



Landscape Context Guidelines

March 2013

A strategic document aimed at assisting Council, other authorities and developers to safeguard the visual, natural and cultural heritage values of urban and rural landscapes when developing precinct structure plans, planning schemes and development proposals

**The March 2013 Landscape Context Guidelines was adopted by
Council at its Ordinary Meeting on 25 March 2013.**

**Following the panel hearing for Wyndham's Municipal Strategic Statement, minor amendments have been
made since the adoption of the Guidelines on pages 18, 24, 46, 47 and 56.**

Acknowledgements

The following people have made substantial, generous contributions to the Landscape Context Guidelines:

Wyndham City:

Madeleine Veale

Peter Gibbs

Craig Dodson

Wyndham Community:

Annette Xiberras *Wurundjeri Elder/Urban Colour Arts Cultural Heritage Consultants*

Colleen Miller *Western Melbourne Catchments Network (WMCN)*

Peter Gibbons *WMCN*

Frances Overmars *Pinkerton Landcare & Environment Group, Werribee District Historical Society*

Terry Scott *WMCN*

Susie Ingles *WMCN*

John Forrester *Werribee River Association (WRIVA)*

Lance Pritchard *Werribee District Historical Society*

Bill Strong *Werribee Heritage Recovery Inc*

Government Authorities:

Mark Brennan *Growth Areas Authority (GAA)*

Dane Logan *GAA*

Gerard Morel *Melbourne Water*

Deborah Riley *Melbourne Water*

Clare Lombardi *City West Water Greening the West*

John Chambers *City West Water*

Dr. Joy Elley *Aboriginal Affairs Victoria*

Jillian McQuade *The Department of Sustainability and Environment (DSE)*

Merryn Kelly *DSE*

Matt Ruchel *Victorian National Parks Association (VNPA)*

Sue Hughes *National Trust*

David Moloney *Historian*

Craig Rowley *Leadwest*

Alan Thatcher *Leadwest*

Project Consultants:

Dr. Jill Orr-Young *Jill Orr-Young Landscape Architects*

Belinda Ainley *Ainley Projects*



Cover photograph: Remnant River Red Gums (*Eucalyptus camaldulensis*) at Black Forest Swamp

Photograph by Jill Orr-Young

Contents

1	PURPOSE.....	1
1.1	How to use this Document.....	1
1.2	Terminology and Abbreviations.....	2
2	Consultation Process.....	2
3	Local Distinctiveness.....	3
4	Key Threats to the Landscape Features.....	3
5	Study Area.....	4
6	KEY THEMES OF WYNDHAM'S LOCAL DISTINCTIVENESS.....	5
6.1	Topography	5
6.2	Wetlands and Waterways.....	6
6.3	Agricultural Landscapes and Windbreaks.....	8
6.4	Dry Stone Walls.....	11
6.5	Viewsheds and Viewlines.....	12
6.6	Cultural Sites and Heritage.....	12
6.7	Flora.....	14
6.8	Fauna.....	16
6.9	Planted and Remnant Trees.....	16
7	KEY SITES OF SIGNIFICANCE.....	18
1.	D1 drain.....	19
2.	Viewsheds of Mt Macedon, Brisbane Ranges and the You Yangs	20
3.	Remnant Cane grass Lignum Swamp (locally known as Cunninghams Swamp)...	22
4.	Point Cook Seasonal Herbaceous Wetland.....	24
5.	Greek Hill.....	25
6.	Werribee River.....	26
7.	Native Vegetation.....	28
8.	Lollypop Creek.....	30
9.	Wyndham Vale Swamp.....	32
10.	Seasonal Herbaceous Wetland – Boundary Road	34
11.	Skeleton Creek.....	35
12.	Dry Creek.....	37
13.	Black Forest Swamp.....	39
14.	Cherry Tree Creek.....	41
15.	Clarke's Dam.....	43
16.	Leakes Road Lignum Swamp.....	44
17.	Davis Creek.....	46
8	GENERAL RECOMMENDATIONS.....	48
	REFERENCES.....	51
	APPENDIX 1 – Special Places and Landscapes.....	56

1. PURPOSE

The rapid urban development of Wyndham in former agricultural areas to the north and west of the city will demand new infrastructure and introduces a new landscape and new residents - who will have little knowledge of the complex life systems that have survived an earlier agricultural expansion. The native grasslands, wetlands, and woodlands that make up the natural landscapes of the volcanic plains are now severely depleted.

The *Landscape Context Guidelines* are a Wyndham City initiative¹ designed to protect the characteristics that define Wyndham, such as waterways, wetlands (swamps), dry stone walls and Sugar Gum windbreaks that variously respond to a one-mile grid of early agricultural settlement and the stony ground of the volcanic plains, while allowing views across native grasslands to the You Yangs. The Guidelines consider natural and cultural landscapes as combined and interactive in 'local distinctiveness', and focus on the 'special places and landscapes' valued by the community.

These Guidelines contribute to a positive focus on Wyndham's image, appearance and landscape qualities, to ensure they are appealing to residents, investors and visitors alike. For example, retaining the integrity of Wyndham's waterways, which is supported by recommendations in this document, will ensure that this characteristic of Wyndham's natural environment and landscape is valued, protected and available for all to experience and appreciate.

The *Landscape Context Guidelines* make recommendations for the protection of waterways and wetlands, diverse habitats, 'special places and landscapes', habitat corridors, and views, through proposed amendments and additions to Overlays in the Wyndham Planning Scheme.

The Guidelines will inform the future urban planning of the Wyndham urban growth fronts. They will guide the Growth Areas Authority, developers and other stakeholders in future land use planning and design as a reference document in Precinct Structure Plans and the *Municipal Strategic Statement*.

The Guidelines should be read in conjunction with relevant supporting documents. This study does not override heritage, biodiversity or any other legislative requirements for land management and protection. Further Planning Scheme amendments may result from these Guidelines.

1.1 How to use this Document

This document, whilst divided up into sections, should all be read concurrently. Firstly the Guidelines identify key themes of local distinctiveness (Section 6) which are recurrent through the landscape and add to the character of Wyndham. The Guidelines then delve into key sites or 'special places' (Section 7) within the study area. These sites are more specific areas which are all plotted on an easy reference map of special places and landscapes (Appendix 1).

Both the Key Themes and the Key Sites are of equal importance and it is desirable that all should be retained and incorporated into future urban design.

¹ The Guidelines were conceived in a directive of the Council-adopted *Environment and Sustainability Strategy 2011 – 2015*, and developed in the Project Brief. The Strategy states: 'Develop Landscape Context Guidelines for waterways and other natural environments'.

When looking at each key site, there are site specific recommendations found at the end of each site description. These recommendations are for that key site only, but should be read in conjunction with the general recommendations found in Section 8 of the Guidelines.

1.2 Terminology and Abbreviations

AAV	–	Aboriginal Affairs Victoria
DDO	–	Design and Development Overlay
DSE	–	Department of Sustainability and Environment
EPBC	–	Environment Protection and Biodiversity Conservation Act 1999
ESO	–	Environmental Significance Overlay
EVC	–	Ecological Vegetation Class
FFG	–	The Flora and Fauna Guarantee Act 1988
GAA	–	Growth Areas Authority
HO	–	Heritage Overlay
PSP	–	Precinct Structure Plan
R	–	Recommendation
SLO	–	Significant landscape Overlay
UGB	–	Urban Growth Boundary
UGZ	–	Urban Growth Zone
VHR	–	Victorian Heritage Register
VPO	–	Vegetation Protection Overlay
WPS	–	Wyndham Planning Scheme
WW2	–	World War 2

2. Consultation Process

In an introductory car tour with Council officers, the project consultants were introduced to the ‘big picture’ of the Wyndham landscape and its changing character. With this initial in-place familiarisation, the combined team sought community involvement in order to determine the community’s ‘special places and landscapes’. The approach to community groups resulted in meetings and discussions from which the groups collectively determined a bus tour route to showcase places in the landscape through direct experience as a complex collection of natural and cultural interactions. Thus the places visited were experienced in a context of vital connections, which brought the background research literature to life.

Our discussions with Aboriginal Affairs Victoria (AAV) and a Heritage Consultant helped us to see the Wyndham landscape as layered with Aboriginal cultural heritage.

‘95% of registered (Aboriginal cultural heritage) sites are less than 1 kilometre from water’²

A community forum was advertised in local newspapers, and attendance was also invited from those who had previously shown interest. Although the forum was not well attended, this was compensated for by the quality of discussion. Consultation with environmental and community

² Ms Joy Elley, AAV, pers. comm. 22 Feb 2012

group members, other government authorities and organisations continued until completion of the project.

3. Local Distinctiveness

Landscape can be thought of as an *aesthetic* term – a view through a window, or through a camera lens, or a landscape painting. Humans stand objectively apart from landscape, as the subject gazing at the object. Although it is an aesthetic term the bond between the ‘viewer’ and the landscape is interconnected.

This study discusses the Wyndham community’s special places and landscapes, but also the ordinary and everyday places that communities value, such as *particular viewing points, favourite fishing spots, or places that offer that rare experience of ‘quiet still awareness’*. In addition to ‘special places and landscapes’ we are also valuing what might be thought of as commonplace, ‘local distinctiveness’.

Windbreaks of *Sugar Gums* and boundaries of *dry stone walls* are not singular features in Wyndham: they repeat across the landscape and express ‘local distinctiveness’ through their repetition. As do *wetlands* and *native grasslands*. Local people share knowledge about them – they understand their significances, their stories, their meanings, their connections, and can read their subtle clues. Local distinctiveness can also include customs (the way things are done), traditions, legends, language and place names (e.g. the place name ‘Cocoroc’ may echo the ‘voice’ of the Growling Grass Frog³).

Landscape, place and local distinctiveness are not mutually exclusive concepts, but depend on the cultural inclination of the interpreter.

4. Key Threats to the Landscape Features

Wyndham’s distinctive landscape is rapidly changing. If nothing is put in place to protect key sites and viewlines, Wyndham is in danger of losing its identity and becoming a cluster of continuous suburbs with no special character or possibility for reflection on its placed history.

The municipality’s natural environment, including historical sites, vegetation, fauna and waterways is under constant predation from pest plants and animals, including rabbits, foxes and weeds. These pest plants and animals are constantly invading native species and damaging their habitat.

Historically, the greatest threat of humans on landscape features was in the clearing of vegetation for agricultural purposes. Within recent years, the key threat to significant landscapes is inappropriate development, which can disturb waterways and native species. Insensitive design can impact on attractive viewlines, making residents unaware of their unique surroundings and the experience of living in the Victorian Volcanic Plains. These landscape features need to be acknowledged in the very early stages of planning urban growth so that the new precinct structure plans (PSP’s) can be developed to celebrate these key themes and ‘special places’.

³ From community forum discussion (28/03/12)

5. Study Area

The Guidelines focus on the areas of Wyndham that are within the Urban Growth Zone and designated for future urban development, particularly areas defined by the Growth Areas Authority (GAA) within future Precinct Structure Plans (PSP's) and two 'Logical Inclusion Areas' (Figure 1)

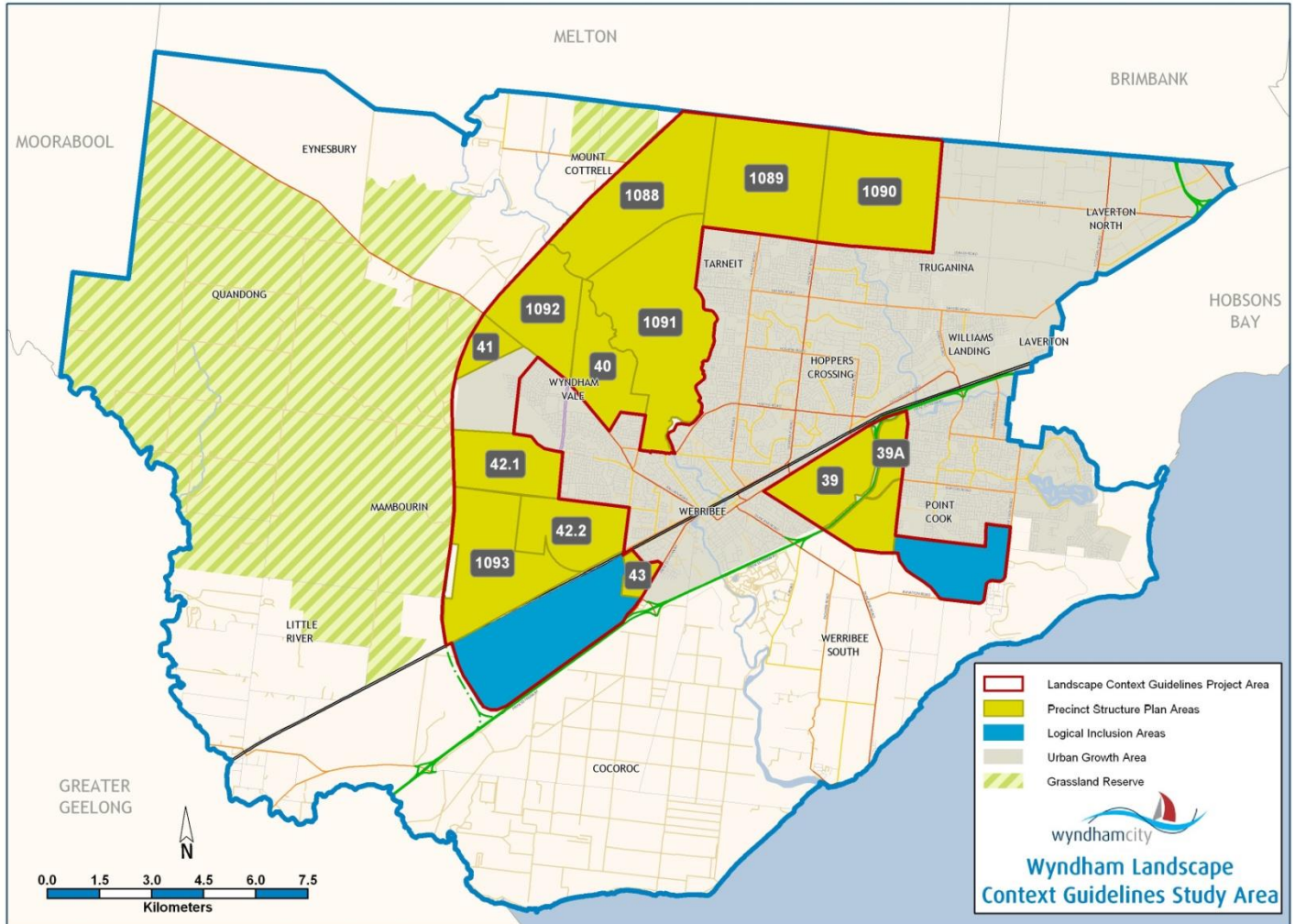


Figure 1: Boundaries of the Precinct Structure Plan and approved 'logical inclusions' areas within the Study area. Figure 1 also illustrates the Study site (project area) in relation to proposed new infrastructure and native grassland reserves.

PSP	Name
39	Werribee Employment Precinct (WEP)
39A	Point Cook West
40	Ballan Road (Wyndham Vale)
41	Manor Lakes (Wyndham Vale)
42.1	Blackforest Road North (Wyndham Vale)
42.2	Blackforest Road South (Wyndham Vale)
43	Alfred Road (Wyndham Vale)
1088	Oakbank
1089	Tarneit North
1090	Truganina
1091	Riverdale
1092	Westbrook
1093	Mambourin East

Approved Logical Inclusions

Werribee West – Mambourin
Point Cook South

6. KEY THEMES OF WYNDHAM'S LOCAL DISTINCTIVENESS

The following themes contribute to Wyndham's distinctiveness. They showcase Wyndham's past, present and future. They represent a 'sense of place' for residents and support the health and well being of residents and future generations. Once displaced or destroyed these features are lost forever.

6.1 Topography

The landscape of the 'Werribee Zone'⁴ (which extends beyond Wyndham) consists of undulating volcanic plains, interspersed with volcanic eruption points (e. g. Mt. Cottrell, Green Hill, Cowies Hill, Greek Hill), stony rises, rocky outcrops, and numerous small freshwater wetlands. The You Yangs rise above the plain as the most dominant vertical feature, while the Werribee River is deeply incised into the basalt plain. It contrasts with the ephemeral waterways (Skeleton Creek, Dry Creek, Davis Creek, Lollypop Creek, Cherry Tree Creek and other un-named tributaries) that each take the form of a 'chain of ponds' or waterholes.



Figure 2: The confluence of the three tributaries of Davis Creek, showing the undulating landscape with views to the You Yangs (looking south-west). The changing sky and russet colour of the Kangaroo Grass, is appreciated by many.

Photograph by Frances Overmars

⁴ The *Landscape Context Guidelines* address part of the 'Werribee Zone' land unit, within a more extensive 'Victorian Volcanic Plain' bioregion (refer DSE, *Biodiversity Action Planning: Landscape plan for the Werribee zone – Victorian Volcanic Plain Bioregion*, Draft 9 May 2003)
[http://vro.dpi.vic.gov.au/dpi/vro/vrosite.nsf/pages/bap_landscape_werribee_zones_pdf/\\$FILE/werribee_zone.pdf](http://vro.dpi.vic.gov.au/dpi/vro/vrosite.nsf/pages/bap_landscape_werribee_zones_pdf/$FILE/werribee_zone.pdf)

The vast, gently undulating landscape allows for the appreciation of panoramas which may be further extended from viewing points on small rises or hills. Whilst this may be a challenge to integrate into urban development, these small hills and rises in the landscape provide an opportunity for incorporation in public open space, for all to enjoy and appreciate the significant views.

Early European settlers were attracted to the plains as they could easily grow crops in the rich, fertile soil. They cleared the land for agriculture, and used the available volcanic rocks to construct dry stone walls to define their property boundaries.



Figure 3: Typical volcanic plain landscape with numerous volcanic rocks.
Photograph by Colleen Miller

Some great examples of striking undulating topography include:

- Area bounded by Davis Road, Derrimut Road, Boundary Road and Dohertys Road. Tarneit – PSP 1089. The Tarneit/Boundary/Derrimut/Dohertys Roads square mile area also includes an almost intact stone wall following the course of the Creek, starting at Tarneit Road.
- Area between the divide of three tributaries of Davis Creek, west of Davis Road, Tarneit – PSP 1089 (see Fig. 2)

The undulating landscape offers short and long views including colour changes in the distant sky and rural pastures including the russet colour of Kangaroo Grass, which is appreciated by many. The undulating landscape also provides opportunity for a road network which can be orientated to “explore” the rises, the troughs and capture views.

6.2 Wetlands and Waterways

Throughout the Wyndham landscape there are multiple natural depressions (wetlands) across the volcanic plain. These features were once more prominent and supported distinctive flora and fauna – a rich seasonal food supply for the traditional Aboriginal land owners. Where these features still exist, they demonstrate local distinctiveness, but they remain vulnerable to land development.

Waterways and wetlands encompass land beyond the riparian zone, responding to a range of environmental and social factors identified by Council and the community. For the purpose of these Guidelines, the definition of a waterway includes everything within the 1:100 year flood line, its riparian zone, floodplain and escarpment.

The Werribee River is a major waterway and an impressive feature within the municipality. Within the catchment are many emplaced reminders of past residents. There is significant remnant vegetation which provides an important wildlife corridor for native fauna. The Werribee River, together with all other natural waterways, should be enhanced so viability and character remain part of and add to Wyndham’s image and attractiveness, complimenting the environment and assisting the well being of residents.

Some waterways within the region are shallower and more reliant on weather patterns. In times of heavy rainfall these wetlands and creeks rise significantly, spilling into a natural floodplain. The flood

plains are unique to smaller waterways and are part of the natural character of the landscape. The waterways make natural depressions in the land and the gentle gradients of the creeks and tributaries are a significant feature within the flat plains.

Wetlands provide important habitats for fauna, as waterholes or links with nearby habitats. The amenity values of wetlands and waterways are important to the community.

Waterways corridors, waterway tributaries and waterway viewsheds should be preserved for their environmental, landscape, heritage, cultural and economic values. This involves protecting these sites from the negative impacts of urban development and human activity.



Figure 4: The Werribee River taken from behind the Werribee Town Centre

The natural qualities and amenity of the waterway corridors are affected by the intensity and design of development in the corridors, in adjoining viewsheds, and retained vistas to natural features.

The Environmental Significance Overlay Schedule 1 (ESO1) should be extended to include all of Wyndham's waterways, including the Werribee River, Lollypop Creek, Skeleton Creek, Little River, Cherry Tree Creek, Dry Creek, Davis Creek, Kororoit Creek, Laverton Creek and all wetlands with significant natural/cultural values. Minor (un-named) stream tributaries should be included wherever there are natural values and it is feasible to preserve them.

Evidence from the past shows that disturbance, clearing and reshaping of waterways and other natural features result in the rehabilitation, re-creation and re-instatement of the site/area to a reduced quality and appearance. Allowing such sites/areas to be disturbed results in permanent loss of the natural values, biodiversity and integrity and as such, strict controls and protection measures must be implemented. Protection measures include not permitting utility services to be installed in natural areas such as protected and retained waterways, wetlands, grasslands and natural rock formations; and defining the 'border lines' that development construction works must not breach. Enforcement will be exercised for environmental and cultural heritage damage.

Waterway values, protection and enhancement are further outlined in Council's *Waterway Strategy Plan 2002*, a background document to the Environmental Significance Overlays on Wyndham's waterways. The Strategy outlines buffers and buffer widths along waterways, which are important to further protect places and assets of significance, and maintain a separation from surrounding and different land uses.

Land filling, removal of rocky outcrops, waterway re-alignment and development within the waterways and tributaries and their buffer area, are discouraged so as to maintain the qualities, function and natural landscape character of the waterway, including serenity and tranquillity values.

6.3 Agricultural Landscape and Windbreaks

In plantations along roads and property boundaries, the Sugar Gum *Eucalyptus cladocalyx* is widespread in the rural parts of Wyndham and across western Victoria. This species was first introduced to the western plains from South Australia in the late nineteenth century and was valued for its resistance to dry conditions, rapid growth and use for poles, fencing and fuel. The windbreaks are a striking landscape feature, which adds a cultural layer to the volcanic plains.

The dwarf horticultural variety of Sugar Gum (*E. cladocalyx* var. 'Nana') is similarly planted in linear alignments. Its lower and more bushy habit make it an excellent windbreak and habitat refuge for local fauna. Whilst Sugar Gums were frequently used as shelterbelts, other species were also utilised for this purpose and should similarly be protected.

The mature trees are an important example of settler farming history, as the linear plantations traditionally functioned as property dividers. They are a prominent feature in Melbourne's West and add to the character of Wyndham in an aesthetically pleasing manner.



Figure 5: Windbreak of Sugar Gum plantations. Photo from Davis Road looking south west.
Photograph by Jill Orr-Young

Arboricultural reports commissioned by the GAA for the rural areas of Wyndham have not been kind to the Sugar Gum windbreaks. In PSPs 1088, 1089, 1090, and 1091, the Sugar Gum windbreaks are acknowledged as '*a dominant feature within the landscape*' but the consulting arborists considered that they present '*management concerns (risk) within an urban environment*'. However, '*areas of public open space ... provide opportunity to retain low quality trees either as interim canopy until such time as new landscapes establish or as longer term landscape elements in areas where risk*

associated with the retention of such trees is acceptable⁵ or to be resolved with appropriate management.



Figure 6: Planted trees along Davis Road
Photograph by Jill Orr-Young



Figure 7: Planted Grey-box trees along Kenning Road

Some examples of how Windbreaks have been retained in the urban setting as open space are shown in the photos below.



Figure 8 and 9: Sugargum Walk, Point Cook

These Sugar Gums (shown above) have been retained to complement the streetscape and passive open space. They provide distinct landscape character for local residents.

⁵ Tree Logic, for the Growth Areas Authority, *Arboricultural Report Truganina Precinct Structure Plan 90*, July 2011



Figure 10: The Crescent, Point Cook

The Sugar Gums shown above have been retained in open space, within a Crescent. A considerable buffer has been allowed for the root system to spread. The size of the open space has maximised the number of houses from which residents can appreciate the 'natural' landscape.

Windbreaks of established trees provide a feature that can be retained in new suburbs. The large groups of trees provide a visually pleasing break from the concrete and manmade structures of the urban environment.

An impressive example of a continuous windbreak totalling approximately 6.5km in length, and including planted River Red Gums, Red Box and Bushy/Dwarf Sugar Gum⁶ is shown in Figure 11. It is located on freehold land, west of Davis Road (between Werribee River and Sayers Road). Sections of this windbreak plantation follow the channel dug by the Chaffey brothers in the construction of the Chaffey Werribee Irrigation Channel, circa 1889, pers. comm. Lance Pritchard, Werribee District Historical Society.

Retained Sugar Gums and other non-indigenous species should gradually be replaced with trees indigenous to the area as they senesce and die.



Figure 11: A prime example of a long continuous windbreak totalling approximately 6.5km.

Source: Nearmap 2012

⁶ Tree Logic, *Arboricultural Report Tarneit Precinct Structure Plan 91*, a report to the GAA, July 2011.

6.4 Dry Stone Walls

The volcanic activity of the Volcanic Plains forged a landscape of basalt rock. Wyndham's early settlers built dry stone walls to mark property boundaries, make stock enclosures, house enclosures, garden walls, dam walls and wells.

The extensive dry stone walls of Wyndham have only recently started to appear in a Victorian Heritage Database⁷. The Inventory is not fully inclusive, nor have the Wyndham walls been assessed for extant condition, age or style diversity.



Figure 12: An example of a dry stone wall in Wyndham.

A recent assessment for the Growth Areas Authority⁸ refers to dry stone walls 'pre-dating 1940', in the western part of Wyndham. In this assessment, dry stone walls are noted particularly in Greens Road, Wyndham Vale (PSP 42 North), Black Forest Road (PSP 42 North), and Ballan Road (PSP 40 East), with additional isolated examples elsewhere. In accordance with the recent GAA assessment, it is recommended that 'where possible, dry stone walls should be retained' and form part of the new urban form. This can be achieved in estate entrance features, fencing, and open space areas. If a dry stone wall cannot be saved, the stones from the removed wall should be salvaged and re-used to augment walls that will be retained.

In advising their special places and landscapes for inclusion in the *Landscape Context Guidelines*, the Wyndham community discussed dry stone walls in the vicinity of Dry Creek, particularly along Dohertys Road between Derrimut and Tarneit Roads and the stone wall of 'Clarke's Dam' on Davis Creek (Key Site 15).

A Wyndham North Heritage Strategy is in draft at the time of preparing these Guidelines. Please refer to this document for further information.

⁷ <http://vhd.heritage.vic.gov.au/vhd/heritagevic#search:simple:user:list:database|places:wyndham:1>

Occasionally dry stone walls are included as part of other registrations, such as the Greens Road Sheep wash Site in Wyndham Vale (H. I. No. H7822 – 0589), Cobbledicks Farmhouse Ruin Site (H7822 – 2282) and Werribee Park – (the Ha-Ha Wall VHR H1613).

⁸ Context P/L, Historic Heritage Assessment Precinct Structure Plan Areas 40 East, 42 North & 43, Oct. 2011

6.5 Viewsheds and Viewlines

Some prime examples of viewlines from within Wyndham focus on the Brisbane Ranges, the You Yangs and views of Melbourne's central business district. The attractiveness of these views contributes to the quality of life for the communities and visitors who experience them.

Communities come to love these familiar landscapes and often take them for granted. Viewlines of major features such as land forms, vegetation and waterways should be protected to ensure growth and development does not threaten the visual quality of these areas.

New estate design should allow for extended viewlines and viewsheds. This may be accomplished by creating new inter-urban vistas across open space areas; significant plantings along strategically placed alignments of main highways and local streets; strong gateway treatments to communities or making landscaping a feature of parks, public spaces and controlled private developments. Roads, waterways and easements within the new urban areas will also enable long-range views.

Hills and rises should not be dominated by urban structures but rather incorporated into public open space.



Figure 13: Major viewline to the You Yangs Regional Park

6.6 Cultural Heritage Sites

There are many sites of importance scattered throughout Wyndham that were either of Aboriginal importance, or have European or farming significance.

Cultural heritage is important to Aboriginal people in reinforcing identity and belonging and important to all Victorians as embodying knowledge connected to place. *Tangible cultural heritage* can be observed in physical evidence in the landscape, including culturally scarred trees, artefact scatters, shell middens, stone grinding grooves, rock art, earth mounds, stone features, stone arrangements and burial/reburial places, while *intangible cultural heritage* is reflected through stories about the creation and evolution of features in the landscape and place names.

There are many recorded sites of Aboriginal cultural heritage significance in Wyndham. The recorded sites are predominately within 200 metres of a waterway, but also on extinct volcanic eruption points. Most sites primarily contain stone artefacts scatters but can include grinding grooves and

scarred trees. A stone arrangement also exists along Lollypop Creek. It is estimated that most of the surface archaeological sites in the Werribee area are between 150 and 3,000 years old¹⁰.

Joy Elley estimates that only about five percent of the Victorian land mass has been systematically surveyed for Aboriginal cultural heritage, and there remain '*many more places to be identified*'⁹. In 1989 it was estimated that areas of Wyndham's major waterways had an archaeological site density of 1 per 0.7 hectare and the volcanic plains of 1 per 6 hectares¹⁰. It is more than likely that additional cultural heritage sites exist in Wyndham than have been documented in reports and registers.

Cultural Heritage Management Plans are mandatory for high impact activities proposed for areas of cultural heritage sensitivity. High impact activities include developments with the potential to cause significant changes to the landscape, such as large infrastructure projects or Greenfields housing subdivisions, as planned for Wyndham.

The Victorian *Aboriginal Heritage Act 2006* (the Act) provides blanket protection for Aboriginal cultural heritage in Victoria regardless of whether that heritage is known (recorded) or unknown and regardless of land tenure.

Cultural heritage sites and areas of archaeological sensitivity should be retained as part of the open space corridor within the new urban environment.

Some important examples of 'European' or settler cultural heritage in Wyndham include:

- **Truganina Cemetery** located on the west side of Woods Road, Truganina.
The Truganina Cemetery was established in 1866 and remains an active burial ground. The Sugar Gums (*Eucalyptus cladocalyx*) in the centre of the Cemetery may provide a clue to the original layout of the cemetery. (The extent of burials is currently unknown, as records were destroyed by grass fires in 1969, and there is documentary evidence that burials are more extensive than those marked by extant headstones).
- **The Truganina Hall and Township Site** located on the south-east and north-east corners of Woods and Dohertys Roads intersection, Truganina.
The Truganina hall, pictured on the following page, was relocated to this site from the rear of the Old Shire Offices in Werribee after grass fires in 1969 destroyed the original 'Mechanics Hall' at Truganina, (which dated from 1910 or earlier). Formerly housing the diesel generator of the Werribee Power Station (1915 – 1923), the iron-clad building was then used as the WW 2 Air Raid Precaution Hall. At Truganina it continues a long tradition of activities and gatherings of the combined Truganina, Tarneit and Mt. Cottrell communities, and the Truganina Pony Club.
The old Truganina Township was located near the intersection of Dohertys Road and Woods Road. It once included a church in the north-east corner (demolished); a post office in the south east corner (demolished); and a school below the post office (demolished).

⁹ Elley, J. (2012). Opportunity or Threat? Aboriginal Cultural Heritage - Fire, Flood and Development - A Victorian Perspective. Conference Proceedings: Cultural Heritage Protection in Times of Risk: Challenges and Opportunities, Istanbul, Turkey.



Figure 14: Aerial image of the Truganina hall and old township site
Source: nearmap 2012



Figure 15: Truganina Hall
Photograph by Jill Orr-Young

An English Oak on the north east corner may be a commemorative planting: *Quercus robur* was often planted to commemorate British events (such as Queen Victoria's Jubilee, 20 June 1887, or the First World War).

6.7 Flora

The special character and local distinctiveness of the Wyndham landscape is reinforced by unique flora and fauna. The plant communities are mapped as Ecological Vegetation Classes (EVCs) and common species are described for each EVC.¹⁰ The dry plains and red duplex soils of the 'Werribee zone' formerly supported extensive areas of Plains Grassland (EVC 132), often dominated by Kangaroo Grass, Common Wallaby-grass, Common Wheat-grass, and Common Bog-sedge. These grasslands intergraded with Riverina Plains Grassy Woodland (see EVC 803), (dominated by Grey Box, Buloke and Drooping Sheoak) in the north-west, and Plains Grassy Woodland (EVC 55-61), typically River Red Gum, Kangaroo Grass, etc.) in the area around the You Yangs and east of the Brisbane Ranges (both EVCs outside the Landscape Guidelines study area)¹¹.

¹⁰ Refer: <http://www.dse.vic.gov.au/conservation-and-environment/native-vegetation-groups-for-victoria/ecological-vegetation-class-evc-benchmarks-by-bioregion/evc-benchmarks-victorian-volcanic-plain-bioregion#EVC803>

¹¹ See *Pre-1750 EVCs in the Werribee Zone*, Map 18, page 108, in DSE, *Biodiversity Action Planning: Landscape plan for the Werribee zone – Victorian Volcanic Plain Bioregion*, Draft 9 May 2003.



Figure 16: Volcanic Plains Grassland

The Werribee zone supports a number of vegetation communities and species that are not found elsewhere in the Volcanic Plain bioregion (see current EVCs in the Werribee Zone, Map 19 in DSE, *Biodiversity Action Planning: Landscape plan for the Werribee zone – Victorian Volcanic Plain Bioregion*, draft May 2003) and significant populations of threatened plant species.

There are numerous grassland conservation sites along roadsides within Wyndham. These sites are managed by Council and are just as important as the native vegetation along waterways. These sites contain many endangered species and provide habitat for many species that depend on native grassland for their survival.

Existing roadside conservation reserves should be retained where possible; their biodiversity values are significant and are suitable for retaining as roadside conservation reserves or as urban conservation education reserves, as encumbered open space.

Some prime examples of Wyndham's unique flora can be found at:

- **Truganina Cemetery** The two-hectare Cemetery supports remnant native grassland vegetation including EPBC listed species and is a registered nationally significant Biosite¹² (No. 3607).
The Sugar Gums in the Cemetery may be assisting the growth and spread of EPBC listed species including Button Wrinklewort and Spiny Rice-flower by providing conditions that are too dry and/or shaded for the native grasses species to advance, and potentially outcompete the herbaceous species.



Figure 17: Remnant plains grassland at Truganina Cemetery, including *Themeda australis* (Kangaroo Grass) and perennial herb *Pelargonium rodneyanum* (Magenta stork's bill, shown in flower).

Photograph by Jill Orr-Young

¹² A BioSite is a physical area of land or water containing biological assets with particular attributes, such as the presence of rare or threatened flora, fauna or habitat required for their survival and/or rare or threatened vegetation communities. Biosite database information and BioMaps are available through DSE (Tel: 136 186)

- **A localised point on Leakes Road** – A registered State Significant Biosite (No.1291).
- **A localised point on Davis Road** – A registered State significant Biosite (No. 1292).
- **Cherry Tree Creek and its East Branch (tributary)** - Registered Biosites (No. 4627 and 7007)

6.8 Fauna

Many fauna species in Wyndham are rare, small and seldom observed, yet their supporting habitat still exists. They can often be heard (for example, birds and frogs). Habitat includes water bodies, dry stone walls, natural rock formations, vegetation and gardens.

As Wyndham is home to the rare plains grassland, it is also home to some unique fauna species. These species are a special characteristic of Wyndham which should be promoted and celebrated within the community.



Figure 18: Platypus are found in the Werribee River.



Figure 19: Striped Legless Lizards are found throughout Wyndham and are listed as vulnerable under the EPBC Act and threatened under the FFG Act.

Photograph by Colleen Miller

Since settlement, native vegetation has been extensively cleared and altered for agriculture, and (increasingly) for urban and industrial use. Yet significant remnants of grassland, woodland, and wetland species remain in urban areas, providing habitat for populations of local species.

Open space should provide habitat corridors for fauna. Native species must be promoted to the community so they can be celebrated and appreciated especially the threatened species that share our environment.

6.9 Planted and Remnant Trees

Throughout the municipality there are countless scattered trees. Some of these have naturally regenerated and some have been planted for various reasons. All of them add significantly to the landscape. Large scattered or isolated trees (excluding invasive and weedy species), whether planted or remnant should be incorporated into road reserves or into public open space. The established trees provide habitat and are instantly attractive without requiring a waiting period for growth.

There are thousands of trees and shrubs in the study area, and it is not the intention of these Guidelines to map them all; but rather to highlight some



Figure 20: Remnant Blue Box west of Davis Road on a tributary of Davis Creek.

Photograph by Colleen Miller

examples of planted or remnant trees on the volcanic plain.

- Remnant scattered River Red Gums in the vicinity of Lignum Road, Point Cook.
- Remnant Bulokes on freehold land near the south-east intersection of Sayers and Shanahans Roads in PSP1091 Riversdale.
- Small stand of remnant Yellow Gums in PSP 42.1 Blackforest Road North.
- Scattered remnant Buloke and Grey Box in PSP 41 Manor Lakes.

New developments in Wyndham are of small lot sizes that allow space for only small-sized gardens; therefore there is reluctance or inadequate space to plant medium to large size trees on private land. Trees provide landscape and biodiversity values, and also create a healthier community, as supported by City West Water's draft *Greening the West Strategy 2012-2017*. The Strategy explores how to improve the climate, environment and health status of Melbourne's west through increasing vegetation and tree canopy cover in its suburbs. Green spaces improve liveability, offer a cleaner environment and contribute to improved community health.¹³

The retained isolated planted and remnant trees should be supplemented with additional trees to improve the quality of the existing trees, both aesthetically and functionally.



Figure 21: Scattered River Red Gums west of Lignum Road, Point Cook

¹³ City West Water's draft *Greening the West Strategy 2012-2017*

7. KEY SITES OF SIGNIFICANCE

Refer to the plan 'Special Places and Landscapes' in Appendix 1 for Key Site locations.

This section discusses the 'places' that Council and the Wyndham community have identified as 'special'. Often they combine natural and cultural heritage values in a holistic experience and appreciation of the 'place'. Many of the 'places' are not readily protected under existing Wyndham Planning Scheme Overlays: different aspects of the one place are split between different Overlays.

The combination of natural and cultural heritage brings the 'places' to life and has allowed a new appreciation of the greater potential of these 'places'.

These sites should be recognised within the planning scheme and used to guide the production of Precinct Structure Plans. This may be in the form of overlays or planning controls.

There are additional 'special places' throughout the study area or UGZ that are not individually described as Key Sites of Significance in these Guidelines. These places may already be protected under legislation and/or planning controls, or are described and included as Key Themes in this document. The development of these Guidelines did not include an intensive detailed survey of the Urban Growth Zone and the sites of significance boundaries are indicative only. It is anticipated that further Sites of Significance will be identified at the Precinct Structure Plan and/or Development Plan phases.

Key Site No.:	1
Site:	D1 Drain
Location:	Princes Highway Werribee to Aviation Road, Point Cook.
PSP:	PSP39 (East Werribee Employment Precinct) and Point Cook South logical inclusion area

The D1 drain was constructed to supply water to the State Research Farm (opened 1912). It forms part of an extensive irrigation system throughout the district and links to Heathdale Glen Orden Wetlands and the Bay. The Channel supports native flora and fauna, including remnant River Red Gums, and exotic trees. The Australian Painted Snipe (*Rostratula australis*), listed as Threatened in Victoria, has been recorded in the Channel.

The State Research Farm is protected by Wyndham Planning Scheme Heritage Overlay, HO75, and by the Victorian Heritage Register (H1961 – State Significance), but the D1 Drain is not included.



Figure 22: The D1 Drain
North-west view from Aviation Road, Point Cook.

Key Site 1 – D1 Drain Recommendations

- R.1.1** Rehabilitate the D1 Drain in the East Werribee Employment Precinct and Point Cook South logical inclusion area to include a biodiversity and open space corridor.
- R.1.2** Utilise the D1 Drain in the Point Cook South logical inclusion area as part of a buffer between agricultural land and the proposed residential development area.

Please also refer to General Recommendations in Section 8

Key Site No.:	2
Site:	Viewshed of Mt Macedon, Brisbane Ranges and the You Yangs
Location:	West side of the Expanded Urban Growth Boundary
PSP:	PSP 1092 (Westbrook), PSP 41 (Manor Lakes), PSP 42.1 (Blackforest Road North), PSP 1093 (Mambourin East) and the approved Werribee West - Mambourin logical inclusion area.

Views are offered from most areas of the expanded growth zone, particularly the outer edge of the study area. Views of the You Yangs, Mount Anakie, Brisbane Ranges, conservation reserves (such as the future grassland reserves) and agricultural land provide a 'sense of place', opportunities for future residents to appreciate their regional location, to watch the passing and incoming weather and experience long distance sunsets.



Figure 23: Photo from Leakes Road: north and north-west views to Mount Cottrell and Mount Macedon.



Figure 24: South-west views over PSP 42.2 and PSP1093 towards the You Yangs. Similar views of rural landscapes and endless skylines are offered on the outer (western) edge of these future development areas within the study area.



Figure 25: Panoramic south west view from McGraths Road over PSP 42.2 and PSP1093 towards the You Yangs.

Key Site 2 – Viewsheds of Mt Macedon, Brisbane Ranges and You Yangs

- R.2.1** Strategically locate open space and orientate development to maximise views of Mount Macedon, Mount Cottrell, You Yangs, Brisbane Ranges and other distant landscapes including outlooks of rural land and the suburbs.

Please also refer to General Recommendations in Section 8

Key Site No.:	3
Site:	Remnant Cane Grass Lignum Swamp (locally known as Cunninghams Swamp)
Location:	Directly adjoining south side of Featherbrook and Alamanda Estate
PSP:	Approved Point Cook South logical inclusion area

Cunninghams Swamp within the Point Cook logical inclusions area has been modified by soil extraction and agricultural activity. Despite this, remnant vegetation and faunal habitat remain. River Red Gums and Tangled Lignum are scattered around the perimeter of the Swamp. This Swamp may satisfy the recent EPBC Act listed critically endangered vegetation community Seasonal Herbaceous Wetlands (Freshwater) of the Temperate Lowland Plains.

The Swamp extends north into the Featherbrook and Alamanda Estates where it is dominated by the endangered EVC655 Lignum Cane Grass Swamp and supports the regionally significant Volcanic Plains form of *Poa labillardieri*. Cunninghams Swamp is also a registered regional Biosite (Biosite No. 6536).

In the event that the urban growth boundary is extended to include the Point Cook logical inclusion area, opportunities exist to connect the Swamp via conservation areas and/or open space to:

- a. the D1 drain and Port Phillip Bay.
- b. the adjoining natural wetlands
- c. Point Cook Coastal Park
- d. Point Cook RAAF Base
- e. Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar Wetland Site
- f. Point Cook Marine Sanctuary
- g. Council's recreation reserve on the northeast corner of Point Cook and Point Cook Homestead Roads.

The *Wyndham Biodiversity Study 2006* recommends that this Swamp/wetland be protected under an Environmental Significance Overlay.



Figure 26: Remnant Cane Grass Lignum Swamp (locally known as Cunninghams Swamp) within Featherbrook Estate, Point Cook.

Photograph by Jill Orr-Young



Figure 27: Aerial view of the Remnant Cane Grass Lignum Swamp
(Cunninghams Swamp)
Source: nearmap 2012

Key Site 3 – Remnant Cane grass Lignum Swamp (Cunningham’s Swamp) Recommendations

- R.3.1** Rehabilitate Cunningham’s Swamp as a flora and fauna sanctuary/conservation reserve.
- R.3.2** In the event that the urban growth boundary is extended to include the approved Point Cook logical inclusion area opportunities exist to connect Cunningham’s Swamp via conservation areas and/or open space to the adjoining Point Cook Seasonal Herbaceous Wetland (Key Site 4), Point Cook Coastal Park and the D1 Drain in the East Werribee Employment Precinct and approved Point Cook logical inclusion area (Key Site 1).
- R.3.3** Use of Cunningham’s Swamp as a storm water retarding basin should not be at the expense of the natural contours and flora and fauna values.
- R.3.4** Roads must not encroach on Cunningham’s Swamp.
- R.3.5** Protect Cunningham’s Swamp under an Environmental Significance Overlay.

Please also refer to General Recommendations in Section 8

Key Site No.:	4
Site:	Point Cook Seasonal Herbaceous Wetland
Location:	East of Cunninghams Swamp (Key Site 3), west of Point Cook Road and southeast of Alamanda Estate in Point Cook.
PSP:	Approved Point Cook South logical inclusion area

This wetland may satisfy the recent EPBC Act listed critically endangered vegetation community Seasonal Herbaceous Wetlands (Freshwater) of the Temperate Lowland Plains. Part of this wetland is a registered local Biosite¹⁴ (Biosite No. 6537).

The exact boundary of this wetland is subject to further environmental assessment at the Precinct Structure Plan and/or Development Plan phases.



Figure 28: Aerial View of the Point Cook Seasonal Herbaceous Wetland
Source: Nearmap 2012

Key Site 4 – Point Cook Seasonal Herbaceous Wetland Recommendations

- R.4.1** Rehabilitate the Point Cook Seasonal Herbaceous Wetland as a flora and fauna conservation reserve.
- R.4.2** In the event the urban growth boundary is extended to include the approved Point Cook logical inclusion area opportunities exist to connect the Point Cook Seasonal Herbaceous Wetland via conservation areas and/or open space to Cunninghams Swamp (Key Site 3), Point Cook Coastal Park and the Point Cook RAAF Base.
- R.4.3** Use of the Point Cook Seasonal Herbaceous Wetland as a storm water retarding basin should not be at the expense of natural contours and flora and fauna values.
- R.4.4** Roads must not encroach on Point Cook Seasonal Herbaceous Wetland.
- R.4.5** Protect Point Cook Seasonal Herbaceous Wetland under an Environmental Significance Overlay

Please also refer to General Recommendations in Section 8

¹⁴ A BioSite is a physical area of land or water containing biological assets with particular attributes, such as the presence of rare or threatened flora, fauna or habitat required for their survival and/or rare or threatened vegetation communities. Biosite database information and BioMaps are available through DSE (Ph: 136 186)

Key Site No.: 5
Site: Greek Hill
Location: Greek Hill, Tarneit
PSP: PSP 1088 (Oakbank)

Magnificent views are offered from Greek Hill (a volcanic cone). Views from Greek Hill provide an insight into the volcanic plain and its hinterland. These view lines provide a 'sense of place', opportunities for future residents to appreciate their regional location, to watch the passing and incoming weather and experience long distance sunsets.

Greek Hill provides panoramic views of the region stretching from the nearby ranges, Mount Macedon, the You Yangs, Port Phillip Bay, Melbourne's CBD and its suburbs as well as the Bellarine Peninsula.

Apart from Cowies Hill, which is already developed, Greek Hill is the only significant elevated location within Wyndham's expanded urban growth boundary.

There is a registered Aboriginal cultural heritage site on the hill.



Figure 29: Views of Melbourne CBD (albeit an overcast day) from Sewells Road.
Views from the peak of Greek Hill would be significantly better.

Key Site 5 - Greek Hill Recommendations

- R.5.1** Retain Greek Hill as open space for the local community and visitors to experience and appreciate the views, and for recreational activities. Access to the open space on Greek Hill should only be for pedestrians and maintenance vehicles.
- R.5.2** All infrastructure that is not of local historical interest on Greek Hill should be removed to allow for open space.
- R.5.3** Protect Greek Hill with a Design and Development Overlay (DDO) to allow the public and residents to appreciate the landscape and surrounds.
- R.5.4** All development surrounding Greek Hill must not impede on views from the top of the hill (i.e. the area proposed as open space).

Please also refer to General Recommendations in Section 8

Key Site No.: 6
Site: Werribee River
Location: From the future Outer Metropolitan Ring Road to Heaths Road
PSP: PSP 1088 (Oakbank), PSP 1092 (Westbrook), PSP 40 (Ballan Road) and PSP 1091 (Riverdale)

The Wathawurrung word for the Werribee River is *Wirribi-yaluk*, meaning 'backbone'¹⁵. The River supports significant Aboriginal cultural heritage values, and natural features such as steep banks, floodplains, rock formations and native flora and fauna including the EPBC listed Growling Grass Frog.

*'The waterways are important ... as our chemist, our supermarket, and our university ... for learning respect for the land'*¹⁶.

*'Aquatic habitat of the Werribee River is intricately linked with tributaries and with grasslands and grassy woodlands, and woodland fragments'*¹⁷.

The River offers magnificent views of a natural environment and waterway. It also provides recreation activities such as fishing, canoeing and bushwalking.

The Werribee River and its tributaries and alluvial terraces are a key asset of the proposed biolink. In addition, near the Davis Creek confluence with the Werribee River, the riparian vegetation is important habitat for platypus and other native wildlife. It also offers an important experience of nature within an urban environment. It is a proposed 'node' (asset 29) on the Werribee River biolink and will be included in the future Werribee River Township Regional Park¹⁸.

The Werribee River Trail bicycle track currently follows the Werribee River from the south to its confluence with Davis Creek, then continues along the eastern side of the Creek to Hogans Road. The Werribee River is linked to Lollypop Creek via the Wyndham Vale Floodway. A *Werribee River Shared Trail Strategy* is currently in draft at the time of preparing these Guidelines. Please refer to this document for further information.

Environmental Significance Overlays (ESO1 and ESO 2) extend along the Werribee River throughout Wyndham. Sections of Heritage Overlay HO42 and HO93 extend to the Werribee River. The DSE's draft *Biodiversity Conservation Strategy* includes the Werribee River as a Growling Grass Frog Conservation Area.

The reach of the Werribee River from the future Outer Metropolitan Ring Road to Davis Road is a registered State significant Biosite (Biosite No. 4619) as is the reach from the Diversion Weir to Shaws Road (Biosite No. 4615). The reach between Davis Road and the Diversion weir is a registered regional Biosite (Biosite No. 4614).

¹⁵ Dictionary of Aboriginal Placenames of Melbourne and Central Victoria.

¹⁶ Wurundjeri Elder and local resident, pers comm. 13 February 2012.

¹⁷ Dictionary of Aboriginal Placenames of Melbourne and Central Victoria.

¹⁸ Draft Werribee River Biolink Action Plan, Volume 1, 5 April 2012.



Figure 30: Werribee River, its terrace and bank



Figure 31: Steep and rocky escarpment of Werribee River with native trees, shrubs and grassland vegetation.



Figure 32: Werribee River



Figures 33 and 34: A wetland (within 50m) and scattered trees (remnant Bulokes and planted Sugar Gums within 200m) are close and valuable for including/connecting to the Werribee River corridor.

Key Site 6 – Werribee River Recommendations

- R.6.1** Connect (and retain and protect) scattered trees and wetlands outside the Werribee River corridor via open space and/or conservation reserves where possible.

Please also refer to General Recommendations in Section 8

Key Site No.:	7
Site:	Native Vegetation
Location:	Throughout the expanded Urban Growth Zone and approved logical inclusion areas.
PSP:	All PSP's and approved logical inclusion areas

Note when referring to the map of Special Places and Landscapes (Appendix 1) that the native vegetation sites listed below have been mapped. These sites have been identified as important for native vegetation as either biosites¹⁹, native vegetation offset sites or sites with significant threatened species. These are **not** the only sites within the study area which are worth protecting, but are used as example sites. It is not the intention of these Guidelines to map every area of remnant native vegetation within the study area. Further information can be obtained from other sources and reports including Council's roadside conservation site maps.

Three known offsets sites exist within the study area. These are part of a Wyndham Planning Permit (or Application) and are to be protected in perpetuity and managed for a minimum of ten years under an approved offset management plan. At least one of these offset arrangements is attached to a Section 173 Agreement on Title.

1. Freehold land on east side of Woods Road between Boundary and Dohertys Road in PSP 1090
2. Freehold land on west side of Skeleton Creek immediately south of Boundary Road in PSP 1090
3. Freehold land south of Sayers Road and between Davis and Sewells Road in PSP 1091 (in progress). This site is a potential EPBC listed Seasonal Herbaceous Wetland

The offset sites protect existing areas of native vegetation, with management principles relating to the enhancement of the sites. The retention of these native vegetation offset sites is in addition to open space contributions required for urban development and not included in the total open space requirement.

Areas of conservation in an urban environment are valuable interpretative landscape areas. They allow local residents to understand and appreciate the natural environment and landscape, including land formations and habitat, as a contrast to urban life. They also present opportunities for community engagement and involvement in managing the sites, forming 'friends groups', increasing outdoor activities and the overall appreciation and perception of the State government's future grassland reserves in Wyndham's north and west. Some good examples of where these could be retained in the Urban Growth Area are:

4. Freehold land on west side of Woods Road and north of Dohertys Road in PSP 1090.
5. East side of Hobbs Road, north of Ballan Road.
6. West side of Davis Road between Leakes and Sayers Roads.
7. Freehold land on north side of Leakes Road and west of Woods Road.
8. Freehold land south of Sayers Road and between Davis and Sewells Road in PSP 1091.

¹⁹ A Biosite is a physical area of land or water containing biological assets with particular attributes, such as the presence of rare or threatened flora, fauna or habitat required for their survival and/or rare or threatened vegetation communities. Biosite database information and BioMaps are available through DSE (Tel. 136 186)

Sites (4) and (5) are small areas of remnant grassland on freehold land that is suitable for an urban conservation education reserves. Site (4) also supports Creamy Candles which is a regionally significant grassland species and relatively rare in Wyndham. The retention of this site is also supported in the *Wyndham Biodiversity Study 2006*. Site (5) includes a small shallow quarry with a unique exposed rock face and has cultural heritage values.

Site (6) is an existing roadside conservation reserve with significant biodiversity values and suitable for retaining as a roadside conservation reserve or as an urban conservation education reserve as encumbered open space. The Davis Road conservation site is approximately 300m in length, supports the EPBC listed Natural Temperate Grasslands and over twenty critically endangered EPBC listed Spiny Rice-flowers and, is a registered State significant Biosite (No. 1292).

Site (7) has been noted in the PSP process as passive open space, and flagged as a conservation reserve, situated adjacent to a retarding basin. The area contains a good remnant grassland patch and would be an interesting educational conservation reserve.

Site (8) is located adjacent to an in-progress native vegetation offset site. The offset site is potentially an EPBC Act listed Seasonal Herbaceous Wetland (Freshwater) of the Temperate Lowland Plains, and adjacent to this is a high-quality patch of remnant grassland, which could be retained in open space.



Figure 35: Creamy Candles on freehold land west side of Woods Road (site 4).



Figure 36: Small shallow quarry with a unique exposed rock face, cultural heritage and biodiversity values (site 5)



Figure 37: Roadside conservation site on Davis Road (site 6).

Key Site 7 – Native Vegetation Recommendations

- R.7.1** Retain all current and ‘in-progress’ native vegetation offset management sites within the study area for natural landscape and conservation protection, management and enhancement.
- R.7.2** Retain Section 173 Agreements where they exist for native vegetation offsets in the study area.
- R.7.3** Retain, protect (e.g. with suitable fencing and signage) the freehold and roadside conservation sites in, and as, roadside reserves and/or encumbered open space for urban conservation education reserves for residents to understand and appreciate their local natural landscape.

Please also refer to General Recommendations in Section 8

Key Site No.:	8
Site:	Lollypop Creek
Location:	From the future Outer Metropolitan Ring Road to the Princes Freeway
PSP:	PSP 43 (Alfred Road), PSP 42.1 (Blackforest Road North), PSP 42.2 (Blackforest Road South), PSP 41 (Manor Lakes) and the approved Werribee West – Mambourin logical inclusion area).

Several reaches of Lollypop Creek occur in the study area and in different Precinct Structure Plan areas as well as the approved 'logical inclusion' area.

Lollypop Creek obtained its name from the croaking noise of a frog that inhabits the waterway. The Creek has significant Aboriginal cultural heritage and flora and fauna values.

From Wyndham Vale to the Princess Freeway, the shallow meandering Lollypop Creek has an extensive natural floodplain, including tributaries (dotted by remnant River Red Gums) where it then flows into the Western Treatment Plant, which is part of the internationally significant Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar Wetland site. The Werribee River is linked to Lollypop Creek via the Wyndham Vale Floodway.

The 'openness' of the Lollypop Creek flood plain allows for widespread and long views of the waterway, 'rural' land and the You Yangs. It separates and buffers the rural and urban land uses and the adjoining Ramsar wetland. Views and buffers to the Lollypop Creek (and nearby Cherry Tree Creek) and its floodplain are vital for retaining 'sense of place' and 'naturalness' of Wyndham. It allows travellers on the Princes Freeway to appreciate the Volcanic and Otway Plains, natural water courses and may instantly alleviate the tension of urban driving.

From early settlement, River Red Gums were cut down for use as timber for railway sleepers and posts. Therefore remnant trees on the Werribee Plains are likely to be regrowth of approximately 160 years (see note in Key Site 13). Older specimens have survived on the Werribee River.

River Red Gums depend on periodic flooding, and their long-term retention demands detailed knowledge of existing hydrological systems. The River Red Gums in Lollypop Creek (and elsewhere in Wyndham), are phenotypically distinctive, characterised by their squat, compact and overtly gnarled form and are likely to possess a degree of salinity tolerance (Barlow, 1989).

Environmental Significance Overlays (ESO1 and ESO2 in the upper reach) extend along Lollypop Creek and its floodplain.

The DSE's draft *Biodiversity Conservation Strategy* includes the Lollypop Creek as a Growling Grass Frog Conservation Area.

Lollypop Creek between the future Outer Metropolitan Ring Road and the downstream end of Manor Lakes is a registered State Significant Biosite (Biosite No. 4595).

In 2012 Melbourne Water identified some EBPC listed Seasonal Herbaceous Wetlands (Freshwater) of the Temperate Lowland Plains adjacent to Lollypop Creek in proximity to Ballan Road. These wetlands have the potential to be linked to the Creek through open space.



Figures 38 and 39: Western views of Lollypop Creek floodplain and tributary with scattered remnant River Red Gums as viewed from the Princes Freeway.

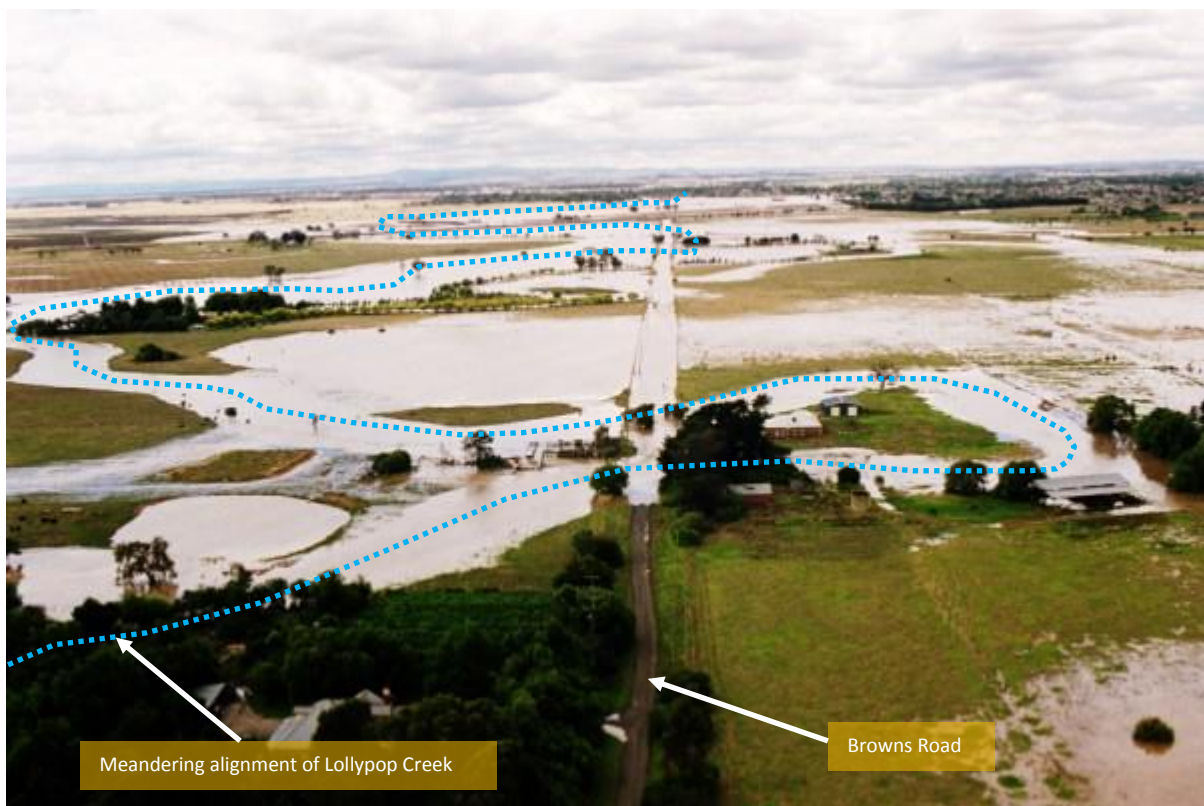


Figure 40: Flooding of Lollypop Creek in 2005. North-west view along Browns Road from Princes Freeway.

Key Site 8 – Lollypop Creek Recommendations

- R.8.1** Preserve views from the Princess Freeway to Lollypop Creek and its floodplain.
- R.8.2** Further connect tributaries and wetlands of the Lollypop Creek floodplain via public open space and/or conservation reserves, and connect with Cherry Tree Creek.
- R.8.3** Recreate previously engineered channelized form sections of Lollypop Creek to resemble and act as a natural waterway.
- R.8.4** The closure of Browns Road needs to be investigated as part of preparing the future Precinct Structure Plan for this area and new road networks should be located outside the Lollypop Creek floodplain.

Please also refer to General Recommendations in Section 8

Key Site No.:	9
Site:	Wyndham Vale Swamp
Location:	West end of Blackforest Road, Wyndham Vale
PSP:	PSP 42.1 (Blackforest Road North) and PSP 42.2 (Blackforest Road South)

Located on a tributary of Lollypop Creek, this large Swamp has been used for cropping and grazing; thus remnant native vegetation is limited, often to the outer fringes.

The Wyndham Vale Swamp often fills with water in flood and heavy/continuous rainfall events. This creates a mostly shallow water-body with deeper (previously excavated) ponds, which becomes an instant oasis and refuge for native wildlife.

Fauna species previously recorded at the Swamp include Latham's Snipe, Australasian Bittern, Hoary-headed Grebe, Red-kneed Dotterel and Growling Grass Frog.

The *Wyndham Biodiversity Study 2006* recommends that this Swamp be protected under an Environmental Significance Overlay.

Wyndham Vale Swamp is a registered regionally significant Biosite²⁰ (Biosite No 4561).



Figure 41: Aerial view of Wyndham Vale Swamp. Note potential biodiversity connection with adjoining windbreak of Sugar Gums.

Source: Nearmap 2012

²⁰ A BioSite is a physical area of land or water containing biological assets with particular attributes, such as the presence of rare or threatened flora, fauna or habitat required for their survival and/or rare or threatened vegetation communities. Biosite database information and BioMaps are available through DSE (Ph: 136 186)

Key Site 9 – Wyndham Vale Swamp Recommendations

- R.9.1** Place an Environmental Significance Overlay on Wyndham Vale Swamp and the tributary which connects this Swamp to Lollypop Creek.
- R.9.2** Revegetate Wyndham Vale Swamp to further enhance the native wildlife habitat values.
- R.9.3** Retain natural water flow regimes downstream of the Wyndham Vale Swamp.

Please also refer to General Recommendations in Section 8

Key Site No.:	10
Site:	Seasonal Herbaceous Wetland – Boundary Road
Location:	South side of Boundary Road between Skeleton Creek and Woods Road, Truganina
PSP:	PSP 1090 (Truganina)

Seasonal Herbaceous Wetlands (Freshwater) of the Temperate Lowland Plains have recently been included as a vegetation community listed under the *EPBC Act 1999*. Whilst this small, ephemeral wetland on freehold land along Boundary Road has not as yet been assessed as a Seasonal Herbaceous Wetland, it does support native remnant flora including Tangled Lignum and Nardoo and provide habitat for numerous species including frogs and birds.

This Wetland is fed by a tributary of Skeleton Creek where water enters via a culvert under Boundary Road. The *Wyndham Biodiversity Study 2006* states that this Wetland should be protected, managed and connected to Skeleton Creek.

Ephemeral wetlands are rapidly diminishing in Wyndham and opportunities exist for this wetland to be retained in a future urban environment.



Figure 42: Boundary Road Seasonal Herbaceous Wetland (Freshwater) of the Temperate Lowland Plains

Key Site 10 – Seasonal Herbaceous Wetland – Boundary Road Recommendations

- R.10.1** Assess the Boundary Road Seasonal Herbaceous Wetland site to ascertain whether it satisfies the EPBC Act listed community *Seasonal Herbaceous Wetland*.
- R.10.2** Ensure adequate (treated) natural in/out water flows are maintained (including culvert under Boundary Road to the *Seasonal Herbaceous Wetland*).
- R.10.3** Runoff from future surrounding development and road reconstruction directed to the Boundary Road Seasonal Herbaceous Wetland site must be treated for sediment and nutrients prior to entry, and the hydrology should aim to replicate ephemeral inundation.

Please also refer to General Recommendations in Section 8

Key Site No.:	11
Site:	Skeleton Creek
Location:	Between Boundary and Leakes Roads
PSP:	PSP 1090 (Truganina)

Skeleton Creek was previously known as 'Skeleton Water Hole Creek', reflecting its particular topography.

The Skeleton Creek corridor (including its tributaries) supports significant native flora and fauna values, a native vegetation offset site (bounded by a Section 173 Agreement on Title) on an adjoining freehold land parcel, natural rock formations including a large cave, dry stone rock walls, rock pools, waterholes, cultural heritage sites (protected under a Heritage Overlay), valuable view lines along the waterway and a four hectare parcel of Crown Land. This section of the Creek provides a meaningful corridor through the Truganina landscape.

This reach of Skeleton Creek is minimally protected by the Wyndham Planning Scheme Environmental Significance Overlay (ESO1 and ESO2) and specific locations are protected under Heritage Overlays.

There is a dry stone wall located within the watercourse of Skeleton Creek, between Dohertys and Boundary Roads. This wall should be retained as a feature, demonstrating the role of the Creek as a physical boundary between the Truganina and Tarneit areas.

The *Wyndham Biodiversity Study* supports connection of the Creek corridor with adjoining native grasslands and stony rises, as well as a buffer area.

With its tributaries, this reach of Skeleton Creek is a registered State significant Biosite (No. 4616).



Figure 43: South view of Skeleton Creek from Dohertys Road.



Figure 44: North view of Skeleton Creek from Dohertys Road.



Figure 45: North view of Skeleton Creek from Leakes Road. Native grasslands and natural rock formations are evidence of the banks of the Creek. There is a stone wall located in this section of the Creek, and the top of the wall can just be seen within the water.

Key Site 11 – Skeleton Creek Recommendations

- R.11.1** Widen the Environmental Significance Overlays on Skeleton Creek between Boundary Road and Leakes Road to include adjoining natural, heritage and cultural features such as waterholes and native grasslands and the existing native vegetation offset site.
- R.11.2** Retain the dry stone wall within Skeleton Creek, north of Leakes Road, as a feature along the waterway.

Please also refer to General Recommendations in Section 8

Key Site No.:	12
Site:	Dry Creek
Location:	Boundary Road to its confluence with Skeleton Creek
PSP:	PSP 1088 (Oakbank), PSP 1089 (Tarneit North) and PSP 1090 (Truganina)

The Dry Creek corridor and its tributaries support significant native flora (including remnant Sweet Bursaria) and fauna values (including Cunningham's Skink), tree plantings, undulating topography, natural rock formations (particularly at road crossing locations), dry stone rock walls and valuable view lines along the waterway.

Along the north-facing southern bank of creek, the rock escarpment '*shows the age of the landscape and gives a feeling of how old the area is*'.²¹

The entire reach of Dry Creek within the study area is protected by the Wyndham Planning Scheme Environmental Significance Overlays (ESO1 and ESO2).

Dry Creek corridor is protected from development within a zone that extends thirty metres from its natural embankments, but there are multiple un-named and un-protected tributaries of the Creek.

Adjoining Dry Creek are:

- Doherty House', Dohertys Road, protected by Wyndham Planning Scheme Heritage Overlay HO36. '*The heritage place is the house, outbuildings and stone walls and their immediate setting*'.
- 'Missen House' (site), Dohertys Road, on the Dry Creek bank, protected by Wyndham Planning Scheme Heritage Overlay HO38. '*The heritage place is the house, stone walls and plantings*'.

To assist with their long term protection, these heritage sites should be incorporated in the Dry Creek reserve or connected via open space.

The reaches of Dry Creek, including a tributary, are a registered State significant Biosite (No. 4616).



Figure 46: South view of Dry Creek from Kenning Road



Figure 47: One of the numerous dams along Dry Creek and its tributaries.

²¹ From community forum discussion (28/03/2012)

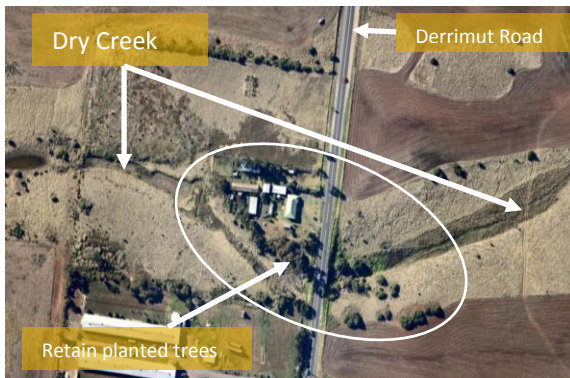


Figure 48: Derrimut Road crossing of the meandering Dry Creek with native grassland banks.

Source: Nearmap 2012

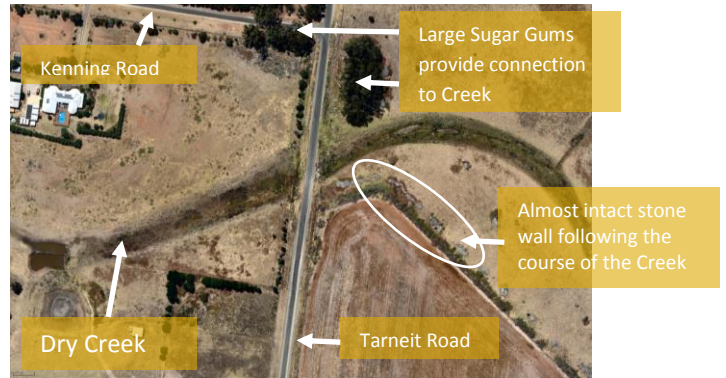


Figure 49: Tarneit Road crossing of Dry Creek with large Sugar Gums along the adjoining Kenning Road and freehold land.

Source: Nearmap 2012



Figure 50: Dohertys Road double crossing of Dry Creek between Derrimut and Tarneit Roads. This area is locally known as 'the dips'.

Source: Nearmap 2012

Key Site 12 – Dry Creek Recommendations

- R.12.1** Widen the Environmental Significance Overlays on Dry Creek between Skeleton Creek and Boundary Road to include adjoining natural, heritage and cultural features.
- R.12.2** Extend the Environmental Significance Overlays along Dry Creek to include its tributaries within the study area.
- R.12.3** Protect listed heritage sites adjoining Dry Creek and incorporate into the Creek corridor retention and protection area.
- R.12.4** Realign future re-construction of Dohertys Road where it crosses Dry Creek. The new alignment should avoid the “s” bend in the Creek and any significant flora, fauna, cultural heritage and natural rock formation areas.

Please also refer to General Recommendations in Section 8

Key Site No.:	13
Site:	Black Forest Swamp
Location:	South side of Blackforest Road and west of McGraths Road, Wyndham Vale
PSP:	PSP 42.2 (Blackforest Road South)

‘The Black Forest was really a forest, but just before I came there most of the trees had been cut down for sleepers for the railway which was about to be put through from Melbourne to Geelong ... Black Swamp was covered with limbs and refuge. As for game, they at times would be in hundreds.’²²

These words lead us to reflect that the remnant River Red Gums we note today were young trees or seedlings in c.1850, and could therefore be approximately 160 years old. This new knowledge provides a useful benchmark for estimating (by size comparisons) the age of River Red Gums in other locations on the Werribee plains. River Red Gums can live more than 1,000 years.

The note about an abundance of ‘game’ draws us to recognise a connection of food supply and pre-settlement Aboriginal tribes.

Black Forest Swamp contains a variety of wetland functional zones including Sedge dominated Fresh Water Meadows and Marshes. The Swamp is largely natural and contains high quality habitats. Changes to the hydrology of wetlands and streams are serious threats to biodiversity in the region.

The eastern section of the Swamp is within Council owned land used for open space, recreation and conservation. Lollypop Creek flows through the Swamp, via an engineered channel created more than 15 years ago.

An Environmental Significance Overlay (ESO1) extends along Lollypop Creek and Black Forest Swamp. The Wyndham Biodiversity Study supports the retention and protection of this Swamp.



Figure 51: Black Forest Swamp with scattered remnant River Red Gums.

²² Mr Bill Ison, early resident, arrived 1854



Figure 52: Black Forest Swamp with channelized Lollypop Creek flowing north-south through the Swamp.

Source: Nearmap 2012

Key Site 13 – Black Forest Swamp Recommendations

- R.13.1** Black Forest Swamp should be retained, protected and managed for conservation.
- R.13.2** Future development around Black Forest Swamp should avoid changes to hydrology that are likely to have a negative impact on the existing flora, fauna and faunal habitat of the swamp.
- R.13.3** A buffer of open space and/or revegetation of indigenous plant species is required to separate the Black Forest Swamp from future surrounding development.
- R.13.4** Stormwater runoff from future development surrounding Black Forest Swamp should be treated for sediment and nutrients prior to any inflow to the Swamp. Excessive nutrients in the Swamp would likely result in algal blooms, reduced amenity, negative faunal impacts and the shortened longevity of the remnant River Red Gums.

Please also refer to General Recommendations in Section 8

Key Site No.:	14
Site:	Cherry Tree Creek
Location:	North side of Wests Road before the entrance to the Wyndham Waste Disposal Facility.
PSP:	Approved Werribee West – Mambourin logical inclusion area.

Cherry Tree Creek occurs in the study area within the 'logical inclusion' area.

The Creek (and its tributaries) support scattered remnant River Red Gums and other native plants (most of which are grazed by livestock). It then flows into the Western Treatment Plant, part of the internationally significant Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar Wetland site.

Views and buffers that the Cherry Tree Creek provides are vital for retaining the 'sense of place' and 'naturalness' of Wyndham. These also allow travellers on the Princes Freeway to appreciate the Volcanic and Otway plains and assist with buffering the adjoining landfill and quarry sites immediately west of the Creek.

An Environmental Significance Overlay (ESO1) extends along Cherry Tree Creek and its tributaries.

Cherry Tree Creek is a registered regionally significant Biosite (Biosite No. 4627) and its East Branch (tributary) is of local significance (Biosite No. 7007).



Figure 53: South-west view from Princes Freeway of Cherry Tree Creek, open agricultural land and the You Yangs.



Figure 54: North-west view along Cherry Tree Creek with scattered young remnant River Red Gums from Wests Road

Key Site 14 – Cherry Tree Creek Recommendations

- R.14.1** Preserve views of Cherry Tree Creek and its floodplain from the Princes Freeway.
- R.14.2** Further connect tributaries and wetlands of the Cherry Tree Creek floodplain via public open space and/or conservation reserves, and connect with the Lollypop Creek.

Please also refer to General Recommendations in Section 8

Key Site No.:	15
Site:	Clarke's Dam
Location:	On a tributary of Davis Creek, south of Dohertys Road and west of Sewells Road, Mount Cottrell
PSP:	PSP 1088 (Oakbank)

*"Clarke's Dam c. 1860's is one of a series of dams built by the Clarke's; the others are located within the Melton municipality"*²³

The dominant characteristic of the Dam is its unique stone wall that defines the southern perimeter, and which lends itself to be a prominent feature in the future local community. The Dam supports significant flora and fauna values including habitat for reptiles, amphibians and small mammals.

Clarke's Dam is protected by a Wyndham Heritage Overlay HO35, where the heritage place is the dam and the immediate surrounds.



Figure 55: Aerial view of Clarke's Dam
Source: Nearmap 2012



Figure 56: View of Clarke's Dam from Sewells Road

Key Site 15 – Clarke's Dam Recommendations

- R.15.1** Maintain the entire stone wall of Clarke's Dam as a prominent feature of the future development along Davis Creek.
- R.15.2** Landscaping and design near Clarke's Dam and the Davis Creek waterway must be sympathetic and compliment these features, while aiming to obscure views of the nearby overhead high voltage transmission lines.

Please also refer to General Recommendations in Section 8

²³ Advice from David Moloney, Historian.

Key Site No.:	16
Site:	Leakes Road Lignum Swamp
Location:	On Davis Creek where it dissects Leakes Road between Shanahans and Sewells Roads, Mount Cottrell
PSP:	PSP 1088 (Oakbank)

The Leakes Road Lignum Swamp supports Tangled Lignum, Nardoo and other native plant species as well as the dominant feature of River Red Gums that are in varying health condition. It is a place of beauty and provides habitat to many species including water-birds.

The Swamp connects south to Davis Creek via an un-named tributary, where it would be regarded as a 'stepping stone' in a wildlife corridor to Davis Creek.

The River Red Gums depend on periodic flooding, but optimum conditions are a fine balance. If a tree is lost through water diversion, salinity of a rising water table, or by removal, it cannot be replaced in the growth period of one human lifetime: it is lost to a generation.

'These areas are needed to feed the soul'.²⁴

The group of River Red Gums have been assessed as *'amongst the highest value trees in the precinct ... most support hollows and cavities making them valuable for a range of fauna species.'*²⁵

*'Avoid river crossings and realign roads around special places and creeks'*²⁶



Figure 57: Leakes Road Lignum Swamp (in 2012 after weeks of rainfall)
Photograph by Jill Orr-Young

²⁴ Quotation from community forum discussion (28/03/12)

²⁵ Treetec, for the Growth Areas Authority, *Arboricultural Report Oakbank Precinct Structure Plan 1088*, Apr. 2012

²⁶ Quotation from community forum discussion (28/03/12)



Figure 58: This River Red Gum in Leakes Road Lignum Swamp died during the recent period of extended drought, but still provides habitat value (note the Yellow-billed Spoonbill *Platalea flavipes*¹).
Photograph by Jill Orr-Young

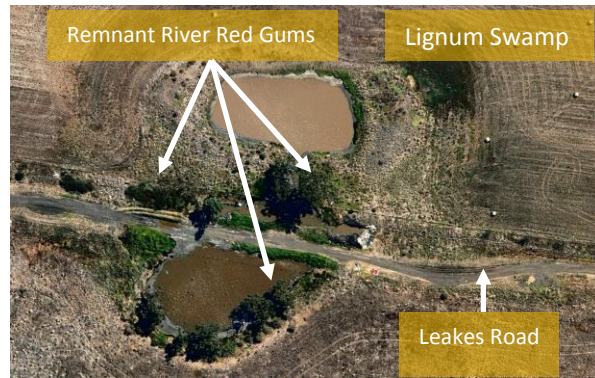


Figure 59: The current alignment of Leakes Road dissects the Lignum Swamp.
Source: Nearmap 2012

Key Site 16 – Leakes Road Lignum Swamp Recommendations

- R.16.1** Re-align Leakes Road to bypass the Lignum Swamp. Road re-alignment should incorporate culverts or a bridge over the Davis Creek tributary.
- R.16.2** Retain all River Red Gums including hollow bearing limbs in the Leakes Road Lignum Swamp regardless of their health. To minimise public risk in the future, ensure public access is discouraged beneath the trees
- R.16.3** Drainage and stormwater design in the area surrounding the Leakes Road Lignum Swamp must not impact on the values of the Swamp and the long term health and survival of the remnant River Red Gums. Stormwater must be treated separately (i.e. upstream) rather than using the Swamp for this purpose.
- R.16.4** Future rehabilitation of the Leakes Road Lignum Swamp must be with suitable indigenous plant species to enhance existing biodiversity values.
- R.16.5** The Leakes Road Lignum Swamp should be reserved and managed in the future as a conservation area with education interpretive signage and not 'landscaped' as an urban park/wetland..

Please also refer to General Recommendations in Section 8

Key Site No.:	17
Site:	Davis Creek
Location:	From the future Outer Metropolitan Ring Road to its confluence with the Werribee River
PSP:	PSP 1088 (Oakbank)

Davis Creek and its tributaries flow to the Werribee River, where there exists at this confluence important habitat for platypus and other native wildlife, as well as numerous different Ecological Vegetation Classes.

Davis Creek and its tributaries contain many wetlands/dams. The Creek is surrounded by areas of natural grasslands and rock formations; it dissects an undulating landscape and supports significant flora and fauna species including the regionally significant Swamp Lily (*Ottelia ovalifolia*) which is one of two known natural occurrences within the outer West of Melbourne, between the City (Melbourne) and Geelong (Włodarczyk, 2010; Overmars²⁷). Significant landscape and linear views along the waterway are offered and provide an important 'sense of place'.

Environmental Significance Overlays (ESO1 and ESO 2) extend along Davis Creek to just north of Sayers Road. The DSE's draft *Biodiversity Conservation Strategy* includes the Davis Creek as a Growling Grass Frog Conservation Area.

Isolated mature trees including the remnant Blue Box (*Eucalyptus baueriana subsp. thalassina*) located on the west side of Davis Road along the eastern tributary of Davis Creek provide possible "stepping stones" in a biolink²⁸. This Blue Box specimen has survived lopping of the main leader and extended droughts and is estimated to be one of only 300 in the Werribee catchment. A Growth Area Authority's arboricultural assessment²⁹ recommends this specimen's retention within a reserve and management for natural increase by regeneration.

The Werribee River Trail bicycle track currently follows the Werribee River from the south to its confluence with Davis Creek, and then continues along the eastern side of the Creek to Hogans Road.



Figure 60: An ephemeral wetland on Davis Creek, west side of Shanahans Road. Planted trees provide ideal wildlife connections.



Figure 61: Northwest view of Davis Creek from Sayers Road. A stand of Sugar Gums on the top-of-bank should be retained within a future creek reserve.

²⁷ Frances Overmars local resident and environmentalist, pers comm. 22 February 2013

²⁸ 'Small patches of vegetation or habitat varying in size and quantity that are used by fauna to feed or stop over and to travel between core areas (Draft Werribee River Biolink Action Plan, Volume 1, 5 April 2012).

²⁹ Tree Logic, *Arboricultural Report Tarneit Precinct Structure Plan 91*, a report to the GAA, July 2011 (Tree ID No. 14)

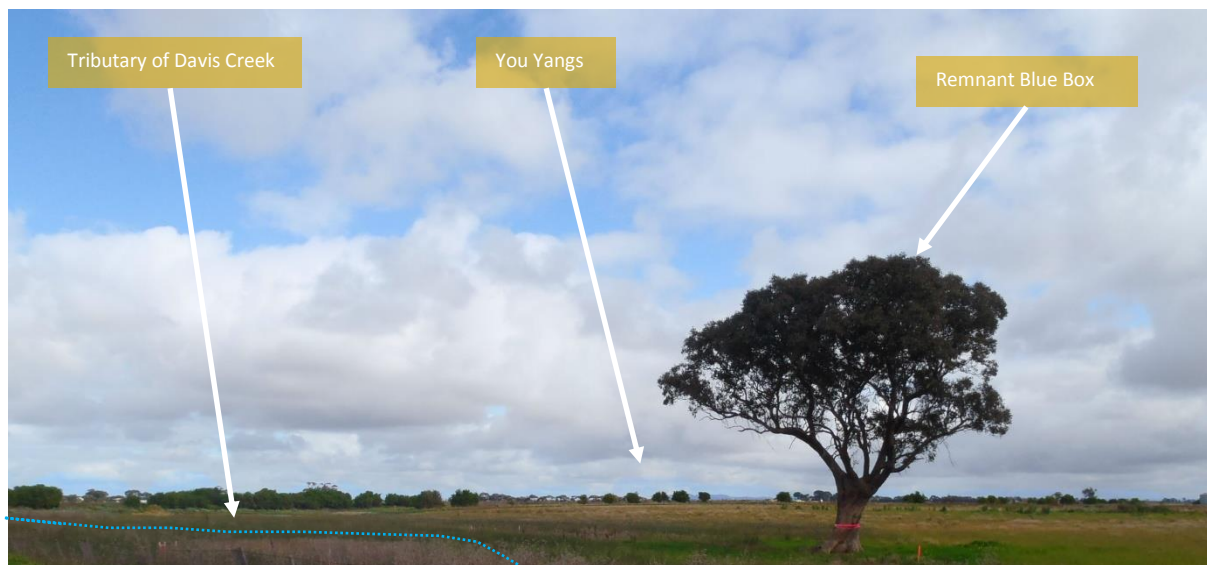


Figure 62: Southwest view of a Davis Creek tributary from Davis Road. Note the remnant Blue Box, the view of the distant You Yangs and the natural watercourse alignment and banks.

Key Site 17 – Davis Creek Recommendations

- R.17.1** Extend the Environmental Significance Overlays (ESO1 and ESO2) along all lengths of Davis Creek and where possible its tributaries within the study area including the grasslands, rock formations and wetlands that surround and/or are within the waterway.
- R.17.2** Retain and protect within a reserve, the remnant Blue Box tree on the eastern tributary of Davis Creek, and manage the area to assist its natural regeneration.

Please also refer to General Recommendations in Section 8

8. GENERAL RECOMMENDATIONS

Recommendations are not in any particular order of importance, but numbered for reference.

- R18.** Ensure that the *Landscape Context Guidelines* serve as a reference document to future Precinct Structure Plans, Native Vegetation Precinct Plans, Cultural Heritage Management Plans, Development Plans, Subdivision Plans, Landscape Plans, Drainage Plans, Environmental Management Plans and the Wyndham Municipal Strategic Statement.
- R19.** Relevant overlays within the Planning Scheme relating to any Key Themes or Key Sites, including ESO1 and ESO2 should list the *Landscape Context Guidelines* as a reference document.
- R20.** Features identified in Key Themes and Key Sites should be retained and protected (in their current size, form and alignment as a minimum) and, incorporated into current and future development planning, subdivision and urban patterns.
- R21.** Precinct Structure Plans and/or planning permit applications for subdivision must include a report which considers landscape character and context themes as identified in Section 6 and demonstrates their retention/protection and or incorporation as part of future urban design.
- R22.** Protect the integrity of 'special places and landscapes' (*Key Sites 1 - 17*) in buffer zones. Special places cannot be reduced as inventories of key elements, but their 'qualities' are discussed in each place description.
- R23.** The Environmental Significance Overlay Schedule 1 (ESO1) should be extended to include all reaches of waterways within the study area including the Werribee River, Lollipop Creek, Skeleton Creek, Cherry Tree Creek, Dry Creek, Davis Creek and significant natural wetlands. Retention of all tributaries to these waterways is highly desirable.
- R24.** The design of all infrastructure and improvements in Key Themes and Key Sites should be sympathetic to the natural environment as must all permitted works within areas protected by planning overlays.
- R25.** Future urban areas should be designed to allow for public access and surveillance and frontage to waterways, conservation and cultural heritage reserves, open space and other 'special places'. The rear of properties should not face Key Sites. Roads and pathways must front the buffers of existing and future developed water features and systems as well as other 'special places' wherever possible.
- R26.** Where viewlines to the You Yangs can be achieved, orientate key roads and drainage infrastructure to maintain and promote viewlines and vistas, particularly in Truganina and Black Forest Road areas.
- R27.** Open space networks should be located in areas where vegetation retention and landscape features are protected.

- R28.** Conduct and implement a study of dry stone walls in Wyndham, to consider both cultural and habitat corridor values.
- R29.** Avoid river crossings where possible and realign roads around 'Special Places' and creeks. Where crossings are unavoidable they should be minimised, preserving wildlife corridors in underpasses; and protecting remnant riparian vegetation. Environmental management plans addressing environmental issues including siltation of waterways during construction works are required. To retain the view lines along waterways and their tributaries, waterway crossings should avoid areas of high natural and cultural significance. Bridge crossings should not be located where long views of the waterway corridor will be interrupted; yet it is recognized that bridges can extend viewing opportunities. Bridges should also be clear span where possible and sympathetic to the waterways form and character.
- R30.** Preserve and acknowledge natural heritage where possible in design guidelines (particularly listed endangered fauna species, e.g. Growling Grass Frog, Golden Sun Moth, and their habitats; ecotones including native grasslands, water courses, wetlands, old remnant trees).
- R31.** Preserve hydrological systems for the continued health of old River Red Gums. Note that several River Red Gums have died in recent years as the result of drought and changed hydrology, for example along Lollypop Creek (Key Site No. 8) and at Leakes Road Lignum Swamp (Key Site No. 16).
- R32.** Future landscaping and revegetation should promote local indigenous species to highlight and identify the character of the Western Plains and other relevant Ecological Vegetation Classes. Exotic species are not suitable within and adjoining natural environmental features.
- R33.** Where possible, main roads should not be planned near prime frog habitat, so that local residents can hear the presence of frogs (and thus appreciate their habitat).
- R34.** Protect the integrity of waterways, their tributaries and floodplains from development, with buffer zones on each side of the embankment; protect creek edges, particularly rocky escarpments of fauna habitat, also supported by Melbourne Water's draft Waterway Corridors Guidelines (2012)
- R35.** Damming of natural waterways (and their tributaries) and wetlands should be avoided and likewise the use of piped or underground "environmental flow bypass systems". In addition, existing in-stream damming along waterways and artificial damming of wetlands must be assessed to determine whether the dams should be retained or removed/opened to allow unimpeded water flows.
- R36.** Land filling, removal of rocky outcrops, re-alignment and development within the waterways are discouraged so as to maintain the qualities, function and natural landscape character of the waterway including serenity and tranquillity values. (*Wyndham Waterways Strategy Plan 2002* page 72)
- R37.** Where development occurs adjacent to a waterway, any constructed batters should effect a gradual transition from waterway to plain and be in accordance with Environment Protection Authority (EPA) guidelines for Environmental Management Plans during construction.
- R38.** Strict boundary lines of the extent that development construction is permitted and not permitted must be identified prior to works commencing and breaches of these lines enforced heavily.

- R39.** Stormwater treatments and retarding basins should be strategically located to prevent the loss of the natural appearance and functioning of waterways, their tributaries and wetlands. Stormwater from surrounding development must be treated prior to it entering a natural waterway or wetland.
- R40.** New service utilities including sewer should be located outside:
- All Key Sites of Significance (1-17).
 - The protection area of remnant and high or above aboriginal rated planted trees.
 - Cultural heritage listed sites.
 - Areas covered by the Environmental Significance, Vegetation Protection, Significant Landscapes, Design and Development and Heritage Overlays as well as identified Growling Grass Frog corridors
- R41.** New service utilities such as telecommunication towers which may obstruct viewlines should be located outside significant viewsheds.
- R42.** Where remnant native vegetation is permitted to be removed, attempts should be made to salvage significant plants and harvest seed/cuttings prior to their removal for use in rehabilitation and revegetation of other sites in Wyndham.
- R43.** Efforts should be made to ensure the survival and/or relocation of native wildlife where habitat degradation will occur.
- R44.** Ensure future subdivision and road patterns protect isolated mature remnant trees, such as Werribee Blue Box, *Eucalyptus baueriana* subsp. *Thalassina*, in reserves, and manage the remnant trees for regeneration.
- R45.** Utilize existing significant trees and shrubs of high or above aboriginal rating throughout the entire study area as buffers and screening. Screening refers to minimizing visually intrusive developments as viewed from public open space and/or the 'natural' environment.
- R46.** Protect Sugar Gums of high or above aboriginal rating and other suitable plantation windbreaks with a Significant Landscape Overlay (SLO) as they contribute to 'local distinctiveness'. (Note linear spatial definition; single and double rows; defining property boundaries/roads; often in conjunction with dry stone walls; aesthetic effect of cloud-like branch structures; cultural associations).
- R47.** Preserve the west side of Davis Road road-reserve (south of Sayers Road, Tarneit) as a 'rural landscape', including road and property boundary Windbreaks. Strengthen this roadside plantation to complete a 'biolink' corridor from Werribee River to the Davis Creek junction with Davis Road. If possible, retain the left side of the Davis Road road-reserve in a central median strip.
- R48.** If waterway tributaries that are not marked as a Key Site within the Special Landscapes and Places Map (appendix 1) need to be remodelled for drainage/flooding purposes then the shape, alignment and all rehabilitation facets (including revegetation) should resemble the natural appearance and form in accordance with Melbourne Water's Guidelines.

REFERENCES

- Australian Academy of Science, Theo Murphy (Australia) High Flyers Think Tank, *Stressed Ecosystems: better decisions for Australia's future*, Recommendations, Sept. 2011, pp. 13 - 17
<http://www.science.org.au/events/thinktank/thinktank2011/group-b.html>
- Barlow, T. (1989). *Sites of Significance for the Nature Conservation in the Werribee Corridor*. Western Region Commission, Braybrook.
- Burness, Jill, and Saniga, Andrew, (for Melbourne Parks and Waterways), *Skeleton Creek Catchment Visual Analysis*, May 1993
- Bursill, Greg, Dennis Family Corporation, *Improving Biodiversity in Melbourne's Growth Areas*, no date
- Bursill, Greg, *Improving Biodiversity in Melbourne's Growth Areas*, Talking Notes, Property Council, 6 Dec. 2011
- Cardinia Environment Coalition, *Biolinks Project Action Plan: Linking Habitats across the Western Port Catchment Central Region*, 2008
<http://www.cecinc.net.au/biolinks-action-plan.html>
- City West Water (2012). Draft Greening the West Strategy 2012-2017.
- Clark, Ian D., Heydon, Toby, *Dictionary of Aboriginal Placenames of Melbourne and Central Victoria*, Victorian Aboriginal Corporation for Languages, 2002
- Context, for Growth Areas Authority, Historic Heritage Assessment PSP Areas 40 East, 42, North, & 43, Oct. 2011
- Context, and Dr. C. Kellaway, *Heritage of the City of Wyndham*, Wyndham City Council, 1997
- Costermans, Leon, *Native Trees and Shrubs of South-Eastern Australia*, revised edition, Jan. 1983, p.349, Rigby
- Couttes, P.J.F, Salvage Operations. In *Records of the Victoria Archaeological Survey* 4. 1977
- Couttes, P.J.F, Werribee River Carbon date. In *Records of the VAS* 10:10. 1980
- DPCD, *Delivering Melbourne's Newest Sustainable Communities*, July 2010
<http://www.dpcd.vic.gov.au/planning/plansandpolicies/planningformelbourne/planninghistory/deliveringmelbournesnewestsustainablecommunities>
- DSE, *Biodiversity Action Planning: Landscape plan for the Werribee zone – Victorian Volcanic Plain Bioregion*, Draft 9 May 2003
[http://vro.dpi.vic.gov.au/dpi/vro/vrosite.nsf/pages/bap_landscape_werribee_zones_pdf/\\$FILE/werribee_zone.pdf](http://vro.dpi.vic.gov.au/dpi/vro/vrosite.nsf/pages/bap_landscape_werribee_zones_pdf/$FILE/werribee_zone.pdf)

DSE, *Flora and Fauna Guarantee Act 1988 Threatened List*, Oct. 2010

http://www.dse.vic.gov.au/data/assets/pdf_file/0014/103136/20101021_FFG_threatened_list_Oct_10.pdf

DSE, *Biodiversity Conservation Strategy for Melbourne's Growth Areas*, Draft, Nov. 2011

DSE, Biosites maps and reports for land and water management agencies, Port Phillip Region, January 2005.

DSE, Kim Lowe, Melbourne's Strategic Assessment, Response to Industry, no date

Du Cros, Hilary, *The Werribee Growth Area An Archaeological Survey*, 1989 ECC, Marine, Coastal and Estuarine Investigation, Final Report, Aug. 2000 <http://www.veac.vic.gov.au/investigation/marine-coastal-estuarine-investigation-ecc>

Earth Imprints, *Outer Western Metro Reassessment Project – Melton & Wyndham*, Report prepared for Heritage Victoria, Mar. 2010

Elley, Joy, *Opportunity or Threat? Aboriginal Cultural Heritage - Fire, Flood and Development - A Victorian Perspective*. Conference Proceedings: Cultural Heritage Protection in Times of Risk: Challenges and Opportunities, Istanbul, Turkey, Nov. 2012

GAA, Mark Woodland, *Managing biodiversity issues in Melbourne's growth areas*, Dec. 2011

GAA, Biodiversity Assessment Report (Native Vegetation) Melton – Wyndham Investigation Area, Sections A – H, Mar. 2010 <http://www.gaa.vic.gov.au/Publications.aspx?PageID=248>

GAA, *Precinct Structure Plans*, Jan. 2012 http://www.gaa.vic.gov.au/Precinct_Structure_Plans/

Gerner Sanderson Faggetter Cheeseman, *Werribee River*, Nov. 1982

Green, Dale and Wright, (for the Ministry of Planning and Environment), *Werribee Corridor Landscape Study*, May 1989

Greening the West, brochure, no date

Hall, N., Johnston, D., and Chippendale, G.M., Australian Department of Agriculture Forestry and Timber Bureau, *Forest Trees of Australia*, Australian Government Publishing Service, Canberra, Third Edition, Reprinted, 1975, p. 82

Heritage Council of Victoria, *Victoria's Framework of Historical Themes*, Feb. 2010 http://heritage.vic.gov.au/admin/file/content2/c7/Victoria_Framework_Historical_Themes_themes.pdf

Heritage Victoria *Victorian Heritage Database* (Wyndham), accessed 6 Feb. 2012, 25 June 2012 <http://vhd.heritage.vic.gov.au/#search:simple:user:list:database|places:Wyndham:1>

Hume City Council, *Natural Heritage Strategy 2011-2015*, 13 Feb. 2012

Leadwest (prepared by Kellogg Brown & Root P/L), *Werribee River Biolink Action Plan, Desktop Report*, Nov. 2011 <http://www.leadwest.com.au/>

Leadwest (prepared by Kellogg Brown & Root P/L), *Werribee River Biolink Action Plan, Volume 1*, 27 Aug. 2012

Lord, Ernest E. and Willis, J.H., *Shrubs and Trees for Australian Gardens*, Revised Fifth Edition, 1982, Lothian Publishing Company Pty Ltd pp. 25 – 26

McDougall, Keith, *Sites of Botanical Significance in the Western Region of Melbourne*, 1987

Melbourne Water, *draft Waterway Corridors Guidelines for Greenfield development zones within the Port Phillip and Westernport Region*, 2012

Moore, Bryce, Property Council of Australia (Victoria), *Improving Biodiversity in Melbourne's Growth Areas*, no date (presentation 6 Dec. 2011)

National Trust Database – recorded properties, precincts, places and trees (WYNDHAM), accessed 2 Feb. 2012 http://vhd.heritage.vic.gov.au/search/nt_search

Orr-Young, Jill, *Place and Praxis: Valuing Australian Indigenous Place in Landscape Architecture Practice*, PhD thesis, School of Architecture and Design RMIT University, Jan. 2012

PPWPCMA, *Native Vegetation Plan*, 2006

http://www.ppwpcma.vic.gov.au/Resources/PublicationDocuments/6/Port%20Phillip%20and%20Westernport%20Native%20Vegetation%20Plan_web.pdf

Rosengren, N. J., *Sites of Geological and Geomorphological Significance in the Western Region of Melbourne*, Aug. 1986

Shire of Melton, *Dry Stone Wall Driving Trail* (brochure), no date <http://www.melton.vic.gov.au>

Sinclair Knight Merz, (2006). *Wyndham Biodiversity Study*. Wyndham City Council.

Thompson Berrill Landscape Design P L / Environment & Land Management P L, *Wyndham Waterways Strategy Plan*, Oct. 2002 (also 6-page summary)

Tree Logic, for the Growth Areas Authority, *Arboricultural Report Truganina Precinct Structure Plan 90*, July 2011

Tree Logic, for the Growth Areas Authority, *Arboricultural Report Tarneit Precinct Structure Plan 91*, July 2011

Treetec, for the Growth Areas Authority, *Arboricultural Report Oakbank Precinct Structure Plan 1088*, Apr. 2012

Treetec, for the Growth Areas Authority, *Arboricultural Report Tarneit North Precinct Structure Plan 1089*, Apr. 2012

VNPA website *Opportunity to protect Melbourne's grassland habitat*

<http://vnpa.org.au/page/nature-conservation/biodiversity/opportunity-to-protect-melbourne%27s-grassland-habitat>, accessed 1 Mar. 2012

VNPA Traill, Barry and Porter, Christine *Nature Conservation Review Victoria 2001*, Mar. 2001
<http://vnpa.org.au/admin/library/attachments/PDFs/NCR%202001-complete.pdf>

VNPA submission, *Strategic Assessment Process and institutional issues* (urban growth, native grassland protection and limitations of extant surveys), July 2009
<http://vnpa.org.au/admin/library/attachments/SubmissionsNEW/UGB27july2009/Strategic-assessment-process-8-22.pdf>

Wakelin Associates, VEAC Metropolitan Melbourne Study, *Sites of Geological and Geomorphological Significance on Public Land*, May 2009

Werribee District Historical Society, K. N. James, *Werribee The First Hundred Years of Settlement 1830's – 1930's*, no date

Werribee District Historical Society, *Historical Tourism Sites in Wyndham*, Oct. 2011

Werribee District Historical Society, newspaper cuttings received by post (24 May 2012) - events at Truganina c.1908 – 1920

Werribee District Historical Society, *Stock and Domestic Water Channels*, (Revision A), 28 Mar. 2012

Werribee Open Range Zoo, Zoos Victoria, 2010, *Werribee River Wildlife Corridor Management Plan 2010 – 2015*

Werribee River Shared Trail Strategy, Hanson Partnership in association with ecology and heritage partners, Cardno, ASR Research (draft) 2012

Wlodarczyk, P. (2010). *Flora and Fauna Assessment Hogans Road, Tarneit*. Prepared for Wyndham City Council.

Wyndham City, *Environment and Sustainability Strategy 2011 – 2015*
<http://www.wyndham.vic.gov.au/environment/enviromentsustainability/strategiesplans>

Wyndham City Plan 2011-2015
<http://www.wyndham.vic.gov.au/aboutwyndham/planspolicieslocallaws/plan1115>

Wyndham City, *Let's talk about growth*, Community Forum (report on outcomes), held 28 Nov. 2011

Wyndham City, *Municipal Strategic Statement (MSS)*, Mar. 1999
http://www.wyndham.vic.gov.au/building_planning/strategic/municipalstrategic

Wyndham City, Submission, *DSE draft Biodiversity Conservation Strategy for Melbourne's Growth Areas*, no date

Wyndham City Council, Toussaint, Craig and Aplin, Greg, *Place Management within a Context of Rapid Population Growth: A Case Study of the Werribee City Centre* (ICTC conference paper), Oct. 2010
<http://www.ictcsociety.org/LinkClick.aspx?fileticket=%2BJBkVouaNik%3D&tabid=142&mid=584>

Wyndham North Heritage Strategy, Heritage Alliance (draft), 2012

Wyndham City Council, *Wyndham Waterway Strategy Plan 2002*.

http://www.wyndham.vic.gov.au/building_planning/strategic/wynwaterwaysstrategy

Wyndham Planning Scheme, updated 5 Jun. 2012

Newspaper Articles:

The Age newspaper Oct. 11 2010, *Plan for hundreds of kilometres of new freeways*

The Age newspaper Dec. 13 2010, *Rare moth stalls housing plans; and All is growing on Melbourne's western front*

The Saturday Age newspaper Nov. 5 2011, *Call of the heartland (country halls)*

The Age newspaper Feb. 22, 2012, *Native grasslands suffer 'death by a thousand cuts'*

<http://www.theage.com.au/victoria/native-grasslands-suffer-death-by-a-thousand-cuts-20120221-1tlqh.html>

The Age newspaper Mar. 8 2012 *Carbon tax may help protect wildlife*

The Age newspaper Mar. 12 2012 *Baillieu reviews green laws*

The Age newspaper Mar. 13 2012 *Fee must include price of extinction (letter)*

The Age newspaper Mar. 15 2012 *Sick Suburbs*

The Age newspaper Apr. 5 2012 *Go batty in your own backyard*

Journal Articles:

Brook, Virginia, *Sustainability Speak: Discourse and Practice Paradigms in Subdivision Design*, in *Local Environment*, Vol. 10, No. 6, 613 – 627, Dec. 2005 Routledge

Clifford, Sue, Common Ground, *The Tick Tock of the New*, (essay, local distinctiveness), downloaded Sept. 2004 <http://www.england-in-particular.info/buildings/b-tick.html>

Clifford, Sue and King, Angela, *Local Distinctiveness - Place, Particularity and Identity*, (conference papers) Sept. 1993 <http://www.england-in-particular.info/cg/distinctiveness/d-place.html>

McHarg, Ian, L., *Ecology, for the Evolution of Planning and Design*, 1968

Plumwood, Val, *Sustainable what?* Humanities and Sustainability Workshop 13 May 2003
<http://fennerschool-associated.anu.edu.au/shp-workshop/Plumwood.pdf>

Photographs:

Jill Orr-Young

Colleen Miller www.victorianflora.com

Frances Overmars

Wyndham City

