great places_

lot 21 scott road, karloo
local structure plan

PREPARED FOR ESTATES DEVELOPMENT COMPANY

JUNE 2015

Estates Development Company

Title	Lots 21 Scott Road, Karloo Local Structure Plan
Project	Karloo Local Structure Plan
Prepared for	Estates Development Company
Reference	EDC OLD
Status	Draft
Version	C
Date of Release	June 2015
Author	R. Darby
Graphic Design	R.Huynh
Approved by	R. Darby

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www.robertsday.com.au

STRUCTURE PLAN ENDORSEMENT STATUS

Certified that the agreed Structure Plan No. ..... was adopted by resolution of the Western Australian Planning Commission on .....16 JUNE 2015

Signed for and on behalf of the Western Australian Planning Commission

.....

An officer of the Commission duly authorised by the Commission pursuant to section ~~16~~ 24 of the Planning and Development Act 2005 for that purpose, in the presence of:

Witness ....M. Wrecka.....

Date ...28 July 2015

And by resolution of the Council of the City of Greater Geraldton on 28 October 2014.

And the seal of the City of Greater Geraldton was pursuant to the Council's resolution hereunto affixed in the presence of:

.....

Mayor, City of Greater Geraldton

.....

Chief Executive Officer, City of Greater Geraldton

Date 4-11-14

This Structure Plan is prepared under the provisions of Part 5 of Town Planning Scheme No. 5.

Record of Amendment made to the Agreed Structure Plan No.

Lot 21 Scott Road, Karloo Local Structure Plan

Modification No.	Description of Modification	Endorsed by Council	Endorsed by WAPC

EXECUTIVE SUMMARY

This Local Structure Plan (LSP) is prepared over Lot 21 Scott Road, Karloo.

The LSP proposed the subdivision and development of land for residential, service commercial and light industry.

STRUCTURE PLAN SUMMARY TABLE

Item	Data	Section number referenced within the structure plan report
Total area covered by the structure plan	78.57ha	Section 1.2.2
Area of each land use proposed: Residential Service Commercial Light Industry Public Open Space	 8.088ha 29.12ha 23.15ha 1.563ha	Section 3.0
Estimated lot yield: Residential Service Commercial Light Industry	 110 74 17	Section 3.0
Estimated number of dwellings	110	Section 3.0
Estimated residential site density	13.6du/ha	Section 3.0
Estimated population	253[1]	Section 3.0
Number of high schools	0	Section 3.6
Number of primary schools	0	Section 3.6
Estimated retail floor space	0	Section 3.5
Estimated number and % of public open space:	2 parks 1.56ha 10.6%	Section 3.4
Estimated area and number: Local parks	 2 parks 1.56ha	Section 3.4
Estimated number and area of natural area and biodiversity assets	0ha	Section 3.4

1 Based on 2.3 residents per dwelling

RD great places_

part one
statutory section

01 **part one:** statutory section

1.0 Structure Plan Area

This Structure Plan shall apply to Lot 21 Scott Road, Karloo being the land contained within the inner edge of the line denoting the Structure Plan boundary on the Structure Plan Map (Plan 1).

2.0 Structure Plan Content

This Structure Plan comprises the:

a) Statutory Section (Part 1);

b) Explanatory Section (Part 2); and

c) Appendices - Technical Reports.

3.0 Interpretation

Unless otherwise specified in this part, the words and expressions used in this Structure Plan shall have the respective meanings given to them in the City of Greater Geraldton Local Planning Scheme No. 5 (the Scheme) including any amendments gazetted thereto.

4.0 Operation Date

In accordance with clause 5.17.12.1 of the Scheme, this Structure Plan shall come into operation on the day on which it is endorsed by the Western Australian Planning Commission (WAPC) pursuant to clause 5.17.10.2 of the Scheme.

5.0 Relationship with the Scheme

Pursuant to clause 5.17.12.2 and 5.17.12.3 of the Scheme:

a) If a provision of the structure plan is inconsistent with a provision of the Scheme, then the provision of the Scheme prevails to the extent of the inconsistency; and

b) The provisions of the structure plan apply to the land as if its provisions were incorporated into the Scheme and it is binding and enforceable in the same way as corresponding provisions incorporated in the Scheme.

c) Part 2 of this Structure Plan and the Appendices - Technical Reports are to be used as a reference only to clarify and guide interpretation and implementation of Part 1.

6.0 Land Use and Subdivision

The Structure Plan Map (Plan 1) outlines land use, zones and reserves applicable within the Structure Plan area. The zones and reserves designated under this Structure Plan apply to the land within it as if the zones and reserves were incorporated into the Scheme.

6.1 Land Use Permissibility

The Structure Plan designates zones and reserves to the proposed development, as shown on the Structure Plan Map (Plan 1). The intention of zones and reserves and land use permissibility within the Structure Plan Area shall be in accordance with the corresponding zone or reserve under the Scheme, except as follows.

6.1.1 Service Commercial

Land use permissibility shall be in accordance with the "Highway Commercial" zone in the Scheme with the exception of the following restricted uses, which are NOT PERMITTED:

- Caretaker's Dwelling
- Child Care Premises
- Consulting Rooms
- Convenience Store
- Exhibition Centre
- Fast Food Outlet
- Hospital
- Medical Centre
- Office
- Reception Centre
- Restaurant
- Shop

6.1.2 Light Industry

Land use permissibility shall be in accordance with the "Light Industry" zone of the Scheme with the exception of the following restricted uses, which are NOT PERMITTED:

- Consulting Rooms
- Industry Cottage
- Motel

6.2 Specific Subdivision requirements

6.2.1 Service Commercial

Subdivision shall generally be in accordance with the Structure Plan Map (Plan 1) with a minimum lot size of 2,000m^2.

6.2.2 Light Industry

Subdivision shall generally be in accordance with the Structure Plan Map (Plan 1) with a minimum lot size of 5,000m^2.

6.3 Residential

6.3.1 Dwelling Target

To provide for a minimum of 110 dwellings within the Structure Plan area.

6.3.2 Density

The Structure Plan Map (Plan 1) defines the residential density ranges that apply to specific areas within the Structure Plan area.

6.4 Public Open Space

Public open space is to be provided generally in accordance with the Structure Plan Map (Plan 1) and Table 1.

Table 1: Public Open Space Schedule

PUBLIC OPEN SPACE	AREA
Unrestricted Public Open Space	1.32ha

6.5 Reports/Strategies Required Prior to Subdivision

Prior to the lodgement of subdivisions the following management plans are to be prepared, as applicable, to the satisfaction of the relevant authority and provided at the time of subdivision:

a) Prior to any subdivision application being lodged in excess of 4 years from the operation date of the structure plan (as defined in section 4.0), an updated Traffic Report shall be prepared. Thereafter, any further subdivision application shall be accompanied by a Traffic Report not greater than 4 years old.

b) A Transport Noise Assessment shall be prepared in accordance with relevant government policy such as State Planning Policy 5.4 'Road Rail Transport Noise and Freight Considerations in Land Use Planning' to determine the effects on the proposed residential lots of noise associated with the operations of Verita Road and the Geraldton Southern Transport Corridor (road and rail).

6.6 Conditions of Subdivision Approval

a) At the time of subdivision, conditions may be recommended, as applicable, requiring the preparation and/or implementation of the following strategies:

   i) The implementation of recommendations in the Transport Noise Assessment referred to in clause 6.5(b) (City of Greater Geraldton)

   ii) Urban Water Management Plan, inclusive of the following:

      - Detailed permeability testing undertaken below the design invert depth of the basin(s) to demonstrate infiltration potential; and
      - full drainage calculations for swales, kerb/pipe/pit and basin network detailing:
        - Sizing methodology and basin(s) details.
        - Hydrology, including catchments, runoff coefficients, intensities and times of concentration.
        - Hydraulic calculations, including Hydraulic Grade Line (HGL) design long-sections to demonstrate design immunities. (City of Greater Geraldton, Department of Water)

   iii) Notification on title advising prospective purchasers of the restrictions regarding wastewater disposal.

7.0 Development

7.1 Detailed Area Plans

Detailed Area Plans are to be prepared in accordance with Clause 5.17.15 of the Scheme, prior to any development for:

a) Any residential lots with access to a laneway;

b) 'Light Industry' Zone; to ensure the identification and protection of any vegetation on the site worthy of retention (primarily *Bankasia prionotes, Melaleuca cardiophylla, Diplolaena gran diflora*, and *Grevillea, argyrophylla*) that is not impacted by subdivisional works.

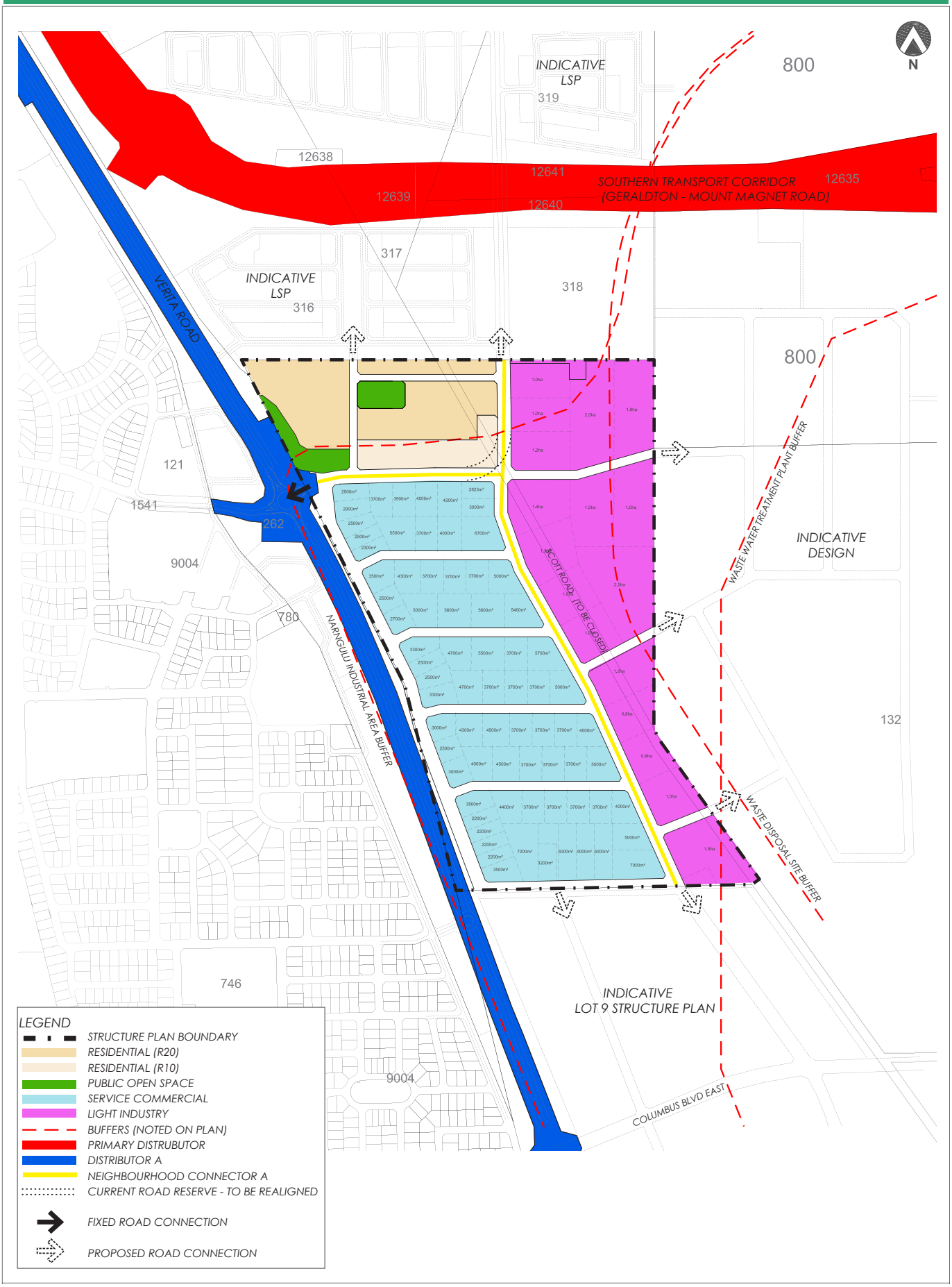
c) Residential R10 lots to ensure maximum separation distances between habitable dwellings and the 'Service Commercial' and 'Light Industry' areas; and

d) Any residential lots fronting the Neighbourhood Connector A to address forward vehicular egress;

e) Any residential lots that are identified as requiring acoustic amelioration by the Transport Noise Assessment under clause 6.5(b); and

f) Any other lot that requires specific development standards as identified by the City, the Department of Planning or the subdivider.

PLAN 1 – LOT 21 SCOTT ROAD LOCAL STRUCTURE PLAN



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part two
explanatory section

contents_

part two
explanatory section

part three
technical appendices

FIGURE 1: REGIONAL CONTEXT

1.0 Planning Background

1.1 Introduction And Purpose

This Local Structure Plan has been prepared by Roberts Day on behalf of Estates Development Company (EDC), the proprietor of Lot 21 Scott Road, Karloo, Geraldton (the 'site').

The purpose of this LSP is to facilitate the subdivision and development of the site.

1.1.1 Project Team

The LSP site is to be developed by EDC.

Other members of the Project Team include:

- Roberts Day - Urban Design + Statutory Planning
- Wood + Grieve - Civil Engineering
- Coterra - Environment + Hydrology
- Riley Consulting - Transport + Traffic
- Herring Storer - Acoustics

1.2 Land Description

1.2.1 Location

Regional Context

The site is situated within the City of Greater Geraldton, in the locality of Karloo. The site is approximately four kilometres from the Geraldton city centre.

Local Context

The site abuts private land to the north (owned by the Department of Housing), private land to the east (owned by EDC), private land to the south (owned by the City of Greater Geraldton) and the future Verita Road reserve to the west of the site, which adjoins the Seacrest Estate in Wandina.

1.2.2 Area and Land Use

The site is approximately 76 hectares in area. The site is currently being used as a working farm for crops and grazing.

1.2.3 Legal description and ownership

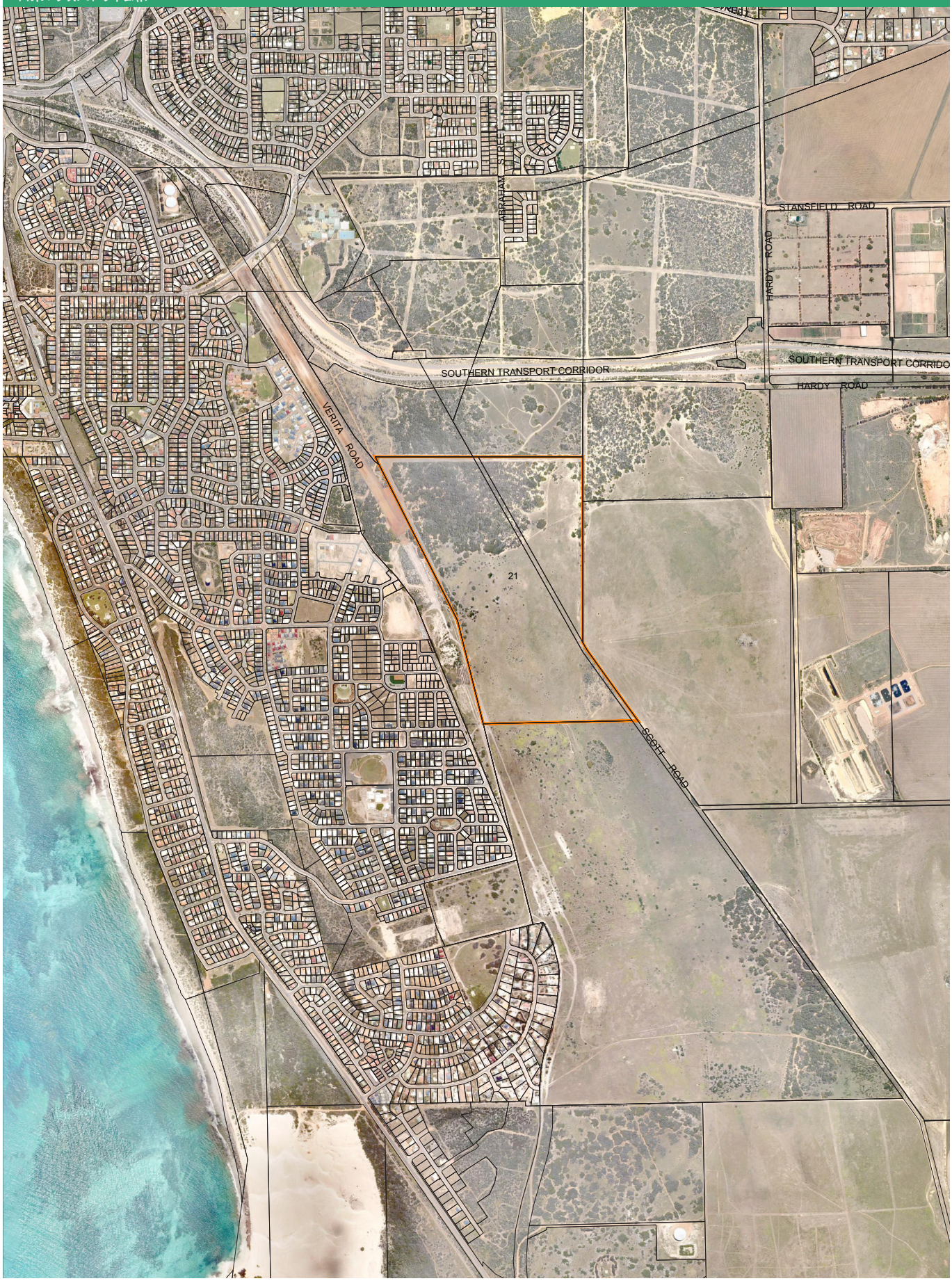
The LSP area comprises Lot 21 Scott Road, Karloo.

The legal description of the subject land is provided in Table 1.

TABLE 1 – LOT DETAILS

Lot Number	Certificate of Title	Owner
21	Vol 1889 Fol 391	Wandina Pty Ltd

FIGURE 2: SITE PLAN



1.3 Planning Framework

1.3.1 Zoning and Reservations

City of Greater Geraldton Local Planning Scheme No. 5

The subject site is zoned 'Development' in accordance with LPS5.

The Narngulu Wastewater Treatment Plant is identified in LPS5 as Special Control Area 3 (SCA 3) and the Narngulu Waste Disposal Site is identified as Special Control Area 4 (SCA 4).

The purpose of SCA 3 is to:

(a) To identify land likely to be the subject of offsite impacts from the Narngulu Wastewater Treatment Plant.

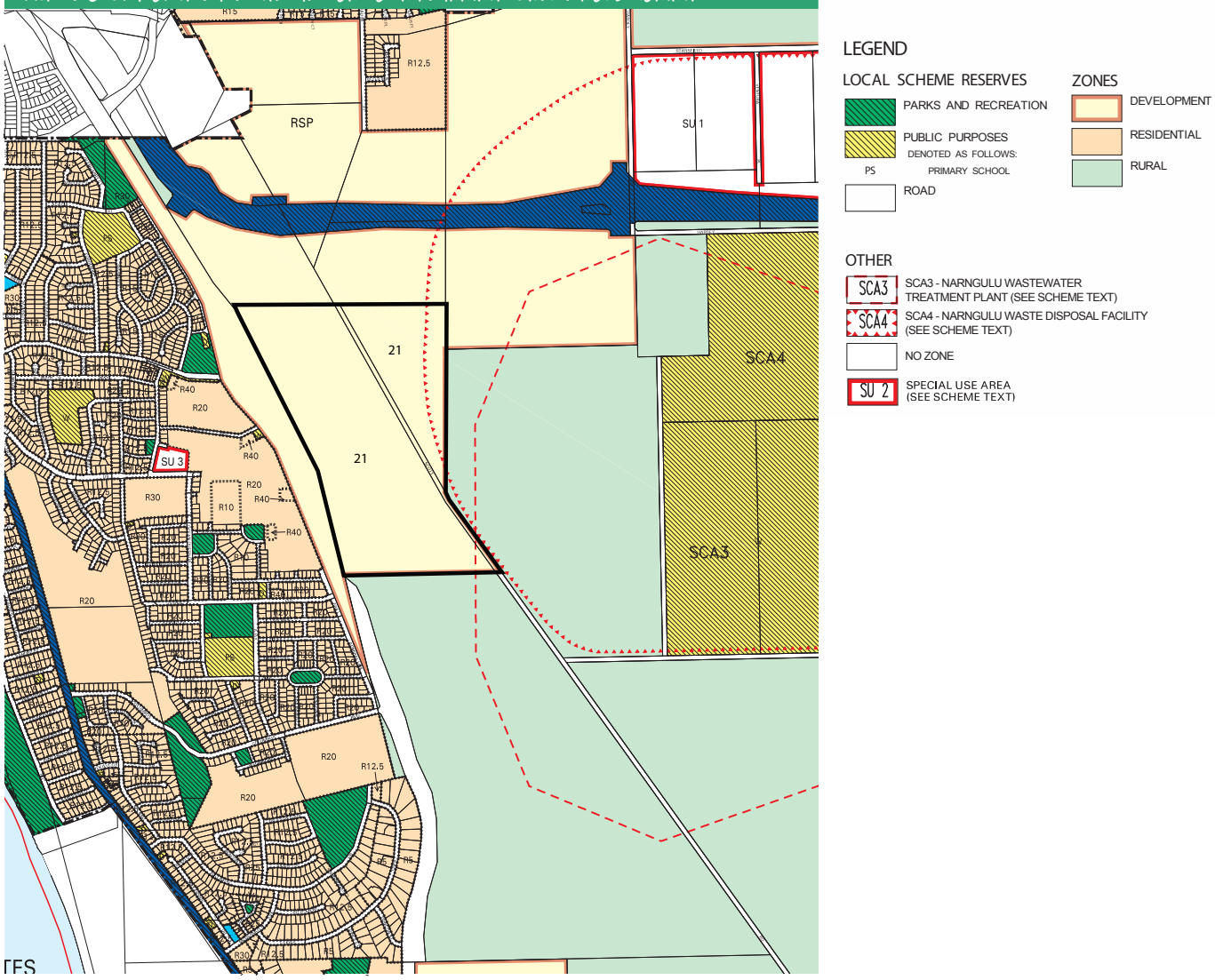
(b) To ensure that the use and development of the land in the vicinity of the Narngulu Wastewater Treatment Plant is compatible with any existing or proposed future use and development of the plant.

The clause relating to SCA 4 states:

'Residential development or subdivision will not be approved or supported respectively within the Narngulu Waste Disposal Facility Special Control Area.'

The buffers for SCA 3 and SCA 4 both impact on the subject site as shown in Figure 3.

FIGURE 3: CITY OF GREATER GERALDTON TOWN PLANNING SCHEME NO. 5 ZONING

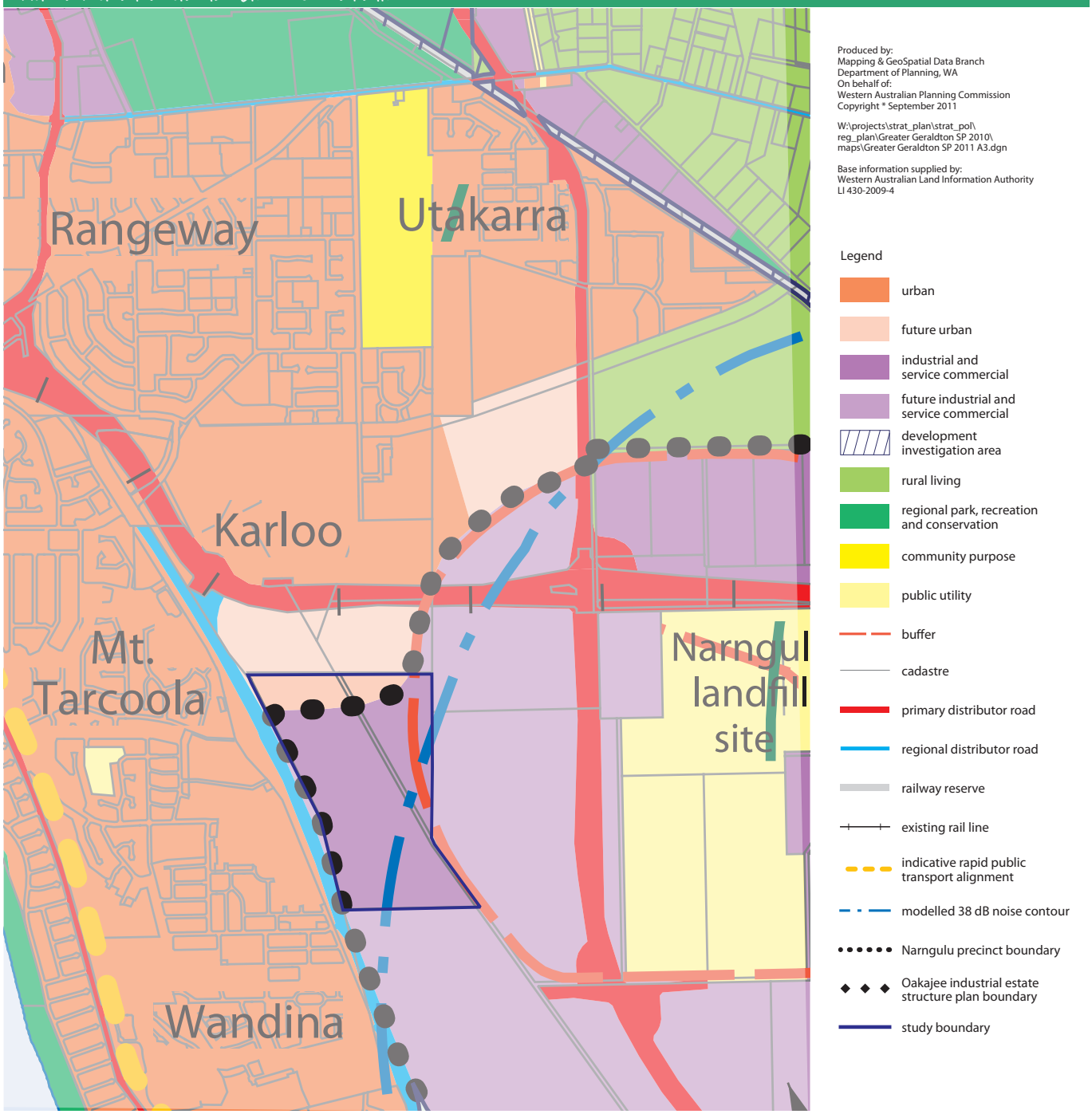


1.3.2 Regional And Sub-Regional Structure Plans

Greater Geraldton Structure Plan (2011)

The Greater Geraldton Structure Plan 2011 (GGSP) is an update of the Greater Geraldton Structure Plan (1999). The GGSP primarily focuses on the urban areas and other areas likely to experience development pressures within the City of Greater Geraldton and the Shire of Chapman Valley. The Structure Plan provides a framework for coordinating development within this area and provides the basis for statutory planning and development control. The GGSP identifies the majority of the site for 'future industrial and service commercial' with the remainder identified as 'future urban' (refer to Figure 5). The area identified for 'future urban' is the portion of the subject site, which is located outside of the Narngulu Industrial Estate Buffer.

FIGURE 4: GREATER GERALDTON STRUCTURE PLAN



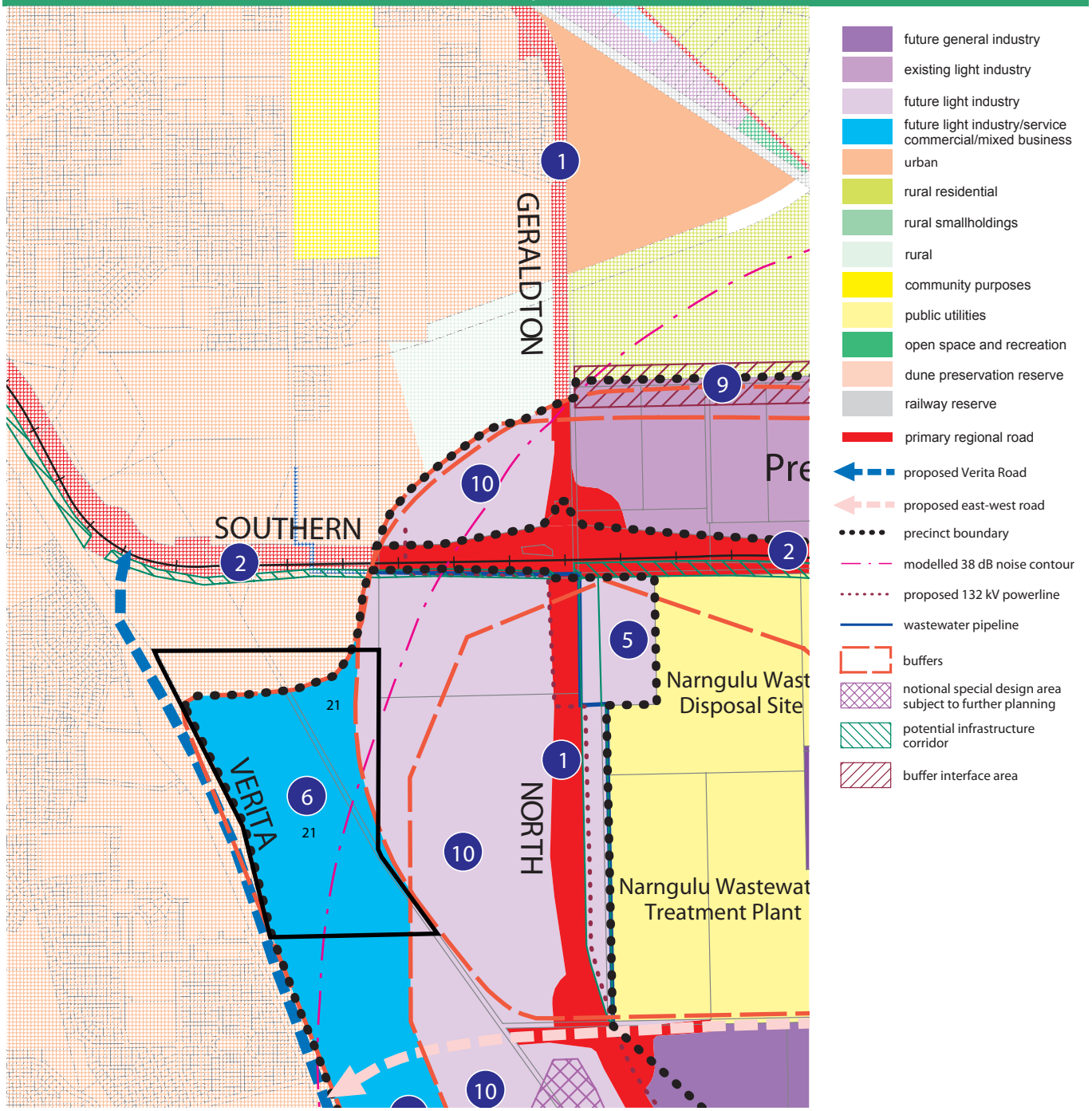
Narngulu Industrial Area Strategic Land Use Directions (WAPC, 2010)

The NIASLUD reviews the current strategic planning framework for the Narngulu Industrial Area and provides direction for future planning and development. The subject site is located within 'Precinct A' of the NIASLUD, with the majority of the site identified as 'future light industry/service commercial/mixed business' and 'future light industry' for the portions of the site impacted by the Narngulu Wastewater Treatment Plant buffer and the Narngulu Waste Disposal Site buffer (refer to Figure 9). The northern portion of the site is not included in the NIASLUD.

The portion of the site identified for 'future light industry/service commercial/mixed business' is described as potentially consisting of large format bulky goods commercial uses. The NIASLUD states that the final size of this area and types of uses "will be subject to detailed local structure planning to ensure compatibility of uses".

In the eastern portion of the site, the land affected by the Narngulu Wastewater Treatment Plant buffer is identified for future light industry uses. The site is identified by the NIASLUD predominately for the aforementioned uses, and as such the concept plan for the site has identified service commercial and mixed business land uses.

FIGURE 5: NARNGULU INDUSTRIAL AREA STRATEGIC LAND USE DIRECTIONS



1.3.3 Policies

State Policies

State Planning Strategy (December 1997)

The State Planning Strategy (1997) was prepared by the WAPC as a whole of Government approach to guide sustainable land use planning throughout the State up until 2029. The Strategy is aimed at developing a land use planning system to help the State achieve a number of key goals. These include generating wealth, conserving and enhancing the environment and building vibrant and safe communities for the enjoyment of this and subsequent generations of Western Australians. The Strategy was last audited in 2000-2001.

Liveable Neighbourhoods (2007)

Liveable Neighbourhoods has been prepared to implement the objectives of the State Planning Strategy. It is an operational policy, adopted by the WAPC, for the design and assessment of structure plans and subdivision for new urban areas and large brownfield or urban infill sites in the metropolitan area and country centres.

State Planning Policies

Development of land must generally be consistent with any relevant State Planning Policies (SPP) which are prepared and adopted by the WAPC under statutory procedures set out in Part 3 of the Planning and Development Act 2005. The WAPC and local governments must have due regard to the provisions of SPPs when preparing or amending regional and district planning schemes and when making decisions on planning matters. Details of the SPPs relevant to the site are provided below.

i) State Planning Policy No 1 - State Planning Framework Policy (2006)

The State Planning Framework Policy (SPP 1.1) provides a framework for the application of more detailed planning policies and strategies in Western Australia, including general principles derived from the State Planning Strategy. It states that the primary aim of planning is to provide for the 'fair, orderly, economic and sustainable use and development of land'.

ii) State Planning Policy 2 - Environmental and Natural Resources Policy (2003)

The policy sets out a planning response to environmental and natural resource management issues within the framework of the State Planning Strategy.

Specific policy areas of relevance to this LSP include those relating to water resource management, air quality, soil and land quality, biodiversity, landscapes and energy efficiency.

iii) State Planning Policy 2.9 - Water Resources (2006)

The purpose of this policy is to guide development of land that may impact on water resources in the state. Under the policy, water resources include 'water in the landscape with current or potential value to the community or environment'. This incorporates features such as wetlands and waterways, surface water, groundwater, drinking water catchments and sources, stormwater and wastewater. The policy aims to ensure that the quality and quantity of water resources in the state are not adversely affected by development and land use.

iv) State Planning Policy No. 3 - Urban Growth and Settlement (2006)

This policy sets out the principles and considerations to apply to planning for urban growth settlement in Western Australia. The policy aims to facilitate sustainable patterns of urban growth and settlement.

The objectives of the policy are:

- To promote a sustainable and well planned pattern of settlement with sufficient and suitable land to provide for a wide variety of housing, employment, recreation facilities and open space.
- To build on existing communities with established local and regional economies, concentrate investment on the improvement of services and infrastructure and enhance the quality of life in those communities.
- To manage growth and development of urban areas in response to social and economic needs of the community and in recognition of the relevant climatic, environmental, heritage and community values and constraints.
- To promote the development of sustainable and liveable neighbourhood form which reduces energy, water and travel demand whilst ensuring safe and convenient access to employment services by all modes, provides choice and affordability of housing and creates an identifiable sense of place for each community.

v) State Planning Policy No. 3.6 - Developer Contributions for Infrastructure (2009)

SPP No. 3.6 sets out the principles and considerations that apply to development contributions for the provision of infrastructure in urban areas. The policy brings together Planning Bulletin 18 - Developer Contributions for Infrastructure and Planning Bulletin 41 - Draft Model Text Provisions for Development Contributions.

The policy sets out the form, content and process for the preparation of a development contribution plans.

vi) State Planning Policy No. 4.1 – State Industrial Buffer (2004)

The purpose of the policy is to provide a consistent statewide approach for the protection and long-term security of industrial zones, transport terminals (including ports) other utilities and special uses. It will also provide for the safety and amenity of surrounding land uses while having regard to the rights of landowners who may be affected by residual emissions and risk.

The policy establishes objectives and principles and how the principles should be applied to define and secure buffer areas and who should pay for them. It is intended that the WAPC will, after the policy has been in operation for a period of two full years, undertake a review of its effectiveness, and if necessary amend the policy.

The objectives of this policy are:

- To provide a consistent statewide approach for the definition and securing of buffer areas around industry, infrastructure and some special uses.
- To protect industry, infrastructure and special uses from the encroachment of incompatible land uses.
- To provide for the safety and amenity of land uses surrounding industry, infrastructure and special uses.
- To recognise the interests of existing landowners within buffer areas who may be affected by residual emissions and risks, as well as the interests, needs and economic benefits of existing industry and infrastructure which may be affected by encroaching incompatible land uses.

The Structure Plan area is affected by the Narngulu Industrial Area Buffer. Please refer to Section 2.5 – Buffers for further comments in respect to this buffer.

vii) State Planning Policy No. 5.4 - Road and Rail Transport Noise and Freight Considerations in Land Use Planning (2009)

SPP No. 5.4 is aimed at increasing awareness of transport noise and its potential impact on the amenity and quality of life for residents. The policy therefore has objectives and implementation strategies to ensure that land use and transport planning are compatible. The policy also establishes a standardised set of criteria to be used in the assessment of proposals affected by transport noise.

As the subject site is located adjacent to the proposed Verita Road, which is currently classified as a local road but will act as a neighbourhood connector in the future.

In accordance with the requirements of SPP No. 5.4 a noise assessment was undertaken by Lloyd George Acoustics. Refer to Appendix A.

City Of Greater Geraldton Strategies And Policies

i) Local Planning Policy – Towards Sustainable Residential Development

This policy enables sustainability principles to be applied in the City's assessment of residential developments. The Policy has the following objectives:

- To assist achieving more sustainable residential developments by making concessions in particular cases on any design element of the Residential Design Codes (with the exception of housing density and building height requirements).
- To encourage the development of more sustainable, environmentally sensitive and contemporary residential buildings of a high design quality.
- To encourage developments, more sustainable than those of the previous era, in recognition of growing commercial benefits, community demand, increased individual and community vulnerability to climate changes and energy price increases and City policy on environmental and social responsibility.
- To permit and encourage diverse and innovative housing forms that demonstrates sustainability outcomes so as to promote a wider choice in housing and satisfy the demand of a variety of household types and lifestyles.

The policy applies to developments, but the design of the subdivision as guided by local structure plans is relevant to determining how easily buildings can meet the objectives of the policy. In particular, policy provisions relating to building orientation, energy efficiency and water usage have a strong relationship to lot orientation and water management systems in place within the estate.

The Lot 21 Local Structure Plan and the Local Water Management Strategy (Appendix B) seek to maximise the opportunities for future residential development to realise sustainability objectives as outlined in this policy.

ii) Local Planning Policy – Verita Road Contributions

This local planning policy is intended to provide a basis for seeking financial contributions for the construction of Verita Road. The objectives of the policy are as follows:

- To ensure consistency in the recommendations made to the WAPC on subdivision applications.
- To provide a level of certainty for developers in estimating the financial costs to a subdivision.
- To provide a fair and reasonable method of cost sharing for the construction of Verita Road.

iii) Geraldton Regional Flora and Vegetation Survey Review (GRFVS)

The following plant communities were identified in the GRFVS as occurring within the site:

- 10 Near Coastal: *Acacia rostellifera* shrubland (ncAr)

Plant community 10 is usually dominated by *Acacia rostellifera. Acacia xanthina, Alyxia buxifolia* or *Chamelaucium uncinatum* may be dominant or co- dominant species in this plant community. Plant community 10 occurs on taller secondary dunes, and on exposed limestone and sandplain soils to the east as a result of disturbance to other plant communities. On the sandplain soils, the plant community may have formerly included Banksia prionotes but has since been reduced to a simpler community dominated by Acacia rostellifera.

Plant community 10 occupies 2,258.86 ha or 36.63% of the native vegetation of the GRFVS area, and is the most widespread of the GRFVS plant communities.

There are no Department of Parks and Wildlife (DPaW)-listed or Commonwealth-listed (Environment Protection and Biodiversity Conservation Act 1999) threatened ecological communities in the GRFVS area.

iv) Geraldton Local Biodiversity Strategy

The Geraldton Local Biodiversity Strategy (LBS) was adopted by Council in October 2013. The overall goals of the strategy are to:

- Retention - Retain natural areas. Aim to retain at least 3,334ha of the remaining 6,041ha of natural areas remaining.
- Protection - Protect natural areas and specific biodiversity features, targeting at least 5% of the original extent of natural areas, leading to the protection of an additional 1,058ha of areas of conservation value.
- Management - Manage protected natural areas for conservation. Active management of 100% of LGA natural areas of conservation value.
- Engagement – Increased community contributions to biodiversity conservation. Decrease in behaviours identified as threats to biodiversity values.
- Regeneration - Ensure the rate of regeneration exceeds the rate of degradation. E.g. restore more than 1,500 ha of natural areas in CGG.

The LSB notes that the majority of Lots 23 and 800 are located within a constrained area that is proposed for future urban and industrial development. A portion of Lot 800 is also identified as having a good opportunity for vegetation retention. The site is located within an indicative north-south local ecological linkage.

The LBS recommends for the constraints areas present onsite (i.e. GG28, GG30 and GG31; see LBS report for locations) that native vegetation is retained within Public Open Space (POS), streetscapes and transport corridor landscaping within constrained areas.

The portion of the site which is identified as having good opportunities for vegetation retention (i.e. GG27; see LBS report for locations) notes that 'during any rezoning the conservation significance and reserve viable portions should be reviewed'.

2.0 Site Conditions And Environment

2.1 Biodiversity and Natural Area Assets

2.2.1 Flora

Onsite Vegetation Units and Condition

A Level 2 flora and vegetation survey was recently undertaken across the site in accordance with the EPA's Guidance Statement No. 51 – Terrestrial Flora and Vegetation Surveys for Environmental Impact Assessment in Western Australia for a Level 2 survey.

The following is a summary of the key findings of the survey:

- Lot 21 included large areas of pasture with scattered shrubs of Acacia rostellifera and **Lycium ferocissimum*. This has no environmental value and was given a vegetation condition rating of completely degraded. On the south eastern boundary there were a few *Banksia prionotes* over *Acacia rostellifera* which were rated as vegetation condition degraded. The remaining vegetation on Lot 21 was Thicket of *Acacia rostellifera* in good to very good condition, with the margin adjacent to the pasture area in degraded condition.
- Many weeds were recorded from the survey lots including: **Lycium ferocissimum*, a thorny shrub was common in disturbed areas; **Euphorbia terracina* (Geraldton Carnation Weed); **Bromus diandrus* (Great Brome), **Ehrharta calycina* (Perennial Veldt grass), **Reichardia tingitana* (False Sowthistle) and **Echium plantagineum* (Paterson's Curse).
- There were many tracks throughout the remnant bushland, which were completely degraded but were too small in area to accurately map.

Refer to Figures 7 and 8 for the Vegetation Units and Vegetation Condition.

The City of Greater Geraldton has indicated a desire for protection of *Banksia prionotes* vegetation within the south eastern industrial lots. The Western Australian conservation status of this species is summarised as follows:

- Department of Parks and Wildlife (DPaW) Conservation Code: Not Threatened
- Distribution: Widespread including Avon, Wheatbelt, Geraldton Sandplains, Jarrah Forrest, Mallee, Swan Coastal Plain and Yalgoo regions.

Review of the condition of the area containing B. prionotes onsite has confirmed that this vegetation is in a completely degraded condition which is defined by the EPA as 'The structure of the vegetation is no longer intact and the area is completely or almost completely without native species'.

It is noted that the earthworks required to construct the industrial lots within the south eastern corner of the site will involve re-contouring of the topography. As such the surface disturbance is likely to prevent the ability to retain vegetation within this area, however it will be retained where not impacted by subdivisional works.

FIGURE 7: VEGETATION UNITS

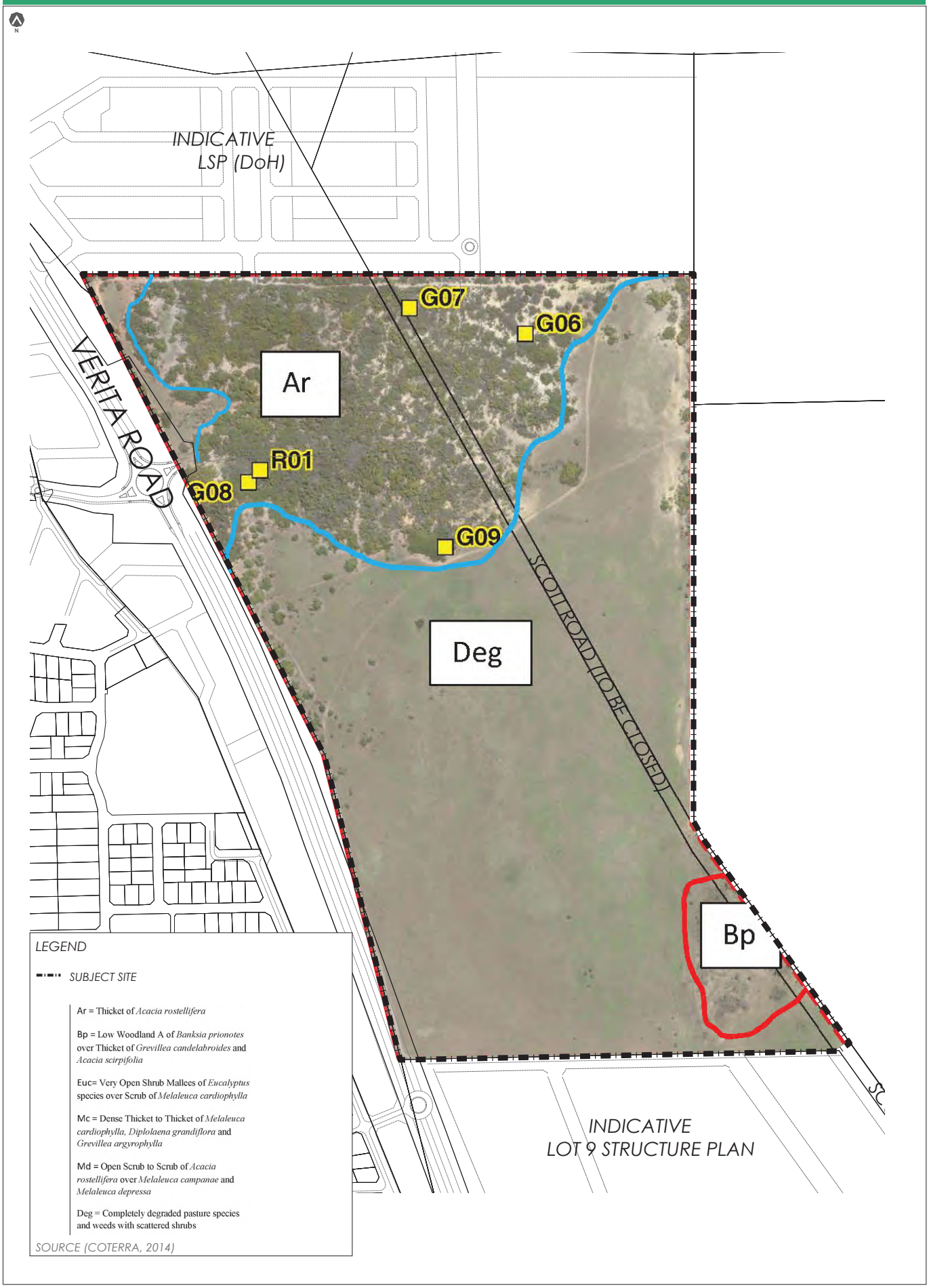


FIGURE 8: VEGETATION CONDITION

2.2.3 Fauna & Habitat

A search of the State and Federal databases identified a number of conservation significant fauna species as potentially occurring in this general area. Based on a review of the habitat characteristics required by these species, and the conditions present onsite the following species were identified as possibly occurring:

- Carnaby's Black Cockatoo
- Rainbow Bee-eater
- Carpet Python

The full list of the potential conservation significant species and their habitat requirements is provided in the Environmental Assessment (Appendix C).

The vegetation types present onsite may provide some habitat opportunities for these species, however, it is noted that much of the site has been impacted by degrading processes including access track creation and weed invasion. This could potentially affect the habitat viability of the site, particularly for transient bird species such as the Carnaby's Black Cockatoo.

Based on the vegetation species present onsite, foraging opportunities for Carnaby's are possible, however the predominant vegetation species associated with the vegetation communities across the site (i.e. Acacia rosteliffera) is not recognised as a foraging / roosting habitat plant for Carnaby's Black Cockatoo.

The Rainbow Bee-eater is a relatively common migratory species, and land development is not considered a threat to this species. Geraldton is located at the northern end of Carpet Python's range. This species could possibly occur in the area. The species habitat is described by the DEC as semi-arid coastal and inland habitats consisting of Banksia woodland, Eucalypt woodlands, and grasslands. The Acacia rostellifera plants which are the dominant species present onsite do not meet this habitat description. As such the site appears unlikely to be an important habitat area for this species.

2.2 Landform and Soils

Soils onsite are part of the Tamala South Soil Landscape System as mapped by the Department of Agriculture. This system is described by the Department of Agriculture as follows:

- Tamala South - Rises and low hills with relict dunes and some limestone outcrop on coastal limestone north of Jurien Bay. Yellow deep sands common, with yellow/brown shallow sands and calcareous shallow and deep sands. Banksia woodlands and heathlands.

The sub-systems present onsite are:

- Tamala South 4 (221Ta_4Ty) yellow deep sand phase soil subsystem: gently undulating plain on the eastern side of the Tamala Limestone. Slopes 2-8%. Yellow deep sand. Geology: lithified Pleistocene calcareous dune deposits.
- Tamala South 5 (221Ta_5Ts) shallow sand phase soil subsystem: undulating to gently undulating relict dune crests with shallow sand and common limestone rock outcrop. Shallow red and brown sands. Geology: lithified Pleistocene calcareous dune deposits and recent calcareous sand.
- Tamala South (221Ta_5Tr) Deep Red Soils - lower lying and swale areas of the Tamala Limestone land system. Slopes 1-3%.

The Department of Environment Regulation (DER) Acid Sulfate Soils (ASS) risk mapping, indicates that the site is mapped as having a low to no risk of encountering ASS within 3 m of natural surface level. Further, CSIRO mapping indicates that this general area has an extremely low probably of Acid Sulfate Soil occurrence.

Geotechnical investigations have been undertaken for the LSP area. Please refer to the Geotechnical Report in Appendix F.

FIGURE 9: GEOLOGY PLAN

PINPOINT CARTOGRAPHICS (08) 9562 7136 EDCOLD02a-f04.dgn

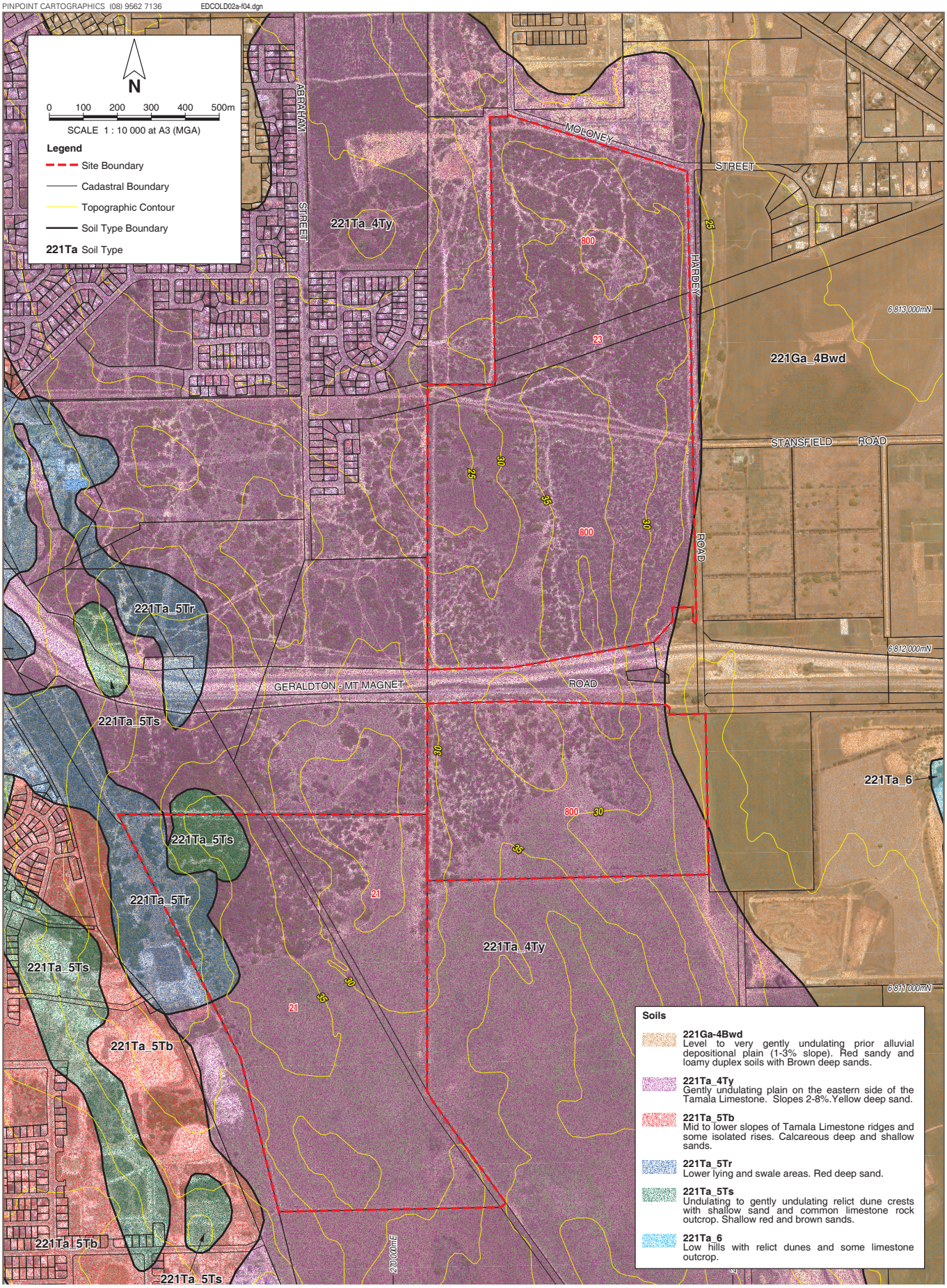
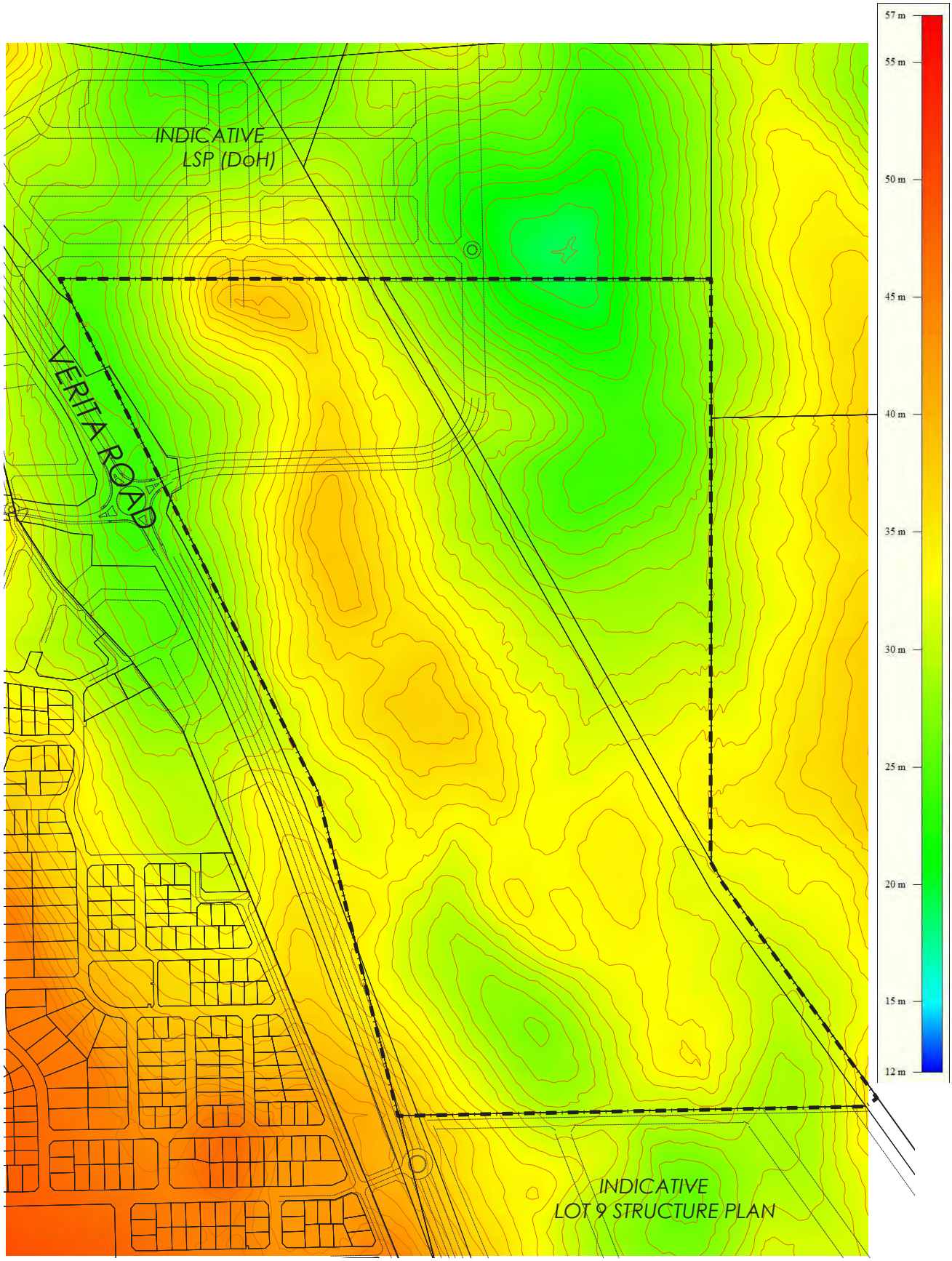


FIGURE 10: CONTOUR TINT



LEGEND

SUBJECT SITE

2.3 Hydrology

2.3.1 Surface Water

There are no surface water features within the site.

2.3.2 Groundwater

Groundwater level information is not readily available for this location. Information available from DoW in relation to the nearby Greenough shallows bore (located approximately 3km from the site) indicates that the groundwater level in this general area is approximately 3m AHD.

The site is situated within the proclaimed Arrowsmith Groundwater Area, which covers the northern-most extent of the Northern Perth Basin, from Geraldton to Green Head and east to Coorow, in the state's Mid West region. A groundwater allocation plan has been prepared by the Department of Water, which details the objectives of the proclaimed Arrowsmith Groundwater Area and broad management requirements. These include:

- A guideline for the allocation and licencing of groundwater in the Arrowsmith Groundwater Area.
- Details on the effects of abstraction on groundwater quality and groundwater-dependent ecosystems.

This plan will guide the assessment of groundwater licence applications in respect to allocations entitlements in the Arrowsmith Groundwater Area.

2.4 Bushfire hazard

A Bushfire Hazard and BAL Assessment was prepared for the subject site by Strategen (refer to Appendix H). Key objectives of the assessment were:

1. Undertake a detailed Bushfire Hazard Assessment of the project area and surrounds.
2. Undertake a BAL assessment of the project area in accordance with AS 3959–2009.
3. Document key findings of the Bushfire Hazard and BAL assessments, including mapping of bushfire hazard areas and hazard levels in accordance with methodology outlined in the Guidelines.
4. Verify compliance of the proposed development with Guideline performance criteria in light of the assessed bushfire hazard levels and BAL.
5. Provide bushfire fuel hazard assessment for the future Fire Management Plan or any additional fire mitigation works to address current bushfire issues at the project area.

2.5 Heritage

Aboriginal Heritage

A search of the Department of Aboriginal Affairs (DAA) Aboriginal heritage sites database did not identify any registered sites within the landholdings.

European Heritage

A search conducted under the Heritage Council of WA database revealed no heritage sites located within the site.

2.6 Context and Constraints Analysis

Existing and Future Transport Routes

The proposed extension of Verita Road will border the entire western portion of the site and will provide the principal points of access into Lot 21 from the west. Verita Road will become a local distributor road that will provide a new link from the suburbs of Mount Tarcoola and Wandina to Brand Highway and the Geraldton Souther Transport Corridor. Ultimately, Verita Road is to be constructed to a dual carriageway standard in both directions with a dual use path, and access to local roads will be restricted. It is not proposed to allow direct access from individual lots to Verita Road.

A link road from Ackland Street to Abraham Street over the Geraldton-Mount Magnet Road (Southern Transport Corridor) is currently being constructed. This road enters Lot 21 at its northern boundary and dog-legs to the west where it intersects with the proposed Verita Road.

An existing road reserve, Scott Road, traverses the LSP area in a north-south direction. The LSP has been designed to include this road reserve, where possible. Any portions of the road reserve not required in the LSP will be formally closed.

Noise

The LSP area is affected by the following noise sources:

- Verita Road, which abuts the western boundary of the site; and
- Narngulu Industrial Area 38dB Noise Emission Contour.

Lloyd George Acoustics has undertaken a noise assessment (Appendix A) regarding the future Verita Road. The assessment addresses the likely impacts of the above noise sources, and identifies appropriate design responses and mitigation measures, which have informed the LSP design. Preparation in accordance with Part 1, clause 6.5(b) a transport noise assessment will be prepared prior to subdivision and mitigation measures as determined appropriate will be required through conditions of subdivision approval. This assessment will be based on the final lot layout/levels and the existing and proposed traffic volumes and will recommend noise attenuation requirements, including acoustic walls and Quiet House Design.

In respect to the Narngulu Industrial Area 38dB Noise Emission Contour an Environmental Noise Assessment has been undertaken by Herring Storer on behalf of the City. This assessment concluded:

'While the suggestion of the 38 dB(A) contour buffer line was, in our opinion, reasonable at the time of its development in 2002 when the Narngulu Industrial Estate was expected to accommodate heavy industry, it has no basis under the current legislation and is no longer relevant should the Narngulu Industrial Estate be developed as a transport hub. As such, it is strongly suggested that the 38 dB(A) contour buffer line no longer be used by the relevant authorities in land use planning and that the Narngulu Industrial Buffer, which is better aligned with EPA policy, be used instead.'

Buffers

Lot 21 is impacted by the following three buffers:

<u>Narngulu Wastewater Treatment Plant Buffer</u>

The Narngulu wastewater treatment plant buffer is reflected as a special control area in LPS No 5. The schemes' provisions prohibit residential land uses and other sensitive land uses in the wastewater treatment plant buffer.

<u>Narngulu Waste Disposal Site Buffer</u>

The Narngulu waste disposal site buffer is reflected as a special control area in LPS No 5. The schemes' provisions prohibit residential land uses and other sensitive land uses in the waste disposal site buffer.

<u>Narngulu Industrial Estate Buffer</u>

This buffer was proposed in the Narngulu Industrial Estate Study, prepared for the Geraldton Region Plan Review Technical Committee. It was subsequently adopted into the Geraldton Region Plan and Greater Geraldton Structure Plan. This buffer is not shown on LPS No. 5.

A majority of the residential area within Lot 21 has been setback to correspond with these buffer areas in accordance with the TPS provisions for the wastewater and waste disposal facilities. The proposed residential transition zone (R10) extends a maximum of 75 metres into the overall Narngulu Industrial Area Buffer.

This zone does not encroach any of the other site-specific buffers proposed within the NIASLUD. Noting the above points, review of the Narngulu Industrial Area buffer requirements is summarised as follows:

- The proposed residential (R20) and residential transition (R10) zones are located outside of the 38dB noise contour presented in the NIASLUD.
- The proposed residential and residential transition zones are located outside of the wastewater treatment plant buffer as identified in both the NIASLUD and Local Planning Scheme No. 5.

- The proposed residential and residential transition zones are located outside of the waste disposal site buffer as presented in the strategic land use directions report and Local Planning Scheme No. 5.
- The majority of the residential transition zone is located within the overall Narngulu Industrial Area buffer. The recommended land use within this area as identified in the strategic land use directions report is 'future light industry/service commercial/mixed business'.
- The overall Narngulu Industrial Area buffer has been proposed on the basis of:
  - Separating sensitive land uses from industrial emissions.
  - Protecting industrial land from encroachment of sensitive land uses.
- The overall Narngulu Industrial Area buffer boundary line adjacent to the residential transition zone is located approximately 1.3km from the waste disposal site/wastewater treatment plant/general industry zone. The southern boundary of the proposed residential transition zone is located approximately 1.2km from this area.
- The Narngulu Industrial Estate Study (HGM & Reid, 1996) and as well as an earlier study undertaken by Alan Tingay & Associates (1993) concluded that a 1km buffer should be provided.
- The Narngulu Industrial Estate Study of Potential Emissions undertaken by SKM (2003) concluded that:
  - Of all the pollutants considered in this study (i.e. noise, dust, NOx, SO2, CO and odour) only noise and odour emissions were found to be significant to the future buffer determination at Narngulu.
  - The wastewater treatment plant is the most significant odour source within the area.
  - The results of the odour modelling undertaken by SKM varied from the results obtained by the Water Corporation. It is noted that the Water Corporation results are those which have been used to define the required buffer within the NIASLUD and Local Planning Scheme No. 5.
  - The noise modelling results presented in this report are the same as those presented in the NIASLUD.

Based on the above it appears unlikely that the location of the residential transition zone for up to 75 metre within the buffer zone would be adversely impacted by operations within the general industry zone. This is based on the following:

- The residential transition zone remains over 1km from the general industry areas as recommended in the 1993 and 1996 buffer studies.
- The presence of light industrial premises between the general industry zone and the residential transition zone would further assist to reduce impacts including noise emissions.
- The residential transition zone remains outside of the site specific zones recommended for the waste management site, wastewater treatment plant and 38dB noise contour.

Adjacent Local Structure Plans

The land to the south of the LSP area, Lot 9 Verita Road, has a draft Local Structure Plan that is currently being assessed by the City and WAPC. The Lot 9 LSP proposes a range of land uses, including residential, service commercial, light industry and district playing fields.

The land to the north, owned by the Department of Housing, has a draft LSP prepared over it. The proposed LSP has been designed to integrate with this draft LSP, including drainage infrastructure.

FIGURE 11: CONTEXT + CONSTRAINTS PLAN

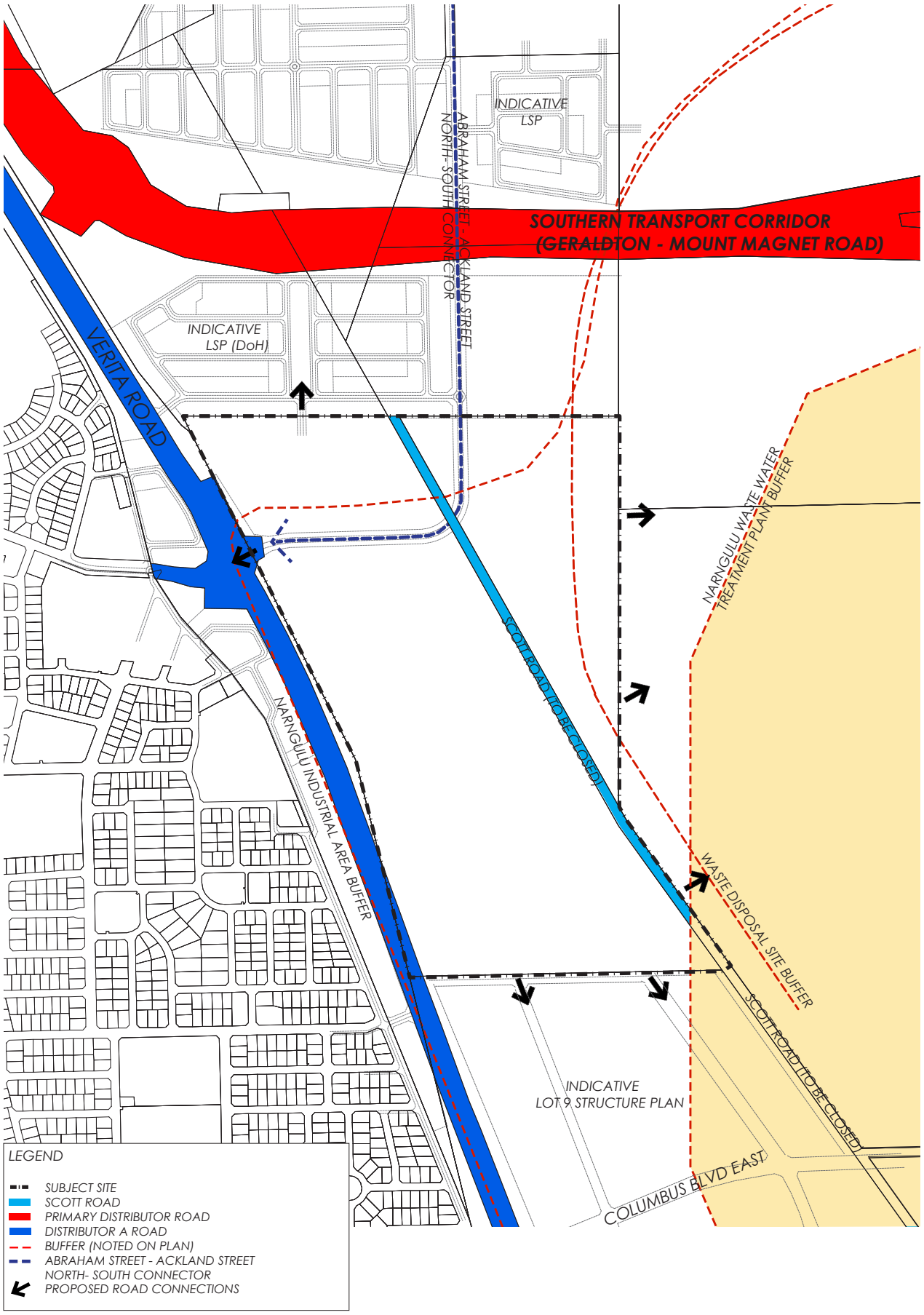
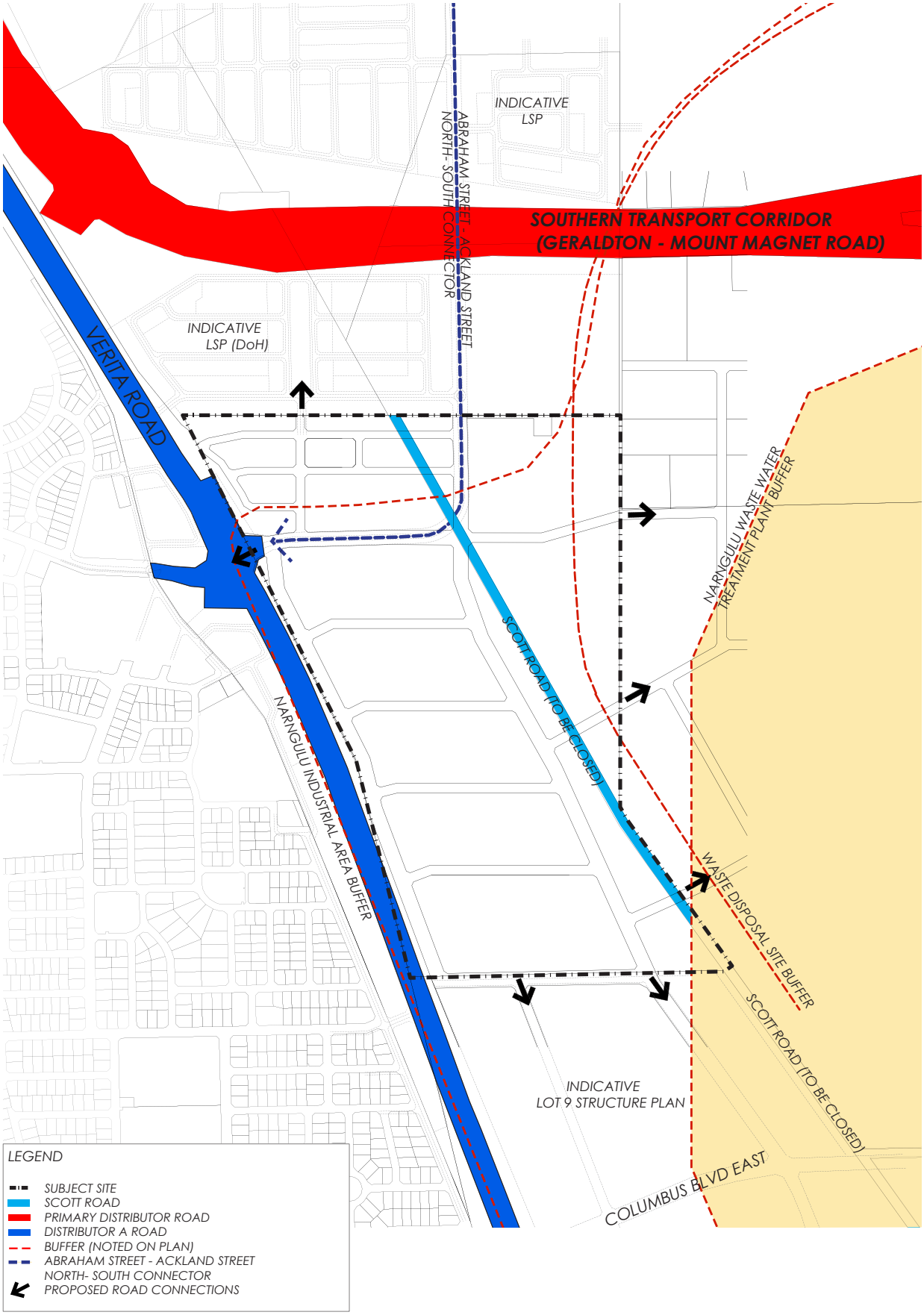


FIGURE 12: CONTEXT + CONSTRAINTS PLAN WITH CONCEPT PLAN



3.0 Local Structure Plan

3.1 Land Use

3.1.1 Masterplan

An indicative masterplan for the site has been prepared to demonstrate that the LSP design will create a legible, connected and functional development for both the residential and service commercial/light industrial areas.

The residential area will have an integrated access network (walking and cycling paths, road networks) that will facilitate movement and connectivity through all parts of the development and to the adjoining land. The residents will be serviced by three local parks, which are all within comfortable walking distance. The major north-south road links with the concept design for the Department of Housing land to the north and will provide for an integrated development.

The design allows for the provision of a mix of lot sizes and dwelling types to cater for a variety of demographics, ranging from first homebuyers, to families to retirees. This mix of demographics will result in a diverse community. The larger lots on the southern periphery of the residential area will act as a buffer to the service commercial and light industrial area and provides the opportunity for purchasers who want area for a large shed and storage area (e.g. boat and caravans).

The location of the service commercial and light industrial areas accord with the Narngulu Industrial Area Strategic Land Use Directions report. The road design proposes the extension of the Abraham Street-Ackland Street North-South Connector Road through to Lot 9 Verita Road in order to provide a strong connection for residents accessing the Southern Districts Sports Precinct and for vehicles associated with the service commercial and light industrial uses. As there is no direct vehicle access permitted onto Verita Road the LSP proposes a local road to run parallel with Verita Road. This provides for high visibility for the businesses on this road from Verita Road, which is important for service commercial uses.

The road network has been designed to integrate with the proposed light industrial area to the east (Lot 800) and the Lot 9 Verita Road Local Structure Plan. A majority of the unconstructed Scott Road road reserve will need to closed to facilitate the proposed design as its current alignment is not conducive to the delivery of an appropriate road network.

3.2 Residential

3.2.1 Densities

The LSP proposes a range of Residential Design Code densities from R10 to R20.

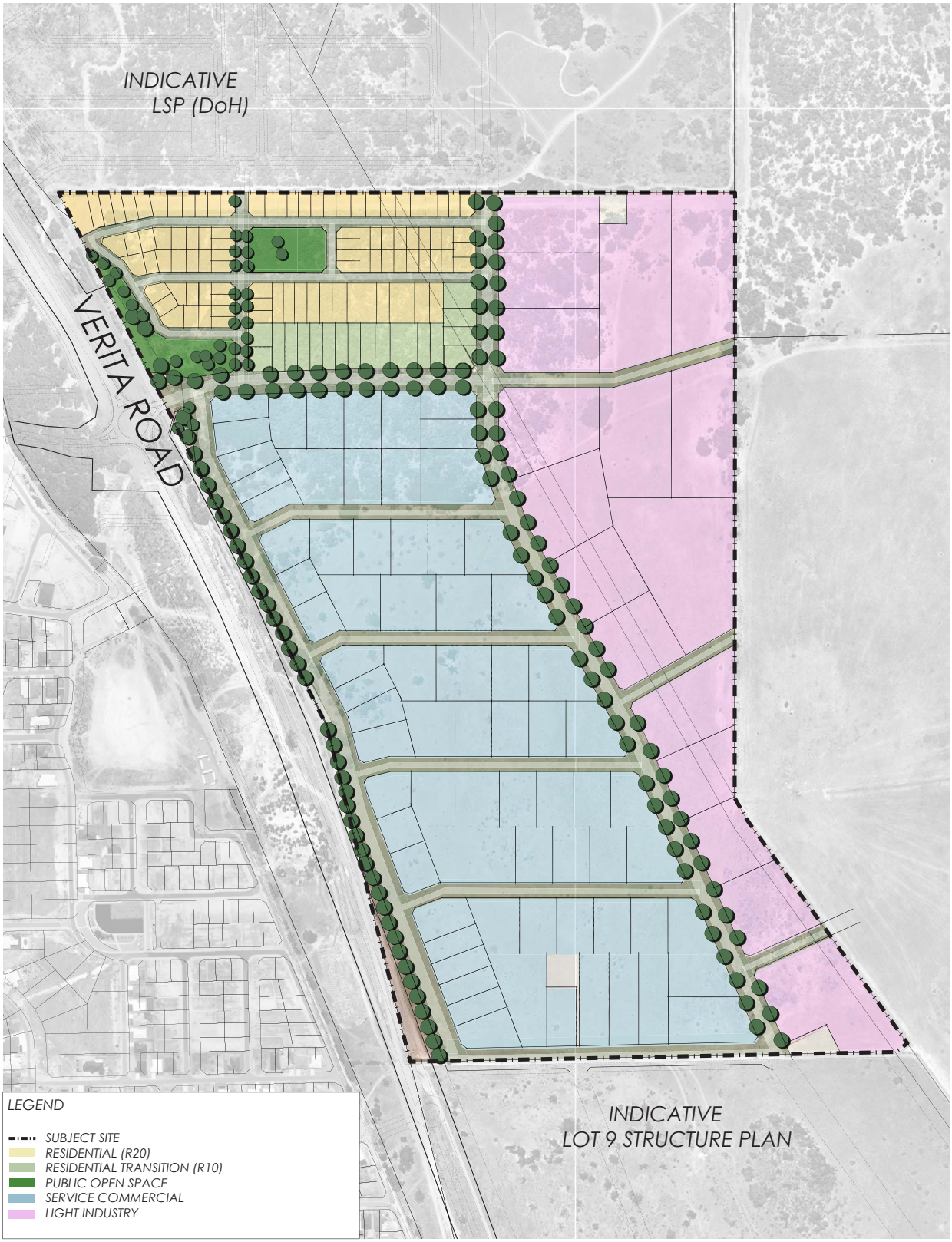
3.2.2 Residential Yields and Lot Types

The dwelling yield target for the LSP, as detailed in Part 1, is 110 dwellings.

TABLE 4: DWELLING + TYPE TABLE

Density Coding	Indicative Dwelling Yield	Percentage of Dwelling Type
R20	93	84%
R10	17	16%
Total	110	100%

FIGURE 13: MASTERPLAN



3.3 Service Commercial and Light Industry

The masterplan proposes 74 service commercial lots and 17 light industrial lots ranging in area from 2250m2 to 2.5ha. The final areas of the lots will be determined at the subdivision stage and will dependant on current market demand and the types of proposes uses.

The land use permissibility's in these two zones are detailed in Part 1.

TABLE 2: LAND USE TABLE

Item	Data	Section number referenced within the structure plan report
Total area covered by the structure plan	78.57ha	Section 1.2.2
Area of each land use proposed: Residential Service Commercial Light Industry Public Open Space	 8.088ha 29.12ha 23.15ha 1.563ha	Section 3.0
Estimated lot yield: Residential Service Commercial Light Industry	 110 74 17	Section 3.0
Estimated number of dwellings	110	Section 3.0
Estimated residential site density	13.6du/ha	Section 3.0
Estimated population	253[1]	Section 3.0
Number of high schools	0	Section 3.6
Number of primary schools	0	Section 3.6
Estimated retail floor space	0	Section 3.5
Estimated number and % of public open space:	2 parks 1.56ha 10.6%	Section 3.4
Estimated area and number: Local parks	 2 parks 1.56ha	Section 3.4
Estimated number and area of natural area and biodiversity assets	0ha	Section 3.4

1 Based on 2.3 residents per dwelling

3.4 Open Space

3.4.1 Public Open Space

The public open space (POS) for the LSP has been designed to meet the objective of ensuring new POS areas provide a balance between:

- A diversity of recreational uses and options for the community;
- The predicted active recreational needs of the community;
- Conservation of natural assets;
- High levels of amenity; and
- Environmental sustainability.

Due to the small residential area within the LSP the potential for a provision of a diversity of POS is limited. It is therefore proposed to provide two local parks to provide nearby residents with high amenity open spaces, primarily for passive activities, but some will include kick-around areas for active recreation.

The parks will have manipulated topographies, which reflect but do not necessarily conserve the existing site grades. The local parks vary in size and will be well defined by tree planting and public streets or pathways. They will contain a number of facilities and areas that allow people in the community to gather and meet; including elements such as playgrounds, barbecues, picnic tables, etc.

The western park (POS A) is located at a low point and will have a stormwater detention and drainage function. Further information can be found in drainage section 3.7. Notwithstanding, a majority of this park will include planting, pathways, lighting and seating to ensure they contribute to the community as well as the environment. The vegetation is this POS will also act as a buffer to Verita Road.

FIGURE 14: PUBLIC OPEN SPACE

3.4.3 Public Open Space Schedule

The following table, prepared in accordance with Liveable Neighbourhoods, provides an indicative summary of the POS provided with the LSP area. The calculations demonstrate that approximately 10.3% of the gross subsdivisable area being provided as POS. This percentage is indicative only and will be subject to refinements at the detailed subdivision design stage.

TABLE 3: PUBLIC OPEN SPACE SCHEDULE

Site Area			**78.57ha**
Total Net Site Area			78.57ha
Deductions			
Service Commercial/Light Industry 1 in 1 year drainage area	65.43ha 0.242ha		
Total		65.73ha	
Gross Subdivisable Area (GSA)			12.84ha
Public Open Space requirement @10% of GSA			1.28ha
Public Open Space Contribution			
May comprise: Minimum 80% Unrestricted Public Open Space Maximum 20% Restricted Public Open Space			 10.27ha 2.57ha
Unrestricted Public Open Space Sites (ha required)			
A 0.941 B 0.622 Minus 1 in 1 year storm volume -0.242		 1.563ha -0.242ha	 1.32ha
Restricted Public Open Space Sites (2.19ha maximum)			
Total restricted use public open space contribution (less than 20% of total POS) Drainage area in POS (subject to inundation greater than 1 year ARI rainfall interval but more frequently than 5 year ARI rainfall event – i.e. between 1 and 5 year rainfall event)		0ha	0ha
Total Public Open Space Provision		10.3%	1.32ha
POS Surplus			0.04ha

3.5 Activity Centres

As identified in the City's Commercial Activity Centres Strategy (2013), the LSP area is currently serviced by the Large Neighborhood Centre in Rangeway and the Neighbourhood Centre in Mt Tarcoola. A proposed District Centre is to be located at Southgates and a proposed Neighbourhood Centre in Seacrest will also service the LSP area. The proposed Southgates District Centre will provide essential services, community facilities and employment opportunities to the southern Geraldton district.

It is not proposed to make provision for any activity centres within the LSP area.

3.6 Education Facilities

The residential portion of Lot 21 is within the catchment of the John Willcock College (high school) and Rangeway Primary School. The site for the Karloo Primary School is in closer proximity and will the primary school for the LSP area once it is constructed.

3.7 Movement Network

The LSP identifies the proposed road network. The road network has been reviewed by Riley Consulting in the Traffic Report, a copy of which is provided in Appendix C. This section provides a summary of the Traffic Report.

Road Network and Function

The proposed road network is illustrated on the Local Structure Plan (Plan 1). The primary features of the road network will be the construction of Verita Road to serve as a district distributor road, the construction of the link road between Ackland Road and Abraham Street (including the bridge over the Geraldton-Mount Magnet Road) and the realigned Scott Road provides a north-south connection to serve the existing and proposed residential development to the north and proposed Southern Districts Sports Precinct and the proposed residential, light industrial and service commercial land to the south.

In order to provide a suitable intersection design where the Ackland Road and Abraham Street link road and the realigned Scott Road intersect, there may be a requirement for the link road to be realigned. This will be determined at the detailed design stage.

The traffic model has been used to determine the anticipated daily traffic flows on local streets within Lot 21 and shows that all local streets can be expected to operate with daily volumes below 3,000 vehicles, including most industrial streets. However, higher traffic demands can be expected on the Neighborhood Connector roads and the north-south road adjacent to Verita Road due to industrial development to the south.

Reference to the Cardno report for the Lot 9 Verita Road Local Structure Plan, indicates it can be expected that Lot 9 will generate approximately 765 trips to the north-south road adjacent to Verita Road and approximately 510 trips to Scott Road. Ultimately the north-south road adjacent to Verita

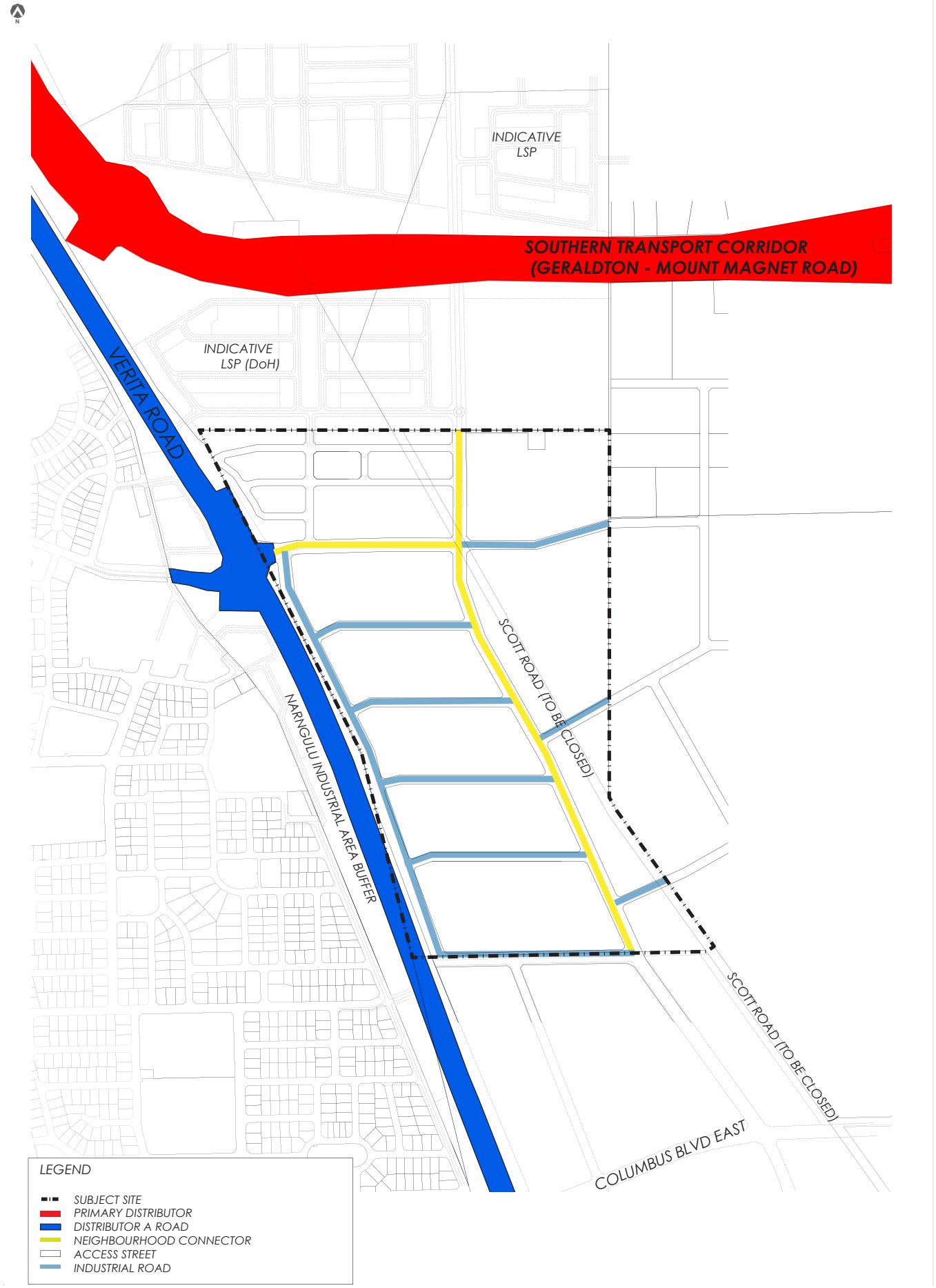
Road can be expected to carry about 2,000vpd to 2,500vpd with the full development of Lot 21. A standard industrial road of a 9 to 10 metre pavement within a 20 metre road reservation is suited to this road.

Scott Road will provide a good connection to Columbus Boulevard and the future North-South Highway and is expected to attract 2,500vpd from local developments (excluding the DoH land parcel). The Lot 9 LSP indicates a forecast volume of about 1,000vpd, which suggests a future forecast volume of about 3,500vpd. However, depending on other developments (DoH land and development north of Geraldton-Mount Magnet Road heading to Narngulu) it would be appropriate to design Scott Road to cater for up to 5,000vpd. A standard industrial road of a 9 to 10 metre pavement within a 20 metre road reservation is suited to this road. All other local industrial roads are expected to carry less than 1,000vpd and will operate with excellent Levels of Service.

The local street network in the residential area will be designed and constructed in accordance with Liveable Neighbourhoods

The proposed road hierarchy is illustrated on Figure 15.

FIGURE 15: PROPOSED ROAD HIERARCHY

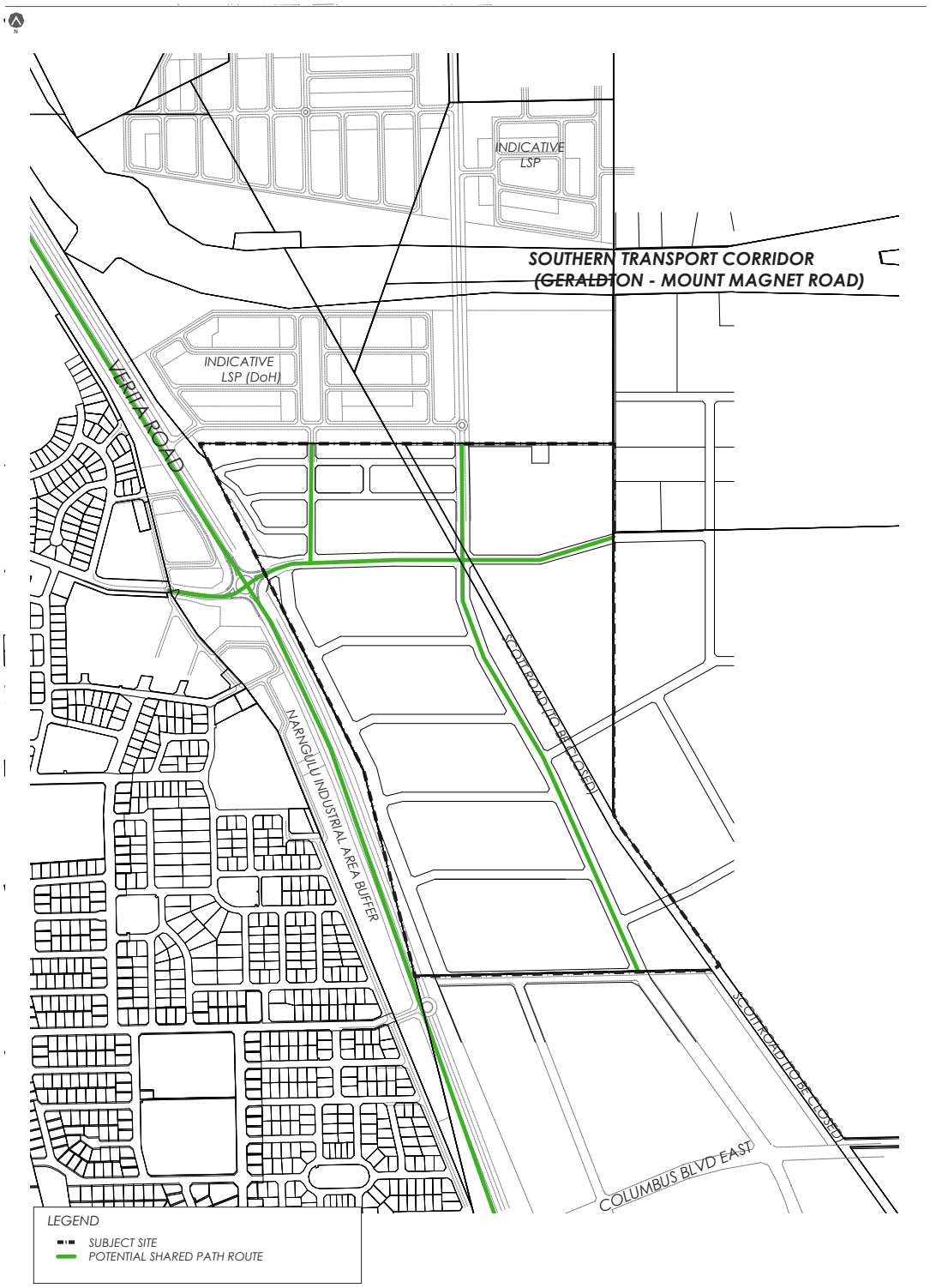


Pedestrian/ Cyclist Facilities

Current planning guidelines suggest that all streets should be provided with a footpath where possible. On roads classified as Neighbourhood Connectors and above, a footpath to both sides and on-road cycle lanes should be provided (or one as a shared path). Footpaths should be constructed to current City of Greater Geraldton standards.

Cycling would be safe on the majority of local streets where traffic flows are less than 1,000 vehicles per day. On Neighbourhood Connectors, shared paths should be used to provide a safe alternative to on-road cycling. Off-street cycle routes are desirable to provide recreational cycling opportunities in the region. Desirable cycle routes, to be constructed as shared paths (e.g. 2.1 metres wide) are shown in Figure 16 and will need to be cognisant of other adjacent developments.

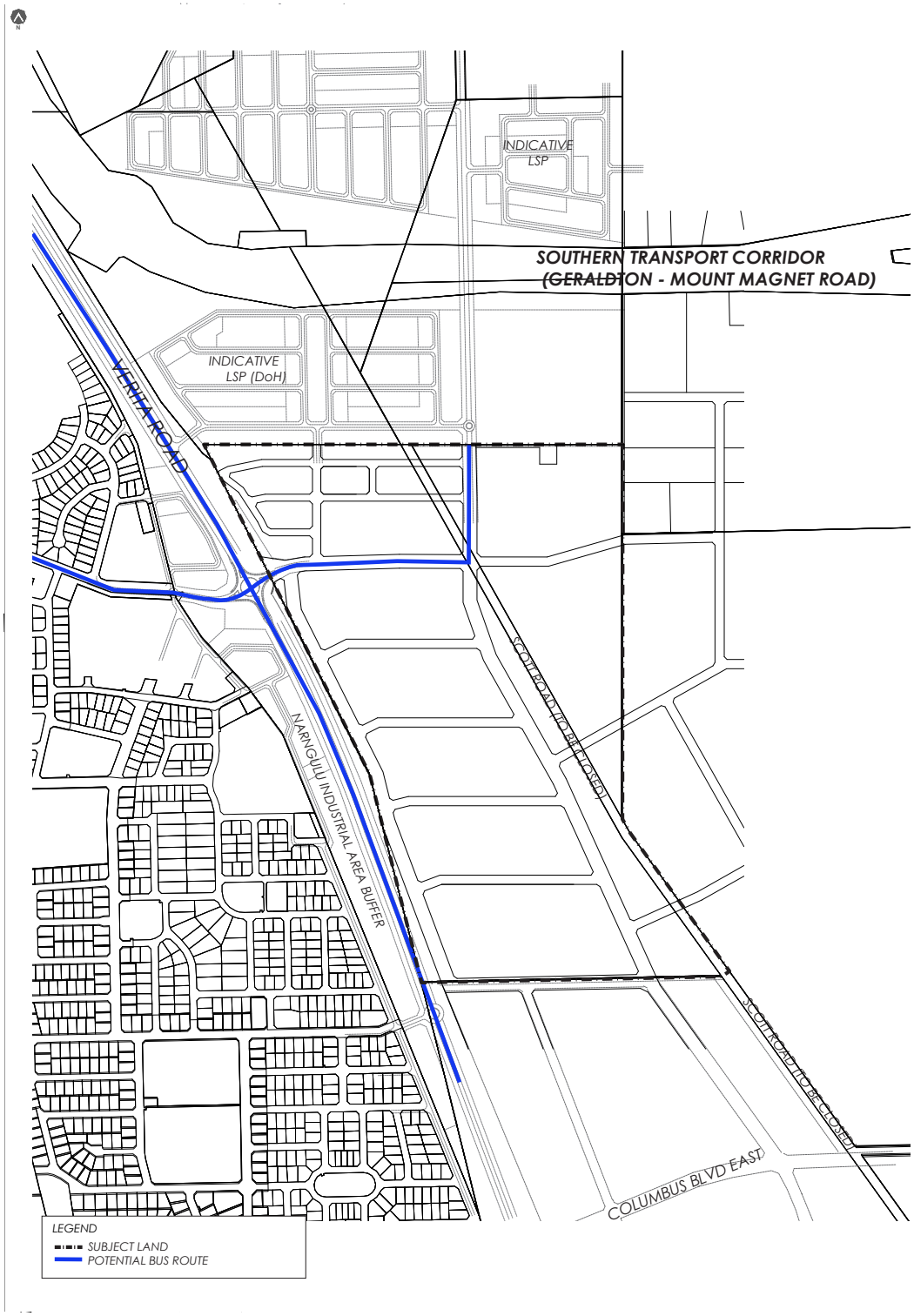
FIGURE 16: PEDESTRIAN + CYCLE NETWORK



Public Transport

The location of Lot 21 on the periphery of the urban front is likely to make the provision of public transport unviable in the medium term. However, planning for a long-term bus service should be considered. Figure 17 shows a long-term route for buses and a 7.2 metre wide carriageway should be provided to these streets.

FIGURE 17: PROPOSED PUBLIC TRANSPORT ROUTES



3.8 Water Management

A Local Water Management Strategy (LWMS) has been prepared by Coterra to support the LSP. Refer to Appendix B. The following table summaries the key elements of the LWMS:

Key Elements	Design and Compliance to Objectives
Water Conservation Strategy	• Potable water will be sourced from the regional water supply scheme. • Irrigation water for Public Open Space (POS) in residential areas will be sourced from groundwater. • With the exception of drainage areas, no POS and therefore no associated irrigation is proposed within the industrial areas. If desired, industrial lots will be landscaped and irrigated by individual landowners. • Wastewater within all residential areas will be disposed of via the regional sewerage system. • Wastewater within all industrial lots will be disposed of via individual lot Alternative Treatment Units (ATUs). Where possible, local maintenance and supply companies will be used. • Educational material will be provided to lot owners to encourage water conservation within residential and industrial lots.
Stormwater Quantity Management	The City of Greater Geraldton (CGG) is currently designing and constructing the first carriageway of Verita Road west of Lot 21. In December 2013, CGG approached Estates Development Company (EDC) with a proposal for a joint drainage strategy between the two adjoining sites. The two parties have drawn up a Memorandum of understanding for the joint drainage strategy. Refer to Appendix G. • Runoff from the 1 year 1 hour ARI event will be retained and infiltrated within individual residential lots. • Runoff from the 10 year 1 hour ARI event will be retained and infiltrated within individual industrial lots. • Excess lot runoff and road runoff up to and including the 5 year ARI event will be conveyed via a combination of roadside swale and a kerb/pipe/pit network Larger events up to and including the 100 year ARI event will be conveyed in the road reserve. • Landscaped compensation basins and swales will be used to retain and either fully infiltrate or restrict post-development discharge to pre-development rates up to the 100 year ARI event.
Groundwater Management	• There will be no subsoil drainage or fill requirements given the significant separation distances to groundwater. • Site re-contouring will utilise in situ soils. • Separation distances to groundwater of; 1.2m for lot levels, 0.3m for the inverts of drainage swales/basins and 1.5m for ATU disposal, will be easily achievable.
Flood Risk Management	• Some minor earthworks will be required to facilitate the urban form of the development and for flood risk management. • Finished lot levels will be at least 0.5m above the modelled 100 year ARI flood level. • Finished lot levels will be at least 0.3m above the 100 year ARI overland flow route (within the road reserve).
Monitoring	• No monitoring is required pre or post development at the site as agreed with the Department of Water (DoW).
Implementation	• Roles and responsibilities involved in the implementation of the LWMS are identified.

3.9 Infrastructure Coordination, Servicing and Staging

3.9.1 Sewer

The proposed residential lots fall within Water Corporation's current regional wastewater planning scheme. Proposed commercial/industrial lots are outside the current planning scheme.

The western half of proposed residential lots will likely be serviced by the temporary South Geradlton wastewater pump station (WWPS) in Humble Close. Ultimately these lots will gravitate to the South Geraldton WWPS, yet to be constructed.

The eastern half of proposed residential lots fall within the South Geraldton WWPS catchment, yet to be constructed. The serviceability of these lots will be limited until such time.

The remaining commercial/industrial lots won't require reticulated sewer connections. Wastewater servicing would be managed by onsite Aerobic Treatment Units (ATU's), installed at time of building construction. Each freehold lot would specify and maintain an ATU for their respective building requirements.

Wastewater servicing can be achieved by using conventional gravity sewer networks linking to sub-regional wastewater pump stations conveying flows to regional wastewater treatment facilities.

This strategy remains subject to the timing of this development and approval by the Water Corporation and Department of Health.

Please refer to Appendix E – Civil Servicing Report for further information.

3.9.2 Water Reticulation

Existing Water Corporation infrastructure is not currently adequate in size or capacity to cater for the ultimate water demand for Lot 21. We envisage capacity in adjacent infrastructure (Ackland Road) could be adequate to service the initial residential stages. The Water Corporation are unable to commit to this strategy at this time.

The northern (residential) portion of Lot 21 falls within Water Corporation's current urban water planning scheme. The remaining area of Lot 21 falls within the Rural and Industrial water planning scheme. Both planning schemes are within the existing Bootnall Tank zone.

To cater for the ultimate water demand, offsite infrastructure upgrade will include duplication of the existing DN600 steel water distribution main in Verita Road, linking the Bootnall Tank to Ackland Road.

Potable water servicing within the structure plan area can be achieved using a conventional piped network reticulation system.

The Water Corporation's advice and planning layouts remain subject to hydraulic studies, timing of development and Water Corporation approval.

Please refer to Appendix E – Civil Servicing Report for further information.

3.9.3 Power

The Western Power Feasibility Study confirms that the initial stages of Lot 21 development can be serviced by the existing network adjacent Lot 21, without the need for offsite reinforcement/upgrade works. The initial connection would come from the existing Rangeway Zone 2 and/or Genista St feeders, to the west of the site. There are no overhead power assets in close proximity to the site.

Western Power's feasibility study indicates the ultimate development will require the installation of at least one new 33kV distribution feeder from the Rangeway Substation. If development load increases beyond predicted capacity, then a duplicate feeder may be required to service the later stages of the development. Based on power demands requirements documented in the application, a 1ha zone substation won't be required within the ultimate structure plan area.

Power would be reticulated within Lot 21 via high voltage switchgears and transformers placed at strategic locations. Commercial/Industrial lots exceeding 8,060m2 will require individual transformers to be placed on or directly adjacent the lot. All residential lots will have low voltage mains cable reticulating from transformers to standard power pillars within each lot.

Due to the dynamic nature of Western Power's network, capacity, infrastructure requirements and connection points may differ at the time when the subdivision proceeds and a Design Information Package is requested.

Please refer to Appendix E – Civil Servicing Report for further information.

3.9.4 Gas

Initial stages of residential development may be possible via connection to existing infrastructure on the western side of Verita Road. However, this can only be confirmed upon formal design application.

To provide gas for the ultimate development an offsite headworks extension will be required from Goulds Road. This will include construction of a 6km gas main and installation of gas regulator sets at relevant locations.

Please refer to Appendix E – Civil Servicing Report for further information.

3.9.5 Telecommunications

Telecommunications servicing can be provided by the extension and upgrade of existing infrastructure to the west of Verita Road. National Broadband Network (NBN) will likely be the service provider (using Telstra's infrastructure), however, confirmation won't be received until design application is made.

Please refer to Appendix E – Civil Servicing Report for further information.

3.10 Developer Contributions

In accordance with the Verita Road Contributions Local Planning Policy, Lot 21 development will make a proportionate contribution towards the cost of construction of this road.

4.0 Implementation

4.1 Staging

The development of the LSP area will be implemented in stages over a period of time the duration of which will be dependent on the demand for residential housing and service commercial/light industrial land.

The provision of engineering infrastructure will also need to be staged to suit the development demand and a detailed program for this will need to be prepared as a part of ongoing detailed planning and design of the infrastructure.

4.2 Planning Process

The implementation of the LSP will follow the typical development process followed with Western Australian, being:

ENDORSEMENT OF LOT 21 LOCAL STRUCTURE PLAN

↓

SUBDIVISION APPLICATION

↓

PREPARATION OF DETAILED AREA PLANS

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CLEARANCE OF SUBDIVISION CONDITIONS

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CREATION OF CERTIFICATE OF TITLES

↓

DEVELOPMENT APPLICATION/BUILDING PERMIT

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