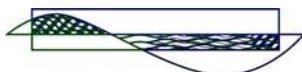


Shire of Ravensthorpe

Hopetoun Development Area Outline Development Plan



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1. INTRODUCTION

1.1 Background

The release of additional land within Hopetoun suitable for residential development is required to cater for expected population growth associated with the proposed Ravensthorpe Nickel Project and for continued future growth over the next 25 years. It is estimated that approximately 200 lots will be required in Hopetoun over the next four years to cater for the proposed Ravensthorpe Nickel Project alone. In addition, demand for lots in Hopetoun has historically been approximately 15 lots per annum. Consequently, it is conservatively estimated that about 600 lots could be required in Hopetoun over the next 25 year period.

An area suitable for future residential development north-west of the Hopetoun townsite has been confirmed during the preparation of a Local Planning Strategy for the Shire of Ravensthorpe. This area has been previously identified by the Shire Council and the Department of Land Administration (DOLA) as being suitable for urban development. The south-eastern corner of the area is already zoned for residential purposes and preliminary concept planning has been previously undertaken by DOLA. The proposed development area represents a logical extension to the existing townsite.

Following preparation of an Outline Development Plan by Connell Wagner for the Hopetoun Development Area, this report reviews and amends the plan to take in a number of changes. The most significant change responds to the detailed vegetation survey undertaken by Dr GF Craig in January 2001 and the desire to incorporate low lying areas in the northern portion of the Development Area into the vegetation corridor, as well as protect additional coastal moort on the transverse dune. The end result has been a significant increase of approximately 52% to the vegetation corridor and foreshore reserve which now comprise 56% of the Development Area. This has in turn led to the need to redesign the residential component which will accommodate approximately 600 lots compared to the original 1000 lots.

1.2 Development area

The proposed development area is shown on Figure 1.1. The area is located to the north-west of the existing townsite on the southern side of Hammersley Drive. The area comprises:

- Hopetoun Lot 696 – unallocated Crown land
- Hopetoun Lot 697 – Reserve 7374 "Explosives"
- Hopetoun Lot 699 – Reserve 7373 "Water"
- unnamed road
- Hopetoun Lot 563 – Reserve 40521 "Television Transmitting Station"

The total land area of the development area is 166 hectares.

1.3 Purpose

This report presents an Outline Development Plan (ODP) for the proposed future development area based on the principles of Liveable Neighbourhoods ¹. The ODP provides a conceptual planning framework to guide the future staged development of the area and the co-ordinated provision of infrastructure and services.

¹ Western Australian Planning Commission (June 2000) Liveable Neighbourhoods. This document operates as an optional development control policy or code to facilitate the development of sustainable communities in accordance with the objectives of the State Planning Strategy. It is used as an assessment tool for structure plans or ODP's and subdivision for new urban development and is an alternative to the WAPC Development Control Policies. Proponents choose whether to be assessed under the Development Control or Liveable Neighbourhoods policies.

2. CONTEXT AND SITE ANALYSIS

This section of the report describes the development area and its wider context and identifies constraints and opportunities for future development. The objective of the context and site analysis is to ensure the ODP design responds to the features of the site and integrates new development with existing and proposed development surrounding the subject site.

2.1 Physical environment

2.1.1 Climate

Hopetoun experiences a typical temperate climate with warm summers and cool winters and a moderate annual rainfall. Average summer temperatures range between 15°C and 26°C and average winter temperatures range between 8°C and 19°C. Total annual means rainfall is 507mm with some seasonal variation evident. Mean monthly rainfall is between 59mm and 65mm during winter months and between 19mm and 22mm during summer months.

Wind patterns vary between summer and winter months. During summer months prevailing winds are from the east in the morning before becoming predominantly south-east in the afternoon. During winter months prevailing winds are from the west to north-west with minimal change between morning and afternoon.

2.1.2 Landform and Landscape

The landform of the area is undulating with distinct topographical variations. This is demonstrated by the contours shown on Figure 2.1. A slope analysis of the site has been undertaken and is also shown on Figure 2.1.

The land rises from the north and north-west towards the south and south-east to form a ridgeline through the central portion of the site. The land then drops before rising again to form a more significant coastal ridgeline through the southern portion of the site. The highest point occurs in the south-eastern corner of the site at a height of 28 metres. The lowest point occurs in the north-western corner of the site at a height of 1 metre.

The area is gently undulating for the most part with slopes of less than 10 percent. The dunal ridges have some slopes that exceed 20 percent but generally consist of slopes of between 10 and 20 percent. These gradients are not considered a major constraint to urban development, although some bulk earthworks will be required in order to achieve lots with gradients of less than 10 percent.

The dunal ridges present a constraint in some sections of the development area in the form of steeper than desirable development gradients. Surface stabilisation will also be required following earthworks to prevent soil erosion.

The highest coastal dune rises to an elevation of 28 metres at the south-east corner of the development area to form a peak that represents a dominant landscape feature and visual landmark. The coastal dune then converges with the inland dune ridge to form a prominent ridgeline running in a north-east direction. This landscape element forms a distinctive backdrop that frames the north-western boundary of the existing townsite.

The landform of the site provides significant views from the coastal ridgeline south towards the coast and ocean and to a lesser extent inland views to the north. The high dune in the south-eastern corner of the site also provides extensive views over the townsite to the east and south-east. The highest point of the coastal dune provides the opportunity to protect a significant coastal landscape feature. It has significant potential to function as a landmark and scenic lookout for town residents and visitors. As shown on Figure 2.1 there is an interdunal depression running parallel to the coast. There are also two damp land areas to the north of the inland dunal ridge that are significant landscape elements within the development area.

2.1.3 Geology and Mineral Potential

The Hopetoun townsite is dominated by dune landforms. The dunes consist of mixed quartz and lime sands. The thickness of the sediments is unknown, but a short distance inland they rest on Plantagenet Group sediments of the Bremer Basin. These consist of weakly consolidated sand and silt with rare limestone and spongillite. The Bremer Basin sediments were deposited on granitic basement of the Munglinup Gneiss.

The Department of Minerals and Energy (DME) has advised that the area around Hopetoun has low potential for mineralisation.

2.1.4 Land Systems and Soils

Land systems are broad areas in which there is a recurring pattern of topography, soils and vegetation and provide a guide to land capability. The majority of the development area is located within the Tooregullup System. A small part of the north-eastern corner of the development area is located within the Gore System.

The Tooregullup System is described as:

Coastal Quaternary sand dunes. Calcareous deep sands and calcareous shallow sands over soft limestone.

The Tooregullup System is divided into two more specific sub-systems. That part of the development area within the Tooregullup System is located within sub-system 2. Sub-system 2 is described as:

Coastal dunes, mainly parabolic with some linear dunes slightly inland.
Calcareous shallow sands associated calcareous deep sands. Minor pale deep sands and rock outcrop on headlands.

The Gore System is described as:

Narrow discontinuous wet coastal level plain on Quaternary sediments with numerous swamps and sand dunes. Grey deep sandy duplex soils and pale deep sands. Saline wet soils occur in the coastal inlets.

The Gore System is divided into three more specific sub-systems. That part of the development area within the Gore System is located within sub-system 1. Sub-system 1 is described as:

Low-lying poorly drained coastal plain with occasional dunes. Grey deep sandy duplex soils and pale deep sands. Minor calcareous deep sands and saline wet soils.

There is limited detailed information on soils available for the development area at an appropriate scale for meaningful interpretation of land capability for urban development. In the absence of this information, the preparation of the ODP must be based on the assumption that soils within the development area are suitable for urban development. A detailed geotechnical assessment and soil survey is required prior to detailed subdivision design to confirm the land capability of the development area.

2.1.5 Hydrology

The major drainage features of the development area are shown on Figure 2.2. The site drains from east to west through low-lying areas north of the coastal ridgeline and north of the central ridgeline. These drainage paths are not well defined.

An extensive groundwater protection area is located to the north of Hammersley Drive immediately north of the development area. This area is a major source of town water.

2.1.6 Coastal Processes

The coastline adjacent to the development area and around the general Hopetoun locality is regarded as having high landscape, environmental and recreational values. The existing coastal reserve which is designated as Parks & Recreation reserve in Council's current Town Planning Scheme No. 4 varies in width from 120m to 140m. The Ministry for Planning confirms that this complies with their current requirements for determining coastal foreshore setbacks. Nevertheless, the coastal reserve is proposed to be extensively widened where it abuts the western portion of the Development Area. In this area the foreshore reserve will range from 300m to 400m and will incorporate the whole of the transverse dune and associated coastal moort vegetation. This in turn will link in with the vegetation corridor which runs around the northern perimeter of the proposed residential area.

2.2 Biological Environment

2.2.1 Vegetation

Based on the work of Beard ¹, vegetation around Hopetoun consists of the Esperance System. This vegetation system includes mallee-heath, scrub heath, mallee and sclerophyll woodland.

The development area and adjoining land contains a significant amount of remnant vegetation. An indication of existing vegetation cover over the development area is provided on Figure 2.3. This demonstrates that future development of the area would require the removal of a large amount of remnant vegetation to realise an acceptable residential lot yield.

¹ Beard JS (1973) The Vegetation of the Ravensthorpe Area.

The Department of Conservation and Land Management (CALM) maintain a database of Declared Rare Flora and Priority Flora ¹. There are no Declared Rare Flora or Priority Flora species known to occur within the development area.

A survey of the south-eastern corner of the development area was undertaken on behalf of DOLA as part of the town planning scheme amendment process to rezone the area for residential purposes ². The survey found no Declared Rare Flora or Priority Flora species within the survey area. The survey did identify a large area of a mixed mallee woodland community – Ridge-fruited Mallee (*Eucalyptus angulosa*)-Silver Mallee (*E. falcata*)-*E. conglobata* on the high dune ridgetop and leeward slope, and Coastal Moort (*E. utilis* ms) on the seaward face and lower parts of the ridge of the high dune. These *Eucalyptus* woodland communities are considered of regional significance and an important part of the vegetation corridor along the south coast.

A further Flora Survey of the whole development area has subsequently been commissioned by DOLA and completed in January 2001. ³ No declared rare flora was found. The Mallee Beard Orchid (*Calochillus* aff. *Campestris*), a Priority Two species was not found in the study, although it's preferred habitat is well represented in the area. The Priority Three species, *Spyridium oligocephalum* grows in the mallee scrub community on marl soil, in the north west sector, an area which has been proposed for inclusion in the vegetation/wildlife corridor.

The Survey also highlights the importance of the coastal moort community which is located on the seaward slope of the transverse dune. The Department of Conservation and Land Management confirms that Coastal Moort is well represented between the Fitzgerald National Park to the west and through to Starvation Bay to the east. As recommended by the study, the Outline Development Plan incorporates the whole of the transverse dune and vegetated margin on the northern side, within the foreshore reserve. Only the existing residential zoned portion, excluding the western most section and the ridge top look out area, are retained for residential development.

The vegetation/wildlife corridor has been realigned to include the interdunal swamps and a 50m buffer of heath vegetation to protect the wetland dependent vegetation.

The study sites on either side of the north south firebreak are also located within the vegetation/wildlife corridor and will consequently be protected.

The revised plan significantly extends the vegetation and wildlife corridor requested by CALM to protect flora and facilitate movement of fauna. CALM's recommended minimum width of 200 metres has been exceeded and corridor now ranges between 250 to 400 metres in width and incorporates all the wetland area.

¹ Flora species acquire Declared Rare Flora or Priority Flora conservation status under the Wildlife Conservation Act 1950 where populations are geographically restricted or threatened by local processes.

² Craig Dr GF (1998) Flora Survey – Hopetoun Townsite Residential/Industrial Development Project.

³ Craig Dr GF (2001) Vegetation Flora Survey: Hopetoun Townsite Residential Development Project.

2.2.2 Fauna

A survey of the south-eastern corner of the development area was undertaken on behalf of DOLA as part of the town planning scheme amendment process to rezone the area for residential purposes¹. The survey found no Rare Fauna species within the survey area but recorded one Specially Protected Fauna species – the Short-billed Black Cockatoo (*Calyptorhynchus latirostris*) – and identified two further Specially Protected Fauna species that were not recorded but that could occur within the area – the Chuditch (*Dasyurus geoffroii*) and the Carpet Python (*Morelia spilota imbricata*). The report on the survey does not provide an assessment of the impact of urban development of the area on these particular fauna species. The survey highlights that further clearing of the Eucalyptus woodland coastal corridor would have a negative impact on the values of the woodland as fauna habitat and also on fauna movement along the coast.

A subsequent fauna survey of the whole development area was commissioned by DOLA and undertaken by Sanders & Harold in January 2001. A total of 43 bird, 5 native and 4 introduced mammals, 1 frog and 15 reptile species were recorded during the 1998 and 2001 trapping periods. A further 27 birds, 11 native mammals, 4 frog and 9 reptile species were also predicted to occur at the site.

It was noted that none of the species captured during the surveys are restricted to the site and all have a much wider distribution than the Hopetoun area.

The Short-billed Black Cockatoo which was observed in the area in the 1998 survey was again observed in the 2001 survey. No other threatened species were recorded in the 2001 survey, although it was noted that in addition to the Chuditch and Carpet Python, the Malleefowl (*Leipoa ocellata*) has also been sited adjacent to the site. No breeding mounds were found in the study area and the area was not considered suitable for breeding mounds.

The study noted that the clearing of the native vegetation in the study area would significantly reduce the fauna habitats available on this section of the coastline.

The following points were also made in relation to the “wildlife corridor”:

1. The development encroached into two interdunal swamp habitats.
2. The south east corner of the corridor is only 75 wide and contains a slashed firebreak 50 metres wide. Consequently there is virtually no intact vegetation connecting the reserve to the wildlife corridor.
3. The coastal moort habitat will be destroyed and consequently will not be represented in the corridor.

The study recommended that:

- The boundaries of the development area be adjusted to exclude the interdunal swamps with a buffer of 50 metres.
- The development be set back from the coast the same distance as the 'Whale Bay Development' to the west; and
- The western boundary be adjusted eastwards to allow for a corridor at least 200 metres wide to link into the coastal reserve.

As noted in the Introduction and the section on vegetation above, these recommendations have been taken into account and the vegetation corridor and coastal reserve have been significantly increased to protect the wetlands and fauna habitats.

2.3 Cultural Environment

2.3.1 European Heritage

No known registered sites of European heritage significance occur within the development area. However, Hopetoun has its own cultural identity that has formed partly from its traditional function as a coastal tourist town. This character has evolved over time and is reflected in a number of building styles. A number of buildings that are situated in the main street area are listed on the Shire's Municipal Heritage Inventory.

2.3.2 Aboriginal Heritage

There are no known registered sites or places of Aboriginal heritage significance within the development area. Archaeological and ethnographic surveys of the development area have also been completed and no sites were found.

2.4 Human Environment

2.4.1 Land Use and Neighbourhood Structure

Current land use within and adjacent to the development area is shown on Figure 1.1. The development area is vacant Crown land.

¹ Sanders A & Harold G (1998) Fauna Survey – Hopetoun Townsite Residential/Industrial Development Project.

Rural residential development adjoins the development area to the west. A coastal foreshore reserve extends along the southern edge of the development area. Existing residential development on the edge of the townsite adjoins the development area to the south-east. To the east on the eastern side of the Ravensthorpe-Hopetoun Road is residential and industrial development on the northern edge of the townsite and vacant land. To the north on the northern side of Hammersley Drive is the golf course.

Other land use elements within the existing townsite are the commercial and community facilities situated along a 300 metre section of Veal Street between Raglan Street and Esplanade. These town centre facilities together constitute the commercial and community focus for the town's permanent residents and a significant summer tourist population.

Foreshore recreation areas and a town jetty are also situated at the southern end of Hopetoun's main street.

The Local Planning Strategy notes the potential for a site for a new primary school to be established to the east of Veal Street adjacent to the sports complex. While the proposed development area is not large enough to warrant a primary school, pedestrian or cycle links can easily be established to the primary school site proposed by the Local Planning Strategy east of the Ravensthorpe-Hopetoun Road.

The Local Planning Strategy also notes the potential for further commercial development within the existing town centre area. The proposed development area will also have good links and access to the existing commercial, community and recreation facilities within the existing townsite. The ODP provides an opportunity to direct the majority of the new retail and other commercial demand generated by new residents towards the existing town centre, thereby reinforcing its long term viability as the commercial and community focus of the town.

Figure 2.4 provides a context and site analysis for the development area. It provides an indicative neighbourhood structure for the existing Hopetoun townsite and is loosely based on the Liveable Neighbourhood's guidelines. The existing landuse configuration, density and rate of development topography and high percentage of holiday houses, coupled with the desire for a relatively low density of development for the foreseeable future, dictate that some elements of the Liveable Neighbourhood guidelines will not be achievable over the study period. The viability of local centres located within 400 metre "ped sheds" is clearly unachievable within the Hopetoun context. Never the less, the design of a permeable and legible street layout will not preclude the aims and objectives of Liveable Neighbourhoods being achieved in the long term.

2.4.2 Planning Controls

The south-eastern part of the development area is currently zoned Residential under the Shire of Ravensthorpe Town Planning Scheme No 4. The remainder of the site is zoned Rural. The developed parts of the Hopetoun townsite to the south-east of the development area are zoned Residential. The coastal reserve to the south is zoned Parks and Recreation apart from a small section zoned Caravan Park and the rural residential development to the west of the development area is zoned Special Rural. Land to the north of the site, comprising the golf club, is zoned Rural.

2.4.3 Land Tenure and Native Title

The development area comprises Crown land. There are two native title claims over the site – Southern Noongar (WC 96/109) and Wagyl Kaip (WC 98/70). The native title clearance process for the development area has been completed.

2.4.4 Infrastructure and Services

Street Network

There is no current road access within the development area. The eastern portion of the development area adjoins the Ravensthorpe-Hopetoun Road and the northern portion of the development area adjoins Hammersley Drive. The south-eastern corner of the development area adjoins local access roads within the townsite – Templetonia Drive, Wilkinson Street and Raglan/Birdwood Streets.

Figure 2.4 provides an overview of the existing street network, with Veal Street being recognised as the main street or principal “neighbourhood connector” within Hopetoun. The street network is a critical element in successfully integrating new development with the existing townsite. The plan illustrates how neighbourhood connectors and other routes may be used for this purpose.

Canning Street currently terminates near the southern end of the development area at a recreation/picnic area approximately 100 metres setback from the coast. The potential exists for Canning Street to be extended in a north-westerly direction parallel to the coastline to improve access to the development area. The opportunity also exists to capitalise on the recreational and visual amenity offered by the town’s beaches by providing a convenient link between West Beach and the town centre by extending Canning Street in the form of a coastal boulevard.

The ODP provides other opportunities to establish legible lines of communication leading pedestrians, cyclists and motorists to proposed local centre and to the existing town centre. The extension of existing local roads and an additional neighbourhood connector linking to the Ravensthorpe-Hopetoun Road north of the existing townsite will provide a seamless transition between existing and planned future development.

Drainage

No stormwater drainage infrastructure exists within the development area.

Existing drainage paths will need to be reflected within the design of the ODP to ensure proper stormwater management and protection of properties. Flood routing via roads and POS is a key consideration in the overall layout of the development.

The treatment and disposal of stormwater runoff from the development area should be designed using best management practices for stormwater quality management and in accordance with the criteria outlined in the Waters and Rivers Commission's Design Guidelines. Fundamental objectives of the stormwater drainage system design should include the following:

- Flood prevention;
- Minimise stormwater runoff;
- Enhance infiltration in-line;
- Enhance pollutant removal; and
- Attenuate stormwater flow.

In the development area the design should endeavour to utilise existing drainage lines and low lying damplands. The revised development plan has set aside areas of POS which will incorporate nutrient stripping and sedimentation facilities to enhance water quality. The approximate sizing of the POS drainage areas has been determined using a minimum design standard of a 72 hour, 1 in 10 year storm event and relies on infiltration for disposal.

Several key features of drainage design in the development area are:

- An infiltration/compensating basin at the end of the existing Templetonia Drive to capture runoff from the proposed road network and reduce the risk of flooding to existing residences in Gordon Street;
- The stormwater generated from the properties and roads fronting the coastal reserve will be disposed of via infiltration in the coastal reserve;
- The drainage catchment area between the transverse dune and the secondary ridgeline will drain towards a landscaped basin in the existing low lying area. This area has been set aside as POS;
- The area to the north of the secondary ridgeline will drain towards the two existing damplands. These areas have been set aside as POS. Facilities will need to be constructed to protect the damplands from nutrient and sediment loading.

Water

There is no existing water supply infrastructure within the development area. Town water is supplied by the Water Corporation groundwater extraction bores to the north and north-east of the townsite. This is reticulated through the townsite. The existing water supply is near capacity. It is understood that there is a constraint to the provision of reticulated water supply above the 25 metre contour. The ODP does not propose any development above the 25 metre contour.

Sewerage

Hopetoun has no reticulated sewerage treatment system. Sewerage is treated by conventional on-site septic tank systems. Future urban development will require the establishment of a sewerage treatment system to meet the requirements of the Draft Country Sewerage Policy. ¹

A sewerage system is proposed to be developed for Hopetoun to cater for future development and also enable provision of a reticulated sewerage system for the existing townsite as part of the Infill Sewerage Program. A possible site for a sewerage treatment plant has been identified as part of the preparation of the Local Planning Strategy for the Shire. Given the long lead times (3 – 5 years typically) involved in the construction of a sewerage treatment plant, particularly in determining the suitability of a site and gaining environmental approvals, it is imperative that this process is initiated as soon as possible.

¹ Health Department of Western Australia Draft Country Sewerage Policy. The policy has been prepared to facilitate the orderly provision of sewerage services to allow expansion of townsites

The development area will be split into three separate sewerage catchment areas. The first catchment area includes the area that backs on to the current townsite and includes the area on the ocean side of the transverse dune. It is envisaged that when Hopetoun is sewered under the infill sewerage program that this area will gravitate back towards a pump station at the bottom of Veal Street. In the initial stages, if development occurs prior to infill sewerage occurring, then the Water Corporation and the WAPC may accept dormant sewers to be laid in this area.

The second catchment area, which forms a significant portion of the development area, lies between the transverse dune and secondary ridgeline. This will require a separate sewerage pump station to be constructed in the low lying area. The pump station would be ideally located in the area set aside for POS/drainage basins.

The third catchment area is the northern section of the development area which gravitates down to the two existing damplands. This catchment will also require a sewerage pump station located near one of the dampland areas.

The sewerage pump stations that are constructed are likely to require overflow storage tanks to be constructed with the capacity to store six hours inflow at peak flow. The Water Corporation usually only requires three hours storage, but the nature of the existing power supply combined with the distance to electrical and mechanical maintenance staff will most likely necessitate this being increased to six hours.

Power

There is no existing power infrastructure within the development area. The townsite is serviced by a diesel power generator located to the immediate south-east of the development area. The power supply is unreliable and inadequate for current demand. The need for a new power generation system has been recognised and the Office of Energy has initiated a tender process for the establishment and operation of a new power supply system for Hopetoun under the Regional Power Procurement Process. A possible site for a new power station has been identified as part of the preparation of the Local Planning Strategy for the Shire.

Telecommunications

Telecommunications services are provided to the townsite. This includes Telstra fixed line phones and CDMA mobile phone network, Internet access, television and radio services.

2.5 Constraints and Opportunities

A context and site analysis plan for the development area is provided on Figure 2.4. This plan provides a simple graphic summary of the constraints and opportunities highlighted by the preceding analysis. A series of design principles to form the basis of the ODP design are derived from this analysis and are outlined in section 3.1

3. OUTLINE DEVELOPMENT PLAN

This section of the report presents and describes the proposed ODP for the development area. The ODP is presented on Figure 3.1.

3.1 Design Philosophy and Principles

The ODP has been developed based on the design principles of Liveable Neighbourhoods and an underlying philosophy to facilitate sustainable development and communities consistent with the objectives of the State Planning Strategy. The emphasis has been on creating an urban structure for the development area that responds to site constraints and opportunities and caters for the expected needs of future residents.

The design principles adopted to guide the development of the ODP for the site are:

Design Principle 1 – Integration

The ODP design should integrate the development area with existing urban development through an urban form that complements the character of the townsite and provides for appropriate movement and open space linkages.

Design Principle 2 – Land use

The ODP design should provide a land use mix that supports a sustainable and self-contained residential neighbourhood but that also recognises and maintains the role and function of the town centre and the existing provision of commercial and community services within the existing townsite.

Design Principle 3 – Housing choice

The ODP design should provide for greater housing choice through a mix of residential densities and lot sizes while being cognisant of the established character of the town. A particular consideration is the provision of appropriate housing forms to cater for the expected needs of the Ravensthorpe Nickel Project and a significant aged population.

Design Principle 4 – Access and movement

The ODP design should establish a movement network for vehicles and pedestrians that provides safe and convenient access for residents through the development area and to the town centre.

Design Principle 5 – Environmental protection

The ODP design should recognise the need to provide for a vegetation and wildlife corridor through the development area. CALM has advised that the minimum width of the corridor should be 200 metres.

The ODP design should provide for the protection of flora and fauna of recognised conservation significance. The retention of remnant vegetation within residential lots and along road reserves is also promoted but is largely an issue for consideration at detailed subdivision design stage.

The ODP design should recognise the importance of the coastal foreshore reserve and ensure that development fronts the foreshore reserve. An adequate setback from the coast is required to protect residential development.

Design Principle 6 – Public health and amenity

The ODP should incorporate an adequate network of public open space that provides a range of recreational opportunities and that assists with urban water management.

Design Principle 7 – Public safety

The ODP design should provide appropriate bushfire protection measures for development adjoining areas of high bushfire hazard.

Design Principle 8 – Urban services provision

The ODP design should provide for the efficient and equitable provision of urban services through the development area and connection with existing infrastructure. The ODP should provide for the development of an efficient sewerage treatment system to service urban development.

3.2 Land Use Precincts

The Outline Development Plan for the development area is provided as Figure 3.1. A brief description of the land use precincts delineated is provided below.

3.2.1 Residential

The ODP proposes residential development over most of the available development area. A variety of residential densities are proposed to provide greater housing choice and to respond to site constraints and opportunities. Residential densities proposed range from R10¹ to R20.

¹ As defined by the Residential Planning Codes of Western Australia eg R10 means 10 dwellings per hectare or lot sizes of 1000m² per dwelling

A residential density of R20 is proposed for sewerred areas at the interface with the townsite to maximise the potential population within 800 metres walking distance of the existing town centre. The R20 areas are concentrated in locations near the coast, in proximity to the proposed local centre and adjacent to neighbourhood connectors. A precinct of R20 lots is proposed along the coastal ridgeline to maximise access to coastal views. An R15 density is proposed within low-lying areas north of the coastal ridgeline and along the western edge of the development area.

For single person and aged person accommodation it is recommended that the 50% bonus be utilised, as provided for in the Residential Planning Codes. This will enable accommodation to be developed to the R30 density code. It is recommended that such accommodation be located adjacent to public open space and the proposed local centre.

3.2.2 Local Centres

The commercial services provided within the town centre should provide for most of the needs of residents within the development area and therefore no major commercial centres are proposed.

The ODP proposes one local centre site within the development area to enable the possible establishment of a corner store to meet local convenience needs.

The local centre is intended to have a flexible zoning in order to allow other uses such as offices, medium density residential development or community facilities should a corner store prove not to be viable or to accommodate land use changes over time.

3.2.3 Tourist sites

A significant site to accommodate future tourist development has been strategically located near the town centre and adjacent to the foreshore. The site is currently Crown land reserved for Parks and Recreation at the end of Canning Street. The loss of this Parks and Recreation reserve will be compensated by the addition of the adjacent foreshore reserve and hilltop park as significant new Parks and Recreation reserves. The site is considered to be a strategic location that provides a coastal road link between the development area and the town centre and is of sufficient size to accommodate a small resort facility or other form of tourism development.

3.2.4 Public Open Space

Major regional recreational facilities that serve the needs of existing residents are located within the townsite to the south-east of the development area. These facilities include sports ovals and other organised sports facilities. The golf course to the immediate north of the development area is also an important regional recreational resource. These facilities would also serve future residents within the development area.

The coastal reserve that stretches along the southern edge of the development area is a significant natural area of regional open space. The other regional open space within the development area comprises the proposed vegetation and wildlife corridor over the northern, western and southern foreshore portions of the site. It is anticipated that the corridor would be ceded to or acquired by CALM. The other main landscape feature to be preserved as a natural conservation area is the high dune comprising an area of over 2.2 hectares in the south-eastern corner of the site.

A number of local parks are also proposed to meet the recreational needs of local residents. The distribution of public open space has been evenly distributed between each stage of the development and caters for both active and passive recreation. The ODP design ensures that a local park is located within convenient walking distance of the majority of residential lots within the development area.

A large (1.7-hectare) centrally located area of POS will cater for active recreation, together with a 1.3 hectare area located immediately behind the transverse dune. The proximity of the development area to the established active recreation area on the eastern side of Veal Street provides an additional opportunity for residents to utilise these areas. Pedestrian and cycle links from the development area to these existing active recreation areas will be established.

The proposed public open space is well defined by perimeter streets to provide access and minimise potential management and security problems.

A total area of 7.23 hectares is provided as active and passive open space within the development area which represents 10% of the net residential area. While some of this area will serve a dual function as part of the drainage network, the vegetation/wildlife corridor and foreshore reserve also contribute significantly to active and passive recreational opportunities in the area.

3.3 Movement Network

3.3.1 Street Network

The major access roads to the development area are two neighbourhood connector standard roads. The majority of the development is contained within a loop road which connects to the Hopetoun Ravensthorpe Road. This will form a four way intersection with a proposed new access road to the light industrial area on the eastern side of the Hopetoun – Ravensthorpe Road. The construction of a roundabout at this point provides the opportunity to create a significant entry statement to the townsite.

The second neighbourhood connection forms a westerly extension of Canning Street to form a coastal route which then turns due north to link with the loop road and Hammersley Drive. The coastal road also provides access to the existing and proposed coastal access nodes. Detailed design of these nodes will be undertaken as part of the foreshore management plan at the subdivision stage of development.

An interconnected internal street system is proposed. The system consists of neighbourhood connectors that provide convenient linkages through the development area and access streets that provide access to properties and create a legible and permeable urban form. The neighbourhood connector network includes a coastal boulevard incorporating beach parking adjacent to the foreshore reserve.

The perimeter roads along the edges of the development area provide an appropriate hard edge treatment between urban development and the coastal reserve and the vegetation and wildlife corridor. The roads provide physical separation from urban development for bushland protection and act as an effective firebreak from high bushfire risk areas.

3.3.2 Pedestrian and Cycle Movement Network

The ODP design provides for a safe and convenient movement network for pedestrians and cyclists along the street network. The provision of appropriate pedestrian and cycle facilities such as footpaths and possible dual use paths would be considered during detailed subdivision design.

3.4 Urban Services

3.4.1 Water

The existing water supply system would need to be augmented by further groundwater extraction from the existing borefields to supply the development area. An underground piped reticulation scheme would be installed within the road reserves through the development area. The staged addition of tanks and/or booster pumps would be required in order to maintain pressure requirements to the reticulated development area.

3.4.2 Sewerage

The sewerage reticulation for the development area would consist of a system of gravity mains that would collect effluent at a pump station. It would then be pumped by pressure main to proposed treatment ponds to the north of the existing townsite. The proposed ponds are to be expanded over time to cater for increased discharge volumes.

The first 50 lots of Stage 1 to be developed will not be seweraged and will use on-site treatment systems in the interim, although sewer infrastructure will be included in the development works in the form of "dormant" sewer facilities. Once the overall trunk sewerage system is developed, these 50 lots will be required to connect to the system.

3.4.3 Power

An extension to the existing townsite power supply system would service the development area. An underground power reticulation scheme would be installed within the road reserves through the development area.

3.4.4 Urban Water Management

The major and minor hydrology systems within the development area have been assessed. There are two seasonal damplands within the northern portion of the development area.

Urban development of the site would require management of the associated increased stormwater runoff caused by wide-scale pavement construction. This is proposed to be managed through a street layout and stormwater drainage system that promotes the movement of water to natural drainage basins or areas of public open space within low topographical areas.

The proposed system includes drainage collection points and public open space areas to serve as natural drainage basins for stormwater runoff.

The urban water management system would be designed to cater for increased runoff within the development area. There would be no major drainage outfalls in the vegetation and wildlife corridor. There would be a series of passive bubble-up type structures dispersed along the corridor that would discharge a portion of the runoff into the corridor. The volume of this runoff would not be greater than the existing natural runoff to this area.

3.4.5 Telecommunications

Telecommunication services to and through the development area would be provided by Telstra through an extension to the existing townsite network.

3.5 Development Staging and Cost Estimates

A Development Staging Plan is provided on Figure 3.2. The proposed initial stages and cost estimates are summarised below.

Stage	Estimated cost per lot	Lot Yield
1A	\$22,434	25
1B	\$33,950	25
2	\$25,272	60
3	\$34,530	90
	SUB TOTAL	200

Stage 1A, which comprises 25 lots, is assumed not to require any upgrading of existing water supply services. The cost estimates for Stages 1B and 3 reflect the relatively high cost of a required extension of new water supply infrastructure from the north of the development area. Stages 1A, 1B and 3 are within the portion of the development area that is currently zoned Residential.

Some points which you need to be aware of when using this estimate are as follows:

- Earthworks and Retaining Walls – no allowance has been made for earthworks and retaining walls to create level lots.
- Sewers – the estimate allow for the construction of dormant sewers to serve stages 1A, 1B & 2. It is assumed that these will connect into sewers constructed as part of the Water Corporation’s infill sewerage program (if it proceeds). Stage 3 will require the construction of a new sewerage pump station but as this will be a permanent station this will ultimately be funded by the Water Corporation and hence no cost has been allowed for this station in this estimate.
- Water – the estimate covers the cost of water reticulation for the development only. No allowance has been made for the upgrading of the Water Corporation’s headworks as this cost should be borne by the Water Corporation (though they may enter into a pre-funding agreement). Stage 1A should not require any upgrading of the existing water supply, however the remaining stages will most likely require upgrading of the water supply infrastructure. (It should be noted that standard Water Corporation headworks charges for both sewer and water have been included in the estimate).
- Drainage – allowance has been made for the construction of drainage facilities to maximise infiltration and to minimise transfer of nutrients and sediments.
- Roadworks – the roadworks estimate allows sealed and kerbed roads. No allowance has been made for upgrading existing roads that access the development area.
- Underground Power – the underground power estimate assumes that any costs involved with upgrading of the existing Hopetoun power supply will not be borne by the developers.
- Environmental Issues - it is possible there may be environmental issues associated with the native vegetation and the dampland areas and we strongly suggest you engage a specialist consultant to investigate this.
- Landscaping - the estimate does not include any allowance for landscaping or estate betterment.
- Design and Approvals - the cost estimate is based on preliminary, notional designs. These are subject to change due to local and other authorities’ requirements and conditions, detailed design and formal approvals.
- Construction Costs - the estimate has been prepared using current construction rates for similar works. We do not have any information regarding the future movement of rates and these may change due to changed material or labour prices and conditions at the time of tender.
- Professional and Council Fees – we have included surveying, engineering and Council fees in the estimate.
- GST - the estimate makes no allowance for the effects of a goods and services tax.
- General - the estimate makes no allowance for the following:
 - acquisition cost of the land
 - holding costs
 - legal costs
 - marketing and selling costs
 - cost escalation
 - cash contributions in lieu of public open space should there be a shortfall.

3.6 Implementation Actions

The tasks required to progress the implementation of the ODP and the development of the subject site are highlighted below.

Further studies

At the subdivision stage of development, a geotechnical assessment and soil survey of the land should be undertaken to confirm land capability for the proposed form of urban development. A foreshore development management plan, vegetation and wildlife management plan, drainage and nutrient management plan and construction plan will also be required to be prepared as conditions of any subdivisional approval.

Native Title Clearance

Native Title clearance for the development area has now been formally completed.

Zoning Requirements

As only a portion of the development area has been zoned for Residential purposes, the balance of the area will need to be rezoned either as part of the Scheme Review or by way of a Scheme Amendment.

Following discussion with the Department of Environmental Protection it is recommended approximately 10 years supply of residential zoned land, together with the proposed tourist site and associated public open space, be incorporated in the new Town Planning Scheme No. 5.

Subdivision design and approvals

Detailed subdivision design for each stage of the ODP is required and subdivision applications are required to be lodged for WAPC approval. These subdivision applications would be assessed against the endorsed ODP.

Prior to the establishment of a permanent wastewater treatment plant, preliminary stages of subdivision based on the R20 density code will be subject to the approval of the 'Centralised Septic System' by the Health Department of WA and the Office of Water Resources.

Subdivision design should include the preparation of Detailed Area Plans in accordance with Liveable Neighbourhoods to ensure site development and the built form of development is compatible with the natural bushland and coastal environment and considers issues such as retention of remnant vegetation throughout the development area, streetscape quality and neighbourhood character.

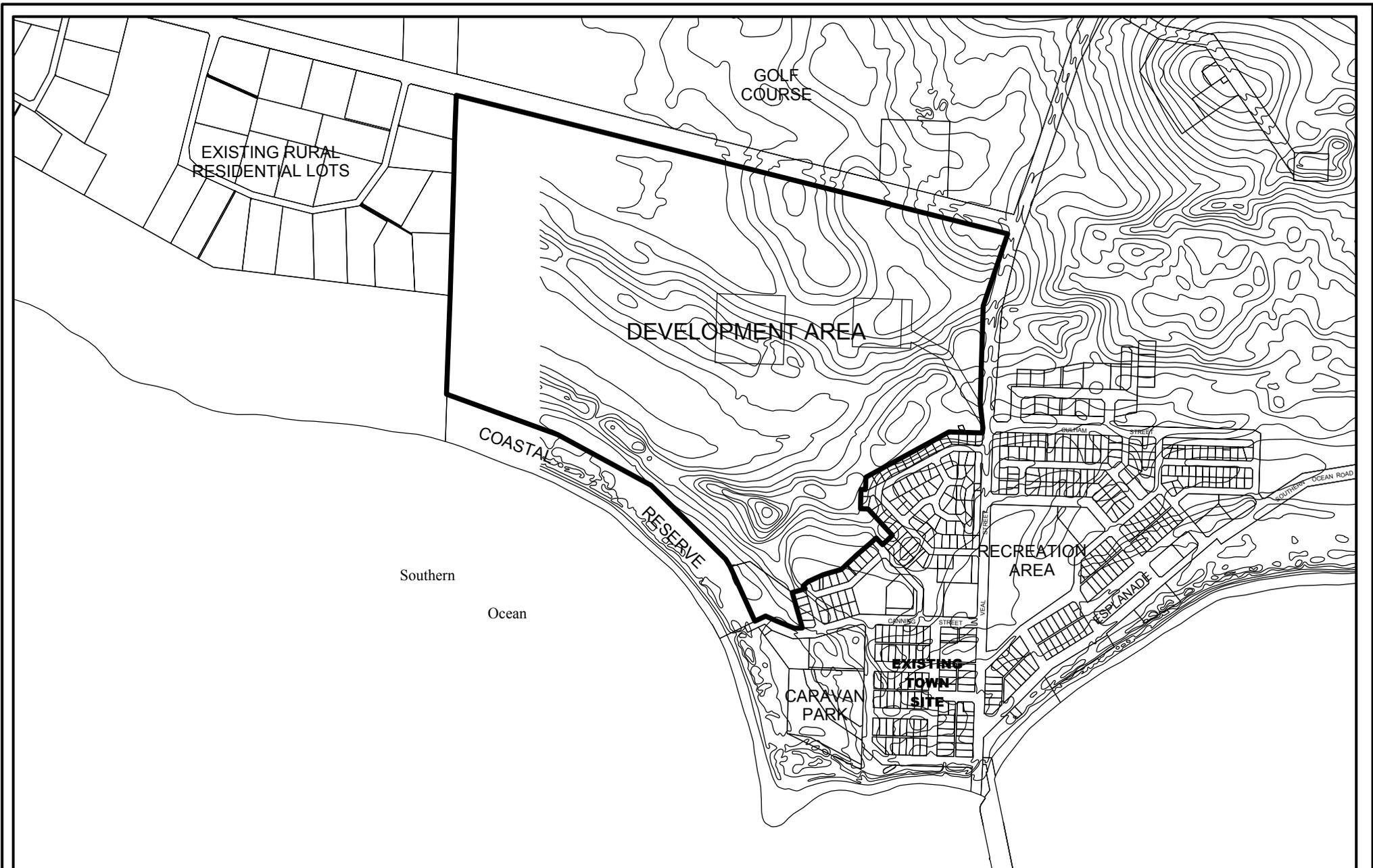
Provision for safe and convenient pedestrian access connections to the town centre also needs to be accommodated at the detailed stage of subdivision design.

4. CONCLUSION AND RECOMMENDATIONS

This report has presented an Outline Development Plan to guide the future staged development of the development area and the co-ordinated provision of infrastructure and services. The Outline Development Plan design has been based, where practical, on the principles of Liveable Neighbourhoods and the need to create an urban structure that responds to site constraints and opportunities and caters for the expected needs of future residents.

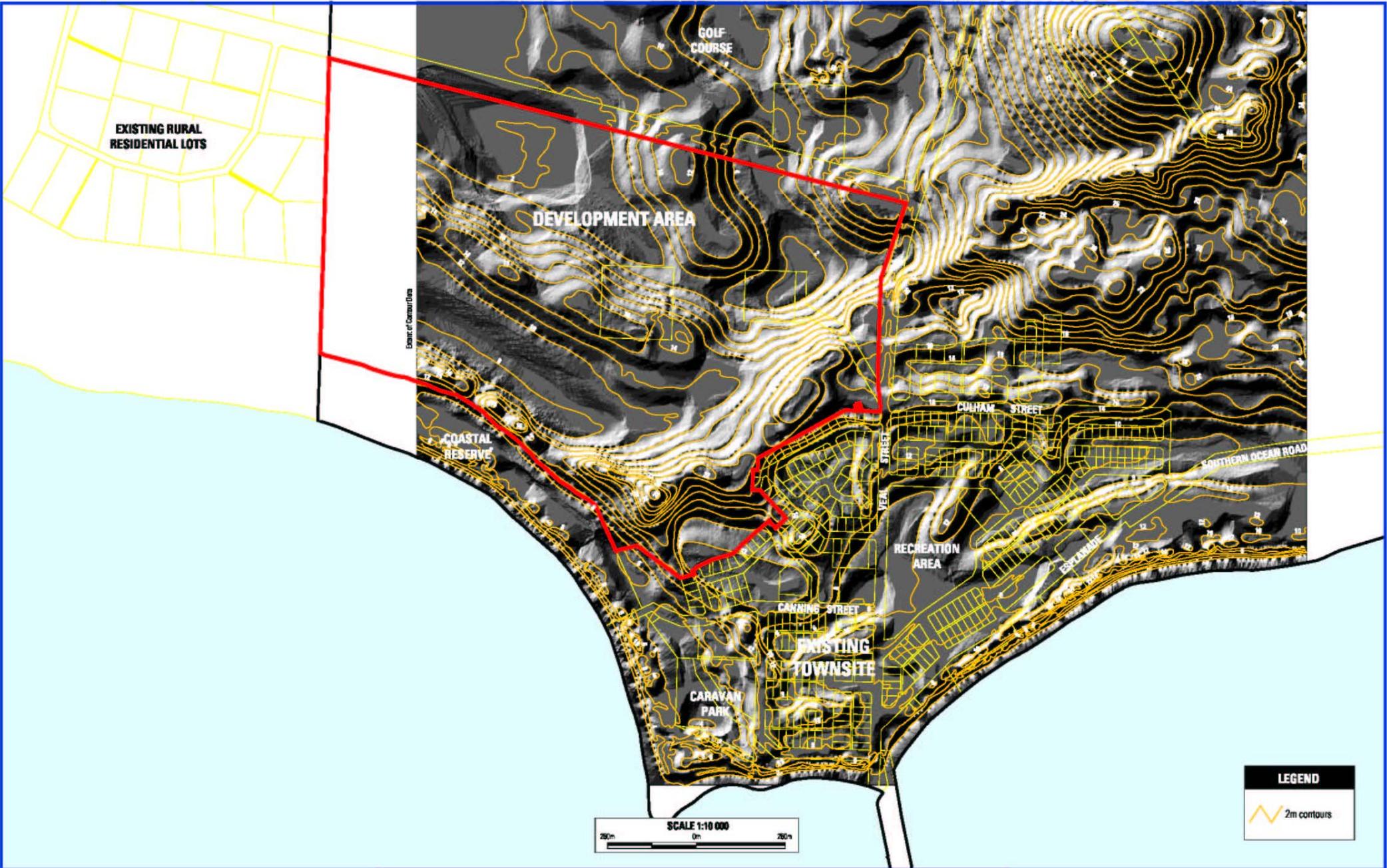
The recommendations arising from the report are that:

- The Shire of Ravensthorpe and the Shire of Ravensthorpe Infrastructure Planning Committee endorse the Outline Development Plan.
- The Outline Development Plan be advertised with the Local Planning Strategy and new town planning scheme.
- The proposed residential areas and associated landuse and public open space be reflected in the new town planning scheme.
- DOLA initiate detailed subdivision design for the initial stages of the development area as soon as the Outline Development Plan has been endorsed by the Western Australian Planning Commission.
- A geotechnical assessment and soil survey of the development area be undertaken at the subdivision stage of development.
- That a Foreshore Management Plan be prepared for the foreshore adjacent to the area affected by the Outline Development Plan at the subdivision stage of development.



Development Area
Hopetoun Outline Development Plan
Shire of Ravensthorpe

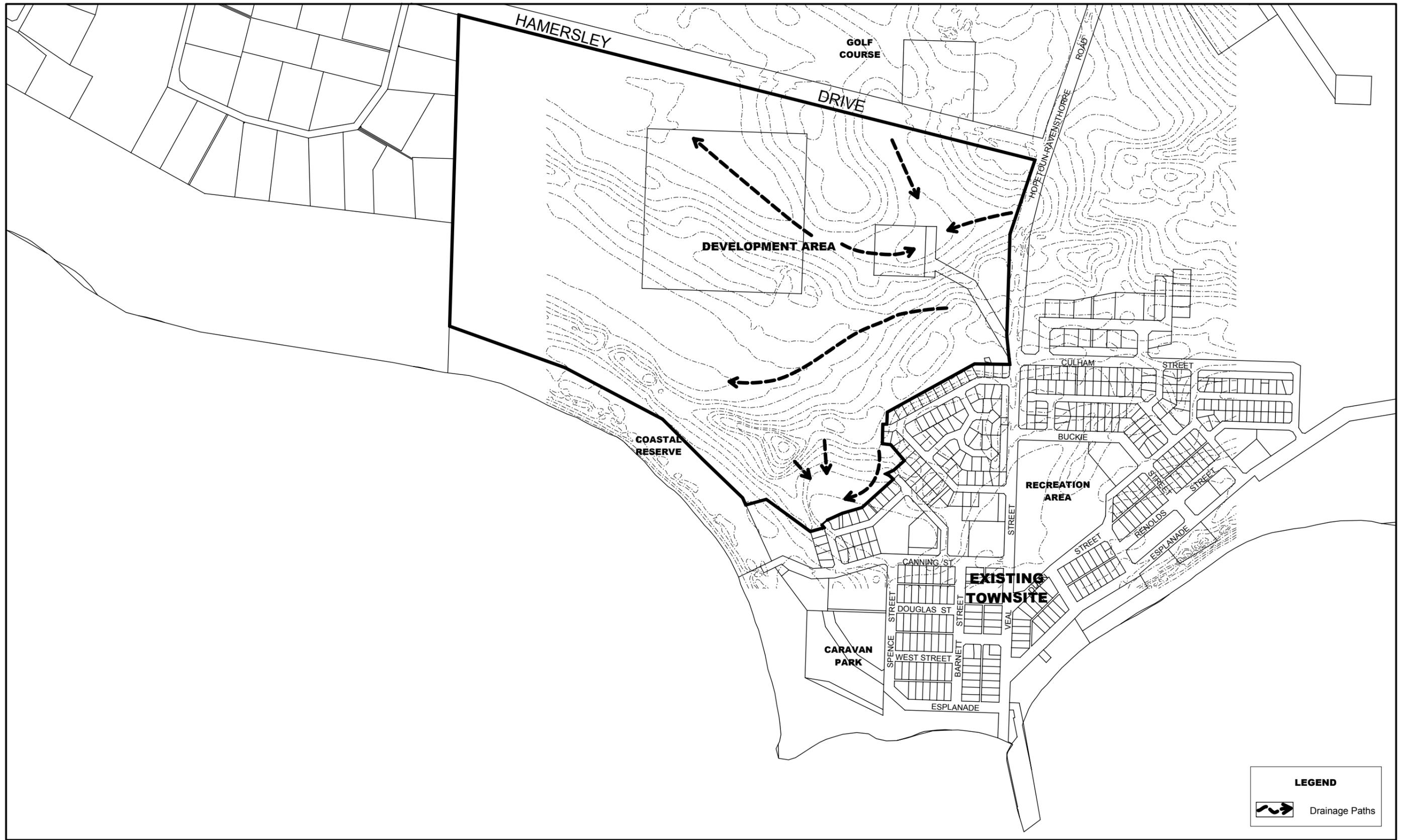
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HOPETOON DEVELOPMENT AREA
OUTLINE DEVELOPMENT PLAN



FIGURE 2.1
LANDFORM AND TERRAIN



Hydrology
 Hopetoun Outline Development Plan
 Shire of Ravensthorpe

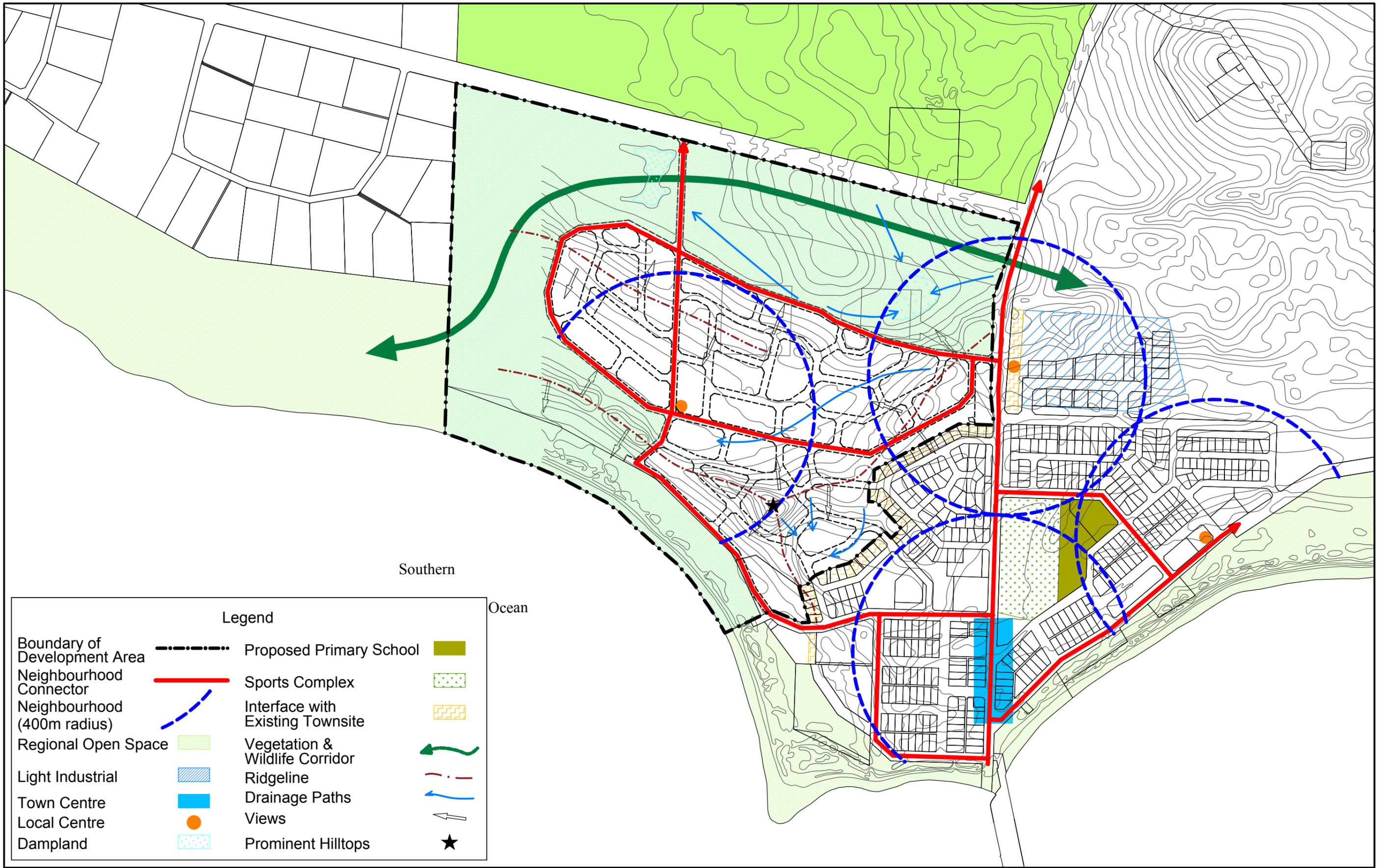
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 Figure 2.2



HOPETOUN DEVELOPMENT AREA
OUTLINE DEVELOPMENT PLAN



FIGURE 2.3
VEGETATION COVER



Legend	
Boundary of Development Area	-----
Neighbourhood Connector	—————
Neighbourhood (400m radius)	- - - - -
Regional Open Space	▨
Light Industrial	▨
Town Centre	▨
Local Centre	●
Dampland	▨
Proposed Primary School	■
Sports Complex	▨
Interface with Existing Townsite	▨
Vegetation & Wildlife Corridor	▨
Ridgeline	▨
Drainage Paths	▨
Views	↗
Prominent Hilltops	★

Context and Site Analysis
 Hopetoun Outline Development Plan
 Shire of Ravensthorpe

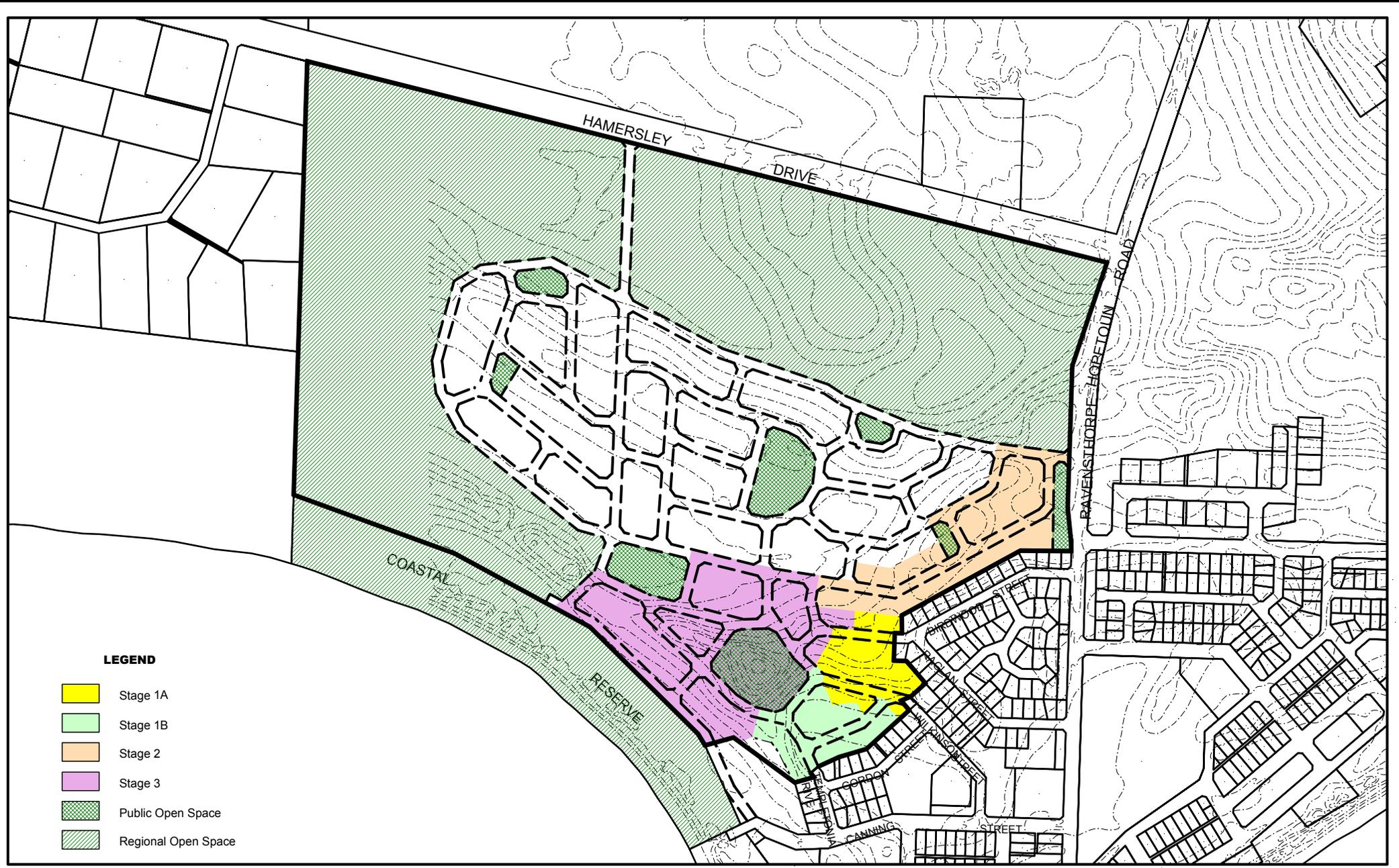


Hopetoun Outline Development Plan

Shire of Ravensthorpe

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Figure 3.1



LEGEND

- Stage 1A
- Stage 1B
- Stage 2
- Stage 3
- Public Open Space
- Regional Open Space

Development Staging Plan
Hopetoun Outline Development Plan
Shire of Ravensthorpe