



MRS Amendment 1388/57 (Wattle Grove South)

Aboriginal and Cultural Heritage Evaluation

Prepared for the Western Australian Planning Commission and Hesperia

February 2024

element.
the art and science of place

WARNING

Aboriginal and Torres Strait Islander readers are advised that this document may contain the names and images of people that have passed away. In some communities this may cause sadness, distress or offence.

NOTE

People of the Noongar nation are the Traditional Owners of the lands, waters and skies of the South West part of Australia. Whadjuk is the name for one group of people of the Noongar nation; those that are from what is now the region of metropolitan Perth.

MRS Amendment 1388/57 (Wattle Grove South) Aboriginal and Cultural Heritage Evaluation
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ACKNOWLEDGEMENT OF COUNTRY

We acknowledge the Whadjuk people of the Noongar nation as the Traditional Owners of the lands, waters and skies surrounding Yule Brook/Mandoorn and the associated wetlands.

We recognise and respect the Whadjuk people for showing resilience and for continuing to maintain their cultural and spiritual practices in the times since colonisation. We are grateful for their sharing of knowledge as we journey together towards a reconciliation of communities and cultures.

Executive Summary

The Western Australian Planning Commission (WAPC) is the proponent for *Metropolitan Region Scheme (MRS) Amendment 1388-57 Wattle Grove South*, which proposes to rezone approximately 126 ha of land in Wattle Grove from Rural to Urban. The Environmental Protection Authority (EPA) has determined that the MRS amendment should be assessed under Part IV of the *Environmental Protection Act 1986* (EP Act).

Hesperia is preparing the Environmental Review Document (ERD) on behalf of the WAPC and has engaged Element Advisory (**element**) to address the Aboriginal heritage and cultural heritage components of the Environmental Review, as set out under the environmental factor of Social Surroundings. This Aboriginal and Cultural Heritage Evaluation (this report) will specifically address the EPA's instructions regarding the possible impact of the MRS amendment area on:

- Aboriginal heritage sites.
- The natural, social and historic heritage values of the Greater Brixton Street Wetlands (GBSW).

This report sets out the identification and description of heritage and cultural sites within the MRS amendment area and the wider regional context, including the GBSW, and their associated significance and values. Supporting figures and discussion of potential impacts, together with recommended mitigation strategies, are provided in this report.

The south-east area of Whadjuk Noongar boodja was the territory of Munday, leader of the Beeloo people. Munday was a recognised and important negotiator for Perth's Noongar community. Of particular importance to the Noongar were the rich swamps and waterways such as Djarlgarro, which provided abundant seasonal food from the animal and plant life. The waterways are also of mythological and spiritual importance as evidence of the Nyittiny story of the Waugyl, a powerful figure in the form of a rainbow serpent that formed the landscape while on its westward journey from beyond the hills to the ocean.

The main waterway that feeds the GBSW is Mandoorn (Yule Brook), which passes along the northern boundary of the GBSW near Brook Road and Grove Road. Yule Brook and its surrounds from Kenwick to the Darling Scarp has historical significance to the Noongar people as a camping and meeting place.

The GBSW is also a place of special meaning for a wide cross section of groups and individuals in the community, who recognise its exceptional biodiversity within the context of the Swan Coastal Plain, hosting rare and endangered species and containing more than 20% of Perth's flora in just 0.005% of Perth's area.

There is the potential for the urbanisation of the MRS amendment area to impact on the physical and biological surroundings of the immediate and wider region, which in turn could have unintended consequences for the cultural heritage values of the GBSW, Aboriginal heritage sites, values and cultural associations.

However the mitigation and management measures proposed in this report will ensure that any potential impacts as a result of the proposed change in land use are avoided, minimised or ameliorated through rehabilitation. Statutory controls and mechanisms also exist under planning and heritage legislation to ensure that the recommended mitigation and management measures are appropriately implemented.

The GBSW and Yule Brook are not located within the MRS amendment area and any potential impacts to the hydrological regime of this important wetland and waterway can be mitigated through best practice urban water management measures. The only registered Aboriginal heritage site within the boundaries of the MRS amendment area is the Brentwood Road Swamp. Information collected through an Archaeological Site Survey and Archaeological Management Strategy can assist in informing future development activities.

A tree survey is also recommended to identify the presence of any endemic trees with important cultural associations within the MRS amendment area. This in turn should inform the landscape design of future urban development. Any inadvertent impacts to significant endemic trees identified for retention during construction activities can be mitigated through a Construction Management Plan and an Interpretation Strategy can assist in interpretation and education.

This report would not have been possible without the assistance of the Whadjuk Reference Group:

- Noel Morich
- Diana Ponton
- Beverley Port Louis
- Marlene Warrell
- Diane Yappo
- Glenys Yarran
- Reginald Yarran

The establishment of the Whadjuk Reference Group is the starting point for future, ongoing engagement to ensure that Aboriginal cultural heritage is meaningfully considered at all stages of the planning process. This group would like to be consulted as more detailed planning for the future development of the MRS amendment area progresses.

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1. Introduction

1.1 Purpose

The Western Australian Planning Commission (WAPC) is the proponent for the Metropolitan Regional Scheme (MRS) Amendment 1388-57 Wattle Grove South (Figure 1).

The Environmental Protection Authority (EPA) has determined that the amendment to the MRS should be assessed under Part IV of the *Environmental Protection Act 1986* (EP Act). The 'CMS18099 Instructions for Environmental Review MRS 1388-57 Wattle Grove South' dated 15 August 2022 (the instructions) states the assessment is required because "the implementation of the scheme through future development within the proposed urban zoning has the potential to have a significant effect on environmental factors including Inland Waters, Flora and Vegetation, Terrestrial Fauna and Social Surroundings."

Hesperia is preparing the Environmental Review Document (ERD) on behalf of the WAPC and has engaged Element Advisory (**element**) to address the Aboriginal heritage and cultural heritage components of the Environmental Review, as set out under the environmental factor of Social Surroundings. This Aboriginal and Cultural Heritage Evaluation (this report) will specifically address the EPA's instructions regarding the possible impact of the MRS amendment area on:

- Aboriginal heritage sites.
- The natural, social and historic heritage values of the Greater Brixton Street Wetlands (GBSW).

The GBSW are approximately 1km to the west of the MRS amendment area (Figure 2). The GBSW covers approximately 215 ha of land within the City of Gosnells and the City of Kalamunda. The extent of the GBSW is the combined boundaries of 'A directory of Important Wetlands in Australia' (Brixton Street Swamps) and Bush Forever Site 387.¹ Also within the boundaries of the GBSW is the Yule Brook Reserve, also known as Kenwick Swamp, owned by the University of Western Australia (UWA) as illustrated in Figure 12.

¹ Environmental Protection Authority (2022), 'Environmental values and pressures for the Greater Brixton Street Wetlands on the Swan Coastal Plain - Advice in accordance with section 16(j) of the Environmental Protection Act 1986' p. 5.

1.1.1 Location plans



Figure 1. Wattle Grove South MRS amendment area.



Figure 2. Greater Brixton Street Wetlands in the context of MRS amendment area.

1.2 EPA Instructions for Environmental Review

EPA's instructions identify the potential impacts and risks to Social Surroundings (p18) as:

- Disturbance to Aboriginal heritage places and/or cultural association within the area.
- Changes to environment which may impact on Aboriginal heritage places.
- Impacts to the natural, social and historical heritage values of the GBSW.
- Impacts to the visual amenity associated with the natural and semirural character of the area.

The EPA considers that the relevant activities that may lead to such impacts include the future clearing of vegetation, site works, and provision of associated infrastructure, as well as the physical presence of future development and associated infrastructure. This report responds to the relevant EPA Instructions No. 48-53 and 55 listed below as follows:

EPA Instruction No.	Section of this report that responds
48. Characterise the heritage and cultural values within the amendment area to identify sites of significance and their relevance within a wider regional context.	Section 2
49. Conduct appropriate consultation with Traditional Owners to identify areas of significance and any concerns in regard to environmental impacts as they affect heritage and cultural matters.	Section 3
50. Provide a description and figure(s) of the heritage and cultural values and proposed direct and indirect impacts within and adjacent to the amendment area (including the GBSW).	Section 2 and 4
51. Assess the direct and indirect impacts on known heritage sites, values and/or cultural associations, associated with the changes in land use which may impact on cultural and heritage significance (including the GBSW).	Section 4
52. Predict the residual impacts on heritage sites, values and/or cultural associations, for direct, indirect and cumulative impacts after consideration of the mitigation hierarchy.	Section 5
53. Outline the mitigation and management measures to ensure impacts to heritage site, values and /or cultural association (direct and indirect) are minimised, and not greater than predicted.	Section 5
55. Describe the planning mechanisms that are to be applied to ensure impacts are managed to meet the EPA's objectives.	Section 6

1.3 Methodology

1.3.1 Relevant policy and guidance documents

- Statement of Environmental Principles, Factors, Objectives and Aims of EIA, EPA, 2021.
- Environmental Protection Authority. *Environmental Factor Guideline: Social Surroundings*, EPA, Western Australia. December 2016.

Other policy and guidance:

- Department of Aboriginal Affairs and Department of Premier and Cabinet, Due Diligence Guidelines, Version 3.0. Perth, Western Australia, 2013.

Other documents referred to:

- Environmental Protection Authority. 'Environmental values and pressures for the Greater Brixton Street Wetlands on the Swan Coastal Plain. Advice in accordance with Section 16(j) of the Environmental Protection Act 1986.' October 2022.
- hyd₂o. 'Wattle Grove South - District Water Management Strategy'. February 2024.
- Horizon Heritage Management. *Site Verification Assessment for Registered Aboriginal Sites DPLH 4342 Brentwood Road Quarry and DPLH 4343 Brentwood Road Swamp*. February 2021.
- Archae-aus (2019), A report of an Aboriginal archaeological and ethnographic site identification heritage surveys of the Tonkin Highway upgrades and grade separations – Hale, Welshpool and Kelvin roads project area, for MRWA.
- Lambers, Hans (Ed) (2019). *A Jewel in the Crown of a Global Biodiversity Hotspot*, Kwongan Foundation and the Naturalists' Club, Inc.

1.3.2 Frameworks and legislation

- EPA Act 1986
- Aboriginal Heritage Act 1972
- Noongar (Koorah, Nitja, Boordahwan) (Past, Present, Future) Recognition Act 2016
- Heritage Act 2018
- Dampier to Bunbury Pipeline Act 1997
- Guidance on Heritage Impact Assessments for Cultural World Heritage Properties (ICOMOS 2011)
- Australia ICOMOS Burra Charter, 2013
- 'Kaat, koort waarnginy Head, heart, talking: Aboriginal Engagement Framework', 2019

1.3.3 Study Team

Name	Position
Flavia Kiperman	Director / Principal Architect – Heritage - element
Nerida Moredoundt	Export Advisor – Heritage - element
Carmel Given	Associate – Heritage - element
Matt Raymond	Director – Planning - element
Brendan Moore	Noongar group facilitator – Sub-consultant to element

1.3.4 Whadjuk engagement approach

element works within the Noongar governance principle of 'Elders first' from the beginning through to the end of a project to ensure cultural safety, begin the process to develop strong Noongar community engagement and participation plans, and offer a two-way communication resource in making a sense of place for present and future development.

This methodology in placing Aboriginal people, heritage, and culture at the forefront of developing the cultural context is influenced by the following core principles as outlined in the 'Kaat Koort Waarnginy: Head Heart Talking' (KKW) framework (DevelopmentWA 2019).

1. Acknowledging the past and the truth telling of our shared history. We make place with buildings and with stories of place.
2. Identifying common themes relevant to the onset of colonisation and our shared history. We learn from our past to make way for our future and we acknowledge where we are now in the present to pose options for a better future.
3. Through ongoing conversations, talking and listening we make new histories, tell new stories that then become our past. The process is ongoing.

In following the core principles of the KKW there is opportunity to establish a Connection to Country for the MRS amendment area and to initialise cultural safety whilst understanding the relationship that this has with the principles of Caring for Country.

For Noongar people Caring for Country is the key to their physical, emotional, and economic health and wellbeing.

Note: Whadjuk is the name for one group of people of the Noongar nation; those that are from what is now the region in metropolitan Perth.

1.3.5 Acknowledgements

This report would not have been possible to prepare without the assistance of the Whadjuk Reference Group (names A-Z). This group would like to be consulted when further engagement is required in relation to this MRS amendment area. See Section 3 for more information.

- Noel Morich
- Diana Ponton
- Beverley Port Louis
- Marlene Warrell
- Diane Yappo
- Glenys Yarran
- Reginald Yarran

2. Heritage and Cultural Sites

This section addresses EPA Instruction Nos. 48 and 50:

48. Characterise the heritage and cultural values within the amendment area to identify sites of significance and their relevance within a wider regional context.

50. Provide a description and figure(s) of the heritage and cultural values and proposed direct and indirect impacts within and adjacent to the amendment area (including the GBSW).

It sets out the identification and description of heritage and cultural sites within the amendment area and the wider regional context, including the GBSW, and their associated significance/values. Supporting figures are provided as required by Instruction 50. Discussion of direct and indirect impacts required by Instruction 50 is provided in Section 4 of this report.

2.1 Heritage Listings

Places of cultural heritage significance in Western Australia are identified through a range of different heritage listings. Some of these listings give statutory protection to heritage places, through requirements for heritage-related approvals or referrals. Other listings are unofficial or quasi-official designations, often arising from local, community-based or thematic surveys.

2.1.1 Heritage Act 2018

The [Heritage Act 2018](#) (the Act) outlines the functions and responsibilities of the Heritage Council of Western Australia (HCWA). It also provides for a range of regulatory orders that the Heritage Minister may issue to provide special protection for a place.

The Act also requires the relevant local government authority to compile and maintain an inventory of places (referred to as a Local Heritage Survey; previously Municipal Heritage Inventory) within its boundary which are considered of local heritage significance. A 20 ha portion of the GBSW, located at its southern extent and known as the 'Brixton Street Conservation Area', has been included on this inventory of places of local heritage significance.

More notably, the GBSW is also listed on the Register of the National Estate and is subject to protection under the *Commonwealth Environment Protection and Biodiversity Conservation Act 1999*.

2.1.2 Historic Heritage Listings

Place and DPLH inHerit Reference No	Type of listing and level of significance	Year of Listing	Location detail	Current status
Brixton Street Conservation Area * (P12411)	City of Gosnells Local Heritage List.	2017	South west of the MRS amendment area.	A place of considerable cultural heritage significance to City of Gosnells with a high degree of integrity/authenticity that is worthy of recognition and protection through provisions of the City of Gosnells Town Planning Scheme. Planning application needs to be submitted to the City of Gosnells for any proposed development.
	Category 2 (Considerable significance)		Reserve 49200	
	Conservation of the place is highly desirable. Any alterations or extensions should reinforce the significance		Lot 808 on Plan 50190	
			Vol / Fol: LR3140-600 (Refer to Figure 3)	
'Brixton Street and Associated Wetlands' Place ID 19538	Register of the National Estate. Class: Natural	2000	Brixton St, Kenwick	Registered site. Note: the Register of the National Estate is a non-statutory archive.

Statement of Significance

Extracted from the Place Record, City of Gosnells Heritage Inventory 2016 (p. 251):

The place has social value to the community as demonstrated by the effective and ongoing campaign to establish the reserve led by the Friends of Brixton Street Wetlands Group.

The place has aesthetic value for its qualities of undisturbed wetland with the associated fauna and flora.

2.1.3 Aboriginal Heritage Act 1972

The *Aboriginal Heritage Act 1972* (AHA) protects all Aboriginal heritage sites in Western Australia, whether or not they are registered with the DPLH.

Consent is required from the Minister for Aboriginal Affairs for any activity which will negatively impact tangible or intangible Aboriginal heritage sites.

A search of the Aboriginal Cultural Heritage Inquiry System (ACHIS) database provides details of the sites for which the indicative boundaries intersect with the Wattle Grove South MRS amendment area or the GBSW.

2.1.4 Aboriginal Cultural Heritage Listings

Name	ACHIS Ref	Type *	Location detail	Previous study findings	Current status
Brentwood Road Quarry	4342	Registered site: Artefacts/ scatter, quarry	On the west side of Tonkin Highway. Outside of the MRS amendment area. (Refer to Figure 3)	40 quartz, seven fossiliferous chert, and one green chert artefact on a sandhill adjacent to a small swamp and modern sand quarry. Ref: Monks (2019), p. 411.	The site was re-found and recorded to Site Identification level during the recent archaeological survey (Aug & Sept 2019). Ref: Archae-aus (2019, p iv)

Name	ACHIS Ref	Type *	Location detail	Previous study findings	Current status
Brentwood Road Swamp	4343	Registered site: Artefacts/scatter	On the western border, and within the MRS amendment area on the east side of Tonkin Highway. (Refer to Figure 3)	<i>52 artefacts, mostly quartz with some fossiliferous chert, located on a sandhill adjacent to the same swamp as 4342.</i> Ref: Monks (2019), p. 411.	Recent survey (2022) defined the location as situated within the eastern verge of Tonkin Highway and part of the Dampier to Bunbury Gas Pipeline Corridor (Lots 106 and 266), which cannot be developed. However, it can be excavated and disturbed - only for pipe maintenance. No archaeological evidence was found during the recent archaeological survey (Aug & Sept 2019). Ref: Archae-aus (2019, p iv)
Yule Brook/Mandoorn	36929	Registered site: Mythological	North of GBSW. Not within or near the MRS amendment area. (Refer to Figure 3)	As a tributary to the Canning River, (Registered mythological site No. 3538) Yule Brook/Mandoorn is associated with the mythological water serpent, the Waugyl. The Yule Brook is a 'mark or thing left behind' by that ancestor. Ref: DPLH file, accessed October 2022	At the time of the archaeological survey (Aug & Sept 2019) by Archae-aus, this site was 'lodged' and has since been registered. It has value as a mythological site. These values are not impacted by the MRS amendment area, and the Yule Brook does not run through or adjacent to the area.
Boundary Road, Wattle Grove	3624	Registered site: Artefacts/scatter	South of Boundary Road, south of the GBSW. Not within or near the MRS amendment area. (Refer to Figure 3)	<i>Two flaked artefacts (one each of quartz, and glass) and a "broken piece of ground doleritic material, possibly part of a very flat muller (but could be a thick hatchet head)".</i> Ref: Monks (2019), p. 411.	A 2011 survey reported the earlier recorded artefacts could not be found due to ground disturbance. Ref: DPLH file, accessed October 2022.
Welshpool Reserve (Maamba Reserve)	3773	Registered site: Camp	300m to the north of the MRS amendment area on the north side of Crystal Brook Road. (Refer to Figure 3)		This is a Bush Forever Area (320) (Hartfield Park Bushland). It will not be impacted by the MRS amendment area development. No archaeological evidence was found during the recent archaeological survey (Aug & Sept 2019). Ref: Archae-aus (2019, p iv)

*DPLH Classification of type of site

Mythological: Sacred site which in its entirety is devoted to religious use only, where ancestors or spirit beings reside or where central figures in important spiritual events reside or where the events occurred.

Artefacts/scatter: Place that is of historical, anthropological, archaeological or ethnographical interest and should be preserved because of its importance and significance to the cultural heritage of the State.

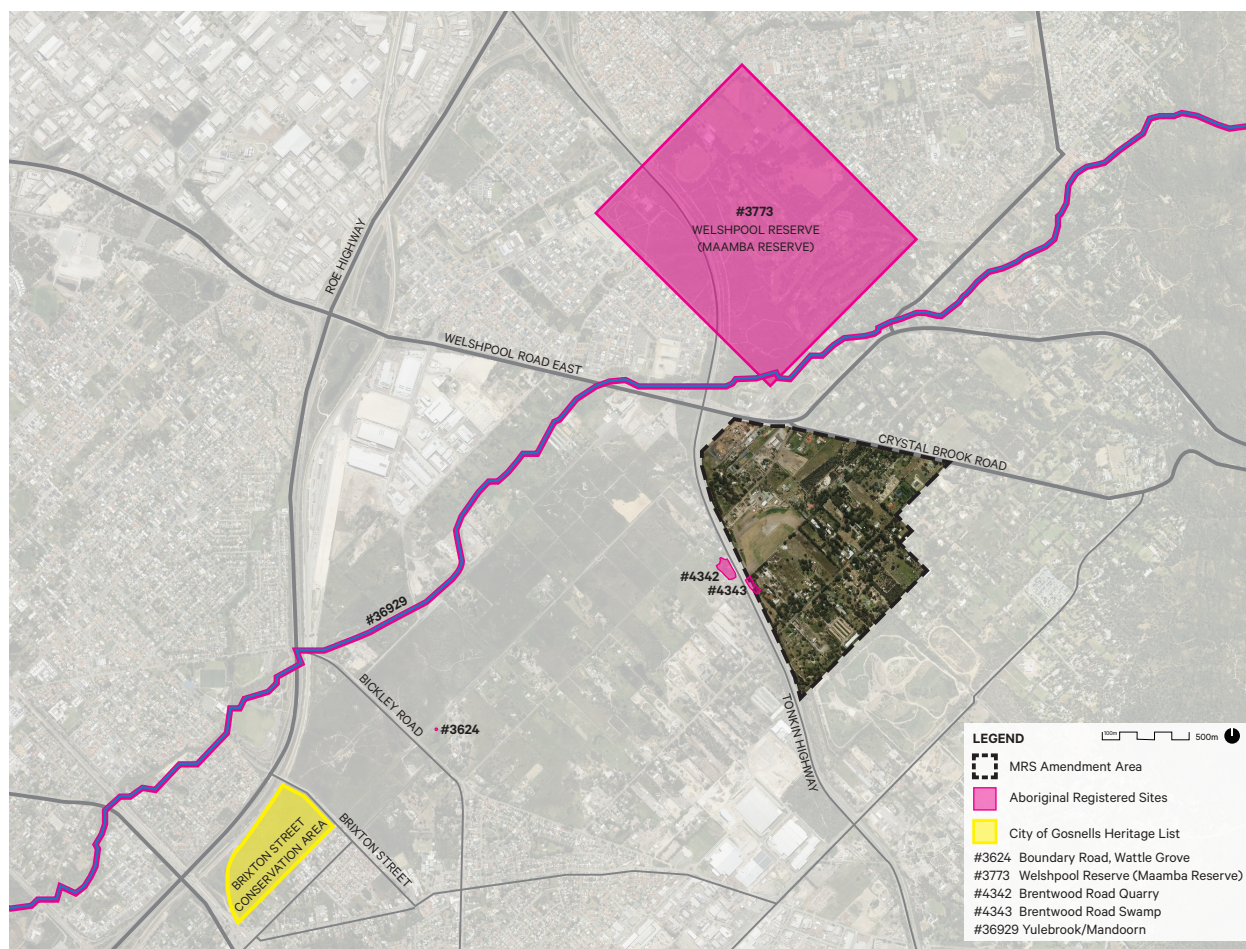


Figure 3. Location of listed and registered heritage places in the context of the MRS amendment area.

2.2 Wattle Grove History and Social Values

2.2.1 Cultural Context

The south-east area of Whadjuk Noongar boodja was the territory of Munday, leader of the Beeloo people. Munday (pronounced mun-dee) was a recognised and important negotiator for Perth's Whadjuk community. Munday's land stretched southeast from the Derbal Yerrigan between the Mandoorn in the north and the Djarlgarro in the south.

The Noongar calendar has six seasons, which broadly document the changing availability and quality of important resources like water, plants, and animals. People's movement through the landscape varied over the year, guided by these changes, and this used to happen at Wattle Grove as well. For example, during the season of Makuru the Beeloo camped in the Kalamunda and Mundaring hills. In the season of Kambarang and into the summer months, they would move camp closer to the Djarlgarro where Goolamrup at Kelmscott was one of the main camps.²

Of particular importance to the Noongar were the rich swamps and waterways such as Djarlgarro, which provided abundant seasonal food from the animal and plant life. The waterways are also of mythological and spiritual importance as evidence of the Nyittingy story of the Waugyl, a powerful figure in the form of a rainbow serpent that formed the landscape while on its westward journey from beyond the hills to the ocean. The Waugyl is recognised today as the power that creates and maintains the fresh flow of drinking water for humans in all watercourses and springs.

² Monks, C (2019), 'Beeloo, Boodjar' p. 406; Hughes-Hallet, D (2010) 'Indigenous history of the Swan and Canning Rivers,' p. 9.



Figure 4. The Darbal showing groups and their male leaders in 1832. The approximate location of the MRS amendment area is indicated to provide context. (© element)

2.2.2 Mandoorn/Yule Brook

The main waterway that feeds the GBSW is Mandoorn (Yule Brook³) which passes along the northern boundary of the GBSW.

Yule Brook is a natural watercourse at its headwaters. It rises in Lesmurdie Falls National Park and is joined in the vicinity of Waterfall Road, Forrestfield by Lesmurdie Brook, which itself rises at the Lesmurdie Falls. It is joined by Woodlupine Brook in Mills Park in Beckenham and continues to flow from there in a roughly south-westerly direction to its confluence with the Djarlgarro. The Yule Brook main drain discharges into the Djarlgarro upstream of Kent Street Weir, opposite Hester Park in Beckenham.

Yule Brook and its surrounds from Kenwick to the Darling Scarp has historical significance to the Noongar people as a camping and meeting place. The use of this land continued beyond first contact, until the area was subdivided and developed for residential housing and industry.⁴

The Yule Brook region would have been at its most productive in the Noongar season of Bunuru, supporting large groups of people who congregated to take advantage of wetland, freshwater, and estuarine resources such as plants, tortoises, schooling fish, crustacea, shellfish, birds, and other animals.⁵

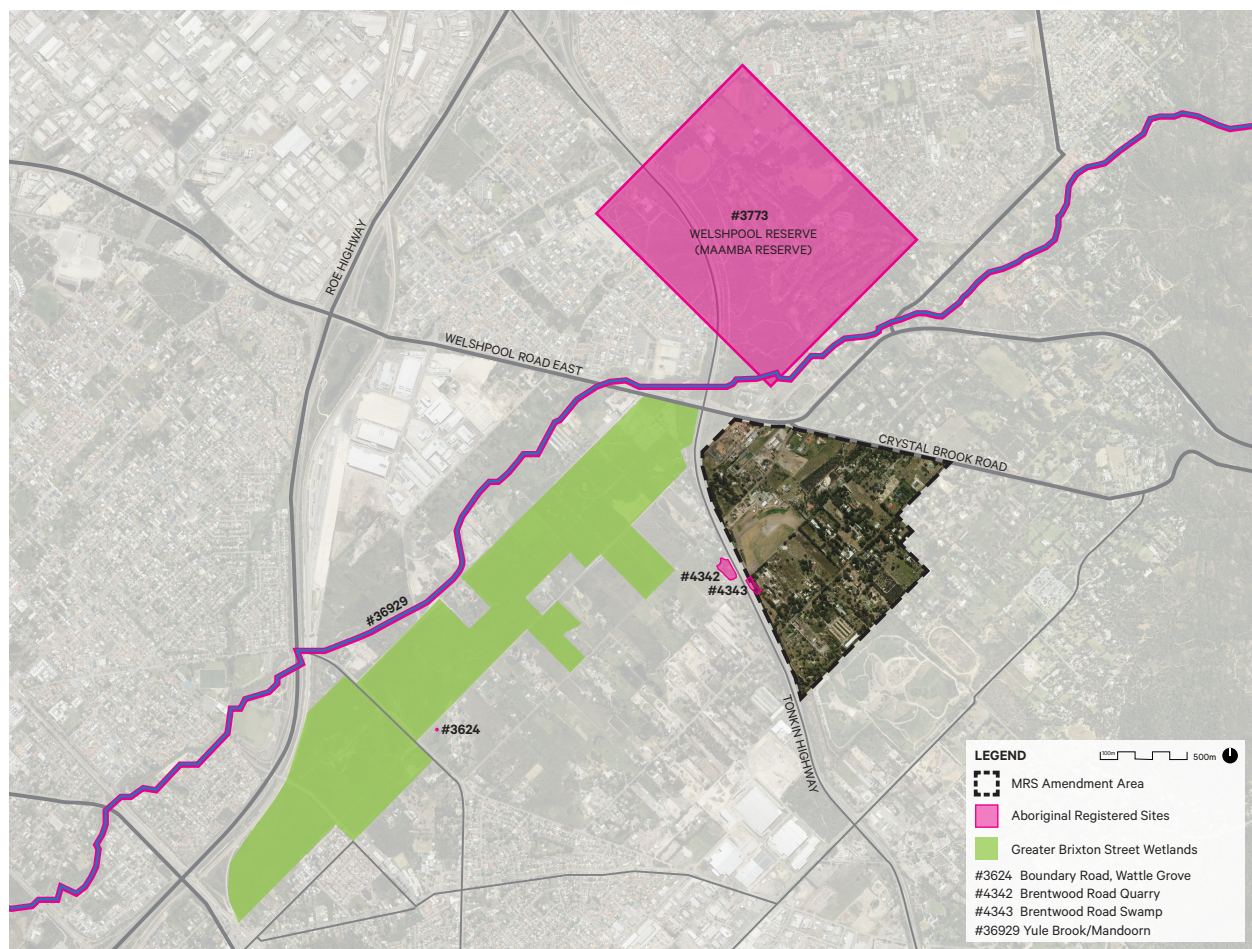


Figure 5. Yule Brook in context of the GBSW and the MRS amendment area.

³ After colonisation, Mandoorn was renamed Yule Brook after Thomas Yule, a colonial settler who took up large tracts of land on the Canning, Swan and the Avon rivers. He lived in the Swan River Colony from 1830 to 1862.

⁴ 'Yule Brook/Mandoorn' File 36939, Accessed from DPLH, 27 October 2022.

⁵ Monks, C (2019), 'Beeloo, Boodjar' p. 407.

2.2.3 Colonisation

When the Swan River Colony was established and land along the Canning River allocated for agricultural development in the 19th century, the Greater Brixton Street Wetlands and surrounding landscape were on the colony's fringe. Aboriginal people continued to visit and occupy the swamps and wetlands between the Canning and Swan Rivers during the 19th and 20th centuries, albeit with access increasingly hampered by agricultural, industrial, and residential development. Ribbon grants cut into the landscape, dissecting traditional territories into neat parcels of land to be cleared, fenced, grazed and ploughed. Despite this, Noongar people maintained significant resources and landscapes where they could...particularly to hunt turtles and tortoises, water birds, and other small animals like frogs and gilgies.⁶

The first land grants were called 'ribbon grants' because the intention was for every landholder to have river frontage, but as some had extremely large tracts of land, determined by their assets and wealth, the lots tended to be long and narrow. The 1829 land grants issued in the Canning area did not extend as far inland as the present-day suburbs of Kenwick and Wattle Grove.

The first land grants over Wattle Grove were Canning Location 246 (100 acres) issued to George Keith in 1886, and Location 207 (50 acres) to Mary Jeffery in 1887. This area becomes the heart of the Wattle Grove community. By 1888 Loc. 246 was in the hands of Alexander Forrest, pastoralist and entrepreneur, who used it to hold cattle.

Welshpool Road was known as early as 1889, and one account states that an early market gardener, Benjamin Dewing was born in Welshpool in Wales, and named his property after the Welsh town. The area became known as Wattle Grove apparently because of the wattle trees that lined both sides of Welshpool Road.⁷

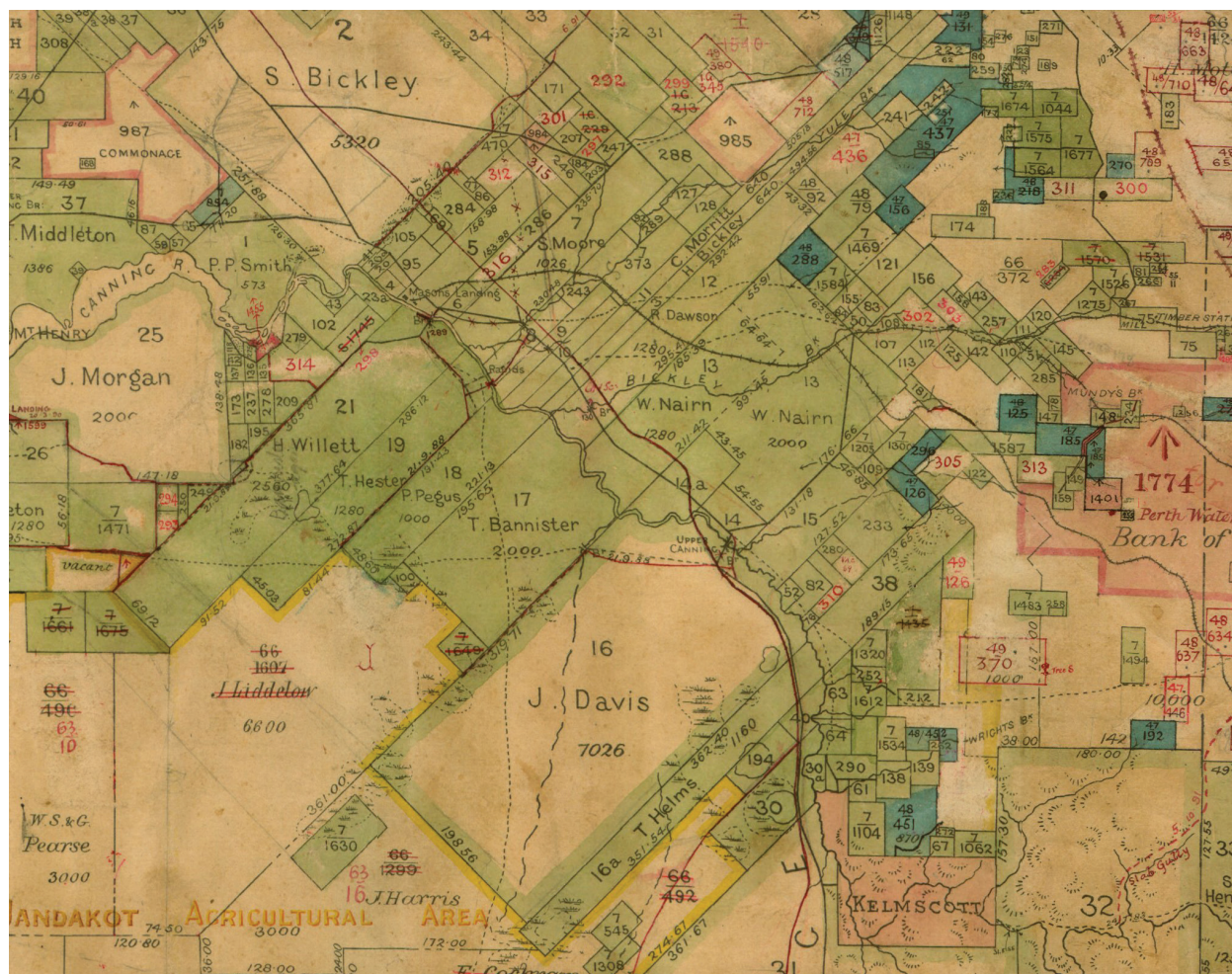


Figure 6. Extract from South West public plan, 1888, showing land grants. (Cons 4900/S01-3, State Records Office)

⁶ Monks, C (2019), 'Beeloo, Boodjar' p. 413.

⁷ Landgate. Western Australian Land Information Authority. <https://www0.landgate.wa.gov.au/maps-and-imagery/wa-geographic-names>

2.2.4 Rural and residential development

Between 1890 and 1920 the whole fabric of Western Australian society changed dramatically. The gold rush brought an expanded population and economic confidence. Sprawling suburbia encroached on land previously used for food production, and there was a need to open new land for intensive farming such as orchards and dairies. Entrepreneurs and land agents began looking to the fertile land along the Canning valley, especially after the Perth-Armadale railway line opened in 1893. Land development followed the railway line as much as it did the fertile riverbanks. It is in this context that Wattle Grove as a town centre and later a rural suburb had its beginnings.

In 1910, Mr. William Barnsley purchased Loc. 246 and established a dairy farm with his wife and six children. Mr. Sidney Charles Marriott purchased Loc. 207. These two men were to be instrumental in the development of Wattle Grove as a new semi-rural community centre.

Meanwhile to the southeast of these locations, estate agent Alexander Cumming had speculated on 300 acres of land near Yule's Brook. The property was looked after by an old man 'who had nothing to do but feed three pigs and generally take care of the place.'⁸ In 1911, Cumming began to develop part of Loc. 7 as 'Wattle Brook Estate.' Between Edward Street and Kenwick, he promoted it as 'eminently suitable for fruit and vegetable culture.' The blocks were large - between 10 and 20 acres - to accommodate orchards, market gardens and poultry farms.⁹

The inaugural meeting of the Wattle Grove Progress Association was held on 27 July 1912 at Mr. Barnsley's dairy farm called 'Wattle Grove' on Welshpool Road. Barnsley was President, and Sidney Marriott was Secretary-Treasurer of the Progress Association. Other foundation members were G. Courtenay, J. Chisholm and H. Wilson. Early Wattle Grove residents included family names of Brittain, Windsor, Gitting, Gilling, Vose, Wimbridge, Cunningham, Gibbs, Bassett, Nowatny, Caterer, Baile, Coney, Steinich, Harris, Murray, Tracey and Thompson.¹⁰ The efforts of the Association were centred around priorities such as completion of Welshpool Road; the establishment of a school; and the starting of a bi-weekly postal service.¹¹

By 1914, the community had built the Wattle Grove Hall, a small weatherboard and iron roofed building, on the corner of Welshpool Road and William Street. It was the community hub for dances and concerts, meetings of the Progress Association, the local polling place, and served as the school for local children until a purpose-built school was constructed in 1939, on the corner of Brook and Welshpool Roads.

⁸ McDonald G & Cooper W S (1988), 'The Gosnells Story,' City of Gosnells, p. 92.

⁹ Wattle Brook Estate Cannington, W. W. Mitchell, auctioneer, 1911. (Map/Plan, SLWA 13/17/178); McDonald & Cooper (1988), p. 104.

¹⁰ McIntosh, C (1974). 'Wattle Grove, Western Australia: A Historical Record.' Canning Districts Historical Society, p. 7; Puddy, 'Wattle Grove: The Beginning.'

¹¹ "WATTLE GROVE—A PLACE WITH A FUTURE." The Swan Express, 2 August 1912, p. 3. <http://nla.gov.au/nla.news-article207344273>

WATTLE BROOK

ESTATE CANNINGTON

Only 7½ Miles from Perth

Within 20 Minutes Walk of the Cannington Railway Station


Macadamised Road runs direct from Station to the Estate

30 Trains Daily

Weekly Ticket 3/-

This land has proved itself eminently suitable for FRUIT & VEGETABLE Culture as the adjoining Orchards & Gardens will show.

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LARGE BLOCKS

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Will be Sold at

LOW PRICES

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15% Deposit

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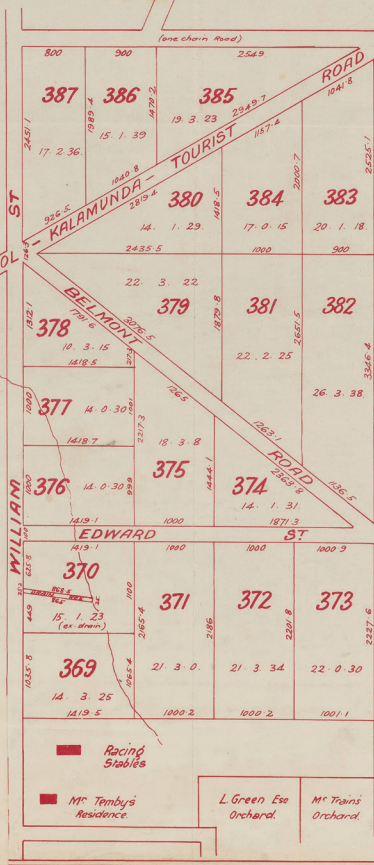
PUBLIC AUCTION

Saturday, 5th Aug.,

AT 8 P.M. 1911.

Mechanics' Institute Hall,

Hay Street, Perth.



W.W. MITCHELL

Auctioneer

Land & Estate Agent

83 William St Perth

'Phone 954

Subject to Dep. Plan.

John Daughton
South Perth, Chairman
Barwick St Perth

HERALD LITHO. PERTH.

1090/178

Figure 7. Promotional real estate poster, 1911. (SLWA 13/17/178)

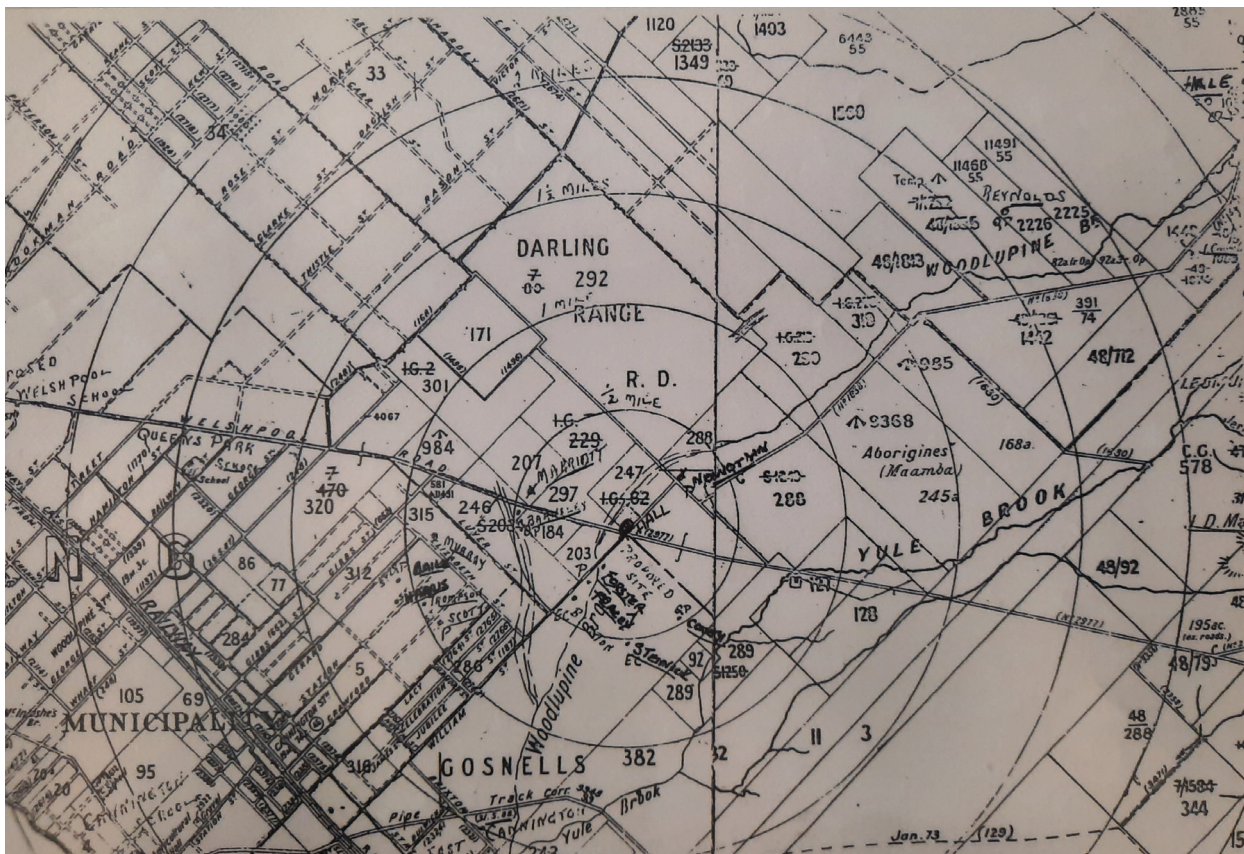


Figure 8. Map showing proposed location for the Wattle Grove Hall west of the Maamba Reserve which became the hub of the new community. (Puddy, 'Wattle Grove: The Beginning'.)

2.2.5 Maamba Aboriginal Reserve

By 1850 the Aboriginal people who had survived the first few decades of introduced disease or violence, were displaced and forced to live on the fringes of towns, away from their traditional lands and camping sites.

In 1898 500 acres of land, which had previously been granted to former police tracker Joobytych¹² by Bishop Hale and Lord Mayor John Forrest, were set aside as Forrestfield Reserve 985. In 1901 under the direction of the Chief Protector of Aborigines, Henry Prinsep, it was made an official 'Native reserve', fashioned as a working farm and, ultimately, a ration depot. Noongar occupation of the Welshpool Reserve, as it was then known, was 'voluntary', but people from around the southwest, including Perth, New Norcia, and Busselton, were gathered up and brought to the reserve.

In 1904 the original reserve was cancelled and Reserve 9368 was created, encompassing 245 acres of the original reserve land.¹³ The Welshpool Reserve became known as the Maamba Aboriginal Reserve.¹⁴

Daisy Bates, journalist and self-styled anthropologist, researched the people living at the Maamba Reserve from c. 1905 to 1907. Bates interacted a great deal with Joobytych and his niece, Balbuk Yooreel. Joobytych told Bates that he wanted to die on Maamba, so that his spirit could rest on the Kaanya tree (also known as the Moodjar) a sacred tree known as the tree of the dead, where all Bibbulmun spirits rest on their way to Karanup. The exact location of the tree was not known but thought to be in Karragullen. As Yule Brook is the only water source flowing through Maamba, it is therefore considered the death site of Joobytych and the site of the Kaanya tree. Bates recorded his death as relevant to the Aboriginal heritage and historical status of the place.¹⁵

¹² Alternate spelling found in some texts 'Joobaitch'. Refer to Appendices for more information about Joobytych.

¹³ State Records Office files, Cons 4080 01428 (3 vols), 1904.

¹⁴ The adoption of this name may be due to the Noongar elders' reluctance for the colonial government to use the name of Waugal. See Monks (2019) for reference.

¹⁵ 'Yule Brook/Mandoorn' File 36939, Accessed from DPLH, 27 October 2022.

Yule Brook traverses the south-western corner of Maamba Reserve and was an important source of water for those that camped there. During a field survey with Whadjuk representatives in December 2019, a former water soak (presumably forming part of Yule Brook) was pointed out as a place where “...our mob used to get their water”.¹⁶

In 1910 when A. O. Neville became the Chief Protector, he moved all Aboriginal people from towns and built-up areas to country reserves and institutions, such as Moore River and Carrolup. People from Maamba moved to the Eden Hill Reserve or returned to fringe camps.

The Maamba Reserve was designated as a timber reserve in 1918. In 1928 it was given the name 'Hartfield Park' at the suggestion of the Wattle Grove Progress Association. It is believed the name was to honour William Ernest Hartfield, a Queens Park resident who died in Belgium in 1917 whilst serving in the Australian Infantry Forces. In 1931, the Darling Range Road Board decided that the trees on the reserve should be removed. The purpose of the reserve was changed to recreation and public park in 1952 and designated as an 'A' class reserve. This site now includes Hartfield Park and Hartfield Golf and Country Club.¹⁷

Hartfield Park Bushland (former Maamba Aboriginal Reserve) is a Bush Forever Area (320). It is also a registered Aboriginal Heritage site (DPLH Site 3773), known as Maamba Reserve. (Refer to Figure 3) The former camp site continues to hold strong family connections, historical associations and sentiment for the Whadjuk Noongar people of the region.¹⁸

Materials such as flaked glass and ceramics present in some of the artefact scatters surrounding the GBSW indicate that Noongar people continued traditional lifeways beyond the colonial era. One flaked glass artefact is recorded at the Boundary Road (DPLH 3624) artefact scatter on the eastern margin of the GBSW. The flaked glass artefact is associated with a fragment of grinding material and a flaked quartz artefact. The discovery of these artefacts together proves the continued use of traditional resources in conjunction with introduced materials such as glass. These are a hallmark of the early phase of colonial-era Aboriginal use of the wetlands.



Figure 9. Joobytych at Maamba Reserve, c. 1907. (SLWA 009484PD)

¹⁶ Archae-aus Pty Ltd and Ethnoscience (2019), A Report of an Aboriginal Archaeological and Ethnographic Site Identification Heritage Surveys of the Tonkin Highway Upgrades and Grade Separations – Hale, Welshpool and Kelvin Roads Project Area, p.12.

¹⁷ Kalamunda Municipal Inventory Review. May 2019, Place No. 70.

¹⁸ Archae-aus Pty Ltd and Ethnoscience (2019), A Report of an Aboriginal Archaeological and Ethnographic Site Identification Heritage Surveys of the Tonkin Highway Upgrades and Grade Separations – Hale, Welshpool and Kelvin Roads Project Area, pp. 12, 20 and 25.

2.2.6 Rural and residential development since 1950

In the post-World War II period, Wattle Grove remained largely rural but underwent modest subdivision and development. At this time Welshpool Road extended in a straight alignment from Welshpool to the small cluster of orchards at the base of the foothills near Lesmurdie.

In 1954, land was resumed adjacent to Welshpool Road at the Canning end of Welshpool Road to service a new railway depot and direct heavy vehicles away from local traffic. Land was also resumed to improve the roads leading to tourist destinations such as the nearby Lesmurdie Falls.

A deviation along the Wattle Grove section of Welshpool Road was planned in 1956. In August 1958, land was resumed by Main Roads for this purpose, with the new road route published in January 1959 and formally declared in October the same year. The new deviation was named Welshpool Road East, with the remaining original section of Welshpool Road renamed Crystal Brook Road. At this time a line of Lemon Scented Gums (*Corymbia citriodora*) was planted by Main Roads along either side of the road reserve (north of the MRS amendment area along Welshpool Road East).¹⁹

Since the earliest days of dairies and poultry farms, much of Wattle Grove has developed into other agricultural uses such as equestrian studs, agistment paddocks, horticultural nurseries, pet kennels, hobby farms and cattle breeders.²⁰

¹⁹ Kalamunda MHI 2019, Place No. 182

²⁰ [Western Australian Land Information Authority](#), Landgate aerals, 1965 and 1974.

Development of the Wattle Grove Area



1965



1985

Figure 10. Development of the Wattle Grove area, 1965; 1985; 2020; 2021 (Landgate & MNG Access, with element overlay)



2010



2021

Figure 10. Development of the Wattle Grove area, 1965; 1985; 2020; 2021 (Landgate & MNG Access, with element overlay)

After a concerted campaign was lost during the 1980s by the Save our Foothills action group, followed by campaigning by the Wattle Grove Action Group to retain the rural use and lifestyle of the suburb east of Tonkin Highway, the WAPC and the Shire of Kalamunda rezoned the area bounded by Welshpool Road, Tonkin Highway and Roe Highway for urban development.²¹



Figure 11. Map showing Wattle Grove in the 1950s. (Puddy, A (n.d.) 'Wattle Grove: The Beginning.')

²¹ Nazzari, N, 'Powering ahead on master plans.' *Perth Now*, 23 March 2012. <https://www.perthnow.com.au/news/wa/powering-ahead-on-master-plans-ng-3ca328adcc97209d920dfa7db0ab3b2f>

2.3 Greater Brixton Street Wetlands Description and Values

2.3.1 Description

The GBSW lie on a very flat waterlogged Pinjarra Plain at the base of the Darling Range. The wetlands cover approximately 215 hectare (ha) of land bounded by Brixton Street, Brook Road, Boundary Road and the intersection of Tonkin Highway and Welshpool Road East.

Entry to the GBSW is via an entry gate on Alton Street, which leads to an information bay and walk paths. Being a wetland, the area is sometimes inaccessible due to inundation.

The GBSW contains vegetation in or near to its condition prior to settlement of the area. It hosts plant communities and species that are rare and endangered, and is home to at least 558 native plant species, including more carnivorous plants than all of Europe.²² The site contains more than 20% of Perth's flora in just 0.005% of Perth's area.

Of particular interest are the 80+ special wildflowers that are rare and endangered on the site which have only recently been discovered by botanists and are uncommon on the Swan Coastal Plain. It has four species of Declared Rare Flora: pennywort (*Hydrocotyle lemnoides*), water ribbons (*Aponogeton hexatepalus*), starflower (*Calytrix breviseta* ssp. *breviseta*) and Purdie's donkey orchid (*Diuris purdiei*).²³

The GBSW is a habitat for the Quenda or Southern Brown Bandicoot (*Isoodon obesulus*), water birds and many native terrestrial and aquatic animals.²⁴

In 2004 the GBSW was purchased by the state government for conservation and put under the management of the Department of Conservation and Land Management (CALM), now the Department of Parks and Wildlife (DPAW).

A management committee with representation from DPAW, the City of Gosnells and the Friends of Brixton Street Wetlands is responsible for management of the wetlands. Management actions including weed management and bushland restoration, the upgrading of fences, placement of signs and rubbish removal.

²² Urban Bushland Council Inc website. Accessed 15 November 2022. <https://www.bushlandperth.org.au/preserve-greater-brixton-street-wetlands/>

²³ Australian Heritage Database, Register of the National Estate Place ID 19538, 'Brixton Street and Associated Wetlands, Brixton St, Kenwick, WA, Australia', accessed 17 January 2023.

²⁴ Extracted from City of Gosnells Heritage Inventory (2016), p. 251.

2.3.2 Evidence of Social and Historical Values

Bush Forever Site 387

Bush Forever is a State Government-led strategic plan that was established in 2000 to retain the biodiversity of the Perth Metropolitan Region. When the plan was released, it identified 51,200 ha (or 512 square kilometres) of regionally significant bushland to be protected and managed across 287 unique sites, on both public and private land.

In recognition of its significance, the GBSW is identified in Bush Forever as 'Site 387'. It is the largest area of bushland remaining on the Pinjarra Plain of the Perth region. The presence of a significant number of rare and endangered plant communities and species add to the value of the area.

Yule Brook Reserve

Within the GBSW and Bush Forever Site 387 is Yule Brook Reserve – a 34.6 ha parcel of land purchased by the University of Western Australia (UWA) in 1949. In 1979 it was gazetted as a reserve and is used by UWA for botanical research and teaching.

The educational values of the GBSW are described by the EPA in its recent publication titled *Environmental values and pressures for the Greater Brixton Street Wetlands on the Swan Coastal Plain - Advice in accordance with section 16(j) of the Environmental Protection Act 1986* (October, 2022). In this publication, the EPA explains that:

The GBSW are noted to be highly regarded on an international level for their scientific and educational values (DCCEEW 2022). There is strong engagement from researchers, citizen scientists and community groups that collectively aim to enhance knowledge, including sampling invertebrates and flora surveys (Lambers et al 2019). These groups are active in the protection and management of the GBSW area and consider the wetlands a high priority for conservation, restoration and protection. Urban environmental volunteering has been ongoing in the region for over 35 years (Dhakal 2016), including monthly hydrological monitoring (Luu & English 2004), as well as field assistance by community volunteers (WAH 1998).²⁵

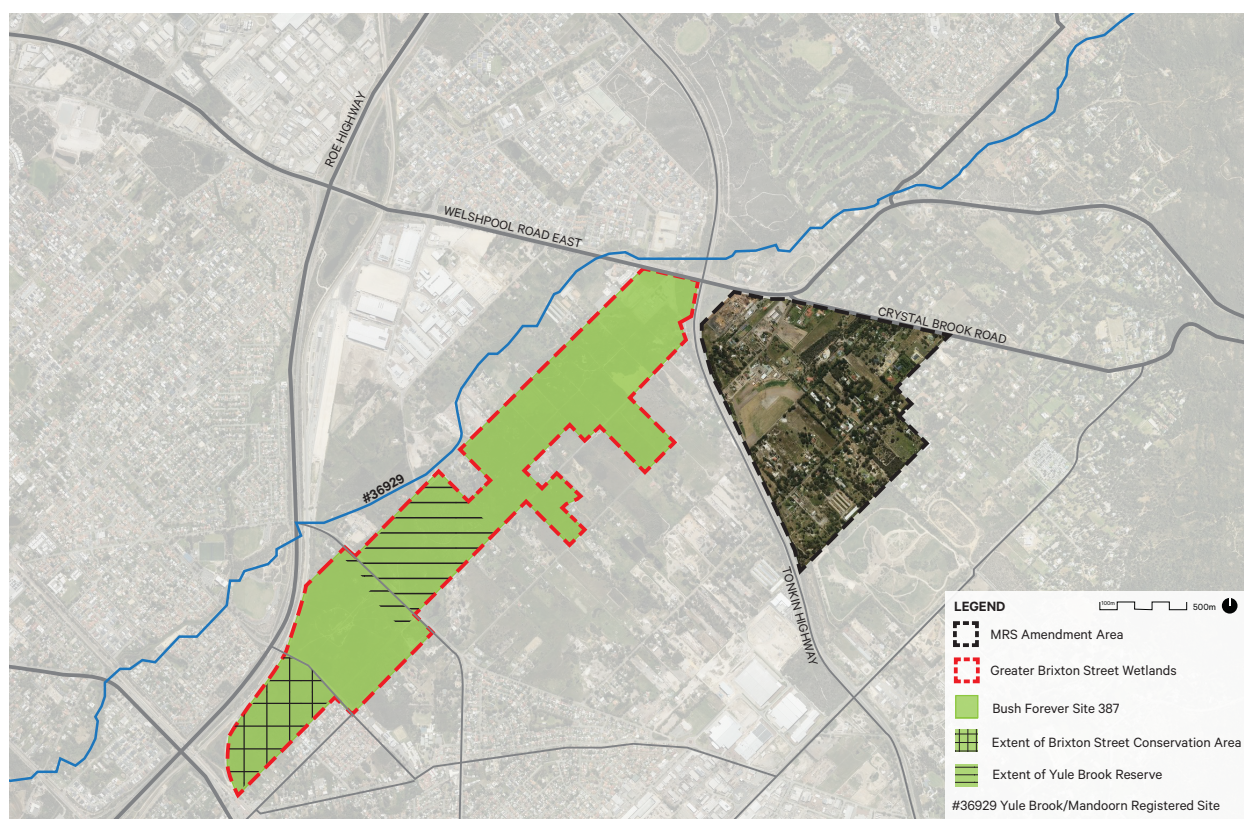


Figure 12. Bush Forever Site 387, showing the GBSW and the UWA-owned research reserve.

²⁵ Environmental Protection Authority (2022), 'Environmental values and pressures for the Greater Brixton Street Wetlands on the Swan Coastal Plain - Advice in accordance with section 16(j) of the Environmental Protection Act 1986' p. 16.

The Friends of Brixton Street Wetlands

*We are a group of passionate volunteers who believe in the many benefits the wetlands provides to the local community. Our ongoing efforts ensures the area remains home to the native fauna and continues to flourish with natural vegetation and flora.*²⁶

The Friends of the Brixton Street Wetlands (the Friends) is an active grassroots, volunteer-based, community-led organisation formed in 1993 that grew out of a campaign by the Waterbird Conservation Group in the late 1980s.²⁷ They were active in protecting the Kenwick Wetlands (bounded by Wanaping Road, Brixton Street and the current Roe and Albany highways) from development by Homeswest for public housing, and after an environmental assessment this area of 30 ha, called the 'Brixton Street Swamps' was added to the Australian Nature Conservation Agency's 'Directory of Important Wetlands' in 1993. In 1995 the Friends, together with the Perth branch of the Wildflower Society of WA, developed a management plan for the Brixton Street Wetlands. This proposed a much larger area for protection, extending east from the Kenwick Wetlands to include the UWA-owned Yule Brook Reserve, and most of the land to the east between Brook and Boundary roads up to Welshpool Road.²⁸ In 2004, an area of 126 ha was vested in the Conservation Commission of Western Australia as a nature reserve for the conservation of flora and fauna managed by the then Department of Environment and Conservation, now Department of Water and Environmental Regulation (DWER).²⁹

The Friends of Brixton Street Wetlands remain active today, convening regularly to help maintain the wetlands by seed collecting, planting and weeding. The volunteers are committed to helping maintain the thriving ecosystem which is home to a diverse range of flora and fauna; including the endangered Bandicoot or Southern Brown Bandicoot (Quenda).

Activity Days are held on the third Saturday of every month. The Friends produce a regular newsletter, maintain a website, and recently produced a book about the GBSW with proceeds of sales going towards the management of wetlands.

The Friends of Brixton Street Wetlands also run a Facebook page in which the purpose of the group is described as: 'Working to preserve the natural heritage of Kenwick.'³⁰



Figure 13. FOBSW website



Figure 14. FOBSW Facebook banner

²⁶ Environmental Protection Authority (2022), 'Environmental values and pressures for the Greater Brixton Street Wetlands on the Swan Coastal Plain - Advice in accordance with section 16(j) of the Environmental Protection Act 1986' p. 16.

²⁷ Friends of the Brixton Street Wetlands website. Accessed 15 November 2022. <http://www.friendsofbrixtonstreetwetlands.org.au/fobsw-activities/>

²⁸ Keighery, Bronwen, (1995), 'Knowing and Managing the Brixton Street Wetlands', prepared for the Friends of Brixton Street Wetlands and the Perth Branch of the Wildflower Society of WA (Inc) in cooperation with the Department of Conservation and Land Management.

²⁹ Directory of Important Wetlands database: <https://www.dcceew.gov.au/water/wetlands/australian-wetlands-database/directory-important-wetlands>.

³⁰ Friends of the Brixton Street Wetlands Facebook page. Accessed 17 January 2022. <https://www.facebook.com/BrixtonStreetWetlands>

Save the Great Brixton Wetlands Group

There is also a 'Save the Great Brixton Wetlands' group on the social media platform Facebook.

The group has almost 1,300 followers.³¹ The page is active with regular interaction. It shares posts about other areas with similar environmental value that are facing development. Recent posts (November 2022) include topics such as the Cockburn Community Wildlife Corridor and the Helena River Wetlands, the Moore Catchment, Shenton Bushlands and the impacts of Roe 8.

2.3.3 Evidence of Archaeological and Ethnographic Value of GBSW

In the 1970s and 1980s an intense program of archaeological surveys between the Canning and Swan Rivers were undertaken by Sylvia Hallam, often in response to proposed industrial developments, sand quarrying and erosion. During these surveys, dozens of archaeological sites associated with wetlands and tributaries were recorded.

Typically, small, low-density artefact scatters (less than ten artefacts) are found in deflated sand patches on low rises and dune ridges, often within a few hundred metres of swamps and other water sources, reflecting a single episode of activity. Two such artefact scatters (DPLH 122 and 3624) are located around the margins of the GBSW. Six medium-sized scatters (up to 100 artefacts) are also recorded around the margins of the GBSW, possibly reflecting periods of prolonged or repeated site use (DPLH Sites 3631, 4340, 4341, 4342, 4343 and 24785). All of these artefact scatters are located in sandy areas associated with swamps or soaks and within just a few hundred metres of Yule Brook.³²

The archaeological and ethnographic values of the GBSW were the subject of a recent research paper: Monks, Carly. (2019). Beeloo Boodjar: The Indigenous history of the Yule Brook region and Greater Brixton Street Wetlands. In the paper, Monks summarises the values of Yule Brook and the GBSW as follows:

Prior to European colonisation, the Greater Brixton Street Wetlands and Yule Brook region were able to support substantial populations of people, and the seasonal nature of resource availability and use facilitated a cyclical pattern of activity and movement through the landscape. Rich plant and animal resources attracted Noongar people to the lakes and wetlands of the coastal plain during the most productive times of the year, allowing people to congregate in large groups, before dispersing in smaller family groups into the less productive hinterland during the colder months.

The wetland landscape of Beeloo Boodjar no longer resembles the once expansive network of water sources connecting the foothills of the Darling Scarp with the alluvial floodplains and sandplains below. Industrial and residential development has slowly eaten away at the edges of those swamps and wetlands that have survived being drained and infilled. Streams and tributaries have been dammed, encased in drainage pipes, and rerouted. But despite this, the Country's cultural heart continues to beat, testament to the ongoing survival of Noongar people and culture.

The significance of Yule Brook and the GBSW to the Whadjuk Noongar people of the region was confirmed during a site visit and engagement with Traditional Owners on 5 December 2022. The outcomes of this engagement are detailed in Section 3 of this report.

2.3.4 Discussion

The GBSW is a place of special meaning for a cross section of groups and individuals in the community, who recognise its exceptional biodiversity within the context of the Swan Coastal Plain, hosting rare and endangered species and containing more than 20% of Perth's flora in just 0.005% of Perth's area.

Some of these individuals and groups have proactively dedicated their time and efforts to protecting and conserving the wetlands for future generations. Other individuals and groups come together to volunteer their time, to maintain the GBSW through seed collecting, weeding, planting and raising general awareness of the wetlands in the wider community. Others recognise the educational values of the GBSW, as a place for teaching and research. Some value it simply for its aesthetic natural beauty. For the Whadjuk Noongar people, the GBSW are an important part of the cultural heart of the region.

It could also be said that these social values also cross over into being recognised as historical values, given that the concerted community campaign dedicated to the conservation of the wetlands has been ongoing for over the past three decades. This campaign has a place in Western Australia's conservation history, and has influenced government environmental policy over the course of time.

³¹ Save the Great Brixton Street Wetlands Facebook page. Accessed 15 November 2022. <https://www.facebook.com/SaveKenwicksBlackCockatoos>.

³² Monks, C (2019), 'Beeloo, Boodjar' p. 409.

3. Whadjuk Engagement

This section addresses EPA Instruction No. 49:

49. Conduct appropriate consultation with Traditional Owners to identify areas of significance and any concerns in regard to environmental impacts as they affect heritage and cultural matters.

It outlines the outcomes of consultation with Traditional Owners including identification of areas of significance and any concerns in regard to environmental impacts as they affect heritage and cultural matters.

3.1 Site Visits

The group was established with the guidance of consultant Brendan Moore, acting as the Noongar Group Facilitator. Brendan gathered together a group of Whadjuk Traditional Owners with long connections to Country, that hold the kaartdijin (knowledge) about the area.

The newly established Aboriginal Reference Group met for the first time at 9am Monday 5 December 2022 at a service station off Logistics Blvd and Welshpool Rd (48 Courtney PI), Kenwick. In attendance were:

Name	
Brendan Moore	Noongar group facilitator
Noel Morich	Whadjuk Traditional Owner
Diana Ponton	Whadjuk Traditional Owner
Beverley Port Louis	Whadjuk Traditional Owner
Marlene Warrell	Whadjuk Traditional Owner
Diane Yappo	Whadjuk Traditional Owner
Glenys Yarran	Whadjuk Traditional Owner
Reginald Yarran	Whadjuk Traditional Owner
Flavia Kiperman	element
Gemma Davis	Hesperia

Run Sheet

Time	Agenda
9.00 am	Meet and greet at Kenwick Service Station to head to Boundary Road together.
9:15 am	<ul style="list-style-type: none"> The group gathered at the north-eastern end of Boundary Road. Safety discussion. The Traditional Owners were invited to give a Welcome to Country, however the offer was respectfully declined.
9:30 am	An overview of the project and the purpose of the engagement with Traditional Owners was provided by Hesperia.
10:15 am	Visit to registered sites (#4342 & #4343). Yarning to gather information and recommendations of the sites' cultural values.
11.45 am	Wind up and summary. There were questions asked by the group in relation to timeframes of delivery and further meetings. There was opportunity to respond by the delivery team. Forms were completed.

3.1.1 Project Overview and Purpose of Engagement

During the project overview provided by Hesperia, it was explained that the WAPC had initiated an amendment to the MRS to change the permitted land use of an area in Wattle Grove from Rural to Urban.

It was further explained that the EPA had decided to undertake an Environmental Impact Assessment (EIA) of the MRS amendment pursuant to the *Environmental Protection Act 1986*. Hesperia was acting on behalf of the WAPC to complete the body of technical work that will be submitted to the EPA to inform their EIA.

Further clarification was also provided to highlight that the purpose of the EIA was to consider the MRS amendment only and any potential environmental impacts of the proposed change in land use to Urban. It was emphasised that at this early stage in the planning process, no development was being proposed.

In this regard it was further clarified that in the event the MRS amendment is approved, any future urban development within the area will be subject to the usual requirements for Aboriginal heritage approvals under the *Aboriginal Heritage Act 1972*. As such there will be opportunities for re-engagement with Traditional Owners about specific development proposals in the future. It was explained that typically this re-engagement would occur at the local structure planning stage of the planning process.

A plan showing the extent of the MRS amendment area was presented to the group. It was highlighted that the GBSW was not located within the area where the change in land use had been proposed. The group was then shown a map of registered Aboriginal heritage sites within and in close proximity to the MRS amendment area.

It was explained that the intent of the engagement with Traditional Owners was to discuss the cultural heritage significance of the registered sites and the potential impacts that the proposed change in land use may have on them. Additionally it was explained that the engagement would provide an opportunity for any other heritage values or important cultural associations in the area to be highlighted, so that they can be afforded due consideration in the EPA's EIA of the MRS amendment.

3.1.2 Inspection of Registered Sites

On inspection of the map of registered sites, it was understood by the group that there were two registered Aboriginal sites ID 4342 and ID 4343 located within or near the border of the MRS amendment area. The group wished to check on the sites and the proximity to the proposed development.

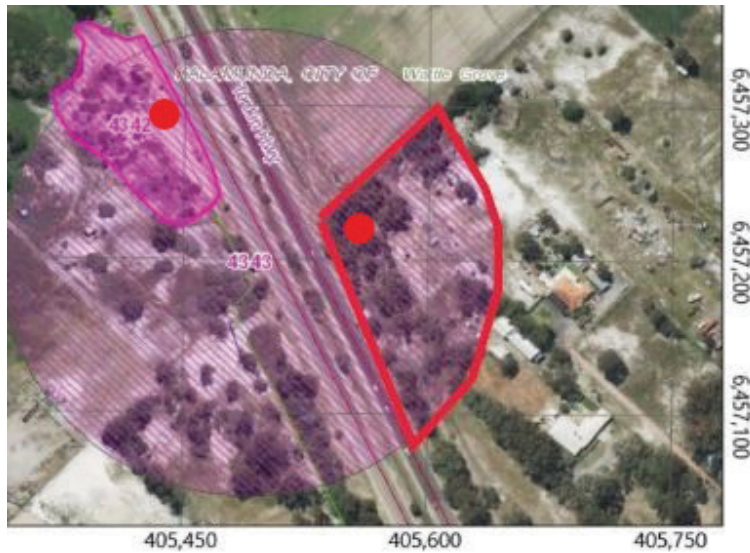


Figure 15. Red dots show approximate positions of the site visits within two registered sites. Site 4342 is the Brentwood Road Quarry adjacent the western side of Tonkin Highway, outside of the MRS amendment area. Site 4343 is the Brentwood Road Swamp, the extent of which is within the eastern verge of Tonkin Highway.

Noel Morich, Gemma Davis, Flavia Kiperman and Brendan Moore then walked to the Site ID 4342 (Brentwood Road Quarry) adjacent the western side of Tonkin Highway, outside of the MRS amendment area. The bare, white soil enabled Noel to identify several quartz and chert artefacts as well as describe the use of the area and its significance to the Whadjuk people.

The group then drove the length of Boundary Road in Kenwick, along the edge of the GBSW. A comment was made about the regional water flows (surface and subsurface) as evidenced by the paperbark trees (*Melaleuca raphiopylla*) - called Bibool Boorn in Noongar. The group requested that these trees be respected.

Note: These paperbarks are not in the MRS amendment area, although only approximately 200 metres to the west, on the opposite side of Tonkin Highway. They are located at the eastern end (terminated end) of Boundary Road, on the north side.

The next stop was east of Tonkin Highway at Site ID 4343 (Brentwood Road Swamp). The extent of Site ID 4343 was defined in 2022 as being situated within the eastern verge of Tonkin Highway and part of the DBNGP corridor on Lots 106 and 266 Victoria Road, within the MRS amendment area. No artefacts were identified (confirmed by the earlier archaeological survey in 2019). However, a discussion was held about this site being closely related to the Site ID 4342, less than 200 metres away, albeit now interrupted by the Tonkin Highway development.

During the site visit a discussion was held with the group about the possible direct and indirect impacts within and adjacent to the MRS amendment area and mitigation and management measures that would ensure impacts to heritage sites, values and cultural associations are minimised.

No new sites or landscape features of significance were identified during the site visit.

3.2 Site Stories

An interesting story that came out of the site visits was about the traditional practice of spear making. The evidence of chert and quartz found in the vicinity of a Spearwood tree demonstrates that activity. The stone artefacts are evidence of people making spears out of the branches of the Spearwood.

Another discussion worthy of exploring further is about seed collection and the planting of trees and vegetation endemic to the immediate area. For example, the Paperbarks located nearby on the opposite side of Tonkin Highway to the MRS amendment area, demonstrates evidence of underground water, and it was suggested that if new trees are planted within the MRS amendment area, then seeds from these trees should be collected for use. It is important to Noongar people that the local plants are used and replanted; trees 'hold the DNA' and hold the spirits and memories of what has gone before in a place. To introduce new plants not endemic would not be an acceptable outcome to the Whadjuk Reference Group.

A third story that could be explored further is the alignment of bidi (tracks) and how they would have led to and from camp sites, waterways and hunting grounds.

3.2.1 Future engagement

These stories are not exhaustive. The above brief stories are indication that there is a richness that may be drawn out by further consultation, and that these stories could be used to inform future interpretation in the MRS amendment area at the time of future development.

Note that while the Welshpool Reserve (Maamba Reserve) was included on the map presented at the beginning of the site visit, the place was not mentioned by any members of the group. It is, however, acknowledged as an important place relating to the wider area.

3.3 Outcomes

Following the two site visits a discussion took place that can be summarised as:

- The Yule Brook and its water flows have cultural value and are to be protected and respected.
- If works are to occur within the MRS amendment area (specifically in the vicinity of Site 4343) then appropriate permission and monitoring should be undertaken in accordance with the relevant legislative requirements.
- When further engagement is required, the same people that formed the Whadjuk Reference Group for the purposes of preparing this report should be consulted.
- The group expressed appreciation for being engaged at this early stage in the planning process, as well as a willingness to continue to be involved in later stages of the planning and development of the area.



Figure 16. An artefact identified at Site 4342.



Figure 17. Reg Yarran, Gemma Davis (Hesperia), Glenys Yarran and Noel Morich at Site ID 4343.



Figure 18. Noel Morich, Gemma Davies (Hesperia) and Brendan Moore at Site ID 4342. Tonkin Highway is at left.



Figure 19. Noel Morich stands beside a Spearwood (*Kunzea ericifolia*) at Site 4342, used by Noongar to make spears. This has the Noongar name Kitja Boorn.

4. Potential Impacts

This section addresses EPA Instruction Nos. 50, 51 and 52:

50. Provide a description and figure(s) of the heritage and cultural values and proposed direct and indirect impacts within and adjacent to the amendment area (including the GBSW).

51. Assess the direct and indirect impacts on known heritage sites, values and/or cultural associations, associated with the changes in land use which may impact on cultural and heritage significance (including the GBSW).

52. Predict the residual impacts on heritage sites, values and/or cultural associations, for direct, indirect and cumulative impacts after consideration of the mitigation hierarchy.

4.1 Impacts to Physical and Biological Surroundings

In accordance with the *EPA Environmental Factor Guideline - Social Surroundings*, an assessment of potential impacts on social surroundings requires a clear link to be established between:

- Any impacts of the MRS amendment on the physical or biological surroundings it relates to; and
- Any subsequent impacts flowing on from these physical and biological changes to the aesthetic, cultural, economic or social surroundings of individuals or groups of people.

It is considered that there are four key potential changes to **physical and biological surroundings** that are reasonably foreseeable as a result of the proposed change in land use from Rural to Urban. These are set out in the table below.

4.1.1 Potential Changes to Physical and Biological Surroundings

Physical Surroundings	1	The physical act of urbanisation itself – i.e. clearing of vegetation, development of housing, retail and commercial centres, roads, services and public open spaces.
	2	Temporary site works and activities during the development and construction phase. For example the construction of a temporary compacted limestone haul road for construction vehicles or littering and unauthorised dumping by construction personnel.
	3	New urban development opening up or increasing access to heritage sites by vehicles and pedestrians within the newly created community, thereby increasing the potential for human intervention with heritage sites and the risk of physical disturbance.
Biological Surroundings	4	Changes to the hydrological regime of the waterways and wetlands in the surrounding region, as an indirect consequence of future urban development.

These potential changes to physical and biological surroundings that may occur can have unintended consequences for the cultural heritage values of the GBSW and Aboriginal heritage sites, values and cultural associations. These potential impacts are discussed below.

4.2 Cultural Heritage Values of the GBSW

The GBSW is situated on land external to the MRS amendment area that is not subject to the proposed change in land use from Rural to Urban. Therefore, there is no risk the GBSW will be impacted by the physical act of new urban development, such as clearing activities and the construction of new housing.

Furthermore, any construction activities associated with future urban development within the MRS amendment area will be physically remote from the GBSW, so there is no risk of construction activities or temporary site works, such as haul roads, inadvertently encroaching on or disturbing the wetland. Tonkin Highway and Welshpool Road East provide the logical points of entry into the MRS amendment area for construction vehicles and therefore there is no risk that construction vehicles will intercept the GBSW and inadvertently impact on the GBSW.

The physical separation of the GBSW from the MRS amendment area, with Tonkin Highway acting as a significant physical barrier, will also protect the GBSW from future urban development within the MRS amendment area opening up or improving access to the GBSW by residential vehicles or pedestrians. Therefore, there is no risk of associated unwanted impacts on the GBSW, such as rubbish and garden waste dumping or unauthorised vehicle access.

It is considered that the only way in which the natural, social and historical heritage values of the GBSW could potentially be impacted by the proposed change land use is through a change to biological surroundings, specifically the hydrological regime of the wetlands, as an indirect consequence of future urban development.

Unmanaged surface water or groundwater impacts as a result of new urban development can alter the hydrological regime of wetlands and waterways in the surrounding region. This can lead to an interruption to the existing water flows, further leading to a deterioration in the quality and quantity of plant life within the wetlands and waterways. This in turn has the potential to impact on the cultural heritage values of the GBSW, which include the following:

- The educational values of the wetlands for researchers and scientists.
- The social and historical values of the wetlands held by individuals and community groups, who have come together and volunteered their time for over three decades, to conserve and enhance the wetlands for future generations.
- The social value of the wetland as a place of special meaning for individuals and groups for its aesthetic natural beauty.
- The cultural heritage value of the natural water flows of waterways and wetlands to the Whadjuk Noongar people of the region.

4.3 Aboriginal Heritage Sites, Values and Cultural Associations

The Aboriginal cultural heritage sites, values and cultural associations that exist in and around the MRS amendment area can be grouped into three distinct classes for the purposes of assessing potential impacts. They are:

1. Heritage sites of archaeological significance.
2. Heritage sites with significance based in mythology, tradition, history and sentiment.
3. Cultural associations of trees endemic to the GBSW and surrounding region.

Impacts to sites of archaeological significance are caused primarily by physical intervention or disturbance. Impacts to the two other two classes (i.e., heritage sites with significance based in mythology, tradition, history and sentiment; and cultural associations of the trees endemic to the GBSW and surrounding region) can also occur as a result of physical intervention or disturbance, but also as a result of changes to biological processes and surroundings.

The potential for Aboriginal heritage sites, values and cultural associations to be impacted by the four reasonably foreseeable changes to physical and biological surroundings in Section 4.1.1 are discussed below.

4.3.1 Brentwood Road Swamp (Archaeological Significance)

As outlined above, impacts to sites of archaeological significance are caused primarily by physical intervention or disturbance. There is no risk of changes to biological processes and surroundings impacting on archaeological sites.

The Brentwood Road Swamp registered heritage site (ID #4343) is an artefacts scatter situated within the MRS amendment area, where the change in land use from Rural to Urban has been proposed. Therefore there is the risk that this heritage site could be impacted by new urban development.

With urban development also comes the potential risk of physical disturbance to the heritage site from temporary site works and activities during construction, as well as opening up / increasing access to the heritage site to pedestrians and vehicles from the newly created urban area.

The likelihood of such impacts occurring at the Brentwood Road Swamp heritage site is considered to be negligible to low given that no artefacts were found at the site during the archaeological survey by Archae-Aus in 2019, or again during the visit to the site with Traditional Owners on 5 December 2022.

Furthermore, the risk of impact to the heritage site is also considered to be negligible to low, due to it being situated within the easement for the Dampier to Bunbury Natural Gas Pipeline (DBNGP). The pipeline is protected by the *Dampier to Bunbury Pipeline Act 1997* (DBP Act) and the easement exists as a development exclusion zone.

4.3.2 Brentwood Road Quarry (Archaeological Significance)

The Brentwood Road Quarry heritage site (ID #4342) is an artefacts scatter and quarry situated on land external to the MRS amendment area, which is not subject to the proposed change in land use. Therefore, there is no risk the land on which the site is situated will be impacted by the physical act of new urban development.

Due to the Brentwood Road Quarry heritage site being physically severed from the MRS amendment area by Tonkin Highway (a 60m wide arterial road corridor), all construction activities associated with urban development within the MRS amendment area will be physically remote from the site. Thus, there is no risk of construction activities or temporary site works such as haul roads inadvertently encroaching on or disturbing the site.

Similarly due to Tonkin Highway acting as a clear physical barrier between the heritage site and the MRS amendment area, there is no risk that new urban development in the MRS amendment area will open up new ways of accessing the site for vehicles and pedestrians from the newly created urban area.

4.3.3 Boundary Road, Wattle Grove (Archaeological Significance)

The Boundary Road, Wattle Grove heritage site (ID #3624) is an artefacts scatter situated on land external to the MRS amendment area, which is not subject to the proposed change in land use. It is also physically severed from the MRS amendment area by Tonkin Highway and a substantial separation distance of 2km.

Therefore, like the Brentwood Road Quarry site, there is no risk of any impacts to the site as a consequence of physical changes from the MRS amendment, such as new urban development, construction activities or increased access by pedestrians and vehicles.

4.3.4 Yule Brook / Mandoorn (Mythological Significance)

Yule Brook / Mandoorn (ID #36929) is situated external to the MRS amendment area. Tonkin Highway and Welshpool Road East (60m and 40m wide road corridors respectively) act as significant physical barriers between Yule Brook / Mandoorn and the MRS amendment area.

Similar to the commentary provided above in respect to the archaeological sites located external to the MRS amendment area, the MRS amendment will not lead to any new urban development on or adjacent to Yule Brook / Mandoorn.

Furthermore, due to the physical separation of Yule Brook / Mandoorn from the MRS amendment area, there is no risk of impacts to the waterway as a result of construction activities or increased access by residential vehicles and pedestrians as a result of new urban development.

Tonkin Highway and Welshpool Road East provide the logical points of entry into the MRS amendment area for construction vehicles. Both roads already provide appropriate crossings over Yule Brook / Mandoorn, so there is no risk that construction activities within the MRS amendment area will necessitate that the waterway be disturbed by a requirement for new vehicle crossings.

It is considered that the only way in which the heritage values of Yule Brook / Mandoorn may be potentially impacted is as a result of changes to biological processes or surroundings. In particular, Yule Brook / Mandoorn is one of many waterways that are important to the Noongar people as abundant sources of seasonal food from animal and plant life, and also for their mythological and spiritual association with the Waugyl, the rainbow serpent that formed the landscape and waterways. Today the Waugyl is recognised as the power that creates and maintains the fresh flow of drinking water for humans in all watercourses and springs.

Therefore, these heritage values of Yule Brook / Mandoorn could potentially be impacted by the proposed change in land use through a change to the hydrological regime of the waterway, as an indirect consequence of future urban development.

4.3.5 Maamba Reserve (Significance Attributed to Tradition, History & Sentiment)

To a lesser degree these potential hydrological impacts to Yule Brook / Mandoorn could also indirectly impact on the heritage values of Maamba Reserve (ID #3773), however this is not known for certain, as it was not discussed during the consultation with Traditional Owners on 5 December 2022. However, a 2019 study by Archae-Aus and Ethnoscience documented that Yule Brook / Mandoorn was noted by the Traditional Owners of the region as an important source of water for the population who camped at Maamba Reserve.

It is therefore possible that any impacts to the hydrological regime of Yule Brook / Mandoorn could also impact on the heritage values of Maamba Reserve, however further consultation with Traditional Owners would be required to confirm this.

As Maamba Reserve is situated on land external to the MRS amendment area and is physically severed from the area by Tonkin Highway and Welshpool Road East, there is no risk of any impacts to the site as a consequence of physical changes, such as new urban development, construction activities or increased access by pedestrians and vehicles, as outlined above for the other heritage sites external to the MRS amendment area.

4.3.6 Trees Endemic to the GBSW and Surrounding Region (Cultural Associations)

Endemic trees of the GBSW and surrounding region are valued by the Whadjuk Noongar people for a variety of cultural associations. Below are a few examples that were identified through consultation with Traditional Owners and documentary research, which are not intended as an exhaustive list:

- The use of the branches of the Spearwood tree in spear making.
- The Christmas tree³³ as a sacred resting place for the spirits of ancestors.
- Paperbark trees as a sign of underground water.
- All endemic trees, which 'hold the DNA' and the spirits and memories of what has gone before in a place.

Cultural associations of the trees endemic to the GBSW and the surrounding region can be impacted by changes to both the physical and biological environment.

There is the potential for endemic trees with important cultural associations to exist within the MRS amendment area, albeit none were identified during the site visit and consultation with Traditional Owners on 5 December 2022. If they do exist, there is the potential for the special meaning of these cultural associations to be inadvertently impacted through clearing for urban development and temporary site works and activities during the construction phase.

There is no risk of any physical clearing or disturbance to endemic trees within the GBSW itself, as the wetland has not been earmarked for future urban development.

It is considered that the only way in which endemic trees of the GBSW could potentially be impacted by the proposed change in land use is through a change to the hydrological regime of the wetlands as a consequence of future urban development, which in turn could lead to a deterioration in the quality and quantity of plant life within the wetlands.

³³ Environmental Protection Authority (2022), 'Environmental values and pressures for the Greater Brixton Street Wetlands on the Swan Coastal Plain - Advice in accordance with section 16(j) of the Environmental Protection Act 1986' p. 16.

5. Proposed Impact Management

This section addresses EPA Instruction No. 53:

53. Outline the mitigation and management measures to ensure impacts to heritage site, values and /or cultural association (direct and indirect) are minimised, and not greater than predicted.

5.1 Impacts to Biological Surroundings

The preceding section has identified that the proposed changed in land use has the potential to alter the hydrological regime of wetlands and waterways in the surrounding region, as a result of unmanaged surface water or groundwater impacts from new urban development. This in turn could lead to a deterioration in the quality and quantity of plant life within the wetlands and waterways.

It has also been identified that these impacts to biological surroundings as a result of the proposed change in the land use could in turn impact on the following heritage sites and values:

- The natural, social and historical heritage values of the GBSW.
- Yule Brook / Mandoorn (Registered Site #36929).
- Maamba Reserve (Registered Site #4342).
- Endemic trees within the GBSW with important cultural associations.

With reference to the EPA mitigation hierarchy, it is considered that through the implementation of the best practice urban water management measures recommended in the *Wattle Grove South - District Water Management Strategy* (hyd₂o, February 2024) (DWMS), any adverse changes to the hydrological regime of wetlands and waterways in the surrounding region, and in turn any impacts to the abovementioned heritage sites and values, can be **avoided**.

5.2 Impacts to Physical Surroundings

It has been identified that changes to physical surroundings have the potential to impact:

- Brentwood Road Swamp (Registered Site #4343).
- Any endemic trees within the MRS amendment area with important cultural associations.

The proposed mitigation and management measures and statutory mechanisms for addressing potential impacts to this Aboriginal heritage site and cultural associations are set out below.

5.2.1 Brentwood Road Swamp

With reference to the EPA mitigation hierarchy, the potential impacts to Brentwood Road Swamp heritage site can be mitigated through **avoidance** and **minimisation**.

The Brentwood Road Swamp heritage site is situated within the easement for the Dampier to Bunbury Natural Gas Pipeline (DBNGP). The DBNGP is Australia's longest gas pipeline and one of Western Australia's most critical pieces of energy infrastructure. The pipeline is governed by the DBP Act and the easement exists to guarantee essential access to the pipeline at all times.

The DBP Act effectively requires the easement to be a 'development free' zone. There are also associated land use guidelines for the DBNGP easement (WA Government, 2016), which restrict any activities or modifications to land within the easement that may compromise essential access to the pipeline, or the physical integrity of the pipeline itself.

Essentially modifications to land within the DBNGP easement are restricted to low impact landscaping treatments, such as shrubs and plants with shallow roots not exceeding 300mm in depth, unsealed pathways and no reticulation.

Officer level advice received from the City of Kalamunda in November 2022 has confirmed these land use management requirements for the DBNGP easement.

These significant statutory limitations that apply to development and excavation of land within the DBNGP corridor will largely protect the Brentwood Road Swamp heritage site from risk of physical disturbance. Implementation of the following additional management measures is also recommended, to ensure that all impacts to the Brentwood Road Swamp heritage site are avoided or minimised:

- An Archaeological Site Survey should precede any works in the vicinity of the heritage site, to determine if the site and/or artefacts still exist and warrant management.
- If the Archaeological Site Survey concludes that management of the heritage site and/or artefacts is warranted, an Archaeological Management Strategy is to be prepared and adopted.
- The Archaeological Management Strategy should clearly document which parties or stakeholders are responsible for the implementation of individual management measures.
- Engagement with Traditional Owners should be undertaken during the archaeological site survey and preparation of Archaeological Management Strategy.
- It is recommended that any development within the vicinity of the Brentwood Road heritage site should be subject to a Section 18 approval pursuant to the AHA. The Archaeological Site Survey and Archaeological Management Strategy (if required) should be prepared and submitted as part of any Section 18 approval.

5.2.2 Cultural Associations of Endemic Trees Within MRS Amendment Area

With reference to the EPA mitigation hierarchy, it is considered that potential impacts to endemic trees with important cultural heritage associations within the MRS amendment area can be mitigated through a combination of **avoidance** and **rehabilitation**.

In the first instance it is proposed that any existing trees within the area that have important cultural associations for the Whadjuk Noongar people be identified for retention within any new urban development that occurs.

In instances where it is not possible or practical to retain existing individual trees with important cultural associations for the Whadjuk Noongar people within any new urban development that occurs, it is proposed that this be ameliorated through a replanting program, whereby those trees that are removed are replanted within the new urban development. This proposed strategy aligns with the mitigation action of rehabilitation within the EPA mitigation hierarchy.

The recommended steps for the implementation of these measures are:

- Engagement with Traditional Owners to identify which endemic trees with special meaning or cultural associations might be present in the MRS amendment area.
- Undertake tree survey to locate any individual or stands of endemic trees with special meaning or cultural associations, identified through the engagement with Traditional Owners.
- The design of structure plans within the MRS amendment area is to provide for the retention of as many endemic trees with special meaning or cultural associations as possible within the public realm (e.g. road reserves, parks and public open spaces).
- In circumstances where it is not possible or practical to retain endemic trees with special meaning or cultural associations, replace removed trees ensuring a net positive environmental outcome is achieved. Where possible seeds collected from local trees should be used in the replanting.
- Replacement trees are to be replanted in public realm locations agreed in consultation with Traditional Owners.

Additionally it is recommended that these measures be supplemented by:

- A Construction Management Plan – to protect, avoid and minimise damage to endemic trees with special meaning or cultural associations that have been identified for retention during construction activities.
- An Interpretation Strategy – to provide opportunities for educating the future residential population about the special meaning that the endemic trees to the region have for the Whadjuk Noongar people.

6. Management Strategies

55. Describe the planning mechanisms that are to be applied to ensure impacts are managed to meet the EPA's objectives.

This section addresses EPA Instruction No. 55:

6.1 Planning Mechanisms for Impacts to Biological Surroundings

The recommended urban water management measures in the DWMS can be appropriately implemented at the local structure planning and subdivision approval stages of the planning process, through the adoption, approval and implementation of a Local Water Management Strategy (LWMS) and Urban Water Management Plans (UWMPs).

It is standard industry practice for an LWMS to be submitted with a Local Structure Plan (LSP) when it is lodged for assessment by a development proponent or landowner. Typically a local government authority (in the case the City of Kalamunda) will not accept an LSP for assessment unless the requisite LWMS forms part of the submission.

Once accepted, the LWMS will go through a review process by the City of Kalamunda and relevant state government agencies including DWER and Department of Biodiversity, Conservation and Attractions (DBCA), before being forwarded to the WAPC for final approval. Once approved, the LWMS will become the guiding document for the management of future urban water management practices within the local structure plan area.

Any subdivision of land within the local structure plan area will be required to be undertaken in accordance with the LWMS. Conditions of subdivision approval are the statutory mechanism that exists to ensure this occurs. It is standard industry practice for all subdivision approvals to incorporate a condition requiring the preparation, approval and implementation of a UWMP that is consistent with the approved LWMS.

6.2 Planning Mechanisms for Impacts to Physical Surroundings

As already outlined in Section 5 of this report, the DBP Act is a significant piece of legislation containing statutory mechanisms that will limit development and excavation of land within the DBNGP corridor and largely protect the Brentwood Road Swamp heritage site from risk of physical disturbance.

Appropriate mechanisms that can be implemented through other approvals under planning and heritage legislation also exist for the other mitigation measures recommended for potential impacts to physical surroundings. These include an archaeological site survey, endemic tree survey and (if warranted) retention and/or replanting of endemic trees, archaeological management strategy, construction management plan and interpretation plan.

7. Recommendations

The mitigation and management measures proposed in this report will ensure that any potential impacts as a result of the proposed change in land use are avoided, minimised or ameliorated through rehabilitation. Statutory controls and mechanisms also exist under planning and heritage legislation to ensure that the recommended mitigation and management measures are appropriately implemented.

The GBSW and Yule Brook are not located within the MRS amendment area and any potential impacts to the hydrological regime of this important wetland and waterway can be mitigated through the implementation of the best practice urban water management measures recommended in the Wattle Grove South DWMS.

The only registered heritage site within the boundaries of the MRS amendment area is the Brentwood Road Swamp. It is important to highlight that the land surrounding this registered site might have greater archaeological evidence, particularly in sandy areas that have not been substantially disturbed by fence lines or vehicle tracks. Information collected through an Archaeological Site Survey and Archaeological Management Strategy can assist informing future development activities.

A tree survey is also recommended to identify the presence of any endemic trees with important cultural associations within the MRS amendment area. This in turn should inform the landscape design of future urban development. Any inadvertent impacts to significant endemic trees identified for retention during construction activities can be mitigated through a Construction Management Plan and an Interpretation Strategy can assist in interpretation and education.

Ongoing collaboration and engagement with the Whadjuk Reference Group is also recommended to avoid impacts on Aboriginal cultural heritage values.

8. Appendices

8.1 Explanatory Notes

8.1.1 Acronyms and abbreviations

ACHIS	Aboriginal Cultural Heritage Inquiry System
AHA	<i>Aboriginal Heritage Act 1972</i>
DBCA	Department of Biodiversity, Conservation and Attractions
DBNGP	<i>Dampier to Bunbury Natural Gas Pipeline</i>
DBP Act	Dampier to Bunbury Pipeline Act 1997
DPAW	Department of Parks and Wildlife
DPLH	Department of Planning, Lands and Heritage
DWER	Department of Water and Environmental Regulation
DWMS	District Water Management Strategy
EIA	Environmental Impact Assessment
EPA	Environmental Protection Authority
ERD	Environmental Review Document
GBSW	Greater Brixton Street Wetlands
ICOMOS	International Council on Monuments and Sites
LWMS	Local Water Management Strategy
MRS	Metropolitan Regional Scheme
Loc.	Location
LSP	Local Structure Plan
UWMP	Urban Water Management Plan
WAPC	West Australian Planning Commission

8.1.2 Glossary of Noongar words

We acknowledge that contemporary Noongar language is a shared language that is spoken throughout Noongar boodja today. As an oral tradition, there are alternative spellings and pronunciations of Noongar words and other interpretations are likely to exist.

Word	Translation or English place name
Bibool Boorn	<i>Melaleuca raphiophylla</i> . Swamp Paperbark.
Boodja	Country, home, the land
Bunuru	'second summer', February and March
Djarlgarro	Canning River
Goolamrup	Mae of camp around Kelmscott area
Kaanya (or Moodjar)	<i>Nuytsia floribunda</i> . Christmas Tree.
kaartdijin	knowledge
Kambarang	Warmer months, October and November
Karanup	Place where the spirit goes after death (west across the sea)
Kitja Boorn	<i>Kunzea ericifolia</i> . Spearwood Tree, used by Noongar to make spears.
Makuru	Cold months, June and July
Mandoorn	Yule Brook
Nyittingy	The 'Cold Times' / Dreamtime
Waugyl	A power in the form of a rainbow serpent that created the landscape, rivers and streams on his journey from the hills to the ocean.

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