

BROOME NORTH

LOCAL STRUCTURE PLAN NO. 2 (JULY 2022)



Title	Broome North - Local Structure Plan No. 2
Project	Broome North
Prepared for	DevelopmentWA
Reference	LAN BRO
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Author	D. Pearce

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ENDORSEMENT PAGE



IT IS CERTIFIED THAT AMENDMENT NO.1 TO BROOME NORTH LOCAL STRUCTURE PLAN NO. 2 WAS APPROVED BY RESOLUTION OF THE WESTERN AUSTRALIAN PLANNING COMMISSION ON:

08 SEPTEMBER 2022

.....

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 OF THE PLANNING AND DEVELOPMENT ACT 2005 FOR THAT PURPOSE



TABLE OF AMENDMENTS

AMENDMENT NO.	SUMMARY OF THE AMENDMENT	AMENDMENT TYPE	DATE APPROVED BY WAPC
1	Modifications to design facilitating relocation of District Playing Fields and changes to public open space, roads and drainage methodology	Major	08 September 2022

TABLE OF DENSITY PLANS



DENSITY PLAN NO.

AREA OF DENSITY PLAN APPLICATION

DATE ENDORSED BY WAPC

DENSITY PLAN NO.	AREA OF DENSITY PLAN APPLICATION	DATE ENDORSED BY WAPC

EXECUTIVE SUMMARY

Amendment No.1 to the Broome North Local Structure Plan No.2 has been prepared to guide the subdivision and development of 94.07 hectares of land located west of Broome Road and north of the developed Broome North Stage 1 area.

The Structure Plan (SP) provides an overarching planning framework to ensure development is undertaken in a coordinated and systematic manner, in accordance with the Broome North District Structure Plan (DSP). Excepting the location of the District Playing Fields, the SP is generally consistent with the land use and density recommendations of the DSP.

The SP supports a mix of residential lot sizes, as well as providing for District Playing Fields, a future K-12 private school, a Horizon Power sub-station and other areas of public open space.

If developed to maximum capacity it is anticipated that the Structure Plan will accommodate approximately 1,900 people within 677 dwellings.

On approval by the WAPC Amendment No. 1 will supersede the current Structure Plan approval for the Stage 2 area (endorsed 26th March 2014).

ITEM	DATA	SECTION NUMBER REFERENCED IN PART 2 OF STRUCTURE PLAN REPORT
Total area covered by SP	94.07 ha	Section 4.0
Residential area	28.32 ha	-
Estimated lot yield	515 lots	Section 1.0
Estimated residential density <i>Dwellings per site hectare as per Liveable Neighbourhoods</i>	23.91 dwellings per site ha	Section 1.0
Estimated residential density:	1,896 people (@ 2.8 persons per household)	Section 1.0
Estimated number and area		
• District Parks	1 x 6.60 ha	
• Environmental Cultural Corridor	13.81 ha	Section 4.0
• Neighbourhood Parks	2 x 1.80 ha and 1.50 ha	
• Local Park	0.40 ha	

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PART ONE: IMPLEMENTATION

1.0 STRUCTURE PLAN AREA

This Structure Plan (SP) applies to the land contained within the inner edge of the line denoting the SP boundary shown on the Structure Plan Map (Plan No. 1).

2.0 OPERATION

The date the Structure Plan comes into effect is the date the Structure Plan is approved by the WAPC.

3.0 SUBDIVISION AND DEVELOPMENT REQUIREMENTS

3.1 Land Use Zones and Reserves

The Structure Plan Map (Plan No. 1) outlines land use, zones and reserves applicable within the Structure Plan area.

3.2 Bushfire Prone Areas

- a) Lots declared bushfire prone are in accordance with the Bush Fire Management Plan included in Appendix F. These lots are required to be constructed in accordance with the identified Bushfire Attack Level to AS3959 requirements.
- b) Relevant requirements of the Bush Fire Management Plan may be imposed as conditions of subdivision.
- c) Development will have regard to the BAL Assessment contained in the appendix, and be determined in accordance with Schedule 2, Part 10A of the Planning and Development (Local Planning Schemes) Regulations 2015 and Section 6.3 of SPP 3.7 Planning in Bushfire Prone Areas. The Council shall recommend to the WAPC that a condition be imposed on the grant of subdivision approval for a notification to be placed on the Certificate of Title of the proposed lot(s) with a Bushfire Attack Level (BAL)

rating of 12.5 or above, advising of the existence of a hazard or other factor. Notice of this notification is to be included on the diagram or plan of survey (deposited plan). The notification is to state as follows: "This land is within a bushfire prone areas as designated by an Order made by the Fire and Emergency Services Commissioner and is/may be subject to a Bushfire Management Plan. Additional planning and building requirements may apply to development on this land." (Western Australian Planning Commission).

3.3 Public Open Space

The provision of a minimum of 10% public open space will be provided in accordance with the WAPC's Liveable Neighbourhoods. Public open space is to be provided generally in accordance with Plan No. 1 and the Public Open Space Schedule included in Part 2, with an updated Public Open Space Schedule to be provided at the time of subdivision for determination by the WAPC, upon the advice of the Shire of Broome.

In preparing the Schedule, the Department of Education is to be consulted on the dimensions of the District Open Space at the north-eastern corner of the Fiarway Drive / Magabala Drive intersection.

3.4 Development Requirements

- a) Dwellings shall be developed in accordance with the standards specified at Table 1, which constitute variations to the 'Deemed-to-comply' criteria of the Residential Design Codes. Where there is an inconsistency between the standards specified at Table 1 and the Residential Design Codes, the standards specified at Table 1 shall prevail to the extent of the inconsistency.
- b) Notwithstanding Clause 3.4(a), the standards specified at Table 1 and the Residential Design Codes may be amended with the preparation and approval of a Local Development Plan, to the satisfaction of the Shire of Broome.

PART ONE: IMPLEMENTATION



3.5 Residential Density

3.5.1 Density

- a) Plan No. 1 defines the residential density ranges that apply to specific areas within the SP. Lot specific residential densities, within the defined residential density ranges, are to be subsequently assigned in accordance with a Residential Density Code Plan approved by the WAPC.
- b) A Residential Density Code Plan is to be submitted at the time of subdivision to the WAPC and shall be consistent with the SP and the Residential Density Ranges identified on Plan No. 1.
- c) The Residential Density Code Plan is to include a summary of the proposed dwelling yield of the subdivision.
- d) Approval of the Residential Density Code Plan shall be undertaken at the time of determination of the subdivision application by the WAPC. The approved Residential Density Code Plan shall form part of the SP and shall be used for the determination of future development applications.
- e) Variations to the Residential Density Code Plan will require further approval of the WAPC, with a revised Residential Density Code Plan submitted generally consistent with the approved plan of subdivision issued by the WAPC. The revised Residential Density Code Plan shall be consistent with Residential Density ranges identified on Plan No. 1.
- f) A revised Residential Density Code Plan, consistent with Clause 3.5.1(e) will replace, wholly or partially, the previously approved Residential Density Code Plan, and shall then form part of the SP as outlined in Clause 3.5.1 (d).

- g) Residential Density Code Plans are not required if the WAPC considered that the subdivision is for one or more of the following:
 - (i) The amalgamation of lots;
 - (ii) Consolidation of land for "superlot" purposes to facilitate land assembly for future development;
 - (iii) The purposes of facilitating the provision of access, service or infrastructure; or
 - (iv) Land which by virtue of its zoning or reservation under the SP cannot be developed for residential purposes.

3.5.2 Lots coded R30/40

Where two or more lots coded R30/40 are amalgamated the resulting lot may be developed for grouped or multiple dwellings at the higher R40 coding.

3.6 Noise

Notifications on title, pursuant to Section 70A of the *Transfer of Land Act 1893*, will be required on all lots within the Structure Plan area to advise of possible noise impacts from the Broome Speedway.

PART ONE: IMPLEMENTATION

4.0 LOCAL DEVELOPMENT PLANS

Local Development Plans are to be prepared in accordance with Part 6 of Schedule 2 - Deemed Provisions for Local Planning Schemes, Planning and Development (Local Planning Schemes) Regulations 2015, prior to development.

5.0 ADDITIONAL INFORMATION

ADDITIONAL INFORMATION	APPROVAL STAGE	CONSULTATION REQUIRED
The proponent is to prepare a schedule outlining relevant items (such as roads, infrastructure and community services) arising from future development contributions. The schedule will inform the preparation of a future development contribution scheme to be prepared by the proponent and the Shire of Broome for the Broome North District Structure Plan area.	Condition of subdivision approval for the first stage of subdivision	Shire of Broome
An application for the development of the Electricity Substation shall include a Landscape Plan. At a minimum the Landscape Plan will demonstrate planting of the buffer zone around the substation plant and equipment to ensure it is effectively screened from view from adjoining roads and private property. Alternatively, the applicant may demonstrate that substation plant and equipment can be housed in a building to be approved by the Shire of Broome as part of the development application.	Development Application	Nil
Broome town site experiences problems with nuisances and disease carrying mosquitoes. Strategies to minimise the breeding of mosquitoes in on-site infrastructure and constructed water bodies shall be identified within the Urban Water Management Plan or a Mosquito Management Plan.	Condition of subdivision approval	Department of Water Department of Health Shire of Broome

PART ONE: IMPLEMENTATION



Table 1: Stage 2 - Residential Development

BUILDING TYPES	SINGLE HOUSE / GROUPED DWELLING / MULTIPLE DWELLING
Building Setbacks¹	
Front	4m minimum (averaging permissible)
Side^{2,3}	R15-R20: 3m minimum one side (all levels), nil permissible other side for ground level only
	R25-R30 (East-West): 3m minimum south side (all levels), nil permissible north side for ground level only
	R25-R30 (North-South): 3m minimum east side (all levels), nil permissible west side for ground level only
	R40: 3m minimum either side (all levels), nil permissible other side for ground level only
Rear⁴	5m minimum (averaging permissible to 4m)
Building Frontage	
Dwellings are to be orientated to address adjacent POS areas and any public street. All dwellings fronting POS are to have visually permeable fencing, have a clearly definable entry point accessed from the POS and major openings overlooking the POS area.	
Corner lots are to equally articulate both street frontages, avoiding long blank walls and including major openings to habitable rooms on each street-facing facade.	

¹ The primary purpose for the proposed side and rear setbacks is to maintain breezeways for breeze access to dwellings.

² Does not apply to secondary street boundaries (R-Codes prevail).

³ Where a building is built up to the boundary, upper level setbacks shall be in accordance with the R-Codes.

⁴ Although laneways are not generally supported, setbacks will be subject to negotiation with the Shire of Broome where laneways are provided.



INDICATIVE ALIGNMENT OF
MAGABALA ROAD EXTENSION

BUCKLEY ROAD
RESERVE TO BE
CLOSED

THE DIMENSIONS OF THE DISTRICT
OPEN SPACE TO BE FINALISED AT
SUBDIVISION STAGE IN
CONSULTATION WITH THE
DEPARTMENT OF EDUCATION



LEGEND

- STRUCTURE PLAN BOUNDARY
- EXISTING LOT BOUNDARY
- PROPOSED LOT BOUNDARY (INDICATIVE)

LOCAL SCHEME RESERVES

- PARKS, RECREATION & DRAINAGE
- ENVIRONMENTAL CULTURAL CORRIDOR
- PUBLIC PURPOSE
DENOTED AS FOLLOWS:
PS / HS PRIMARY SCHOOL / HIGH SCHOOL
HP HORIZON POWER

ZONES

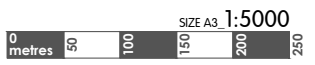
- RESIDENTIAL

OTHER

- R CODES
- INTEGRATOR ARTERIAL B
- NEIGHBORHOOD CONNECTOR
- MAJOR ACCESS STREET
- LOCAL ROADS
- LEFT-IN / LEFT-OUT INTERSECTION
- SWALE
- SHARED PATH



CADASTRAL INFORMATION
SOURCE: SLIP LANDGATE
YYMDD: 170614
DWG REF: 170614 BROOME B94
PROJECTION: BRO94



H	INCL NOTATION	220812	TG	DP
G	UPDATE R CODES	210129	MZ	DRAFT
F	UPDATE MAJOR ACCESS STREET WITH SWALES	201124	SB	DRAFT
E	UPDATE BASE LAN BRO RD1 201J	171107	SB	DP
D	RESIDENTIAL FREE AREA	160729	RF	DP
C	PLAN UPDATES	160722	RF	DP
B	DESIGN MODIFICATIONS	160705	RF	DP
REV	DESCRIPTION	YYMDD	DRAWN	APPR'D

220812	TG	DP
210129	MZ	DRAFT
201124	SB	DRAFT
171107	SB	DP
160729	RF	DP
160722	RF	DP
160705	RF	DP
YYMDD	DRAWN	APPR'D

STRUCTURE PLAN - STAGE 2: PLAN 1
Broome North
Shire of Broome

REF NO. DRAW NO. REV.
LAN BRO RD1 200 H

DISCLAIMER: ISSUED FOR DESIGN INTENT ONLY. ALL AREAS AND DIMENSIONS ARE SUBJECT TO DETAIL DESIGN AND SURVEY

PART TWO - EXPLANATORY


The preparation of a Structure Plan is a requirement of the Broome North District Structure Plan. The Structure Plan is required to refine and elaborate the higher order, diagrammatic District Structure Plan as a basis for guiding subdivision and development within the Structure Plan area. Accordingly while the Structure Plan may include variations to the detail of the structure proposed at the district level, it is to be in accordance with the general principles and intent.



PART TWO: EXPLANATORY

1.0 ZONING, DENSITY AND YIELD


Residential density within the Structure Plan area is provided in accordance with the transect zone objectives and methodology of the Broome North District Structure Plan (DSP) set out at Part One, clause 6.3 and Part Two, Section 1.2 respectively of the DSP Report.

 SUBJECT LAND

LOCAL SCHEME RESERVES

 NATURE (ENVIRONMENTAL CULTURAL CORRIDOR)

 NATURE (OPEN SPACE)

 PUBLIC PURPOSES

- PS Primary School
- HS High School
- PE Private Education
- WS Water Supply
- ES Electricity Supply

ZONES


 URBAN LIVING)

 NEIGHBOURHOOD LIVING

 LIGHT AND SERVICE INDUSTRY

 NEIGHBOURHOOD CONNECTOR

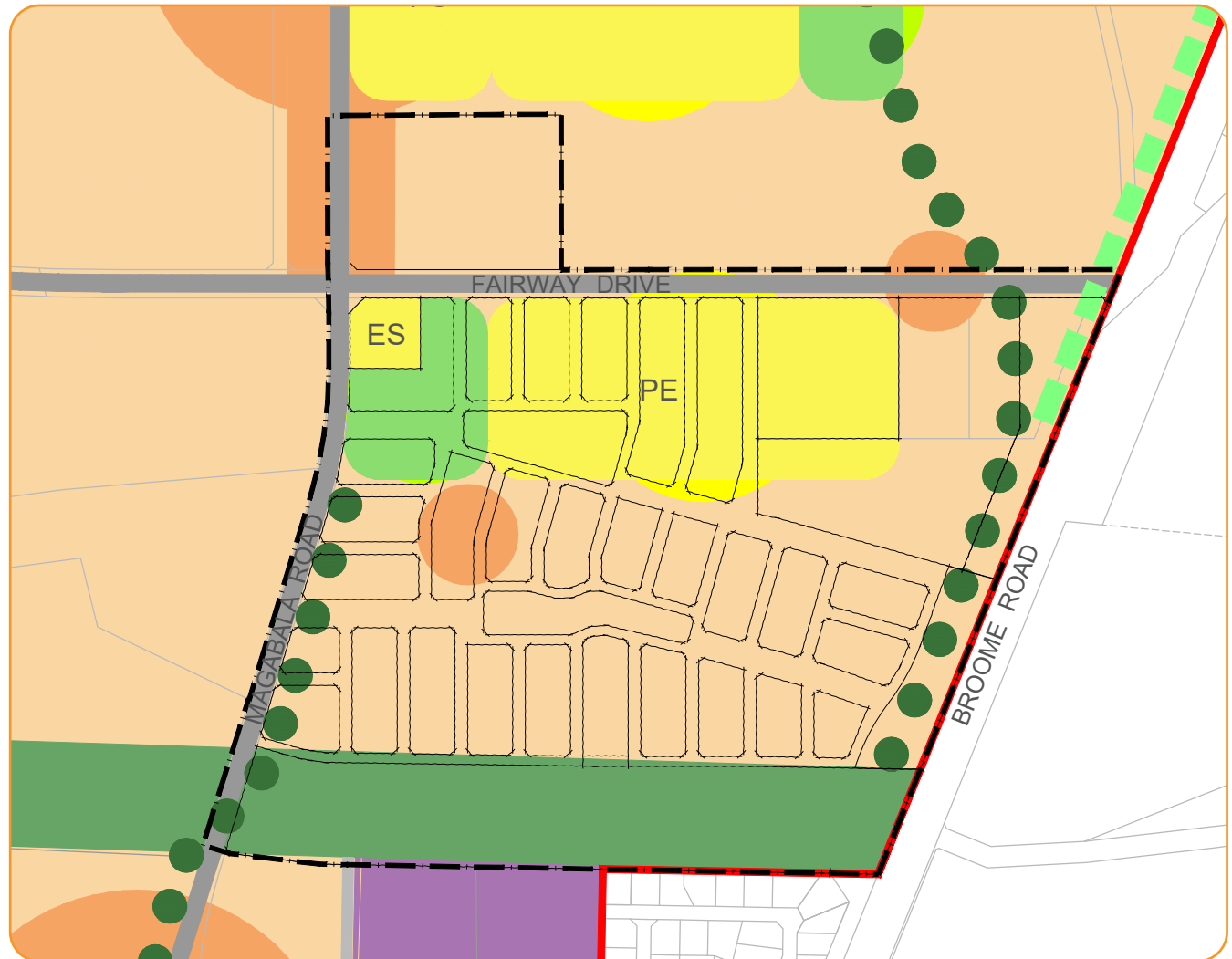
 LOCAL ROAD CONNECTION

 MULTIPLE-USE OPEN SPACE CORRIDOR

 OPEN SPACE BUFFER

 DEVELOPMENT PLAN BOUNDARY

Figure 1: Stage 2 Design Overlayed on Endorsed District Structure Plan



PART TWO: EXPLANATORY



Residential density ranges appropriate to the context and intended function of respective areas within the SP have been selected from the range of densities applicable to each of the relevant zones shown in the DSP, comprising:

- Neighbourhood Living - depicted on Plan No. 1 with a Residential Density Code of R15-R25
- Urban Living – depicted on Plan No. 1 with a Residential Density Code range of R25-R40

In accordance with the Transect methodology, the intensity of development within the plan area has been refined beyond the generic distribution in the DSP.

The large proportion of the area is allocated to the flexible 'Neighbourhood Living' zone that enables a range of large to medium size lot product consistent with much of the contemporary Broome development.

The Urban Living transect is described in the DSP as consisting of "areas of medium density residential development and mixed-use activity adjacent to areas of higher density and local commercial centres." The 'Urban Living' areas are located adjacent to open space, areas of natural amenity (ECC, bushland) and major access streets (including proximity to future public transport routes). This increases the number of households located within walking distance of these areas of higher amenity and provides opportunities for greater housing choice and affordability.

The allocation of the 'Urban Living' areas also satisfies the objectives of the transect zone set out in the DSP, as listed at Table 2.

Table 2: DSP Urban Living Transect Objectives




DSP OBJECTIVE	STRUCTURE PLAN RESPONSE
Develop more urban and compact neighbourhoods that continue to reflect the "Broome style"	Urban Living zones consolidated at end of street blocks adjacent areas of high amenity, leaving contiguous Neighbourhood Living zones in mid-block areas.
Increase the number of households located within walking distance of shops, other commercial and community services and areas of higher amenity	Urban Living zones located adjacent to open space, areas of natural amenity (ECC, bushland) and major access streets (including proximity to future public transport routes).
Provide a transition from local centre zones and areas of high amenity to adjoining residential neighbourhoods	Provides interface to western and southern boundaries of private school site, as well as transitional area from major access streets to more suburban areas.
Allow for smaller, more affordable housing and live-work opportunities	Facilitated by options for smaller lot sizes.
Allow for the application of residential density codes between R25-R40	Achieved.
Allow for reduced front setbacks to buildings and more formal landscaping in streets and park	Reduced front setbacks for higher R-Codes enabled compensating for highly landscaped areas adjacent Urban Living areas i.e. landscaped swales and POS.
Provide a high quality, shaded pedestrian and cyclist environment	Located on major access streets and highly landscaped swale roads which provide for extensive tree canopy and improved cycling / pedestrian experience.



PART TWO: EXPLANATORY

Figure 2: Residential Density



-  SUBJECT LAND
-  NEIGHBOURHOOD LIVING (R15 TO R20)
-  URBAN LIVING (R25 TO R40)

The estimated yield of the plan is 515 lots, comprising approximate 677 dwelling units if areas of higher density are developed to maximum capacity. This equates to a residential density of 23.91 dwellings/hectare of residential area.

This achieves LN residential density requirements for both 'standard lot layouts' (12-20 du/ha) and for development within 250 metres of major bus stops bus (20-30 du/ha).

PART TWO: EXPLANATORY



2.0 RESIDENTIAL DEVELOPMENT STANDARDS

Consistent with the rest of Broome North, the design of dwellings in the Stage 2 area is intended to give effect to the recommendations of the Broome North Housing Report, which identifies a series of design responses that respond to Broome's unique climate and culture. A summary of this methodology is provided at Part Two of the DSP Report.

The two most important factors that are addressed in the response to dwelling design are providing access to cooling breezes and ensuring shading of walls, particularly from the western and eastern sun. Addressing these climatic principles ensures that dwelling design not only responds to the seasonal variations of the local Broome climate but will also be affordable, diverse, adaptable, 'Broome-style' and sustainable.

To achieve these objectives the development of dwellings within the SP area is intended to be generally in accordance with the standards specified at Table 1. Per Part One, Clause 3.4 these requirements constitute variations to the 'Deemed-to-comply' criteria of the Residential Design Codes, and may be further amended or augmented via a Local Development Plan approved by the Shire of Broome.



PART TWO: EXPLANATORY

3.0 MOVEMENT NETWORK

3.1 Roads

Consistent with the rest of Broome North, the roads within the Stage 2 area have been developed to reflect the distinctive aspects of “Old Broome” such as its wide streets. With the exception of roads adjacent to POS, no roads have a reservation less than eighteen metres in width. This is a sufficient minimum dimension to provide a sense of spaciousness, enable the movement of cooling breezes and to accommodate stormwater movement, without excessive verges.

The internal street network provides for a choice for movements within the area which will ensure a reasonably even spread of traffic. The near grid network provides for good connectivity, including for pedestrians and cyclists. Whilst movement through the area would be possible, there are no through routes that are more attractive or faster than travel along the surrounding routes of Fairway Drive and Magabala Road.

The majority of streets within the SP area are local access streets with a projected maximum daily traffic volume of less than 800 vpd. Most are projected to have a daily traffic volume of less than 400 vpd.

The local street network has been designed in a manner that is compatible with a local area speed limit of 30kph, should that be agreed to by the Shire of Broome and Main Roads in the future.

Almost all of the intersections internal to Stage 2 are T-intersections that enable simple decision making by drivers and produce safe outcomes. In a number of cases, it is proposed that a slight bend be provided to help enforce the proposed stop signs and improve safety. These bends also act to reduce speed along otherwise straight sections of road, effectively creating a modified grid network for motor vehicle travel, whilst maintaining the grid for pedestrians. The intersection treatments are shown indicatively at Figure 3.

The amended SP also introduces a new road typology (depicted at Figures 5 - 6) that incorporates vegetated swale treatments within the major access streets. This enables the transport of drainage across the site via the road network rather than within the linear open space corridors that are a characteristic feature of the Stage 1 and the previously approved Stage 2 areas.

The design and construction of roads within the SP area is proposed in accordance with the design and standards specified at Figures 5 - 11. Detailed explanation is provided in the Access and Movement report at Appendix C. If variation to these standards is required, this will be subject to negotiation with the Shire of Broome at the detailed design and delivery stage.

The application of the various road typologies within the SP area is depicted at Figure 4.

PART TWO: EXPLANATORY



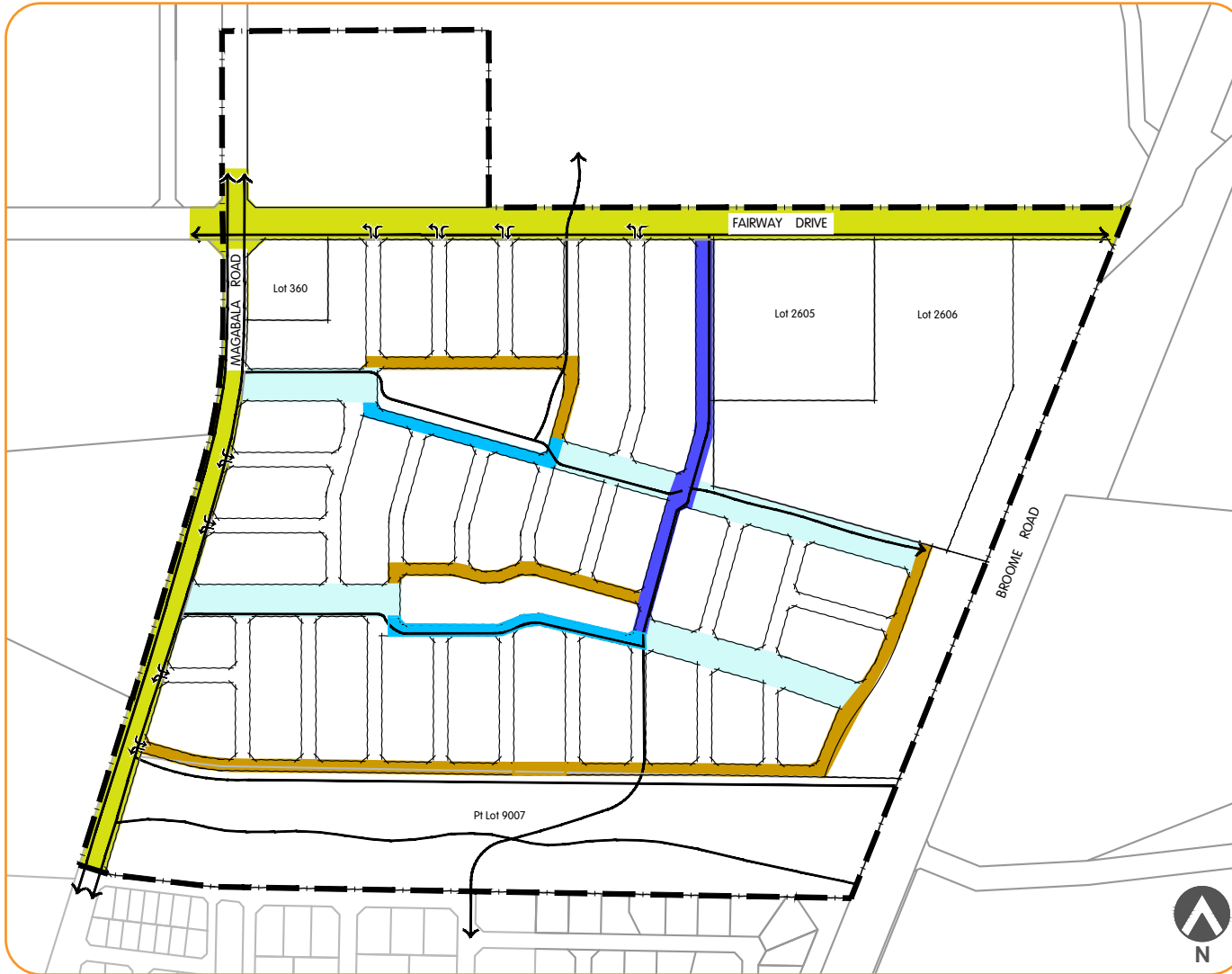
Figure 3: Movement Network














PART TWO: EXPLANATORY

Figure 4: Road Typologies



-  SUBJECT LAND
-  INDICATIVE MOVEMENT PATH
-  MAJOR ACCESS STREET WITH CENTRAL SWALE
-  MAJOR ACCESS STREET WITH SWALE AND POS INTERFACE
-  MAJOR ACCESS STREET
-  LOCAL ACCESS STREET
-  LOCAL ACCESS STREET ADJACENT TO POS
-  INTEGRATOR ARTERIAL/ NEIGHBOURHOOD CONNECTOR
-  LEFT-IN/ LEFT-OUT INTERSECTION

PART TWO: EXPLANATORY



Table 2: Thoroughfare Standards

THOROUGHFARE TYPE	MAJOR ACCESS ST	LOCAL ACCESS STREET	NEIGHBOURHOOD CONNECTOR / INTEGRATOR ARTERIAL B
INTENDED DESIGN SPEED	30km/hr	30km/hr	50km/hr
RESERVE WIDTH	<ul style="list-style-type: none"> • 39.6m - Central Swale • 33.0m - Swale Adjacent POS • 19.4m - No Swale 	<ul style="list-style-type: none"> • 18.0m • 14.0m - Adjacent POS 	30m
TRAVEL LANE WIDTH	<ul style="list-style-type: none"> • Central Swale – 5.0m each carriageway with on-street parking • Other – 7.4m with on-street parking 	6.0m	<ul style="list-style-type: none"> • 5.6m - Initial Construction with on-street parking • 6.6m - Long Term Upgrade
PARKING	On-street to slow traffic	Adjacent POS – 2.5m embayed parking one side	<ul style="list-style-type: none"> • Initial Construction – 2.3m on street with linemarking • Long Term Upgrade – nil
MEDIAN	<ul style="list-style-type: none"> • Central Swale – 21.6m (inclusive of swale) 	Nil	<ul style="list-style-type: none"> • 8.0m - Initial Construction • 6.0m - Long Term Upgrade
VERGE WIDTH (INCLUSIVE OF PATHS)	<ul style="list-style-type: none"> • 4.0m both sides - With Swale • 6.0m both sides - No Swale 	<ul style="list-style-type: none"> • 6.0m both sides • Sdjaent POS - 5.5m one side / 2.5m park side (inclusive of parking) 	5.4m both sides
PATH LOCATION	Offset 0.3m from property boundary		
PATH WIDTH	<ul style="list-style-type: none"> • Central Swale - 1.5m / 2.5m shared path • Swale Adjacent POS – 1.5m / 2.5m shared path in park • No Swale – 1.5m / 2.5m shared path 	2.0m one side	2.5m shared path both sides



PART TWO: EXPLANATORY

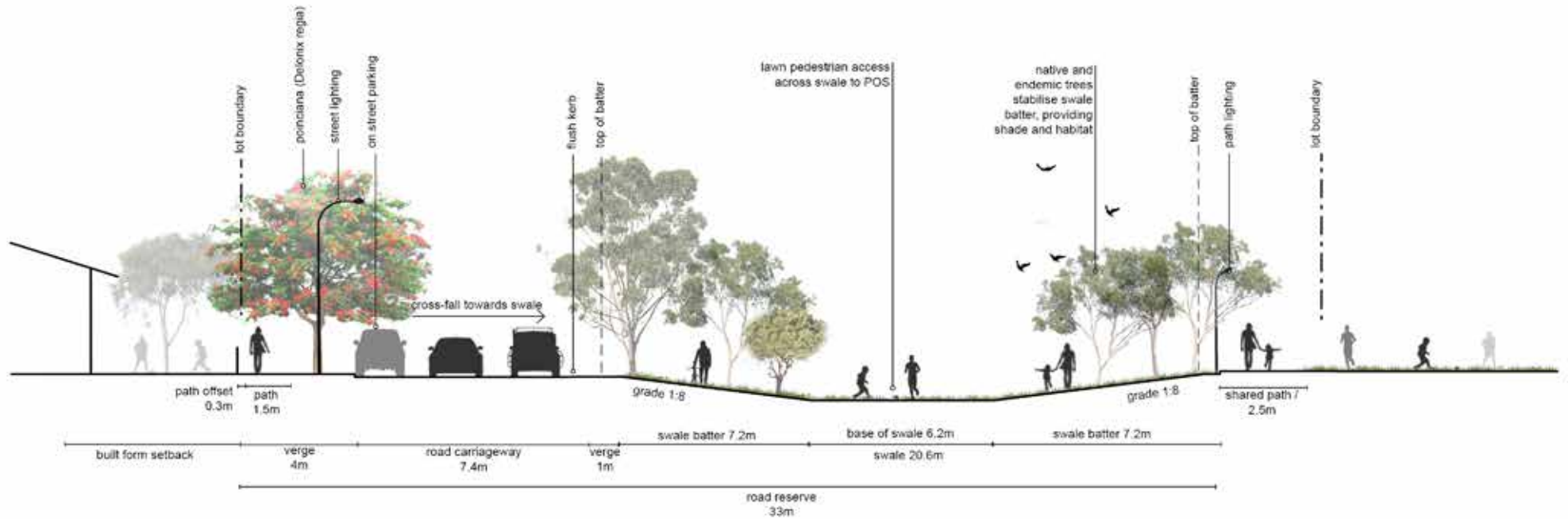
Figure 5: Major Access Street with Central Swale



PART TWO: EXPLANATORY



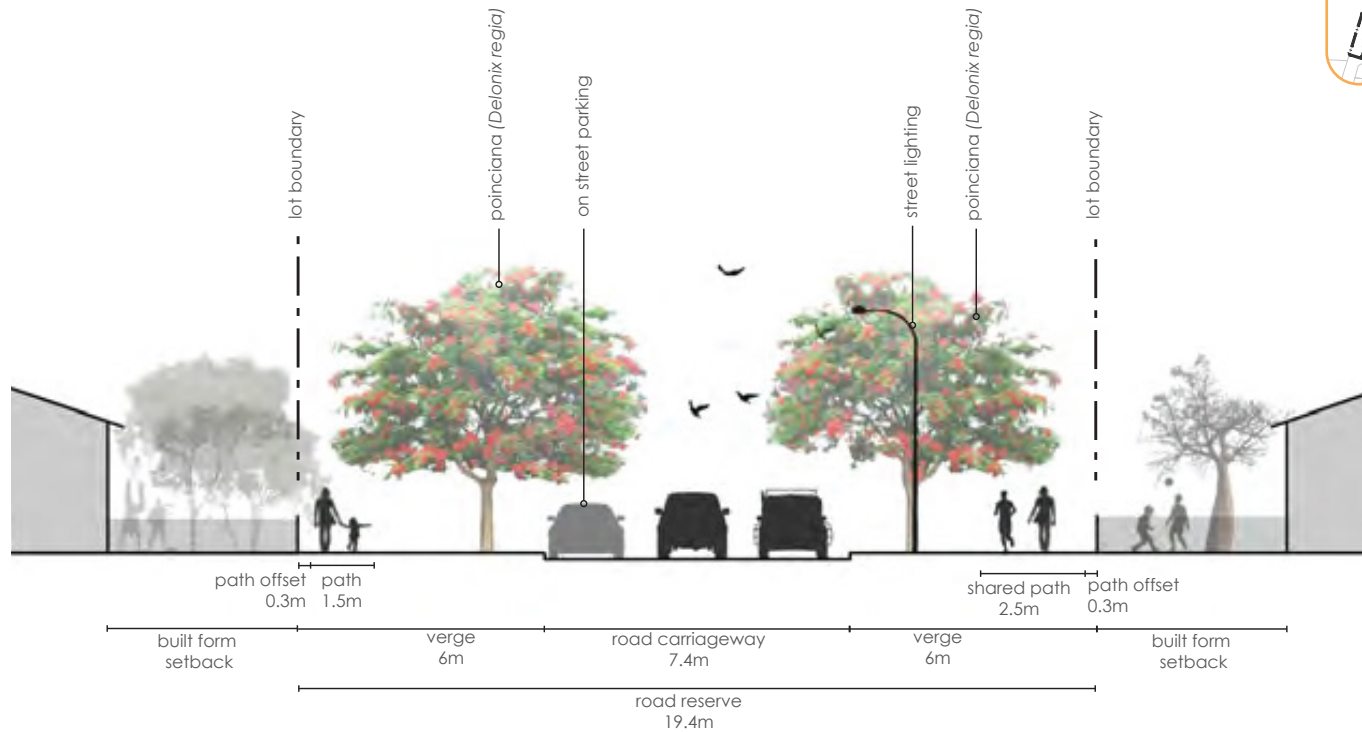
Figure 6: Major Access Street with Swale and POS Interface





PART TWO: EXPLANATORY

Figure 7: Major Access Street



PART TWO: EXPLANATORY



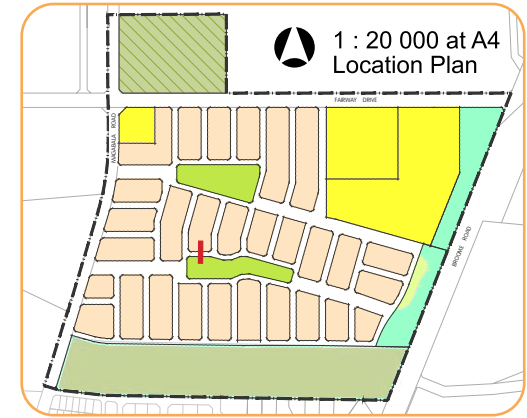
Figure 8: Local Access Street





PART TWO: EXPLANATORY

Figure 9: Local Access Street Adjacent to POS



PART TWO: EXPLANATORY



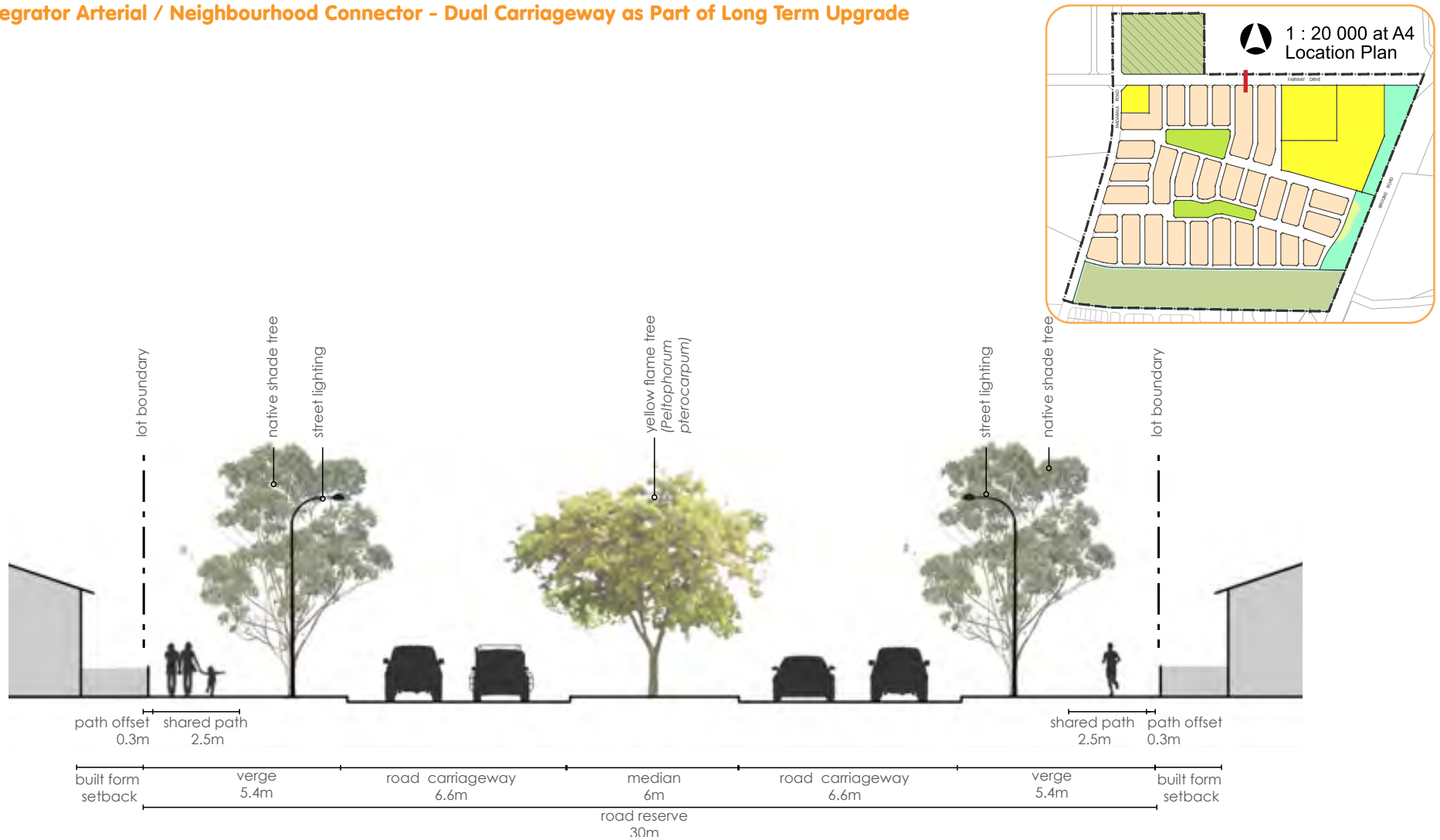
Figure 10: Integrator Arterial / Neighbourhood Connector - Initial Construction





PART TWO: EXPLANATORY

Figure 11: Integrator Arterial / Neighbourhood Connector - Dual Carriageway as Part of Long Term Upgrade



PART TWO: EXPLANATORY



3.2 Path Network

It is estimated that about 15% of all transport trips within Stage 2 would be walking or cycling trips or would include a component of walking or cycling (e.g. to public transport), estimated at about 1,500 trips per day. Of these about 75% are estimated to be walking trips with the remainder cycling trips.

To facilitate this a comprehensive network of footpaths, cycle lanes and shared paths are proposed throughout the SP area. Major access streets have footpaths on both sides, as well as providing the alignment for the provision of a shared bicycle/pedestrian path throughout the Plan area. The shared path network in particular provides access for young and vulnerable cyclists to school and for leisure purposes and to provides safe access to the pathways along Magabala Road and Fairway Drive. All local streets have a footpath on at least one side of the street connecting into the broader network of paths provided within open space and major access streets.

Figure 12 identifies where these are located within the SP area.

3.3 Public Transport

The DSP identifies future public transport routes running east/west along Fairway Drive and north/south along Magabala Road, adjacent to the SP area. These routes provide access south to Gubinge Road and on to the Broome Town Centre, and west along the Tanami/Sanctuary Drive extension to Cable Beach. Bus stops along the route aim to include all dwellings are within walking distance of the route and to provide a direct service past the proposed schools within the DSP area.

Figure 12: Public Transport and Path Network



PART TWO: EXPLANATORY

4.0 PUBLIC OPEN SPACE

Public open space (POS) is provided in accordance with the requirements of LN as demonstrated by the POS Schedule at Table 4.

The following section provides a description of the key characteristics and function, as well as a profile of potential users, for each public open space typology relative to LN and the Shires Local Planning Policy.

Detailed discussion of the landscaping approach and treatment of specific open space areas is provided at Part Two – Section 7.3 of this report and at Appendix D respectively.

Figure 13: Public Open Space Network



- SUBJECT LAND
- INDICATIVE MOVEMENT PATH
- NEIGHBOURHOOD PARK
- LOCAL PARK
- DRAINAGE
- DISTRICT PARK
- ECOLOGICAL CULTURAL CORRIDOR

PART TWO: EXPLANATORY



Table 3: Public Open Space Schedule

Site Area				94.07 ha
DEDUCTIONS				
Dedicated Drainage Reserves	4.60 ha			
Drainage 1:1	0.46 ha			
Private School Site	12.38 ha			
Electricity Supply Station	0.98 ha			
Ecological Cultural Corridor	13.81 ha			
Magabala Road Reserve	3.30 ha			
		35.53 ha		
Gross subdivisible area				58.54 ha
Public open space @ 10 per cent				5.85 ha
PUBLIC OPEN SPACE CONTRIBUTION				
May comprise:				
- minimum 80% unrestricted POS		4.68 ha		
- maximum 20% restricted use POS		1.17 ha		
PUBLIC OPEN SPACE CONTRIBUTION	OPEN SPACE AREA (NETT)	UNRESTRICTED	RESTRICTED – DRAINAGE (>1:1)	DRAINAGE 1:1 (NOT INCLUDED IN POS)
Neighbourhood Park 1 (north)	1.80 ha	1.10 ha	0.45 ha	0.25 ha
Neighbourhood Park 2 (south)	1.50 ha	0.85 ha	0.44 ha	0.21 ha
Local Park 1	0.40 ha	0.40 ha	-	-
District Public Open Space	6.60 ha	6.60 ha	-	-
Sub-Total	10.30 ha	8.95 ha	0.89 ha	0.46 ha
Total Public Open Space Provision		9.84 ha = 16.80%		Deduction = 0.46 ha



PART TWO: EXPLANATORY




4.1 Environmental Cultural Corridor

The 150 metre wide Environmental Cultural Corridor (ECC) is a tract of naturally vegetated land to be retained for environmental and cultural purposes. The width and alignment of the ECC was agreed with Traditional Owners during the development of the DSP and provides a naturally vegetated corridor linking the proposed A-Class reserve adjacent to the dunal system in the west to the mangroves of Roebuck Bay.

The ECC will be ceded as a local scheme reserve for management by the Shire of Broome as part of the Shire's recreational and conservation assets.

Figure 14: Environmental Cultural Corridor



-  SUBJECT LAND
-  INDICATIVE MOVEMENT PATH
-  ECOLOGICAL CULTURAL CORRIDOR

PART TWO: EXPLANATORY



Who's Using It?

The ECC provides an opportunity for passive recreation like bushwalking, and the preservation of the local landscape. The ECC will be a place for escape from the built area, informal recreation and opportunities to educate and undertake traditional practices for Yawuru people. The anticipated users and activities are depicted by the adjacent table.

The ECC will include a network of pindan tracks broken up by gravel breakouts (with informal boulder seating areas) in strategic locations. These breakouts provide a respite for pedestrians and capitalise on attractive view corridors. The ECC will have a series of entrance and exit points to guide pedestrians. Each exit will have a marker identifying the street name to maintain a sense of orientation. The ECC will be bordered by a rural-style fence to prevent vehicle entry.

Table 4: Users and Activities - Environmental Cultural Corridor

	WEEKENDS	MORNINGS	MIDDAY	AFTERNOONS	EVENINGS
Bushwalking					
Education					
Informal Meetings (such as Picnics)					
Organised Community Events (such as markets, fairs)					
Organised Sport					
Organised Recreation (such as Yoga, Boot Camp)					
Unstructured Play					
Walking / Jogging					

- Local Residents
- Students
- Recreation Groups
- Other Broome Residents
- Tourists
- Sporting Teams



PART TWO: EXPLANATORY

What's it Look Like?

The ECC provides habitat for flora and fauna and an important cultural and community connection to 'country'. Consistent with Scheme requirements the ECC will also accommodate a low key path network to enable appropriate and managed access, as well as accommodating 'creek style' drainage swales and facilitating the movement of cooling breezes through the development area.

The ECC will include a bund along its southern boundary adjacent to the Blue Haze Light Industrial Area. This will enable drainage from the SP area and beyond to be managed in a naturalistic way, directing flows east to dedicated drainage outlets under Broome Road, without the use of sumps or other contrived drainage solutions.



Figure 15: Environmental Cultural Corridor



Images & Figures courtesy UDLA

PART TWO: EXPLANATORY



4.2 District Playing Fields

Active playing fields, identified on Plan No. 1 as District Public Open Space, are shown at the north-east corner of the intersection of Magabala Rd and Fairway Drive. The playing fields will be subject to a future shared use arrangement between the Shire of Broome and the adjacent high school.

This differs from the current Stage 2 approval that depicts the playing fields within the Stage 2 area south of Fairway Drive, adjacent the future school site owned by the Anglican Schools Commission (ASC).

The basis for the proposed relocation results from a combination of economic and spatial factors that are detailed below:

- The impact of losing developable land for both the playing fields and noise impacts associated with current speedway operations (the speedway is yet to secure funding for relocation) reduces the development yield and the expected revenue base for the development of Stage 2 below DevelopmentWA's required levels to enable development to proceed;
- Recent subdued market conditions in Broome have negatively impacted the sales price of vacant lots. The median lot price in Broome fell by 13% in the first three quarters of 2015/16 FY. The last quarter's data is not available yet but it is expected to be worse than the first three quarters;
- The combination of these two factors prevents DevelopmentWA meeting the modest hurdle rate set by the Treasury, which means that DevelopmentWA cannot legally commence development of Stage 2 in order to provide affordable housing alternatives to Broome;
- The original location of the playing fields was predicated on a shared use arrangement with the ASC future K-12 school that adjoined the site to the east. The final form of this site has changed significantly preventing the format envisaged during the District Structure Planning exercise;

Figure 16: District Playing Fields





PART TWO: EXPLANATORY

- As part of the planning for the Stage 2 area in 2012, ASC provided a preliminary design for the K-12 school (Figure 23) that shows a centralised on-site oval separating the primary and secondary schools. The location of the oval prevents the intended shared use arrangement with the playing fields depicted in the current Stage 2 approval, in particular the provision of two adjacent ovals envisaged in the Shire’s Sport and Recreation Plan (SRP); and
- The ASC has indicated that there is no current timeframe to commence development of the private school in Stage 2, and certainly not before 2021 which is the preferred delivery timeframe for the playing fields specified in the SRP. This would further preclude any shared use arrangements for the management of the playing fields.

The new location satisfies a number of requirements identified by the Shire in discussions prior to lodgement the Structure Plan amendment, including:

- The location at the intersection of Magabala Rd (Integrator Arterial B) and Fairway Drive (Neighbourhood Connector) meets the requirement for accessibility from the arterial road network, providing a high level of accessibility for the cluster of neighbourhoods forming the Broome North community, as well as excellent accessibility and visibility for external visitors to this district facility from other locations;
- The playing fields can be developed with only one direct interface with residential development, which will minimise the potential impacts of noise, traffic and light spill to nearby properties;
- The proposed relocation provides more flexibility for the design of the playing fields, as well as the provision of a larger area for the development of the two ovals detailed in the SRP. The area of the site depicted on Attachment 1 is 6.60ha with dimensions of 220 x 300 metres, compared to the 3.5ha allocated in the current Stage 2 Structure Plan approval;

- The provision ratio for District Parks contained in ‘Table 4: WA Benchmarks for Community Infrastructure, Permanent Residents’ of the Local Planning Strategy identifies a requirement for one District Park per 5,000 pp / 3,800 houses. Table 5 below demonstrates that the current sales and occupancy rates anticipated for Stages 1-3 of Broome North will not generate the requirement for a District Park by the Shire’s anticipated delivery date of 2021; and
- A key advantage of the new location is that it can be delivered independently of commitments by third parties, such as the ASC and the Department of Education, and because it is located on the existing Fairway Drive road reserve, it can also be developed independently of the Stage 2 residential area if required.

Table 5: Occupancy Based on Anticipated Sales Rates

STAGE	DWELLINGS	POPULATION (@2.8PP/DU)	DELIVERY TIMEFRAME
Stage 1	580	1,624	2010 - 2019
Stage 2	710	1,988	2018 - 2030
Stage 3	857	2,300	2021 - 2035

PART TWO: EXPLANATORY



Who's Using Them?

The playing fields will be used principally for organised sport, serving the whole of Broome, and it is anticipated that there will be a high level of sociability before, during and after games. The playing fields will also be an important area of social interaction for future students of the High School during school time and spectators watching organised sporting events. The anticipated users and activities are depicted by the adjacent table.

Footpaths and shared paths around the playing fields will provide easy access for residents and school children. People arriving by car are anticipated to park in designated areas developed for this purpose.

What Do They Look Like?

Roads bordering the playing fields will be lined with Eucalyptus Miniata (Woollybutt) and maintained so that the canopy does not impede views across the playing field from the school or adjacent residential development. It is expected that a combination of formal and informal viewing spaces will be provided around the playing fields to allow for social interaction and spectating.

Table 6: Users and Activities – District Playing Fields

	WEEKENDS	MORNINGS	MIDDAY	AFTERNOONS	EVENINGS
Bushwalking					
Education		📖	📖	📖	📖
Informal Meetings (such as Picnics)	🏠				
Organised Community Events (such as markets, fairs)	🏠 🏠 📖 🌴				
Organised Sport	🏆 🏠 🧑			🏆	🏆 🧑
Organised Recreation (such as Yoga, Boot Camp)	🏠 🧑	🏠 🧑		🏠 🧑	🏠 🧑
Unstructured Play	🏠	📖	📖	🏠 📖	
Walking / Jogging	🏠 🏠	🏠			🏠

-  Local Residents
-  Students
-  Recreation Groups
-  Other Broome Residents
-  Tourists
-  Sporting Teams



Sketch courtesy Anglican Schools Commission



Eucalyptus miniata - Woollybutt

Images courtesy UDLA

PART TWO: EXPLANATORY






4.3 Neighbourhood / Local Parks

These parks are dedicated open space areas comprising areas of turf and formal landscaping, consistent with their primary role of providing opportunities for passive recreation to residents of the Stage 2 area.

As demonstrated at Figure 17, the combination of parks ensures that all residents are generally located within the 300 - 400 metre walkable catchment for local / neighbourhood parks consistent with LN requirements.

Figure 17: Neighbourhood and Local Parks



-  SUBJECT LAND
-  INDICATIVE MOVEMENT PATH
-  NP NEIGHBOURHOOD PARK
-  LP LOCAL PARK
-  WALKABLE CATCHMENT

PART TWO: EXPLANATORY



Who's Using Them?

These parks are intended as multi-functional spaces that can include public art, shaded play areas and BBQ facilities or more formal landscaped elements such as a low key sporting facilities. Informal seating will be provided at strategic vantage points to provide private areas for contemplation and relaxation.

The anticipated users and activities are depicted at Table 8.

Table 7: Users and Activities – Neighbourhood and Local Parks

	WEEKENDS	MORNINGS	MIDDAY	AFTERNOONS	EVENINGS
Bushwalking					
Education					
Informal Meetings (such as Picnics)					
Organised Community Events (such as markets, fairs)					
Organised Sport					
Organised Recreation (such as Yoga, Boot Camp)					
Unstructured Play					
Walking / Jogging					

- Local Residents
- Students
- Recreation Groups
- Other Broome Residents
- Tourists
- Sporting Teams



PART TWO: EXPLANATORY

What Do They Look Like?

The parks are bordered by roads and footpaths providing ease of access for people moving through the spaces.

'Clean trunk' trees (the Woollybutt and *Corymbia Pchyocarpa* or Swamp Bloodwood) will border parks enabling passive surveillance. Informal seating and ample shade will give people the opportunity to sit and contemplate, while active spaces and picnic areas provide a space to socialise and recreate.

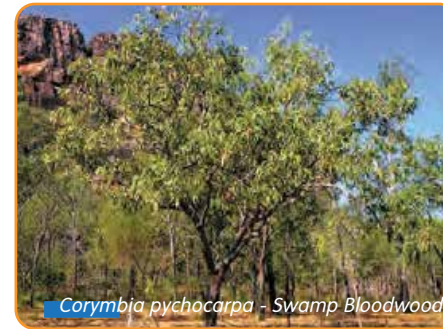
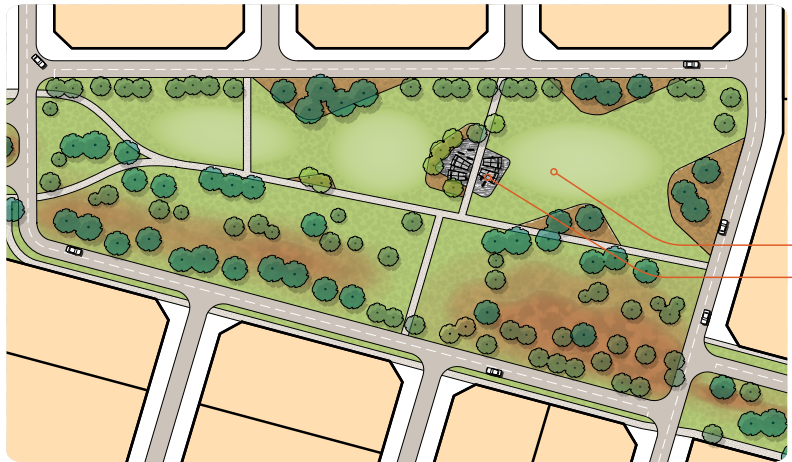


Figure 18: Neighbourhood Park Section



Images & Figures courtesy UDLA

PART TWO: EXPLANATORY



Warringari Estate Park: Source UDLA
 Turfed kick-about area
 Shaded sitting/meeting area

Figure 19: Neighbourhood Park 1

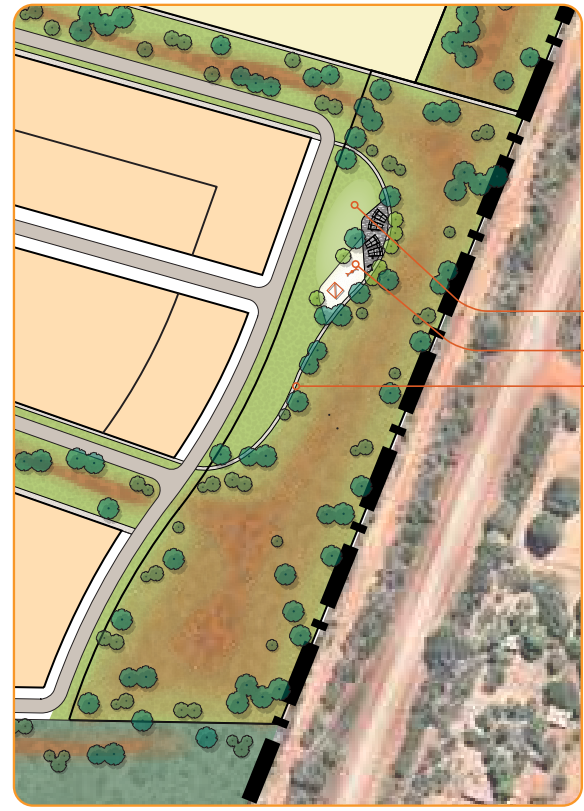


Figure 20: Local Park 1

Turfed swale/kick-about area
 Shaded play area
 2.5m shared-use path



Royal Poinciana



Yellow Flame



Woollybutt



Darwin Box



Jigal



Swamp Bloodwood



Coolibah

PART TWO: EXPLANATORY

5.0 PRIVATE SCHOOL SITE

A Private School Site is identified within the Stage 2 area in accordance with the DSP. Further planning for the site has been undertaken with the Anglican Schools Commission (ASC) since preparation of the DSP in 2008, resulting in the proposed location of the school being moved further east. The modified location is based on the following considerations:

1. Maintaining a minimum site area of 12ha;
2. Providing a “squarer” configuration for the site to enable better separation of primary and secondary school components and the inclusion of a full size, north/south oriented AFL oval;
3. To simplify management, accommodating active open space entirely on the school site;
4. Relocation to the east improves north/south pedestrian and vehicle permeability into the SP residential area, that was prevented by the original location; and
5. Positioning facilities such as the library, chapel and performing arts spaces so these can be made available for the use of the wider community.

As shown in the accompanying imagery, ASC has provided a conceptual layout and perspectives for the future school that demonstrate that the key principles from LN can be satisfied.

ASC advises that plans for development of the school is not expected to be progressed earlier than 5 – 10 years.

Figure 21: Possible Scenario for K-12 School
(Courtesy Anglican School Commission)



PART TWO: EXPLANATORY



Figure 22: Preliminary Design Options (Courtesy Anglican School Commission)



PART TWO: EXPLANATORY

6.0 HORIZON POWER SUBSTATION

In accordance with Horizon Power's requirements a 1ha site has been designated at the intersection of Magabala Road and Fairway Drive for the purpose of a zone substation.

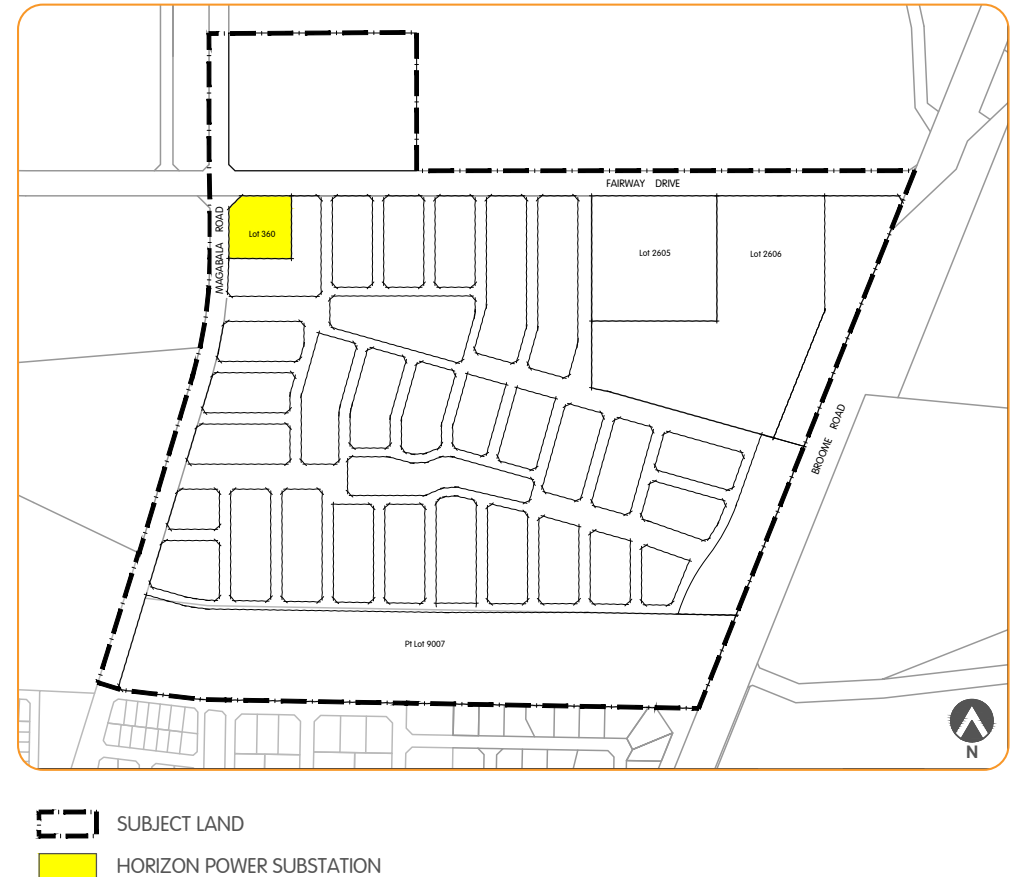
The location of the substation is in accordance with the location specified in the DSP and negotiated with Horizon Power during the Broome North Planning Design Forum in August 2009.

Given its high profile location at this important intersection, DevelopmentWA agreed with Horizon Power that substation infrastructure would need to be screened from public view. This was to be achieved by the inclusion of a substantial landscaped buffer zone around the actual utilised area for the substation plant and equipment, which is expected to be only 30m x 50m. Horizon Power also identified the possibility that plant and equipment could be housed in a building to minimise visual impacts.

To ensure that screening is provided in accordance with these agreements, Section 5.0 of Part One of the SP incorporates the above requirements as a requirement of development approval for the facility, as follows:

"An application for the development of the Electricity Substation is to include a Landscape Plan to be approved as part of the development application. At a minimum the Landscape Plan will demonstrate planting of the buffer zone around the substation plant and equipment to ensure it is effectively screened from view from adjoining roads and private property. Alternatively, the applicant may demonstrate that substation plant and equipment can be housed in a building to be approved by the Shire of Broome as part of the development application."

Figure 23: Horizon Power Substation Site



PART TWO: EXPLANATORY



7.0 TECHNICAL OVERVIEW

7.1 Engineering and Servicing

The following information is based on preliminary advice from the various service authorities to inform development of the Structure Plan and may be subject to change as the proposed development proceeds. The full Engineering and Servicing Report is provided as Appendix B.

7.1.1 Landform / Topography

The Structure Plan, Stage 2 area features existing vegetation consisting of scattered trees and low grassland species typical of a low and open Pindan woodland.

The topography is generally flat and falls from the north-west to the south-east of the Structure Plan, Stage 2 area. The majority of the site has a grade between 0.5% and 0.1%, though there are small pockets where the grade is between 1% and 2%. There are a couple of high points along the western boundary of the Structure Plan, Stage 2 area with an approximate levels of RL14.6m and the lowest point is located in the south-eastern corner at approximately RL6.4m.

7.1.2 Ground Conditions

The ground conditions generally comprise topsoil overlying silty sand. The soil profile encountered can be summarised as a thin layer of light brown sand with rootlets to a general depth of 0.1 m, very loose to loose, red brown, fine to medium grained silty sand, locally known as Pindan Sand.

Pindan Sand is recognised as a soil with a collapse potential. Collapsing soil is a weakly cemented material that is potentially subject to large settlement upon wetting under load. The initial field work has identified soils in a loose state to depths in excess of 2.0m across the Structure Plan, Stage 2 area.

Moderate to high fines content of Pindan Sand results in low infiltration values and generally precludes methods for onsite stormwater disposal. Based on typical in situ test values measured in the area, a presumptive permeability value of between 1×10^{-5} m/s and 1×10^{-6} m/s is anticipated for the soils beneath the site. Therefore, it is expected that stormwater disposal will utilise detention basins and swales as per LDPI.

Due to the occurrence of Pindan sands, based on the recommendations of AS2870 a class "P" classification is associated to the site. An improved classification can be targeted and achieved with suitable soil preparation.



PART TWO: EXPLANATORY

7.1.3 Groundwater

A desktop study of the groundwater levels by Coffey Geotechnics indicated the average annual maximum groundwater level (AAMGL) is approximately RL 2.5m AHD and an estimated maximum probably groundwater level (MPGL) 2.0m higher at RL 4.5m AHD. No free groundwater was found in any of the test pits excavated to a depth of 3.0m.

Groundwater levels are not expected to impact adversely on the development of Structure Plan, Stage 2.

7.1.4 Unexploded Ordnance Assessment

An Unexploded Ordnance (UXO) Assessment was conducted over the Broome North District Structure Plan area, including the Structure Plan, Stage 2 area, by Milsearch in December 2009. The conclusions from the report indicated that no UXO residue or solid-shot projectiles were situated in the area assessed. Milsearch state that future planned development within those areas assessed and recorded by their report, can now proceed without further concern for potential UXO hazards.

7.1.5 Siteworks

Earthworking of the site, particularly lot areas and road reserves will be required to ensure the positive drainage of the lots to the road reserves for disposal. Finished development levels within Structure Plan, Stage 2 will need to account for the existing road levels of Broome Road and Fairway Drive along the northern and eastern boundaries as well as existing ground levels along the southern boundary that will form the ECC.

Prior to siteworks, significant vegetation will be identified for potential retention and typically vegetation within $\pm 150\text{mm}$ earthwork band and outside the service trenching requirements can be retained. In addition POS areas that don't have a drainage function can also generally provide opportunities for the retention or incorporation of significant vegetation into their design.

The recent introduction for Bushfire Attack Level (BAL) assessments to determine the application of building restrictions and buffer zones to areas of vegetation, will require further consideration in the planning phase to ensure lots are fully developable and not unduly impacted on by existing adjacent vegetation and requisite buffers.

It is anticipated that siteworks within the Structure Plan, Stage 2 area will be undertaken such that foundations for residential development on the created lots within the proposed development can be designed for the desired Australian Standard Classification as set out in AS2870-2011.

PART TWO: EXPLANATORY



7.1.6 Wastewater

The Structure Plan, Stage 2 area is within the existing Broome Pumping Station No. 6 wastewater catchment area. The Broome Pumping Station No. 6 is located at the intersection of Gubinge Road and Broome Road.

To facilitate development preliminary Water Corporation planning indicates that the DN300 sewer main will need to be extended from the existing Blue Haze Light Industrial Area to the south of Structure Plan, Stage 2 along Broome Road to the south eastern corner of Structure Plan, Stage 2. The DN300 sewer main will need to be constructed with the initial subdivision stage.

The extension of the DN300 sewer main provides the Structure Plan, Stage 2 and future Broome North areas with a connection to the Broome Pumping Station No. 6. DN300 sewer mains constructed by Developers are subject to a per meter refund from Water Corporation and further consultation will be required to finalise these details.

A conventional reticulated gravity sewer system will provide connections to individual lots throughout Structure Plan, Stage 2. The gravity sewer network will include two DN225 sewer mains running east-west through the middle and along the southern boundary of Structure Plan, Stage 2 connecting to the extension of the DN300 sewer main in Broome Road.

Standard Water Corporation headworks contributions are expected to apply to Structure Plan, Stage 2.

7.1.7 Water Supply

Existing potable water services are located to the north of the Structure Plan, Stage 2 area in Fairway Drive and to the south in the existing Broome North development. Water Corporation has identified that the sustainable yield of the existing Broome town water source is 10.6GL/annum and that it is expected to be sufficient for the continued development of Broome North.

Water Corporation has advised that preliminary water supply planning for Structure Plan, Stage 2 will require the following external water infrastructure to service the proposed development:

- The construction of a DN375 water distribution main in Magabala Road from Broome North LDP1 to the intersection with Fairway Drive;
- The construction of a DN600 water distribution main in Fairway Drive to link the existing DN450 water distribution main at the corner of Coucal Street to the existing DN500 water distribution main at the intersection of Sanctuary Road; and
- The construction of a DN700/DN600 water distribution main in Fairway Drive from the existing Cable Beach Tank Site to the intersection of Magabala Road.

Structure Plan, Stage 2 will include a standard water reticulation network in accordance with Water Corporation requirements. The reticulation network will connect to the existing and proposed water distribution mains in Fairway Drive and Magabala Road. At subdivision stage, Water Corporation will provide further advice on the required reticulation main sizes throughout the Structure Plan, Stage 2 area.



PART TWO: EXPLANATORY

The development of the initial Structure Plan, Stage 2 subdivision stages is likely to require the construction of the DN375 water distribution main in Magabala Road. A Scoping Report for the DN375 water distribution main has been prepared and approved by the Corporation, however due to the time elapsed it will need to be revisited to ensure its accuracy and to confirm Water Corporation funding availability for the main.

Standard Water Corporation headworks contributions are expected to apply to Structure Plan, Stage 2. Subject to orderly planning, staging and scheduling of Structure Plan, Stage 2, the Corporation will fund headworks and the Developer will be responsible for funding reticulation works.

7.1.8 Power Supply

There are 11Kv aerial transmission lines that run along the eastern boundary of Structure Plan, Stage 2 in Broome Road. There is also existing underground high voltage infrastructure located in Magabala Road and Fairway Drive.

A new zone substation is to be located at the north–west corner of Structure Plan, Stage 2 and the 100m x 100m Horizon Power site has already been created. A vegetation buffer within the existing site will be provided for visual screening. Two existing 33kV underground cables are also located on the eastern side of Magabala Road to feed the new zone substation. These cables cannot be utilised for subdivision power as they are express feeders, however there are also existing 11kV underground cables in Magabala Road and Fairway drive that can be utilised to supply power to Structure Plan, Stage 2.

From preliminary discussions with Horizon Power, the initial 2MVA to 3MVA of load from Structure Plan, Stage 2 should be able to be supplied on a timeframe of the next few years. This is subject to the Horizon Power network study that would be undertaken with Stage 1 of the Structure Plan, Stage 2 subdivision.

There are some power constraints on the current high voltage network configuration. Horizon Power advises that it proposes to transfer some load between feeders to balance the load to Structure Plan, Stage 2, thus allowing the development to connect to the high voltage network. The Structure Plan, Stage 2 area cannot be supported by the existing high voltage network hence the requirement of the new zone substation.

Connection to the existing underground cables in Magabala Road and Fairway Drive will initially serve Structure Plan, Stage 2. An internal underground electrical distribution system will be provided in accordance with the requirements of Horizon Power to supply allotments within the Structure Plan, Stage 2 area. This will include both high and low voltage cables and the necessary transformers and switchgear to be installed throughout the development.

The zone substation is planned for possible construction in 5 years. Once this zone substation is constructed the power supply for Structure Plan, Stage 2 will emanate from this substation.

According to the Horizon Power Network Asset Policy, aerial power lines that abut a development may have to be undergrounded as part of the development. Current indications are that the aerals along Broome Road and Fairway Drive that abut the development will require undergrounding.

Street lighting in accordance with Horizon Power and Shire of Broome guidelines will also be required as part of the development.

7.1.9 Gas

The LDP area will not be serviced by gas, as reticulation to lots is not currently provided in Broome nor is there any intention to implement this service.

PART TWO: EXPLANATORY



7.1.10 Telecommunications

An existing major Telstra optic fibre cable is located in the western verge of Broome Road and is continuous for the full length of the eastern boundary of Structure Plan, Stage 2. This optic fibre cable provides a major communication link from the north into the Broome Township.

Existing NBN Co fibre optic infrastructure is currently located in the Broome North LDP1 development to the south of Structure Plan, Stage 2. The Broome North development has been accepted as part of the NBN Co Fibre footprint. As such, the subsequent stages of the Broome North development, including Structure Plan, Stage 2, are eligible to receive high-speed fibre optic telecommunication services from NBN Co.

The Structure Plan, Stage 2 telecommunication network would be an extension of the existing NBN Co infrastructure in Broome North LDP1. A telecommunication pit and pipe network would be installed, including a service conduit to each lot to facilitate the fibre connection to each premise in Structure Plan, Stage 2 in accordance with the NBN Co guidelines and specifications.

The telecommunication network will require a number of strategically placed Fibre Distribution Hubs (FDH). FDH are a street-side cabinet that provide an optical connection point between the distribution and local networks. An FDH provides connectivity for a maximum of 172 premises, due to the expected lot yield within Structure Plan, Stage 2 a number of FDH will be required. The placing and positioning will be determined at the subdivision stage in conjunction with the pit and pipe design.

Developers are required to provide the pit and pipe infrastructure at their cost, and once the infrastructure is deemed fit for purpose by NBN Co the ownership is relinquished to NBN Co. NBN Co will then connect the infrastructure to the existing NBN Co network.



PART TWO: EXPLANATORY

7.2 Access and Movement

The Access and Movement report provided at Appendix C provides a detailed assessment of the street, pedestrian movement and cycle network provided in the Stage 2 design and confirms the effective function of the road typologies prepared for this stage of development. A summary of the key principles and projected traffic volumes is provided below.

7.2.1 Key Principles

The high level objective for the Stage 2 area remains “to provide a well-connected street network for access and to develop safe, attractive streets for living.”

To achieve this objective the key principles underpinning the design are:

Safe, slow streets for all users – local street design speed of 30kph

- Design streets for max 30kph travel;
- Use network design to provide short street lengths;
- Narrow pavement width for moving traffic – commensurate with drainage needs;
- Maximise on-street parking to help slow traffic;
- Well positioned footpaths under shade trees;
- Cyclists share local streets with motorists;
- Intersections designed for safe pedestrian crossing and slow traffic speed;
- Eliminate need for mid-block traffic management devices – humps, slow points etc; and
- Avenues of trees to provide shade for pedestrians on footpaths and parked cars on street and to create a sense of enclosure to help slow traffic.

A legible well connected movement network

- Full grid pedestrian network with pedestrian links through open space and parklands;
- Modified grid for vehicle movement to maintain short street lengths and safe intersections; and
- A permeable, easy to comprehend street network that provides options for travel to school and to homes.

Adherence to these principles in street design will ensure the following outcomes are achieved:

1. Local Access Streets will have low traffic volumes;
2. Streets will encourage walking by providing safe, direct, shaded walking routes;
3. Vehicle speeds will be low enhancing safety for all users; and
4. Vehicle access will be convenient and easily understood.

PART TWO: EXPLANATORY



7.2.2 Projected Traffic Volumes

The street network for the wider Broome North area covered by the District Development Plan has been designed to accommodate a daily traffic volume of between 35,000 and 40,000 vehicles per day, including traffic travelling to Broome North from other areas of Broome. The projected traffic volumes of Magabala Rd and Fairway Drive that bound the Stage 2 area to the West and North respectively are:

- Magabala Road – 10,000 – 15,000vpd
- Fairway Drive – 3,000 – 7,000vpd

Within the SP area the total daily vehicle trips are estimated to be 3,995 per day, comprising:

- Residential generated trips – 3,995 per day.
- Residential attraction trips – 400 per day.
- School / church trips from outside the SP area – 800 per day.

This represents a moderate decrease from the anticipated 4,350 vpd generated by the previous design, with the maximum traffic volume remaining low, with major access streets expected to be less than 2,500 vpd and local access streets carrying less than 800 vpd (with most less than 400 vpd).

The Access and Movement Report demonstrates that the combination of specific thoroughfare typologies and the overall design for the Stage 2 area will cater for the anticipated levels of traffic and achieve the stated traffic outcomes.



PART TWO: EXPLANATORY

7.3 Landscape Philosophy

The Broome North development establishes an exciting opportunity for DevelopmentWA to provide Broome with innovative and affordable residential outcomes alongside the delivery of locally site sensitive and linked open space amenity. Through a holistic and detailed understanding of the local Broome condition this development has the potential to provide benchmark results with regard to site sensitive waterwise design and culturally sensitive outcomes. In addition, the above objectives are underpinned with the proposition provided at Appendix C to continue raising the capacity of the local plant nursery and landscape industry within Broome, a recognised important West Kimberley regional hub.

The Landscape Report focuses on better urban water management and the provision of new public open space within SP2 through developing unique streetscapes, parklands and multiple-use corridors that sensitively deal with the local drainage condition. The report focuses on retention and supplementation of existing vegetation for cultural, fauna and water quality purposes.

The landscape philosophy and treatments proposed have been informed by developing experience in this region, the local social, cultural and environmental conditions and the opportunity to create meaningful, practical and pleasant linked recreational spaces with personal scale and site sensitive amenity.

Key aspects guiding the landscape philosophy include:

- Incorporating better urban water management throughout the urban form via road easements, open space and dedicated drainage reserves;
- Creating connected spaces that promote recreation, exploration, environmental respect, growth and learning;
- Maintaining open space connections and linkages throughout the site via multiple-use and ECC corridors for cultural, community and habitat use;
- Protecting and repairing natural systems so traditional practices and a continued 'lifestyle' can occur alongside urban development;
- Ensuring there is minimal existing landform reshaping, significant tree removal (main trunk > 300mm dia.) and reuse of the sites precious mulch and topsoil;
- Maximum existing vegetation retention and supplementation on site;
- Combining recreation, preservation, education/ interpretation and linking urban/ natural drainage systems through multiple-use corridors;
- Supporting and raising capacity of the local land management, construction, landscape and nursery industries;
- The inclusion of interpretation and art opportunities within public open space as part of an overall open space strategy; and
- Incorporating site specific solutions including the provision of shade amenity through consistent street tree planting on verges, medians and alongside roads, shared path and pedestrian connections.

PART TWO: EXPLANATORY



7.4 Local Water Management

A Local Water Management Strategy (LWMS) to accompany the SP application in accordance with Better Urban Water Management (WAPC, 2008) is provided at Appendix E. This was approved by the Department of Water on 11 January 2017.

In response to pre-lodgement feedback from the Shire, minor amendments were made to the SP design that are considered in an Addendum to the LWMS provided at Appendix EE. The Addendum concludes that the new design (Revision E) results in a marginal decrease in development area and lot yield, with a comparable level of POS provision and dedicated drainage reserves. The minor amendment to the Structure Plan between Rev D and Rev E results in no substantive changes to the LWMS strategies for water conservation, water quantity management and water quality management, and as such no changes are required to the approved LWMS.

The landscaping and water management concepts for Stage 2 have been informed by the developing experiences of the project team within the region, and the local social, cultural and environmental conditions. The landscape design uses best management practices suited to the north-west region including the provision of formal and informal public open space areas, and vegetated linear swale drainage system to minimise runoff from hard surfaces within the development catchment area.

The objectives, strategy and outcomes of the LWMS are summarised at Table 9 below:

Table 9: LWMS Objectives, Strategy and Outcomes

COMPONENT	OBJECTIVES AND CRITERIA	STRATEGY	OUTCOME
Water conservation	Sustainable management of all aspects of the water cycle within the development and achieve efficient use of potable water	Install 5 Star Plus provisions for all new fittings. Best practice landscaping design and maintenance Non-potable dust suppression water	Water efficient demand of potable water supply
Stormwater quantity	Maintain discharge volume and peak flow relative to predevelopment conditions.	Detention basins and swales to attenuate peak flows from impervious surfaces	Pre-development peak flow rates and volumes maintained at each outlet
Stormwater quality	Maintain and, if possible, improve the quality of water leaving the development area	Infiltration provisions in lots and public areas Erosion and sediment control during construction and postdevelopment Water Sensitive Urban Design	Stormwater quality protected
Groundwater levels	Maintain groundwater levels	Infiltration provisions in lots and public areas	Groundwater recharge maintained
Groundwater quality	Protect groundwater quality	Capture and treat stormwater prior to infiltration	Groundwater quality protected



PART TWO: EXPLANATORY

7.5 Bush Fire Management

Amendment No. 1 is supported by an updated Bushfire Management Plan (BMP) that satisfies updates to SPP 3.7 “Planning in Bushfire Prone Areas” and the “Guidelines for Planning in Bushfire Prone Areas” have been introduced. Additionally, the Australian Standard AS3959-2009 “Construction of buildings in bushfire prone areas” introduced since the issue of the previous Bushfire Management Plan for the site.

The updated BMP reflects the introduction of SPP 3.7 and the associated Guidelines, as well as the new vegetation classification requirements of AS3959-2018, and demonstrates compliance with the Acceptable Solutions as follows:

1. The primary bushfire threat to the development site is from the north and west. Land to the east is able to support a bushfire however bushfire prone vegetation is partially broken by the saline wetlands and mangroves of the Dampier Creek. A large scale bushfire would not approach the proposed development from the south due to existing developed residential and industrial areas.
2. The topography within and around the proposed development site is generally flat and a bushfire travelling through this vegetation will have no increased intensity or rate of spread.
3. The ability to establish BAL-29 or lower dimensioned APZs throughout the site removes the threat of greater levels of radiant heat or flame contact upon future dwellings or other buildings.
4. Ember attack is a remaining threat from vegetation within and external to the subject site. This threat will be mitigated by the application of appropriate building design, bushfire construction standards and the ongoing maintenance of required Asset Protection Zones (APZ) to ensure the buildings will not be impacted by consequential fire from combustible materials used, stored or accumulated within APZs.
5. Required APZs and vegetation management will be constrained to within the subject site and perimeter roads. Development of the subject site will reduce the amount of available bushfire prone vegetation during a bushfire event, and will reduce the impact of bushfire on neighbouring lots from this area.
6. The proposed development will provide an area of land within each future lot that can be considered suitable for development, as BAL-40 or BAL-FZ construction standards will not be required to be applied.
7. Portions of some residential lots within the development site are subject to radiant heat levels corresponding to BAL-40 and BAL-FZ ratings. Building cannot occur within these portions of affected sites as they either fall within the required R-Code setback distance applicable to the development site, or building will be restricted by the application of a restrictive covenant (129BA Transfer of Land Act 189) as per the WAPC Model Subdivision Conditions Schedule (April 2020) Code F3. This complies with the Acceptable Solutions (A2.1) of Element 2 of the Bushfire Protection Criteria as stated in the Guidelines for Planning in Bushfire Prone Areas. However, as per the DPLH Position Statement: “Planning in bushfire prone area - Demonstrating Element 1: Location and Element 2: Siting and design” approval for these lots, once the final layout is known, will be at the discretion of the decision maker.
8. The proposed roads provide safe access and egress in two different directions to two different destinations for all future lots. As sealed public roads, they will be available to all residents and the public at all times and under all weather conditions.
9. Where battle-axe lots are proposed, justification must be provided that there is no alternative to the designed layout.
10. A reticulated water supply will be available to the subject site and hydrants will be installed in locations as required by the relevant authorities.

PART TWO: EXPLANATORY



Figure 24: BAL Contour Plan



Disclaimer and Limitation: This map has been prepared for bushfire management planning purposes only. All depicted areas, contours and any dimensions shown are subject to survey. Bushfire Prone Planning does not guarantee that this map is without law of any kind and disclaims all liability for any errors, loss or other consequence which may arise from relying on any information depicted.

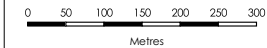
Figure 3.2

Broome North LDP2 BAL Contour Map

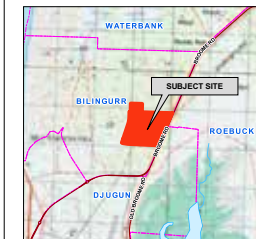
Lot 360 on Plan 67926, Lot 365 on Plan 74365
 Lot 2605 on Plan 189036, Lot 2606 on Plan
 76023, Pt Lot 9007 on Plan 74189
 Broome Road and Fairway Drive
 BILINGURR
 SHIRE OF BROOME

----- LEGEND -----

- Lot Detail LDP2
 - Subject Site LDP2
 - 100m BAL Buffer
 - 150m Assessment Area
 - Cadastral
 - Vegetation Outline
- Bushfire Attack Levels**
- BAL-FZ
 - BAL-40
 - BAL-29
 - BAL-19
 - BAL-12.5
 - BAL-LOW



----- LOCALITY -----



AERIAL IMAGERY: Landgate/SLIP
 Coordinate System: GDA 1994 MGA Zone 50
 Projection: Universal Transverse Mercator Units: Metre
 Map by: Ian Macleod 17-02-2021
 SCALE (AS): 1:5000

190320 Broome North Stage 6 BAL2.qgs



PART TWO: EXPLANATORY

7.6 Noise Assessment

GHD has undertaken a review of previous noise assessments to assess mitigation measures that would allow development of the Stage 2 Structure Plan area, subject to Broome Speedway remaining operational under the approved Noise Management Plan.

The assessment (Attachment G) presents a summary of the requirements for residential development to occur for worst-case noise impacts predicted from the Broome Speedway.

This provides opportunity for DevelopmentWA to develop approximately 85% of the proposed development area, whilst only requiring notifications on title advising of possible noise impacts from Broome Speedway. The remaining 15% of the proposed development area would require implementation of noise insulation Package A and Local Development Plans showing building envelopes and fencing to a screened outdoor area with minimum 2.0 m high fencing.

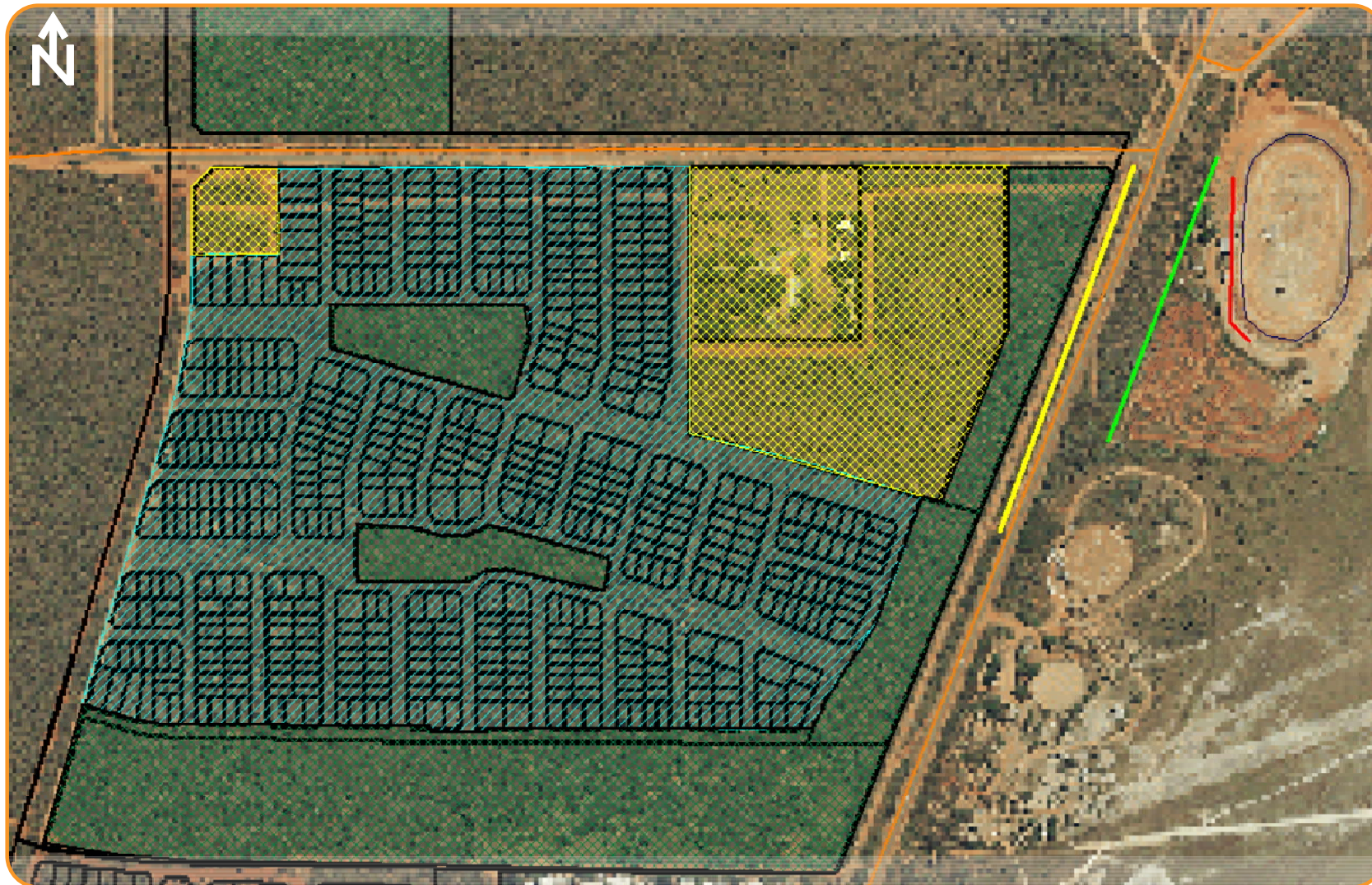
Construction of a noise wall would provide the opportunity for DevelopmentWA to develop the entire development area, whilst only requiring notifications on the title advising of possible noise impacts.

Development would be undertaken in accordance with the relevant requirements of the Noise Assessment report detailed above and shown at Figures 27 (no noise wall) and 28 (noise wall constructed by proponent) respectively, depending on the scenario that is implemented.

PART TWO: EXPLANATORY



Figure 25: Summary of requirements - Speedway Events (Noise Wall)



LEGEND

- Broome Speedway noise source
- Parks, recreation and drainage
- Public purpose

Noise wall options

- 3.2 m high noise wall, extending from the corner of Fairway Drive to 450 m along Broome Road
- 3.2 m high, 350 m long noise wall along Broome Road, adjacent to Broome Speedway
- 3.2 m high, 200 m long noise wall adjacent to the speedway track

Mitigation options

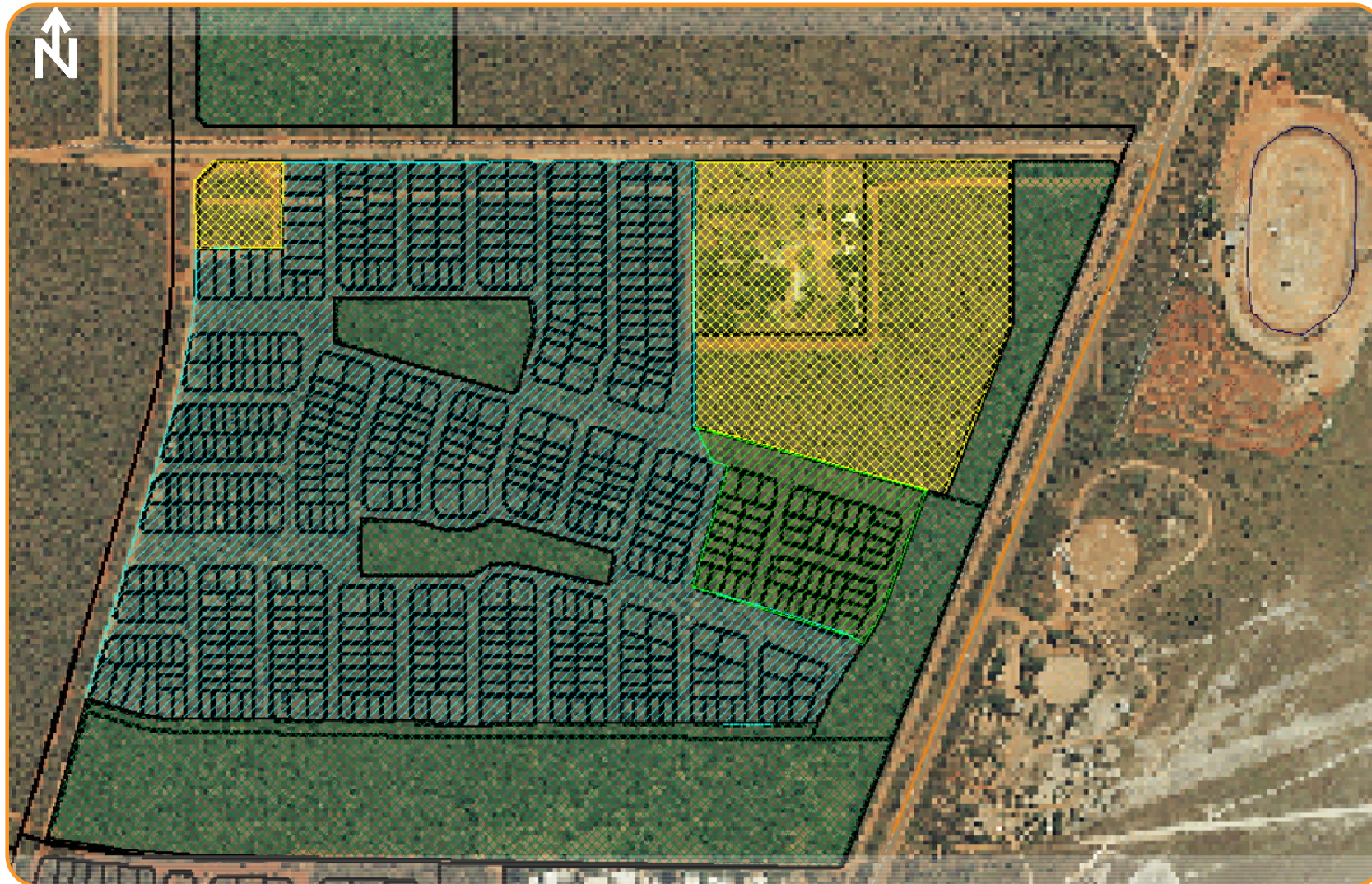
- Only requires notifications on the title advising of possible noise impacts from Broome Speedway

Note: All development areas in Broome North LDP2 will require notifications on the title advising of possible noise impacts from Broome Speedway



PART TWO: EXPLANATORY

Figure 26: Summary of requirements - Speedway Events (No Noise Wall)



LEGEND

- Broome Speedway noise source
- Parks, recreation and drainage
- Public purpose

Mitigation options

- Indoor: Implement noise insulation Package A
- Outdoor: Area plans showing building envelopes and fencing (min. 2 m high solid fence) to provide a screened outdoor area
- Only requires notifications on the title advising of possible noise impacts from Broome Speedway

Note: All development areas in Broome North LDP2 will require notifications on the title advising of possible noise impacts from Broome Speedway

APPENDIX A

Planning Report

(Hatch RobertsDay, 2017)

APPENDIX B

Engineering Infrastructure Report (Tabec, 2017)

APPENDIX C

Access and Movement Reports

(Jacobs, 2022)

APPENDIX D

Landscape Report (UDLA, 2021)

APPENDIX E

Local Water Management Strategy

(GHD, 2016)

and Addendum

(GHD, 2017)

APPENDIX F

Bushfire Management Plan

(Bushfire Prone Planning, 2021)

APPENDIX G

Noise Assessment

(GHD, 2017)

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