connections into adjoining undeveloped blocks of land for future linkages will also be required upon subdivision.

A legible road pattern is one that is easily understandable for 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 comprehend and navigate make a neighbourhood feel more comfortable and help provide a sense of identity for it. Within 1 kilometre of the focal point of the Mixed Use 1 Zone, roading patterns will need to promote connectivity and legibility.

Routes should incorporate pedestrian and cycle facilities. Where these are provided separate from vehicular traffic routes they should be short, wide and direct (refer to Design Element 3). Layouts that are actively planned to incorporate existing mature trees can also ensure an “instant amenity” for the subdivision and so are encouraged.

Networks of reserves and other open space, both in public and private ownership, will provide green corridors for birdlife, particularly if planted with native vegetation. The network of reserves will also maintain and enhance the intrinsic values of the habitats, and the existing rural character and amenity values of the Hingaia Peninsula.

Design Element 2: Block Size and Lot Type

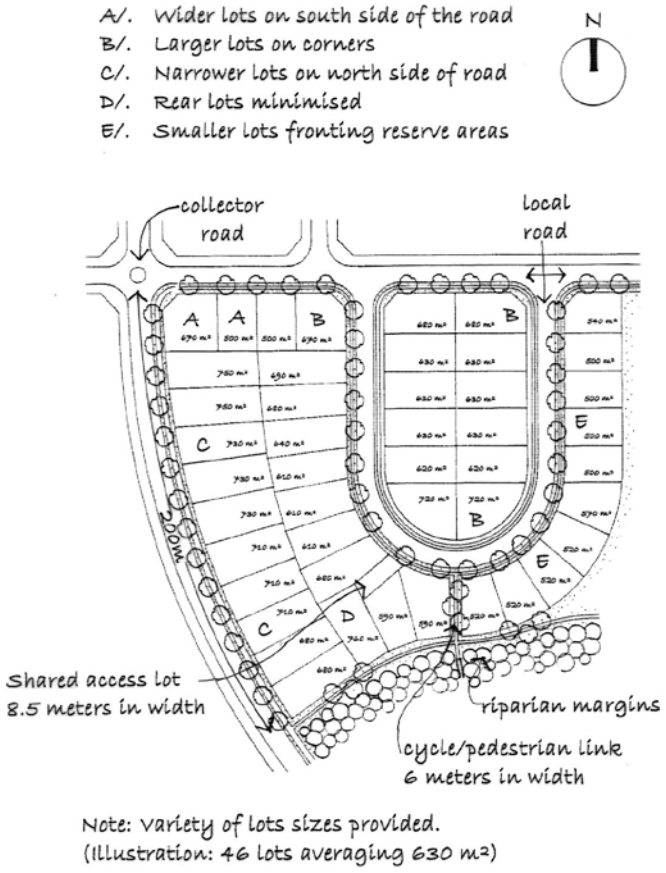
1. Blocks should be of a scale and shape to achieve a permeable street layout.

2. Blocks and lots should be designed to enable 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 and corner lots should be designed to maximise opportunities to create private outdoor space on site without the need for high front fences.

5. A variety of lot sizes should be provided. The proposed subdivision should provide a transition in scale and intensity where it abuts an established area with rural-residential development.



Note: Variety of lots sizes provided.
(Illustration: 46 lots averaging 630 m²)

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.

In general, blocks should be not more than two lots deep (i.e. lots fronting roads only) and not more than 200m long. Elongating blocks in a north-south direction minimises the number of "south-facing" lots and so is encouraged.

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 potential complying dwellings in a subdivision will be located on existing or future front lots.

Vacant lots with dual road frontage at the front and the rear should be generally avoided because of interface issues where a rear area intended for private use abuts a second road. The size and proportion of corner lots should also be carefully considered in the light of front yard and fencing 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. Council will seek to maintain the mimumum average lot size of 600m^2 in any vacant lot subdivision, required by relevant subdivision standards. Lots smaller than this average should be located adjacent to or opposite open space, where possible.

Design Element 3: Design of Roads and Access Routes

1. Road cross-sections should be appropriate to the nature of the service they provide.

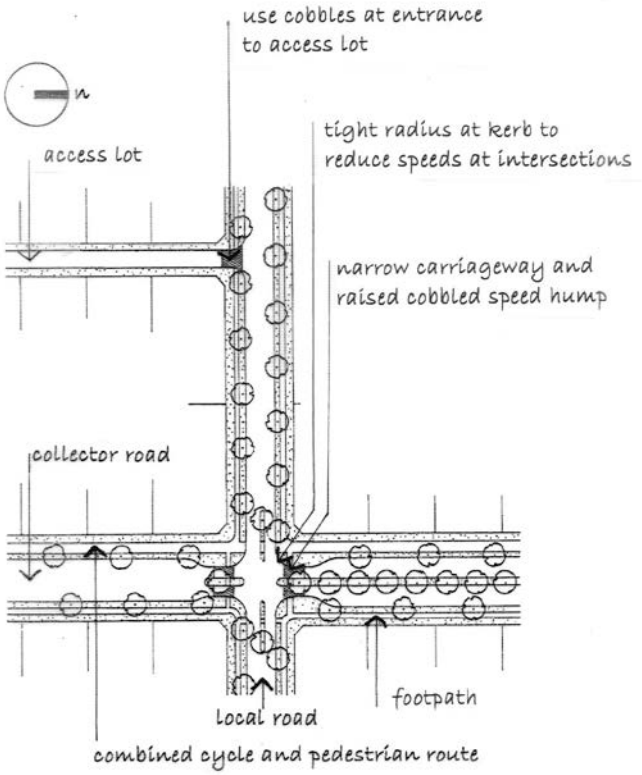
2. Parking should be provided on both sides of principal and collector roads, and at least one side of local roads.

3. A footpath with provision for cycling should be provided on at least one side of a principal or collector road.

4. Local traffic management measures such as road narrowing and road gardens should be applied to limit the speed of vehicles in local roads and minor links, and to enhance safety, movement and amenity for pedestrians and cyclists.

5. Generous avenue planting should be provided on collector roads and street tree planting should be provided on all local roads in accordance with the suggested provision below.

6. Generous avenue planting and specific edge and property boundary treatment should be provided on Hingaia Road in accordance with the suggested provision below.



7. Minor Link Roads and Short Residential Culs de Sac/Minor Residential Streets should:
   - Have a maximum length of 130m;
   - Have a minimum carriageway width of 6m;
   - Only be used where:
     - There is low demand for on-street parking;
     - Traffic volumes are likely to be less than 500 vehicle movements per day;
     - There is a practical alternative in the roading network of the overall subdivision design whereby the road does not form a principal through-traffic route; and
   - Form T-intersections where they intersect with other roads.

   Cycleways may also be required when they form part of a wider cycleway network.

8. Minor Link Roads should not be used to provide access to properties or to serve activities with high parking demand and should not provide on-street parking. Generally Minor Link Roads should have footpaths and service berms on one side only, but in some circumstances these may be required on both sides.

9. Short Residential Culs de Sac/ Minor Residential Streets should serve no more than 30 residential units and should make on-street provision for parking (including visitor parking) on one side of the road only. Generally Short Residential Culs de Sac/ Minor Residential Streets should have footpaths and service berms on both sides, but in some circumstances these may be required on one side only.

Explanation:

Design Element 3 pertains to principles for the design of roads and other access routes within subdivisions. Road design should be appropriate to function and provide practical widths for vehicular access, including access for emergency vehicles, parking, planting, and services. The Plan does not specify minimum widths as performance standards for the Residential 9 Zone. Drawings on subsequent pages identify suggested cross section treatments, and will be used as a guide in assessment of proposals. Options for the treatment of Hingaia Road are provided. Useful minimum dimensions to have regard to in assembling a suitable road cross section are:

- two lanes of traffic on a residential collector road (to cater for buses or trucks) 6.0m
- two lanes of traffic on a local street 5.5m
- cycle path or cycle lane 1.5m
- parallel parking lane 2.5m
- service strip 2.0m
- footpath 1.5m
- kerbside verge 1.0m
- planting strip 1.5m

Indicative locations for Hingaia Road, principal roads, collector roads, and some key local roads are shown on the Hingaia East Structure Plan. Most remaining roads should be regarded as local roads. Minor links (i.e. short lanes, often with properties accessing only one side or neither side) may be considered in some circumstances, where they improve connectivity.

The use of parallel kerbside parking is efficient in using the road as circulation area and reducing the need for on-site visitor parking. Kerbside parking lanes may be defined and delineated with planting bays if desired.

Pedestrian and cycle paths should generally be integrated with road and reserve design. Paths which are separate from vehicle routes should be designed to ensure personal security for users. Where paths are not part of an open reserve they should generally be short (not more than 70m in length), and wide (not less than 6m legal width) and there should be clear visibility from one end to the other, and street lighting at both ends.

Grassed service strips (separate from planting strips) are generally required along any road boundaries where properties are accessed, (though other solutions for services location may be considered, for example a single service strip with connections under the carriageway on Minor Link Roads and lanes). Tree planting in the road reserve should be regarded as a requirement, as it maintains a character valued in Hingaia.

Suggested spacings for street trees are:

• Hingaia Road - outer berm planting strip	Trees spaced at 20 metre intervals
• Hingaia Road - central median planting strip	Trees spaced at 12-20 metre intervals (ideally 12 metre)
• Principal or collector road - outer berm planting strip	One tree per lot frontage
• Principal or collector road - central median planting strip	Trees spaced at 12-20 metre intervals (ideally 12 metre)
• Local road - outer berm planting strip	One tree per lot frontage
• Minor Link Roads, Minor Residential Streets and Short Residential Culs de sac	One tree per lot frontage (one side only)
• Access lot	No trees required
• Pedestrian / cycle link	No trees required

Minor Link Roads are short roads linking two parallel streets and do not have sufficient width to enable on-street parking so they should only be located where there is no demand for on-street parking. The reduced with of Minor Link Roads means that they may be suitable in a subdivision layout only in certain circumstances. The Council will assess whether the Minor Link Road improves connectivity. However it should not be the sole linkages or service high-traffic generating activities.

Short Residential Culs de Sac and Minor Residential Streets are lightly trafficked residential streets with only a small number of dwellings. Short Residential Culs de Sac and Minor Residential Streets are primarily for property access and are therefore narrow, low-traffic volume streets. Due to their narrow carriageway width Minor Residential Streets are at greater than normal risk of being impassable during an emergency. The subdivision or development must provide sufficient parking to ensure access for emergency vehicles at all times. There must be a practical alternative to using the Minor Residential Street for emergency and service vehicles.

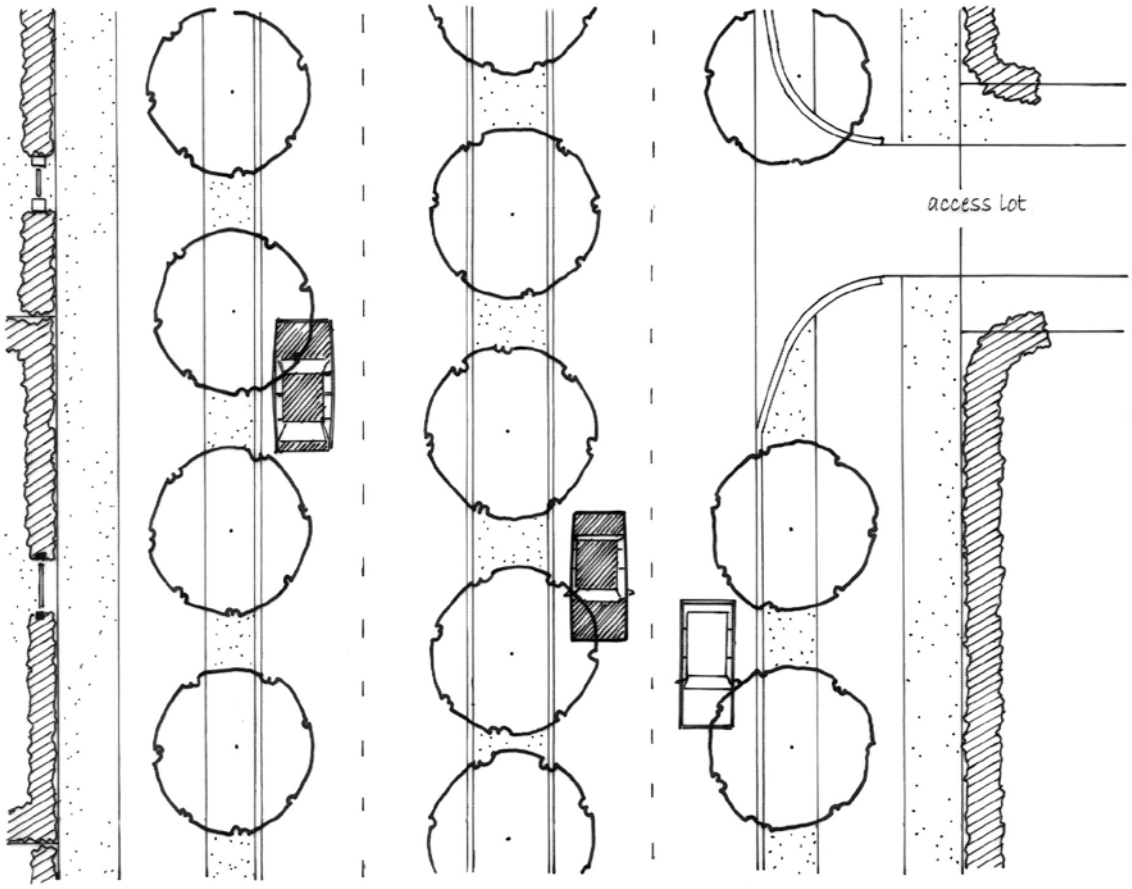
The general treatment for Hingaia Road is identified overleaf (three options are suggested). The road will require widening from the current legal road reserve width to achieve this cross section. Widening will be generally sought on the south side as progressive subdivision takes place (Refer Figures 4/1 and 4/2).

The Plan includes performance standards generally limiting direct vehicular access directly onto properties from this road. The use of access lots, particularly in the form of slip lanes, to provide access to properties facing Hingaia Road may be appropriate in some locations.

Council will also seek to minimise the number of local road intersections. In general, new access points and intersections with local roads will be “left in – left out” through retention of a continuous median. Parking will be discouraged on Hingaia Road at its interface with the Residential 9 Zone.

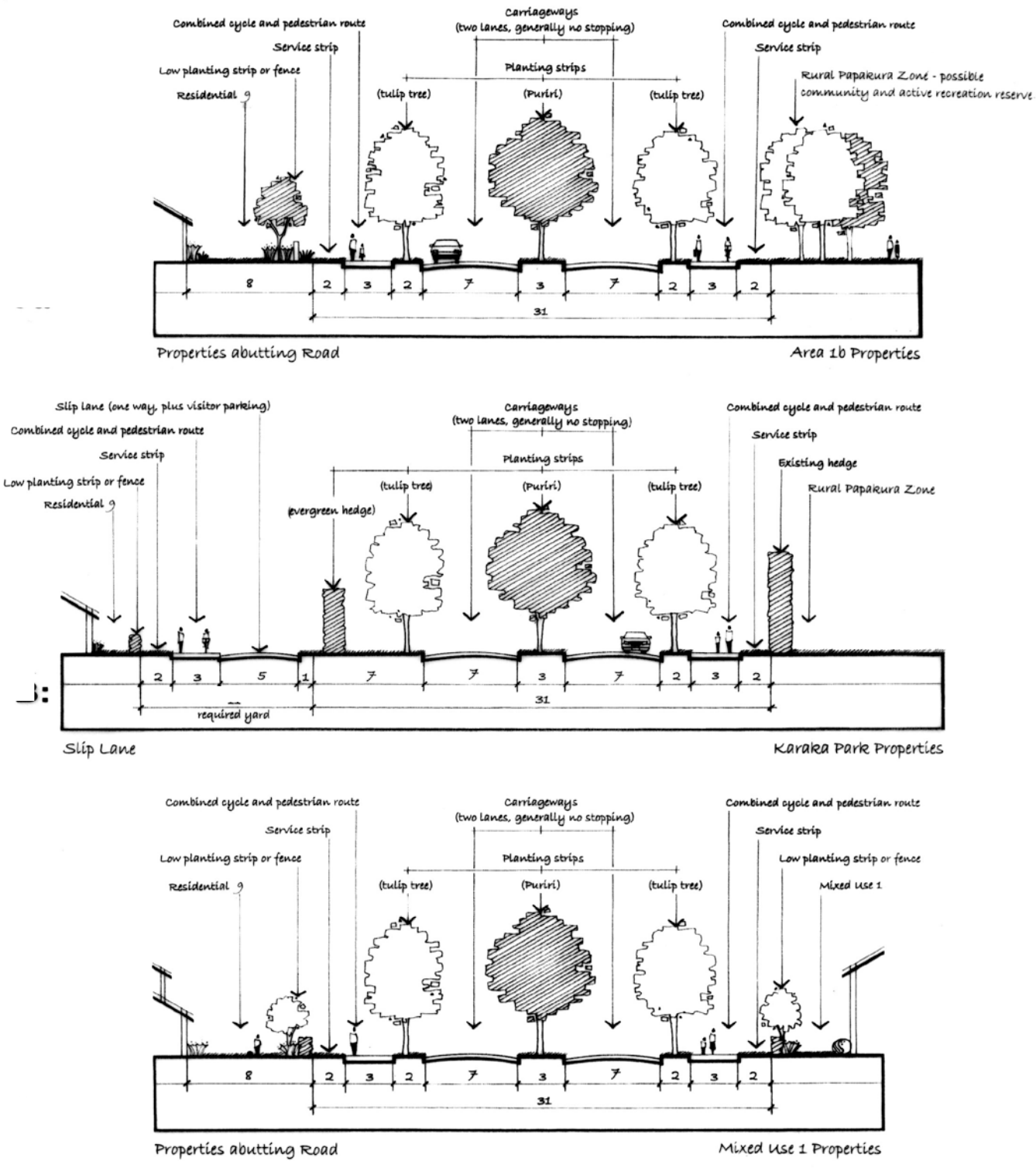
Adherence to these principles will maintain a useful principal road function and enable the establishment of dense specimen tree planting on the berms and median, to rapidly achieve a “boulevard” or avenue effect. Species on the berm and median should be the same.

Council will encourage a consistent low fencing or planting design along residential properties with boundaries to Hingaia Road, where rules restricting road interface fencing height and type are also applicable.



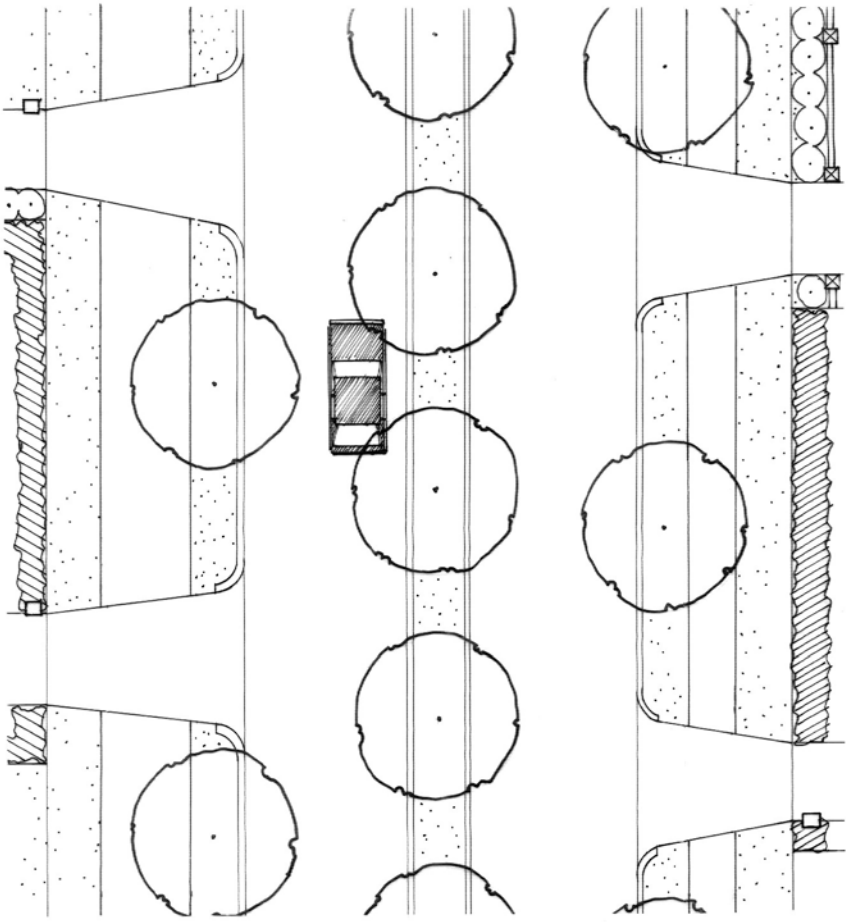
Arterial Road With Central Median (Hingaia Road) - Typical Plan

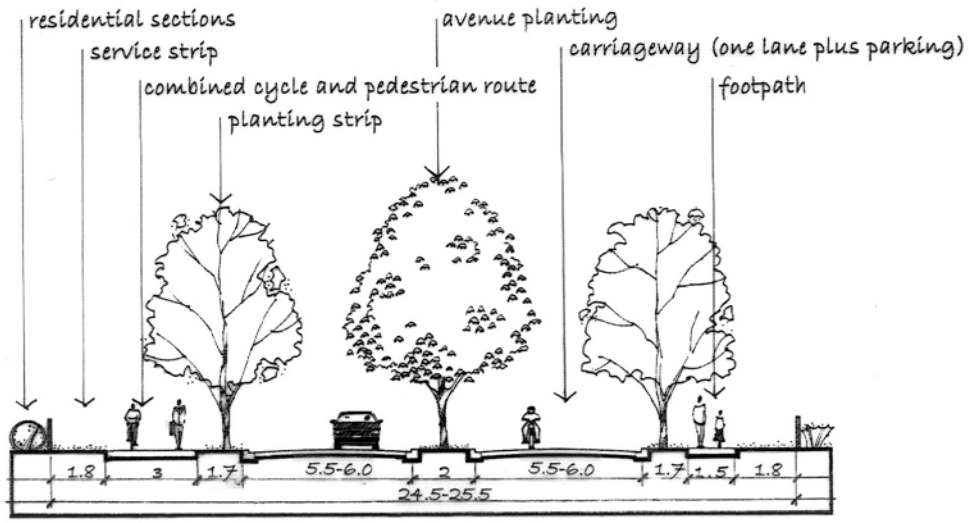
Suggested Road Cross Sections for the Residential 9 Zone



Arterial Road With Central Median (Hingaia Road) - Cross Section Options

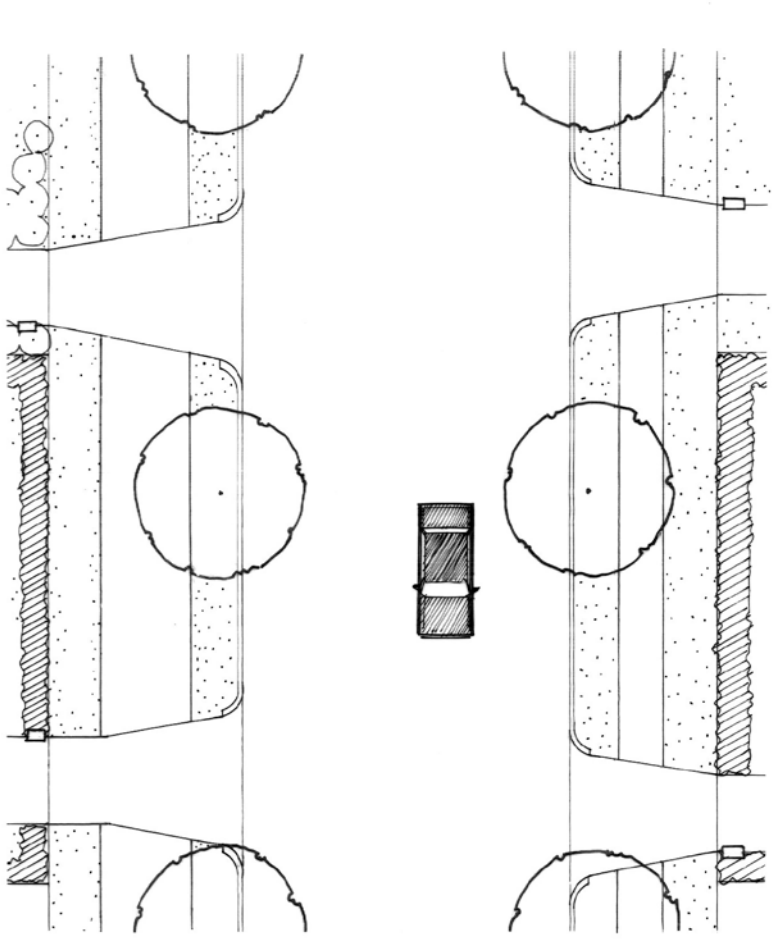
Suggested Road Cross Sections for the Residential 9 Zone

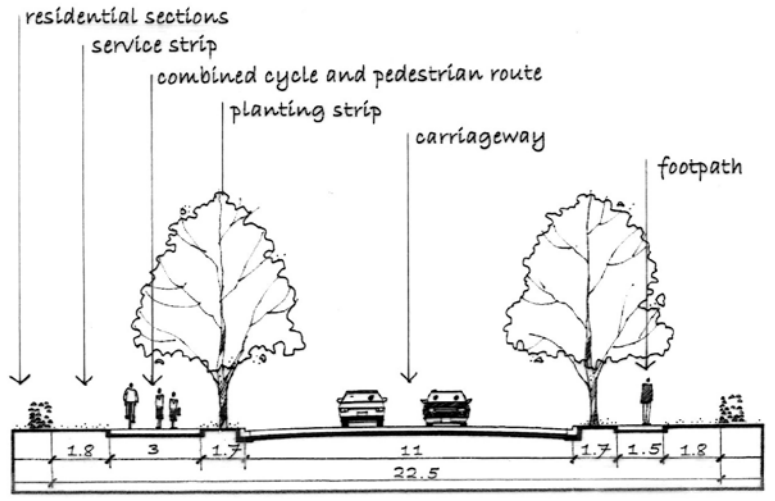




Principal or Collector Road with Central Median

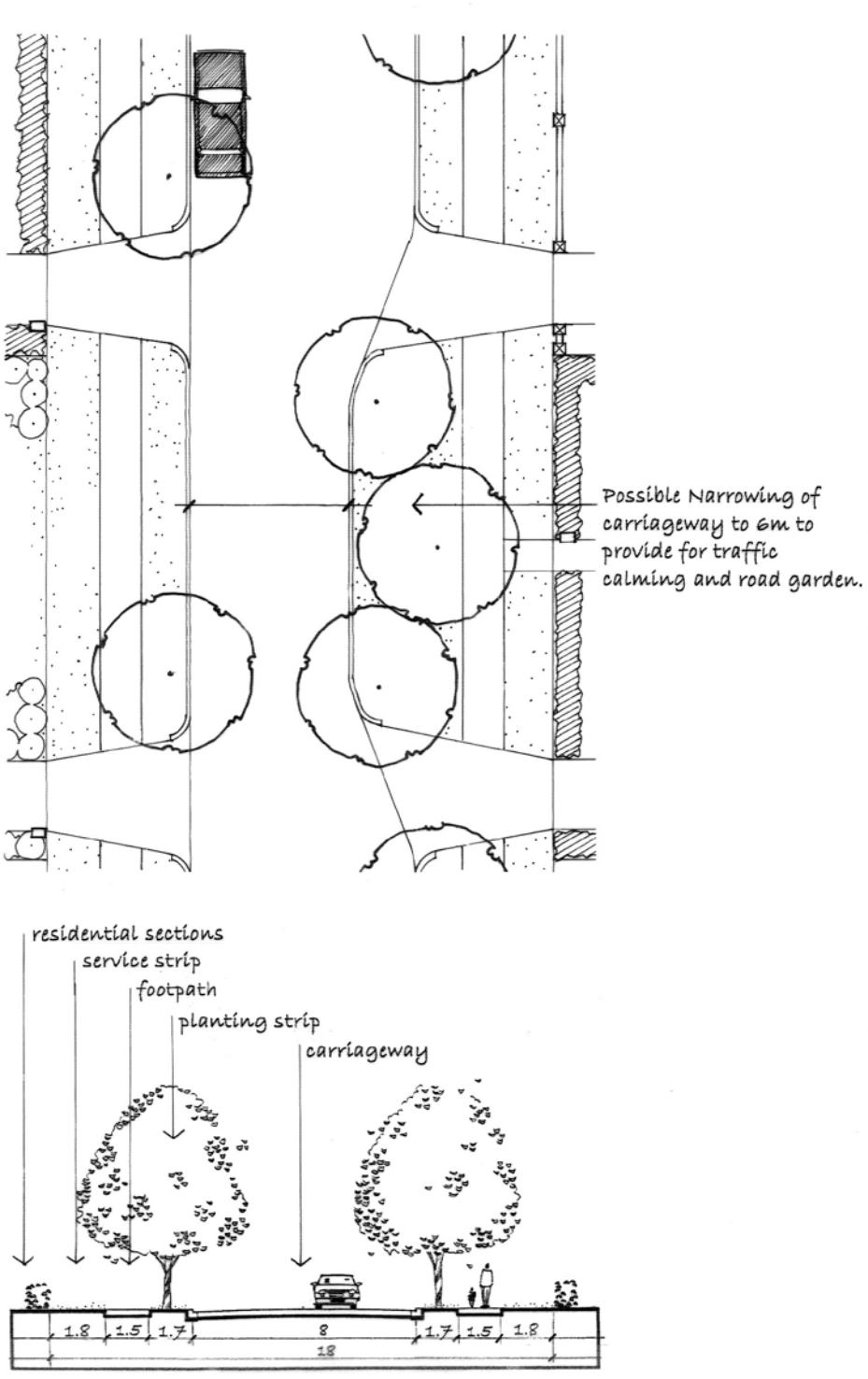
Suggested Road Cross Sections for the Residential 9 Zone





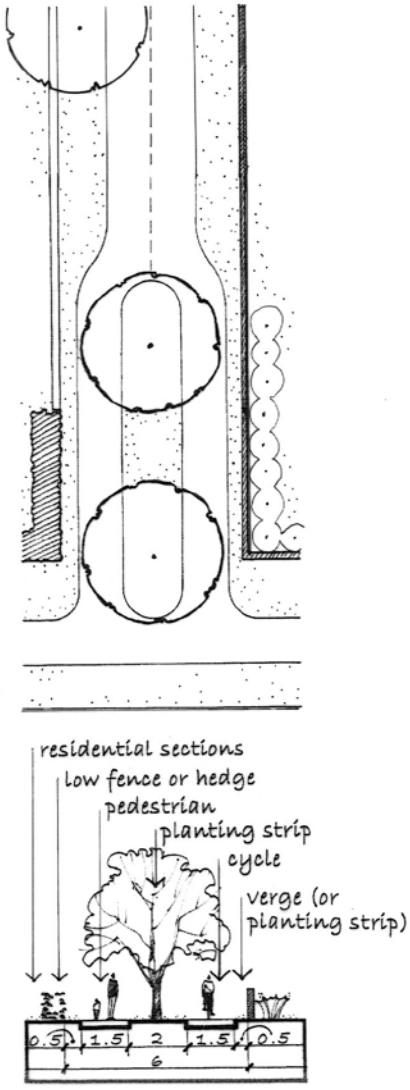
Collector Road Without Central Median

Suggested Road Cross Sections for the Residential 9 Zone

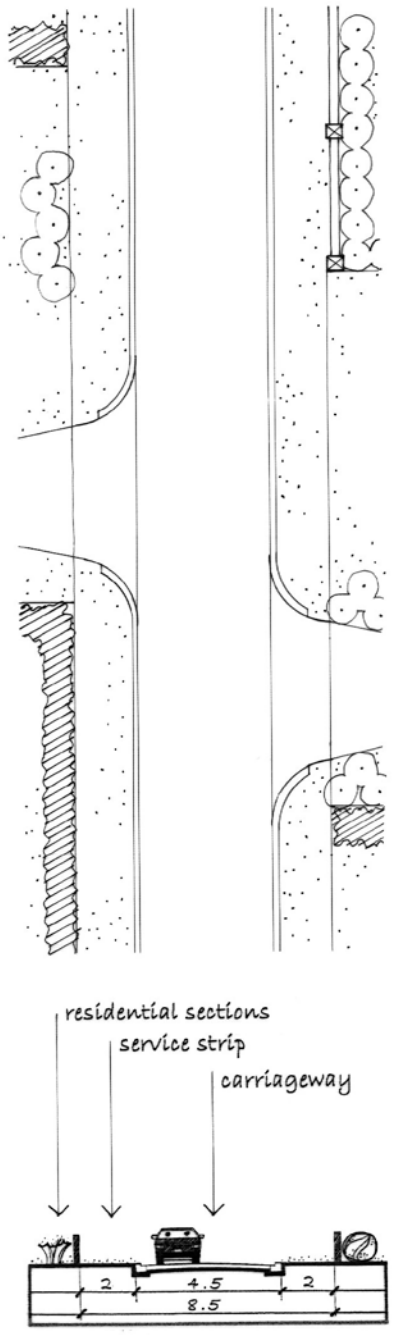


Local Road

Suggested Road Cross Sections for the Residential 9 Zone

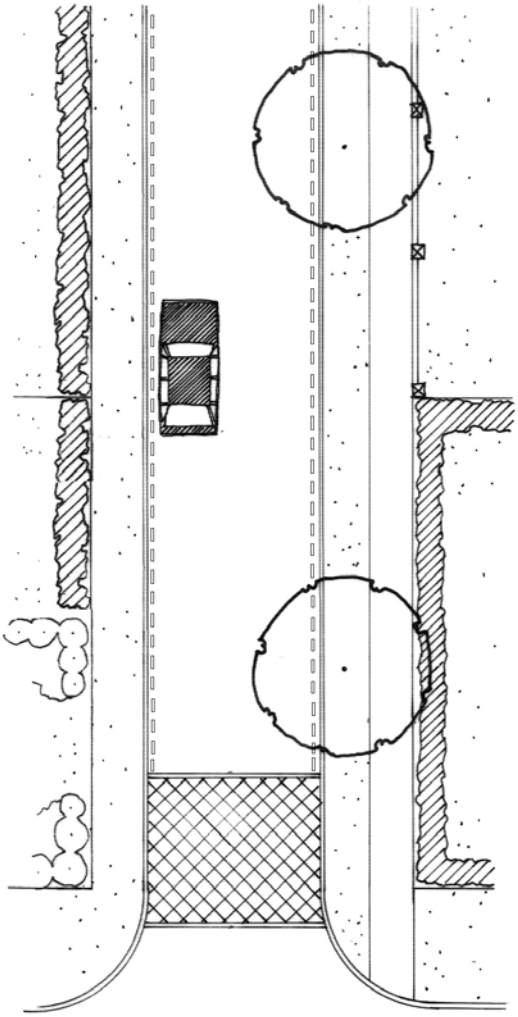


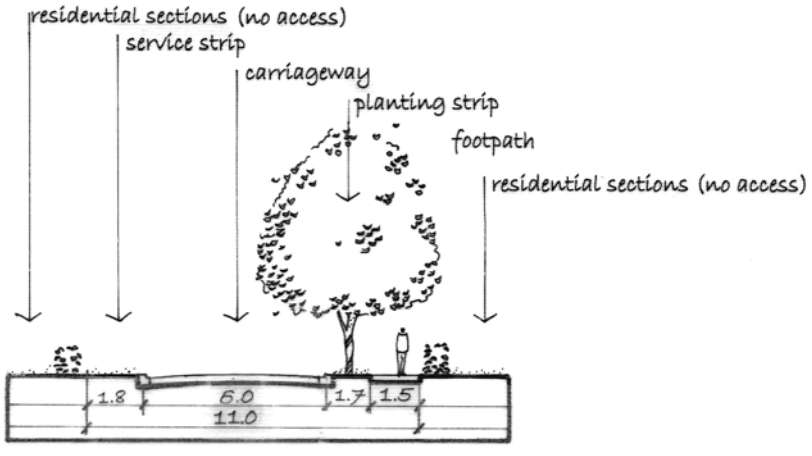
Pedestrian / Cycle Link



Access Lot or Combined Rights of Way

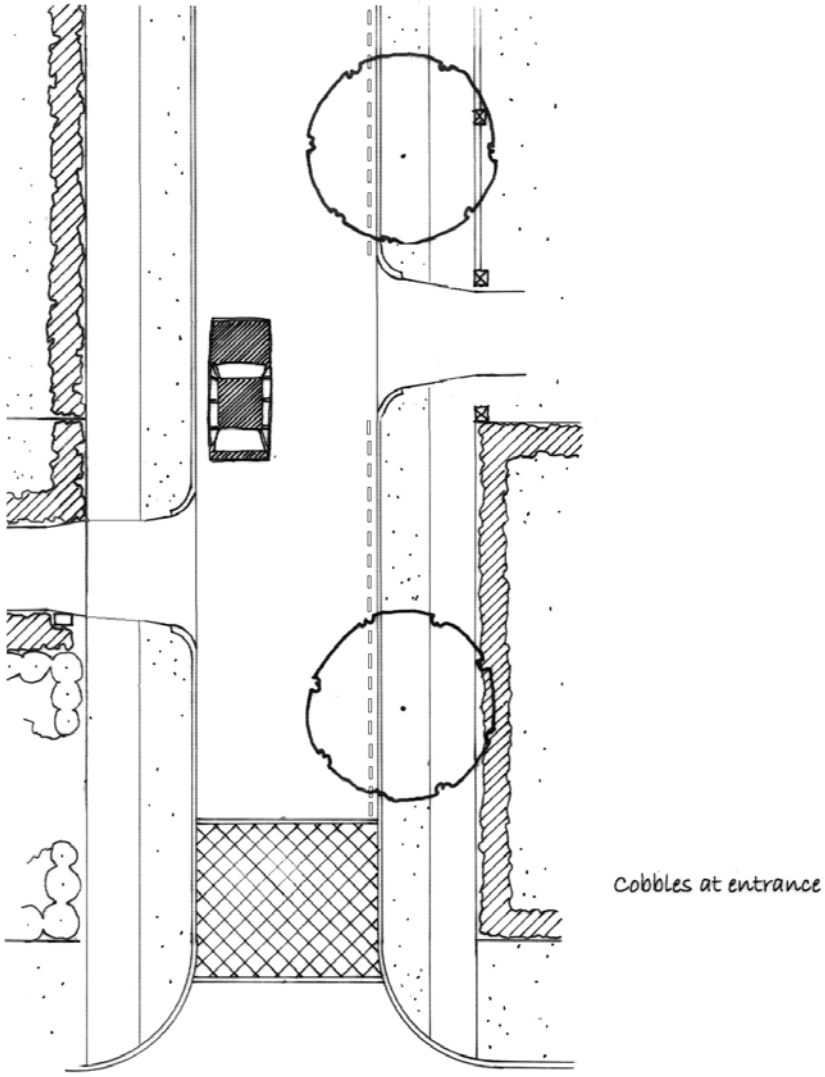
Suggested Road Cross Sections for the Residential 9 Zone

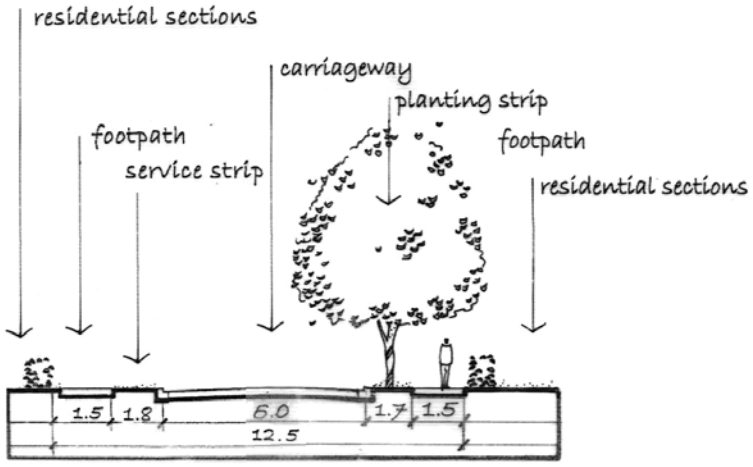




Minor Link Road

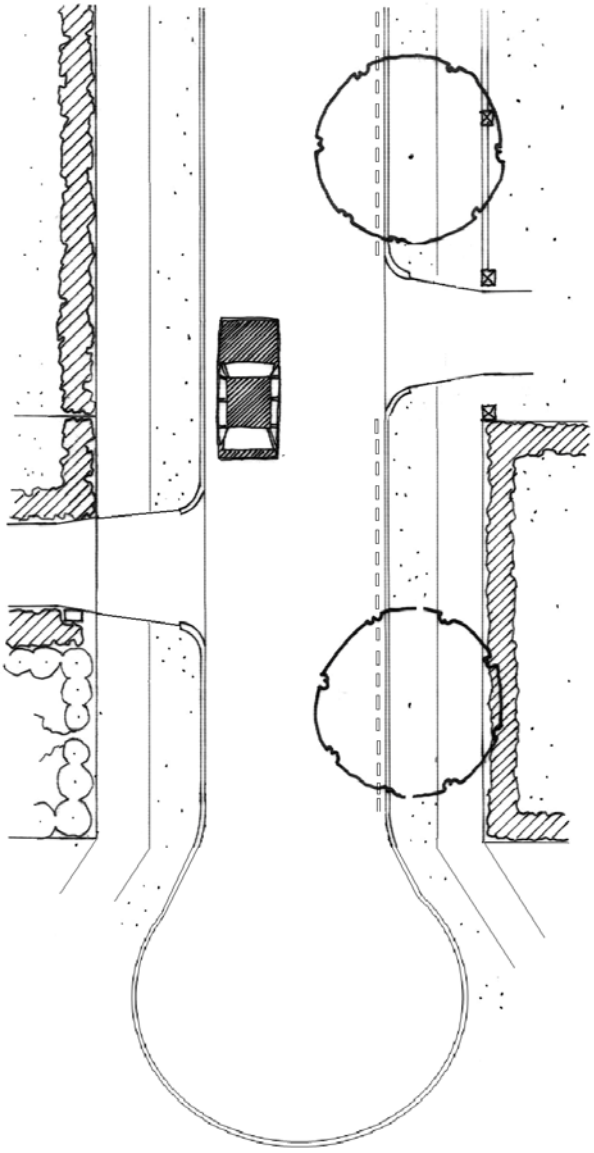
Suggested Road Cross Sections for the Residential 9 Zone

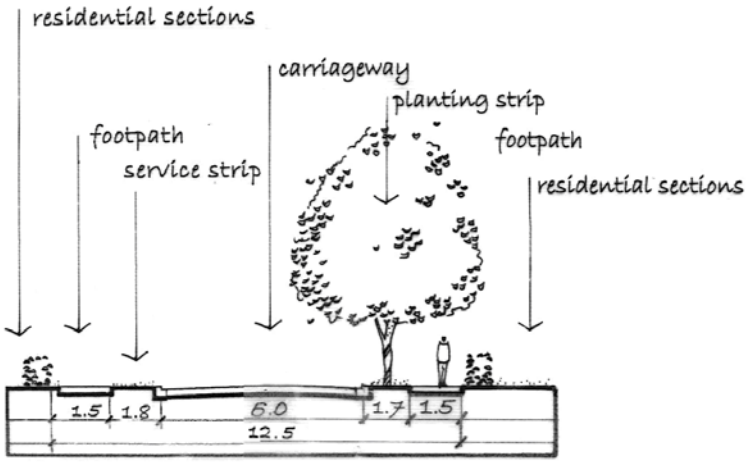




Minor Residential Street

Suggested Road Cross Sections for the Residential 9 Zone





Short Residential Cul-de-sac

Suggested Road Cross Sections for the Residential 9 Zone

Design Element 4: Design of Reserves

1. Reserves should be located adjacent to public roads, coastal and stream riparian margins. Clear sight lines into all areas of reserves should be available from public roads and nearby dwellings and along cycle and pedestrian routes.

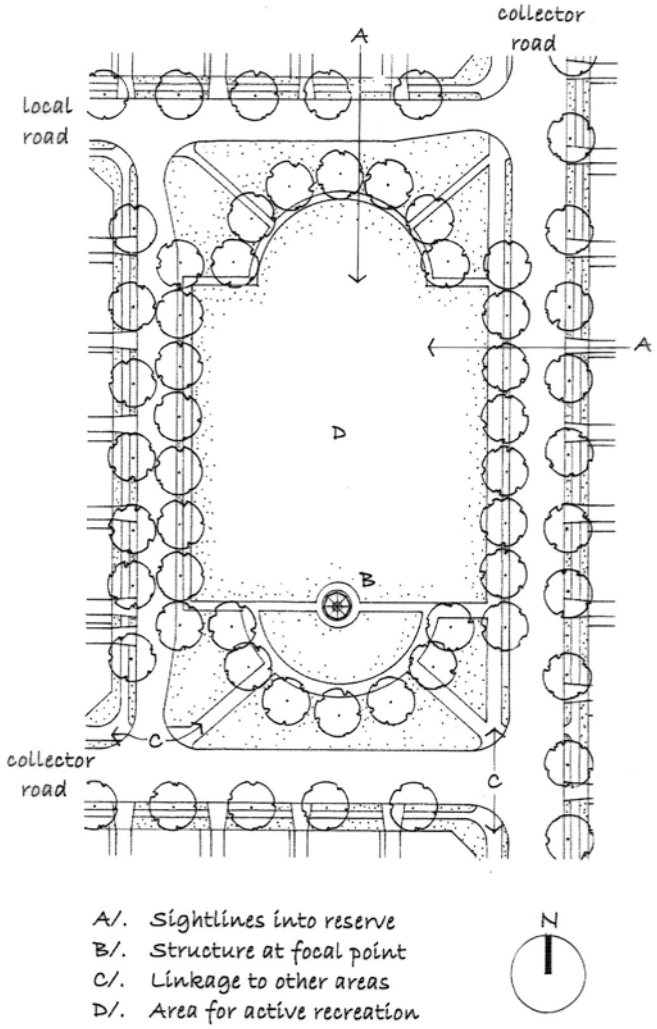
2. Reserves should be distributed throughout the Residential 9 Zone to provide a variety of recreation opportunities.

3. Reserves should be designed for a particular purpose and to provide a focal point for the neighbourhood, and be located such that as many lots as possible have a direct physical or visual connection with the reserve.

4. 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.

5. Reserves should be located to include existing streams, enhance coastal margins and to provide green linkages (as shown on the Hingaia East Structure Plan).

6. Reserves associated with coastal margins should enhance public recreation opportunities and / or mitigate land stability issues and environmental concerns.



Explanation:

Design Element 4 pertains to matters for consideration for locating, sizing and designing active and passive recreation reserves within subdivisions. Regard should also be had to Design Element 5 when designing reserves that include streams and coastal riparian margins.

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 the person, 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. Ideally reserves should not directly adjoin residential lots, but as a guide, not less than half the total length of legal boundary of any reserve should adjoin legal road.

No specific targets for size and numbers of reserves in the Residential 9 Zone have been established, but in most subdivisions of blocks of more than a hectare in area some provision of physical reserve should be allowed for. While the principal reserve network is likely to be established the position of identified streams for retention, such reserves should also include usable areas designed as “neighbourhood greens”, with some capacity for local informal recreation. Larger scale active recreation opportunities may be catered for at the location shown on the Hingaia East Structure Plan.

A small, well proportioned flat reserve designed as focal point for a small neighbourhood through the use of planting, shelters, pergolas etc will be more appropriate than a large area of “leftover” rolling rear land.

Design Element 5: Design of Margins

1. Where stream channels are identified for retention on the Hingaia East Structure Plan, a vegetated buffer should be provided on both sides of the channel to the widths identified therein.

2. Vegetated buffers should also be provided on the margins of proposed wetlands and ponds (typical width 5m).

3. Vegetation adjacent to wetlands, ponds and streams and coastal margins should consist of appropriate native species. Non-invasive exotic specimen trees may be included if desired.

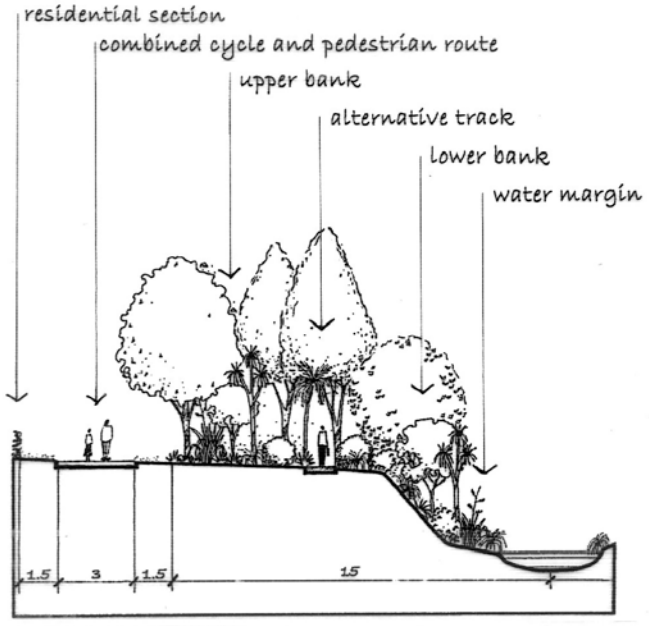
4. Walkways through buffer vegetation should be designed to minimise any impact on the ecological function of the buffer.

5. Where public access is available, personal security should be a priority in walkway design.

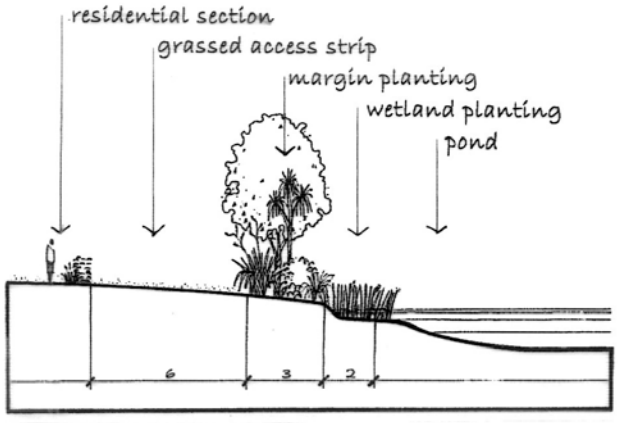
6. Vegetated buffers in close proximity to lots for household units should be designed to minimise shading effects on probable living areas and to allow visual connection with any walkway passing through the buffer.

7. Where walkways are located in reserves, signage should be provided with information about walkway connections, destinations and walking times.

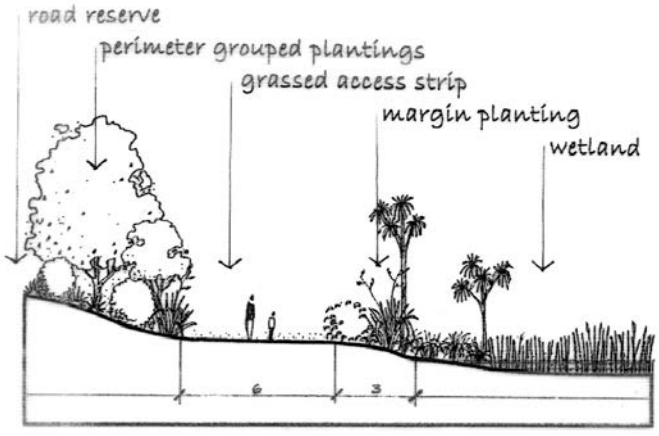
8. Constructed elements such as jetties and viewing platforms are encouraged within ponds and wetlands subject to high public use.



Suggested Riparian Margin Cross Section - Streams



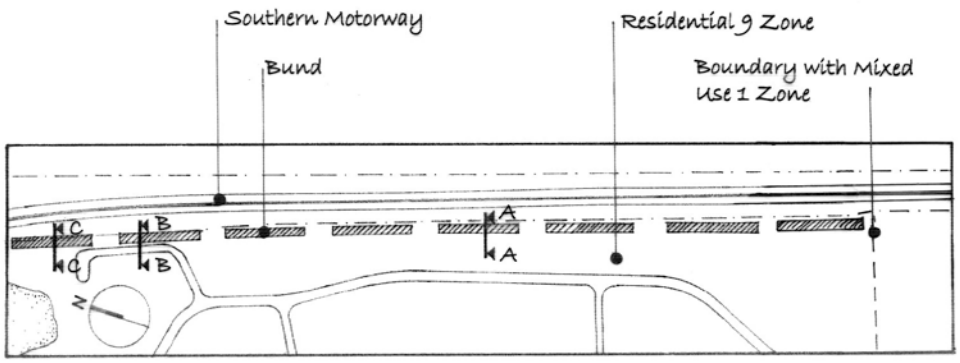
Suggested Riparian Margin Cross Section - Ponds



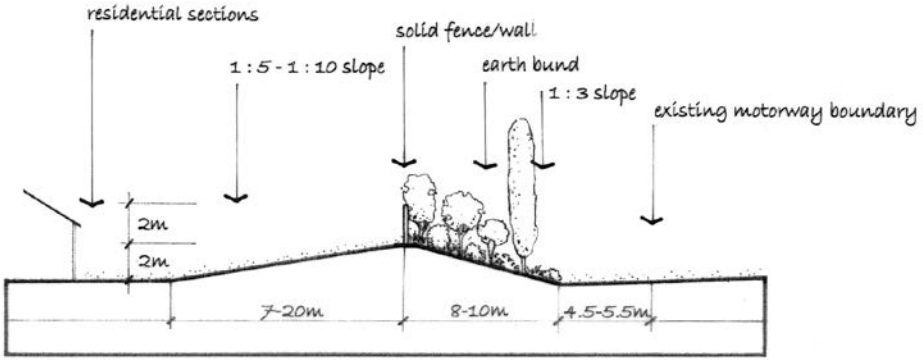
Suggested Riparian Margin Cross Section - Wetlands

9. The marginal strip annotated as "landscape bund" on the Hingaia East Structure Plan, including land currently occupied by Hilldene Road, should be designed (in consultation with Council) in general accordance with the cross sections below and should include a visual and noise attenuation barrier in the form of a landscaped earth bund and fence/wall.

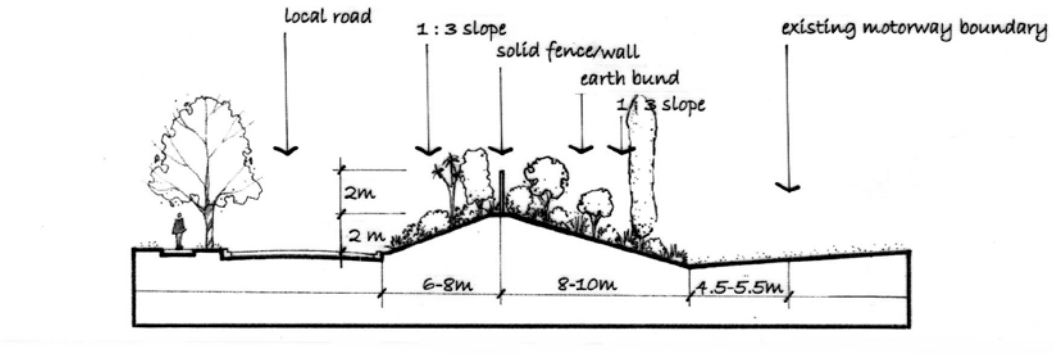
10. Planting on the earth bund should be designed to provide visual screening from the motorway, while minimising shading effects on adjacent residential lots.



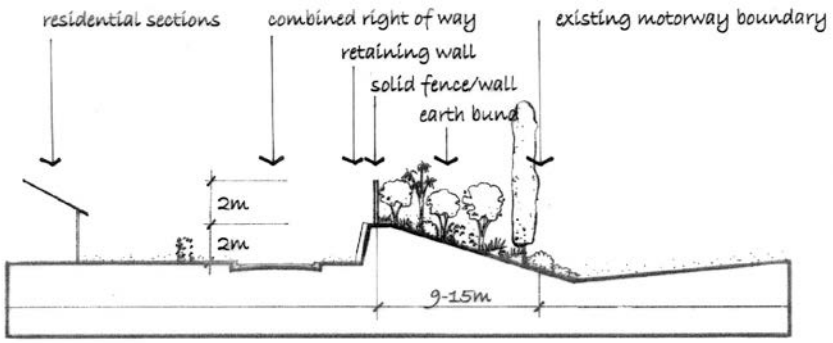
Landscape Bund



Cross Section A-A
Typical Landscape Bund adjacent Residential Lots



Cross Section B-B
Landscape Bund adjacent to Road Reserve



Cross Section C-C
Landscape Bund adjacent to Rights of Way

Explanation:

Criteria 1 through 7 of Design Element 5 pertain to the design of riparian margin vegetation buffers and walkways within or adjacent to these buffers. It is applicable to the margins of channels identified on the Hingaia East Structure Plan as "Stream Channel to be Retained". Such margins will generally be required to be included with reserves.

It is also applicable to the margins of wetlands and ponds for stormwater detention (the locations of which are broadly identified on the Hingaia East Structure Plan), established in accordance with the recommendations of the Approved Catchment Management Plan for the area.

The principal purposes of vegetation buffers in riparian margins (around streams, lakes, ponds and wetlands) are to reduce the impact of land use activities on water quality and water flows, and to provide a habitat for native wildlife. However, riparian vegetation and margins should be detailed and implemented so as to provide a high level of amenity for the local community.

The Auckland Regional Council recommends a minimum width for riparian buffer zones of 15 metres on either side of a stream. A buffer strip of this size should support sustainable indigenous vegetation and perform all necessary aquatic functions. In the case of constructed ponds, a 2 metre strip of wetland vegetation is recommended on all margins and a 3 metre strip of native shrub vegetation on at least 90% of margins. The remainder of the pond edge may be open to mown grass areas or viewing structures. A 5 metre mowable strip is recommended around all constructed wetlands and ponds to facilitate maintenance. Care should be taken with perimeter planting when adjacent to either residential sections or road reserves in respect of balancing security and amenity considerations.

Applications should be submitted with a detailed species schedule, a generalised planting plan and an overview of the implementation and maintenance programme, including weed control measures. The suggested species list on a subsequent page and cross section drawings on the previous page are intended to provide a guide in assessment of proposals but are not exhaustive or prescriptive.

Walkways through buffer vegetation should be located on one side of a stream only in order to minimise disruption of the vegetative cover. Connections can be provided across the stream to access points off the roading network. Similarly, path width should be limited to 1.5 metres to ensure that canopy closure is maintained and the path surface should be permeable (eg. crushed gravel).

Walkways associated with the riparian margins of less than 10m in width should generally be located on the outside of the vegetation buffer.

Walkways associated with riparian margins of greater than 10m in width can either be included within the vegetation buffer or outside of it. Consideration of pedestrian safety indicates that walkways within these vegetation buffers should generally have exit points to open areas every 100 to 200 metres. Where a walkway is within 800 meters of the centre point of the Mixed Use 1 Zone and serves as an important pedestrian connection, a paved pathway should be available for bicycles, pushchairs and disabled access entirely outside of the vegetation buffer.

Recommended Species for Riparian Margins:

Botanical name	***Common name***	***Use***		***Habitat***			***PB size***
		Major component	***Minor component***	***Wetland***	***Stream edge***	***Coastal***	
SPECIMEN TREES							
Alectryon excelsus	*Titoki*	●			●		PB 40-150
Cordyline australis	*Cabbage tree*	●		●	●		
Corynocarpus laevigatus	*Karaka*		●		●	●	
Dacrycarpus dacrydioides	*Kahikatea*	●		●	●		
Dadrydium cupressinum	*Rimu*		●		●		
Knightia excelsa	*Rewarewa*		●		●		
Kunzea ericoides	*Kanuka*	●			●	●	
Laurelia novae-zealandiae	*Pukatea*		●	●			
Metrosideros excelsa	*Pohutukawa*	●				●	
Sophora microphylla	*Kowhai*	●			●		
Syzygium maire	*Swamp maire*		●	●			
Vitex lucens	*Puriri*		●		●		

TREES							
Alectryon excelsus	*Titoki*	●			●		PB 5-12
Corynocarpus laevigatus	*Karaka*		●		●	●	
Dacrycarpus dacrydioides	*Kahikatea*	●		●	●		
Dadrydium cupressinum	*Rimu*		●		●		
Knightia excelsa	*Rewarewa*		●		●		
Kunzea ericoides	*Kanuka*	●			●	●	
Laurelia novae-zealandiae	*Pukatea*		●	●			
Metrosideros excelsa	*Pohutukawa*	●				●	
Sophora microphylla	*Kowhai*	●			●		
Syzygium maire	*Swamp maire*		●	●			
Vitex lucens	*Puriri*		●		●		
SMALL TREES/SHRUBS							
Carpodetus serratus	*Putaputaweta*		●		●		PB¾-3
Coprosma propinqua	*Mingimingi*		●		●		
Coprosma robusta	*Karamua*	●		●	●	●	
Cordyline australis	*Cabbage tree*	●		●	●		
Cyathea dealbata	*Silver fern*		●		●	●	
Cyathea medullaris	*Mamaku*		●		●		
Entelea arborescens	*Whau*		●		●	●	
Hebe stricta	*Koromiko*	●			●	●	
Geniostoma rupestre	*Hangehange*		●		●	●	
Leptospermum scoparium	*Manuka*	●		●	●	●	
Melicytus ramiflorus	*Mahoe*		●		●		
Myrsine australis	*Mapou*		●		●	●	
Olearia furfuracea	*Akepiro*		●			●	
Pseudopanax lessonii	*Houpara*		●		●	●	
Schefflera digitata	*Pate*		●		●		
GROUNDCOVERS/GRASSES/SEDGES							
Blechnum capense	*Kiokio*		●		●	●	PB¾-2
Blechnum minus	*Swamp kiokio*		●	●			PB¾-2
Bolboschoenus fluviatalis	*Marsh clubrush, kukuraho*		●	●			OG-PB2
Carex secta	*Niggerhead*	●		●			OG-PB2
Carex lessioniana	*Rautahi*		●		●		PB¾-2
Carex maorica	*Cyperus sedge*		●		●		PB¾-2
Carex virgata	*Small swamp sedge*		●	●			OG-PB2
Cortaderia fulvida	*Toetoe*		●		●	●	PB¾-2
Cyperus ustulatus	*Giant umbrella sedge*		●	●			PB¾-2
Gahnia lacera	*Cutty grass*		●		●		PB¾-2
Gahnia setifolia	*Cutty grass*		●		●		PB¾-2
Phormium tenax	*Flax*	●		●	●	●	PB¾-2
Typha orientalis	*Raupo*	●		●			OG-PB2

Notes:

1. *Species list reflects native vegetation that would have previously grown in the Hingaia area (Julian A. Hingaia Ecology Report. Aug 2000), but is not exhaustive for revegetation proposals.*
2. *Where possible, native plants should be sourced from the local area and purpose grown for ecosystem restoration.*
3. *PB sizes are recommended only and are suitable for native revegetation plantings. Larger plant grades may be appropriate for amenity plantings.*
4. *PB equivalents: PB 95 = 45 litre; PB 150 = 130 litre ; PB ¾ = paper pots/root trainers; OG = open ground*
5. *Typically all general revegetation species should be planted at 1m^2 -1.5m^2 densities. Smaller grade species and wetland plants should be planted at 2/m^2 density.*

Criteria 8 and 9 pertain to the preferred design treatment of a linear "buffer" which the Council will generally require to be established and developed upon subdivision and development of the Residential 9 Zone, where any land being subdivided includes the strip of land annotated as "bund" on the Hingaia East Structure Plan.

The purpose of the buffer is to:

- Present an attractive landscaped amenity feature along the main approach route to the entrance to the Peninsula
- Accommodate noise attenuation measures in the form of an earth mound or bund

The noise attenuation bund should be continuous and as high as possible considering the required functions of the buffer reserve. A 2m bund height will be regarded as a minimum height but Council will require a greater minimum height if the finished platform level of adjacent sites is raised above current ground level.

A wall or fence sufficient to provide adequate acoustic screening will be required on top of the bund. This should be a solid wall or overlapping timber fence. Council may require confirmation of the effectiveness of the wall from an acoustic engineer.