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Merri Creek Development Guidelines

Adopted by MCMC 19 August 1999

This guide prepared for

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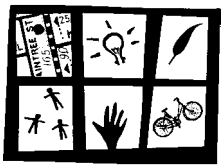

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INTRODUCTION

These guidelines apply to land covered by the Environmental Significance Overlay along the Merri Creek in the Yarra, Moreland, Darebin, Hume and Whittlesea new format planning schemes.

The Merri Creek flows from the Great Dividing Range through Melbourne's northern suburbs to the Yarra River. Its tributaries include Edgars, Merlynston, Central, Aitken and Malcom creeks. These guidelines have been prepared in conjunction with an Environment Significance Overlay for the Merri Creek and parts of Central and Edgars Creeks. They aim to guide future development along the creek and assist with the implementation of the town planning permit requirements under the Environmental Significance Overlay.

These controls provide a statement of the environmental significance of the creek corridor and environs:

> The Merri Creek is an environmental, heritage and recreation corridor that draws its significance from its role as a continuous corridor as it does from the qualities of individual reaches. All areas of the Creek are important because they contribute to the linking of areas of environmental, heritage and recreational value along the Creek.
>
> The Merri Creek and its immediate surrounds are host to some of the most threatened ecosystems in Australia. The Creek has a unique role to play in the preservation of threatened flora and fauna and the maintenance of vegetation communities that in other places have almost been totally destroyed.
>
> The Creek is the focus of a large number of pre and post-contact archaeological sites which as a group are highly significant. Many unknown sites are likely to exist and the areas likely to have the greatest density of these are sensitive to development.
>
> Revegetation works and parkland development including path construction have created a linear park of outstanding quality and landscape character – one which plays an important role in the park system of the metropolitan region.

These guidelines can be used in preparing plans for subdivisions, redevelopments, new urban or other development and public works. They can also be used by local councils in assessing planning applications.

In some areas Councils may have prepared detailed controls or guidelines for private development adjacent to the creek that complement the controls in this guide, and are to be used when a permit is required under the planning scheme. However, where the permit is required under the Merri Creek Environmental Significance Overlay this set of guidelines take precedence.

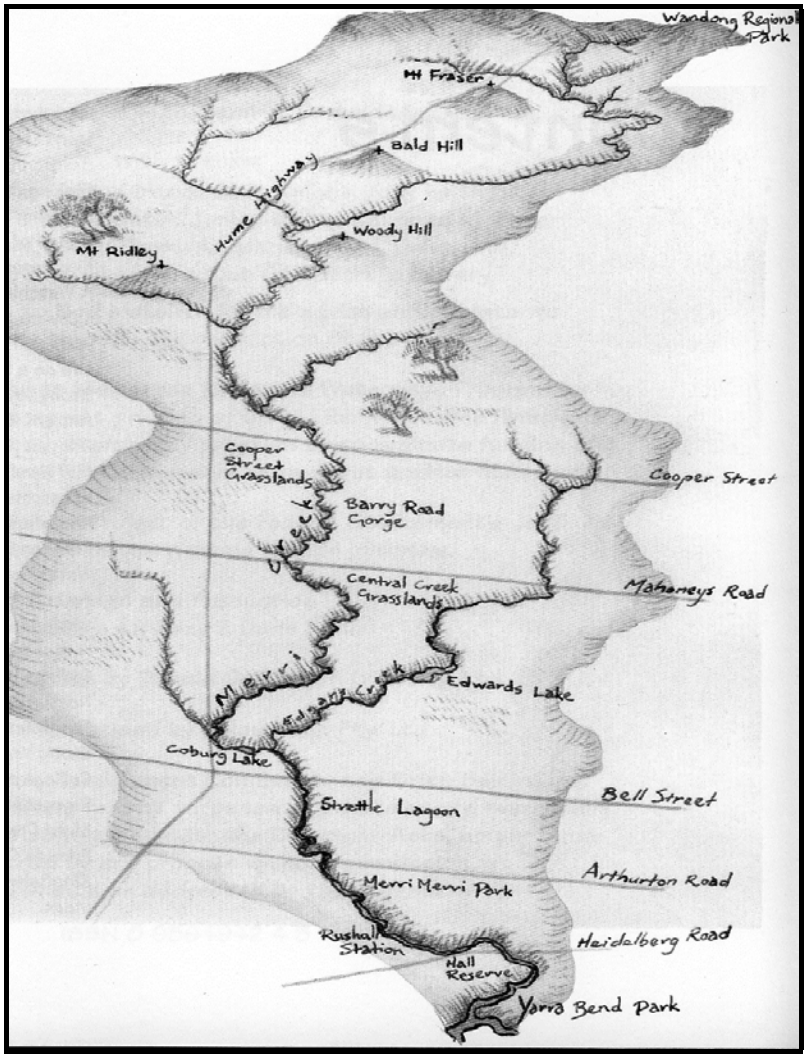
THE GUIDE'S STRUCTURE

The guide sets out the vision for managing the Merri Creek and highlights the achievements of over 25 years of sustained effort at revegetation and renewal.

The guide sets out the objectives for managing development along the creek under the five design themes that contribute to the overall quality of the creek and its environs. The guidelines provide objectives, criteria, design suggestions and techniques for the design themes.

These objectives, criteria, design suggestions and techniques are to used in assessing development along the Merri Creek.

The design suggestions listed provide examples of ways to meet the objectives and criteria. Designing in a way sensitive to the creekside environment cannot be designing to a formula. This guide is not intended to be rigidly prescriptive; innovative design and siting are encouraged. The techniques are intended as one solution to achieving the objectives, not a set of prescriptive rules.



Map of Creek

ACHIEVING THE VISION

VISION

The Merri Creek and Environs Strategy (1999) developed a vision for the creek which includes:

- A healthy living stream flowing through an attractive environment which provides habitat for native animals.
- A peaceful, passive open space haven that is valued by the community.
- A management regime for the Merri Creek corridor that protects the natural and cultural assets of the creek and provides lasting benefit to the community.

As general guiding principles, development along the Merri Creek and its tributaries should:

- Ensure that new development and land along the Merri or tributaries is consistent with the provisions of the Merri Creek and Environs Strategy.
- Promote the establishment of an open space corridor on both sides of the Merri Creek valley and its major tributaries.
- Protect local native vegetation and sites of natural, scientific, aesthetic, historical and archaeological, social and cultural significance along the creek and its tributaries.
- Ensure that any change in land use or development along the Merri does not degrade the ecological, recreational or aesthetic values of the creek corridor or its tributaries.
- Encourage recognition of the creek corridor as an asset in both public works and private new development and redevelopment. These developments need to complement the natural character of the waterway and its associated open space and be compatible with the informal recreation activities along the creek corridor.

A PICTORIAL HISTORY OF ACHIEVEMENT

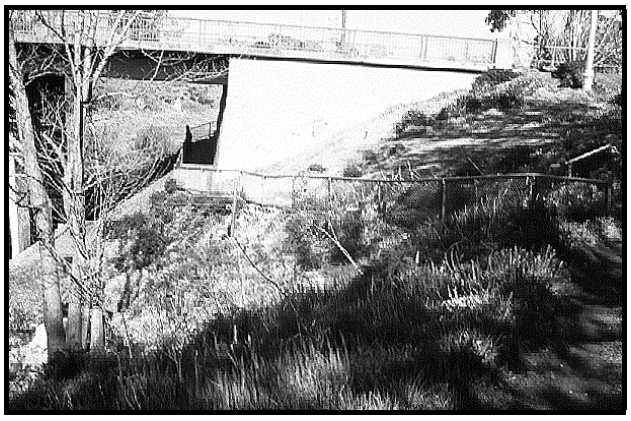
The Merri has been undergoing a transformation for some time. Urban reaches are being revegetated with local native plants, a trail has been constructed and wildlife is returning; many people now enjoy the creek valley. If this transformation is to continue, future public and private development along the creek must be carefully planned and managed, and be complementary to the landscape character and environmental values of the creek. It is important to recognise that this transformation will have economic as well as environmental benefits. An improved creek environment will contribute to the overall quality of the area, promoting investment and development.

To ensure that restoration of the creek continues, the community needs to be involved in all stages of development and management. The following photo essay illustrates the community impetus behind the restoration works to date.

Hall Reserve, Clifton Hill in September 1982 and after path construction and revegetation works in 1996.

Moomba Park Reserve 1988 plantings and the 1996 result.

Albion Street, East Brunswick 1982 and 1999 after path construction and screen planting.



St Georges Road Bridge, North Fitzroy in 1982 and 1996 after revegetation and path work.

Kendall Street footbridge in Preston.

A graduation of open space uses with the creek margins revegetated for landscape and habitat at Ramsden Street, Clifton Hill.

Cleaning up the creek— community involvement in revegetation, Brex Crt, Reservoir.

ISSUES ALONG THE CREEK

DESIGN THEMES

The issues along the creek are discussed in terms of five themes. Each of these themes contributes to the overall quality of the creek and its environs. Under each of these themes is a description of the significance of the particular theme to the Merri Creek. In the next section objectives, criteria, design suggestions and techniques are set out for each theme. There are no techniques specified for the waterway function theme.

Natural systems

A healthy stream

The first land sales and development in the Merri Creek catchment by Europeans began around 1837. For many years development along the creek did not take into account the quality of the stream or the needs of its ecosystem. Issues of run-off and litter polluting the creek weren't considered important. The current transformation of the creek has included weed control, revegetation and cleaning up the water—especially through litter control and preventing future degradation.

In managing the urban catchment, it is important that run-off quantity and quality are managed and that chemical spills and litter especially from shopping centres is minimised. Storm water run-off carries pollution from road surfaces, farming and grazing land as well as litter into the creek. This pollution sickens or kills the creek's plants and animals and prevents them from re-establishing the natural ecosystems of the creek. It also makes the water unsuitable for human contact.

Improving the water quality in the creek will also promote a viable population of local native flora and fauna. But a viable in-stream habitat is also determined by the structure of the stream bed, adequate food supplies and live native vegetation, both in-stream and on the banks. The the future of the creek is not seen as merely a landscaped drain, but as a healthy natural stream able to support a complex natural systems within the context of an often highly modified environment.

Native grasslands and other remnant vegetation

Much of Melbourne's local native vegetation has been cleared or seriously degraded, particularly the grasslands and grassy woodland that once covered the basalt plains to the north and west of Port Phillip Bay. Therefore it is important that any remnant vegetation is protected.

A number of small patches of remnant vegetation do remain along the Merri and its tributaries, in the urbanised areas downstream of Mahoneys Road. And between Mahoneys Road and Craigieburn East Road, there are some relatively large, highly significant areas of local native plant communities and fauna habitat. Seven of the remnant areas of vegetation identified along the Merri are considered to be of regional, state or national botanical significance (McMahon and Schulz, 1993). Over 280 species have been recorded along the Merri; this probably represents about 50 per cent of the Western Volcanic Plains flora.

Local native vegetation can benefit the local environment in many ways, including

- protecting land and waterways
- providing shade and shelter
- providing habitat for native fauna
- maintaining genetic diversity
- distinguishing local landscape character
- keeping watering and maintenance costs low
- providing propagating material for further revegetation work
- providing an enjoyable landscape for informal recreation.

Many of the remnant vegetation areas along the creek consist of Western (Basalt) Plains Grassland. Western (Basalt) Plains Grassland is recognised as the most endangered vegetation community in Victoria[1]. It is listed as a threatened community on Schedule 2 of the *Flora and Fauna Guarantee Act 1988*.

Native grasslands and grassy woodlands once covered vast tracts of the Victorian lowland plains. In only 150 years over 99.5% of these grasslands have been destroyed, reducing the once extensive native vegetation to small isolated remnants.

Native grasslands are comprised of a wide range of species— up to 40 species of grasses and as many as 150 species of small perennial herbs made up the Western Basalt Plains community. In the Western Plains more than 99.9% of the original distribution has been destroyed.

Some areas of land along the creek corridor are of national or state significance: the Craigieburn Grasslands are recognised as being of national significance; the Cooper Street Grasslands and Central Creek Grasslands are recognised as being of state significance and containing some species of national significance.

The Craigieburn to Cooper Street grasslands are listed on the register of the National Estate. The listing states:

> The Craigieburn to Cooper Street grasslands are some of the best remaining examples of the grasslands which covered much of the western basalt plains before European settlement. Together they represent the largest remaining area of plains grassland in Victoria, a community which is considered endangered in Victoria and contain patches of grassy wetlands, a severely depleted community. The riparian scrub growing along the Merri Creek corridor south from Craigieburn is one of the few intact examples of this vegetation type remaining on basalt in the State.[2]

Great difficulty has been experienced in recreating native grassland communities. While some species such as Kangaroo Grass can be successfully harvested and areas re-sown this has not proved successful for many grassland species. Even transplanting sods of grassland has

[1] see Stuwe (1986), and Frood, D. & Calder, M. (1987)

[2] Register of the National Estate Database Place Report. Database number 100591. File number 2/14/054/0017. Printed by Annabel Wheeler on 28 November 1996

proved ineffective. For the foreseeable future preservation of native grass species will require protection of the remnant grassland areas.

Waterway function

The creek provides natural drainage for the surrounding catchment. The provision of regional flood and drainage management by Melbourne Water requires a range of measures to be introduced along stream corridors. Examples include retarding basins such as those on Kalkallo and Merlynston Creeks, and flood levees such as at Thornbury and Northcote. It is important that stormwater flows be maintained at pre-urbanisation levels. It is also important that development does not intrude into the floodplain, reducing natural flood storage and exacerbating flooding.

Sustainable management of the stream corridor requires more than regional flood and drainage management. It is also important, especially where opportunities are available in association with greenfields developments, that the stormwater is treated to maintain rural water quality prior to discharge to the stream.

Measuring floods

The extent of flooding is measured by how likely a particular level of flooding is to occur. In this way we can speak of 1 in 100 year (or 1%) floods which are expected to occur (on average) once every 100 years. This 1% level is used for determining whether land is considered flood prone. Suburban drainage systems operated by local government are usually designed to cope with a 1 in 10 or 1 in 5 year storm without having the drains completely full. In some cases during intense rainfall events it is usual for the storm water to flow overland along valleys following much the same course as the drain, or along roadways. Protection of these natural valley lines must be provided for in urban development and are sometimes the basis of Special Building Overlays in planning schemes.

Open space, recreation and access

In order to develop a continuous corridor for recreation and conservation along the lower and middle sections of the Merri Creek valley, open space is being established along the creek corridor. At present in the areas south of Barry Road this corridor is established on one or both sides of the creek. However, north of Barry Road the creek frontage is generally owned privately.

It is also important to establish points at which pedestrians and cyclists can access this corridor. In the areas south of Mahoneys Road there are plenty of points at which people can access the creek. Major roads running east-west provide access to large open spaces and parking is available at local sports grounds. Many local streets run parallel to the creek or end close to it; the creek could be easily accessed from these points. Unfortunately, this potential is lost when allotments run continuously along the street and look away from the creek. Experience shows that where houses back onto the creek it is not unusual to experience problems of rubbish dumping (people just throw rubbish and weeds over the back fence) and people claiming some of the creek side park as their own! Back fences make for an ugly parkland edge and the perception of safety for parkland users are improved when houses face the park.

Local streets that edge the creek parklands need to be designed with allotments on the opposite side of the street to the creek; this will allow easy access to the creek from these streets, make the creekside park easier to maintain and increase the perception of safety along the creek.

Similarly, management vehicles need to have access to the creek parklands, while trail bikes and other private vehicles have to be discouraged.

In some areas where access to the creek is more than 400 metres away (five minutes walk), it may be necessary to acquire properties to create new access points.

It is important to encourage the use of public transport by visitors to the creek parklands, and to ensure that access points are close to public transport stops.

Landscape character

Subdividing land can create more variety and intensity of development. However, providing services such as roads, bridges, sewers and drains can seriously disturb the landscape of the site[3].

Any buildings adjoining the parklands have an impact on the natural environment of the Merri Creek parklands. The visual impact of buildings can be made worse if the building uses bright colours, reflective surfaces, has garish signs. The bulk and visual impact of buildings as well as the impact of overshadowing of the parklands needs to be considered.

Solid, high fences or walls can close in the parklands, particularly where there is only a narrow area of open space between the creek and the buildings.

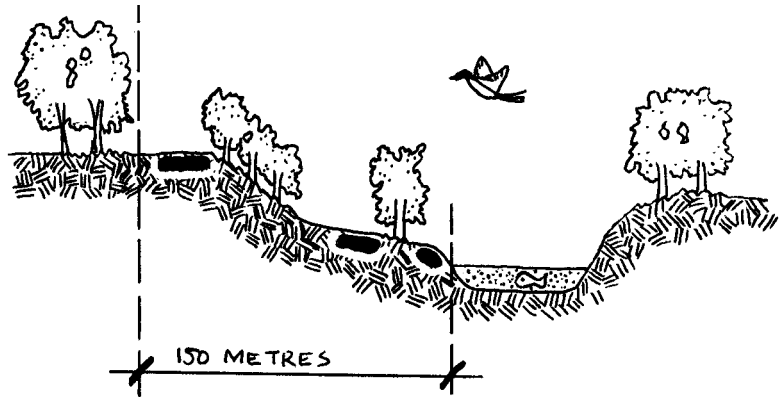
Heritage

Sites of geological, geomorphological, botanical, zoological, Aboriginal and historic significance have been identified along the Merri Creek valley. These sites typically cluster along waterways, because of the natural processes displayed near waterways; waterways have always attracted people for recreation and ritual.

Areas of high archaeological sensitivity may include

- the creek bank, the flood plain, river terraces and the high ground inside meanders
- the plain immediately above the creek valley escarpment for 150 metres inland
- any other place where an archaeological site has already been discovered.

[3] For guidelines on subdivision design refer to Victorian Code for Residential Development— subdivision and single dwellings, April 1992



Typical locations of aboriginal heritage sites

Heritage sites can be damaged or destroyed by any of the following

- constructing dams, fences, buildings, roads and trails
- ploughing and cultivating soil
- extractive industries— for example, soil extraction
- inappropriate planting of trees
- filling or excavating land
- weed control by cultivation or physical removal
- modification of the creek's bed or banks.

Protected by legislation

Some sites of cultural significance are protected by legislation. For example, under the *Commonwealth Aboriginal and Torres Strait Islander Heritage Protection Act 1984*, all places and objects significant to Aboriginal people are protected. Where these places or objects may be damaged or destroyed, written consent is required from the relevant Aboriginal community[4].

Similarly, all archaeological relics and sites are protected under the *Archaeological and Aboriginal Relics Preservation Act 1972.* This Act is administered by the State Minister responsible for Aboriginal Affairs; a separate permit may be required under this Act[5].

The planning scheme may provide specific protection for some sites by way of a Heritage Overlay control, and the *Heritage Act 1995* and the *Flora and Fauna Guarantee Act 1988* may provide additional protection for other significant sites.

[4] In this case the relevant community is the Wurundjeri through the Wurundjeri Tribe Land and Compensation Cultural Heritage Council Inc.

[5] The Heritage Branch of Aboriginal Affairs Victoria can give advice on what permission is needed.

GUIDELINES

These guidelines apply to land covered by the Environmental Significance Overlay along the Merri Creek in the Yarra, Moreland, Darebin, Hume and Whittlesea new format planning schemes.

HOW TO USE THESE GUIDELINES

These guidelines have set out objectives, criteria, design suggestions and techniques for the five themes identified for the creek corridor. All development should meet the objectives set out, and the criteria and techniques provide more detailed guidance on how these objectives can be met.

Objectives

These are statements which define the intention of each theme and indicate the desired outcomes to be achieved in completed developments. These objectives are generally drawn from the Environmental Significance Overlay control in the planning schemes along the creek. In the heritage theme objectives are also drawn from the Heritage Overlay provisions of the Victoria Planning Provisions; in the open space, recreation and access theme from the State Planning Policy on open space; and in landscape character from the policy on design and built form[6].

Criteria

These provide a basis for judging whether the objectives have been met. They provide a statement of the design response sought in new development.

Design suggestions

These provide ideas about how the criteria might be met.

Techniques

These are assumed to satisfy the relevant theme's objectives and criteria. However, in particular cases anyone proposing a development may use alternative methods if it can be demonstrated that they meet the objectives and criteria as well as or better than the prescribed techniques. In some case the techniques may not be sufficient to meet

[6] Clause 15.10-1 of the VPP for open space and 19.03-1 for landmarks, views and vistas.

the objectives and criteria; in these cases an alternative design solution will be required.

Theme 1
NATURAL SYSTEMS

Objectives and Criteria

1OBJECTIVES

T1:O1 To restore and revitalise the creeks and adjoining open space to a more natural and ecologically diverse environment.

T1:O2 To ensure the health and vitality of the natural systems of the creek and its associated open space.

T1:O3 To protect and enhance the diversity, integrity and health of the local native riparian, escarpment and plains vegetation associated with the creek.

T1:O4 To ensure the suitability of the riparian, escarpment and plains vegetation habitat and in-stream habitats for local native animals.

T1:O5 To improve the water quality of the creek.

T1:O6 To provide for the retention, restoration and revegetation of local native species.

2CRITERIA

T1:C1 Stormwater management, especially for large-scale new development should provide mechanism for the retention and treatment of run-off— for example, by establishing wetlands and retarding basins[7].

T1:C2 Storm water systems should incorporate litter traps.

T1:C3 Stream environs should be protected as far as practicable from the impacts of point source pollution and chemical spills carried in stormwater run-off.

3*Design suggestions*

Identify land for retarding basins through the preparation of outline development plans or drainage schemes for land subject to rezoning land from non-urban to urban. Include requirements for water quality treatment in drainage schemes developed for greenfield areas.

Include an approved stormwater management strategy in the overall design of any new development.

Lay out subdivisions to provide for stormwater treatment ponds or trains.

Install gross pollutant traps (designed to retain coarse sediment and litter) at entry points to drains that serve large shopping centres, markets and other large developments known to generate litter and sediment.

[7] Wetlands are important in catching and breaking down the pollutants carried into the creek from run-off from road surfaces etc. (Nutriment Strategy for Victorian Inland Waters, Victorian Government March 1995, p 22.)

T1:C4	Soil erosion and sedimentation should be minimised to protect the quality of water in natural waterways.	*Follow EPA guidelines on soil erosion during construction*[8]*.* *Construct temporary sediment ponds to capture sediment during construction and until development is 95% complete.* *Minimise areas of temporary or permanent bare soil by mulching, grassing or matting or by other methods.*
T1:C5	All remnant local native vegetation should be given long term protection and appropriately managed.	*Have appropriate specialists survey and map local native vegetation and provide this information to the responsible authority as part of (or before) any application to subdivide or develop land.* *Incorporate remnant vegetation into open space areas with an appropriate buffer.* *Protect remnant vegetation from changes in water level or water flow.* *Use a covenant on the title under the Victorian Conservation Trust Act, or an agreement under section 173 of the Planning and Environment Act to formalise conservation requirements.*
T1:C6	The Merri Creek and its tributaries should be revegetated with local native plant species.	*Specify local native plants from Plants of the Merri Merri (1996) on landscape plans.* *Source the plants from nurseries that grow local native plants from locally collected seeds or cuttings following DNRE guidelines.* *Use contractors with experience in local native plants and require maintenance for at least two years as part of any planting contract.*

[8] 'Construction Techniques for Sediment Pollution Control', Publication No. 275, available from the EPA.

T1:C7	Development should be designed in sympathy with the creek environs.	*Avoid the use of environmental weed species (Carr et al 1992) and control existing weeds prior to development.* *Use muted blue-green and browns on buildings able to be viewed from the creek valley.* *Place powerlines underground.*
T1:C8	Methods of drainage should protect and enhance natural waterways.	*Line outfall drain headwalls with rounded, weathered basalt rock.*
T1:C9	Lighting should not unnecessarily disturb the nocturnal fauna of the creek	*Baffle lights to avoid light spill to the creek and use white light sources.*

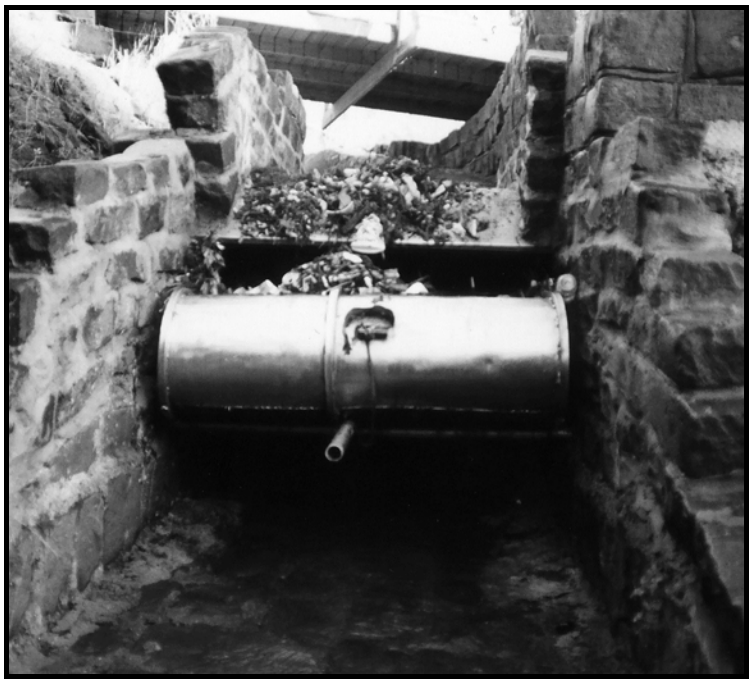
4

Theme 1
NATURAL SYSTEMS

Techniques

LITTER TRAPS AND WETLANDS

T1:T1 Litter traps and wetlands are installed on all drains where feasible, cost-effective opportunities exist and water quality improvements can be quantified.



East Brunswick litter trap

PLANTING PROTOCOL

T1:T2 Planting areas are prepared and maintained as follows

- remove environmental weeds
- remove bulk of dead material
- prepare natural soil surfaces carefully– these must be disturbed as little as possible
- remove rubble or grade back to 1 in 3 or shallower and cover with 250 mm of good clay soil
- plan to mimic local native plant communities
- buy stock from nurseries specialising in local native plants grown from seeds and cuttings from nearby sites that have similar characteristics
- mulch, lay weed matting or provide some other weed control for at least two years after planting.

VEGETATION MAPPING

T1:T3 Maps showing the location and significance of remnant vegetation, and lists showing the species present are prepared by qualified botanists commissioned to identify and map remnant vegetation on site, and submitted with the application.

Theme 2
WATERWAY FUNCTION

Objectives and Criteria

6OBJECTIVE

T2:O1 To sustain flood, regional drainage and waterway function to enable appropriate beneficial land use and water-based activities to be undertaken.

T2:O2 To provide flood management and water quality protection through works that seek to mimic natural systems and produce more natural-looking stream form.

7CRITERIA	**8*Design suggestions***
T2:C1 The community and its assets should be protected from the effects of flooding.	*Encourage public authorities with proposals for works along the creek to discuss their proposals with Melbourne Water and the Merri Creek Management Committee.* *Melbourne Water to provide regional drainage and flood management through the use of retarding basins and other flood management measures.* *Continue the referral of planning matters and other works proposals to Melbourne Water for advice on flooding issues.*
T2:C2 Development or revegetation works should not cause increases in flood heights, particularly immediately upstream and downstream of bridges	*Protect the flood storage capacity of the floodplain and guard against creation of a trapezoidal valley shape.* *Ensure the design of all revegetation works in the vicinity of bridges minimises the use of shrubs to avoid restricting the flow of flood waters, raising flood heights and creating pressure on critical culverts.* *Emphasise the use of occasional overstorey species and a dominant grassy–sedge understorey in revegetation works within the floodplain to mimic the former grassy woodland character of floodplain and ensure vegetation does not raise flood heights.*

T2:C3	Local drainage systems should be designed to minimise impacts on the creek.	*Maintain local drainage system to cope with up to 1 in 10 year floods.* *Incorporate stormwater treatment measures in new residential, industrial or commercial developments.* *Encourage use of grassed swales in preference to underground drains in new developments where opportunities are available.*

Theme 3
OPEN SPACE, RECREATION and ACCESS

Objectives and Criteria

10OBJECTIVES

T3:O1 To create a peaceful, passive open space quality in the creek parkland and valley.

T3:O2 To provide a linear open space link, including the provision of a shared pedestrian and cycle path along one side of the waterway corridor.

T3:O3 To provide for links, views and access from surrounding areas to the creek and open space.

T3:O4 To provide for a range of recreational uses in the corridor that are consistent with the environmental and open space objectives for each area or activity node.

11CRITERIA

T3:C1 Public open space should be established along the length of both sides of the creek for recreation and conservation.

T3:C2 Privately owned creek frontage should be acquired as part of any redevelopment.

T3:C3 Open space development should be consistent with the Merri Creek and Environs Strategy and the Merri Creek Plan.

12*Design suggestions*

Transfer land to public ownership as part of any development application along the creek.

Locate active recreation area sufficient distance from the creek to provide for a corridor of informal recreation and conservation along the creek.

T3:C4 A safe, shared path should be provided along one side of the creek for its complete length in urban areas.

Erect vandal proof fences and gates to prevent vehicles other than maintenance vehicles accessing the creek parklands—these barriers should allow easy, safe access for pedestrians and cyclists.

T3:C5 A variety of entry points to the path should be established at regular intervals.

Ensure new paths and renovation works are designed to meet flooding safety criteria.

T3:C6 Pathways intended for bicycles and pedestrians should be designed to shared pathway standards with a design speed for bicycles of less than 30 km per hour and to meet Melbourne Water's path criteria (especially in relation to flooding).

T3:C7 The design of roads in subdivisions should be sensitive to adjacent parkland.

Design roads to run parallel to the creek to provide continuous access.

Design roads in residential developments adjacent to the creek to carry less than 300 vehicles a day.

Where roads cannot run parallel to the creek create parkland access wide enough to encourage people to use it, and not cause conflict between residents and other users.

T3:C8 Access for management vehicles should be provide along both sides of the creek.

Encourage non-urban landholders to manage private land that fronts the creek in a way that conserves the natural and cultural values of the creek.

T3:C9 Development should minimise the overshadowing of parkland.

T3:C10 Development should provide for casual surveillance of parkland areas without dominating them.

Theme 3
OPEN SPACE, RECREATION AND ACCESS

Techniques

CONTINUOUS OPEN SPACE

T3:T1 A continuous strip of public open space is created along the creek that includes all land within

- the flood prone area (1 in 100 years)
- 22 metres from the bank of the creek
- 12 m from the top of any escarpment.

CONSERVATION ALONG THE CREEK

T3:T2 Conservation bushland and conservation parkland[9] form a continuous strip along at least one side of the creek.

OVERSHADOWING OF THE CREEK

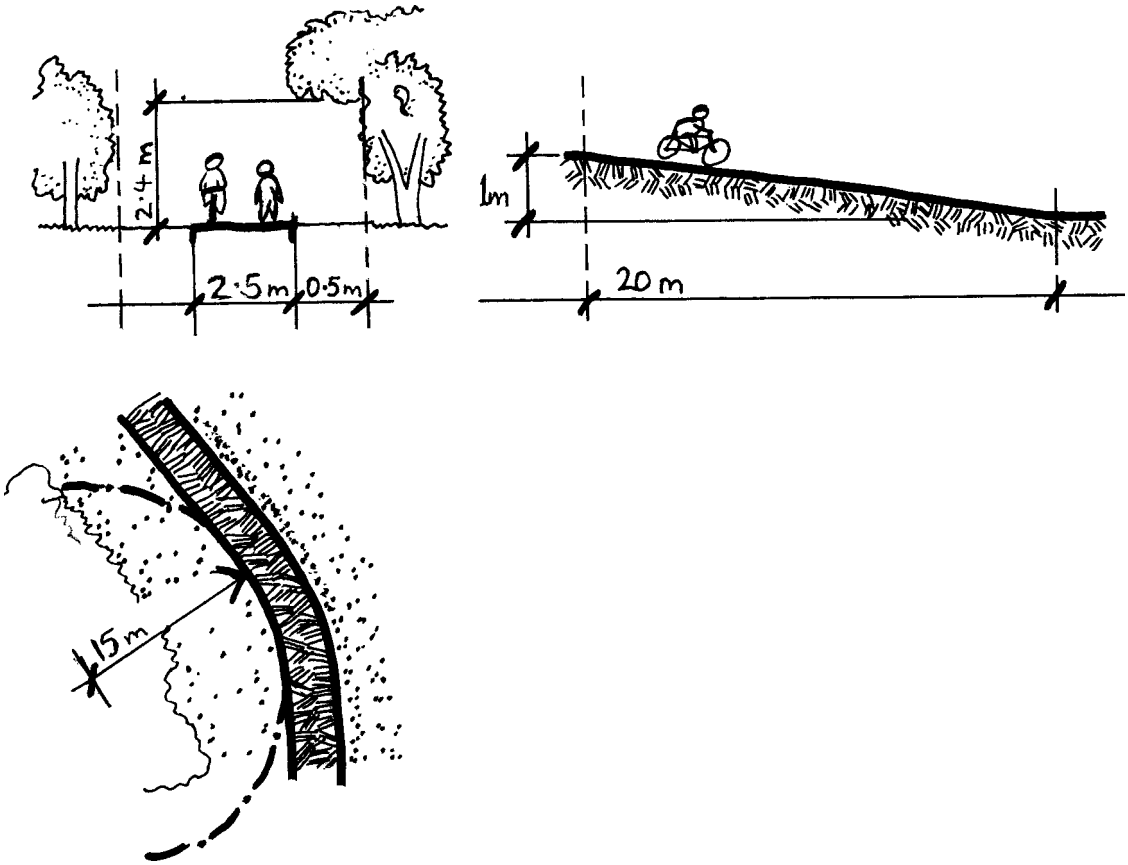
T3:T3 All parkland to receive sunlight between 9 am and 3 pm on 22 September.

[9] The terms conservation bushland and conservation parkland refer to a classification of open space types and the management practices recommended for achieving that type . The terms are explained in the Merri Creek Management Committee's revisions of the Merri Creek Plan, 1987 (Merri Creek Management Committee, in prep.).

SHARED PATHWAY STANDARDS

T3:T4 Shared pathways should be designed in accordance with the *Guide to Traffic Engineering Practice Part 14: Bicycles* (Austroads 1993) and have

- minimum path width of 2.5 metres
- clearance from obstruction 0.5 metres each side of the path and to a height of 2.4 metres
- maximum slope of 1 in 20
- minimum inside radius of curves of 15 metres
- sightlines to allow for safe stopping from 30 km per hour.



Standards for shared pathways

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Theme 4
LANDSCAPE CHARACTER

Objectives and Criteria

15OBJECTIVES

T4:O1 To protect and enhance the natural and visual character of the waterway corridor.

T4:O2 To ensure that the scenic qualities and visual character of the waterway corridor are not compromised by the inappropriate siting of buildings, the placement of fill, or lack of screening vegetation.

T4:O3 To restore those sections of the waterway corridor which have been modified to create artificial bed, banks and landforms to a more natural, visually attractive and ecologically diverse landscape.

T4:O4 To protect landmarks, views and vistas.

16CRITERIA

T4:C1 Buildings and works should be of a scale, character and siting to minimise impacts on the Merri Creek parklands.

T4:C2 Buildings should be of height that does not dominate the skyline when viewed from the path or passive recreation areas.

T4:C3 Buildings should provide set backs from the creek parklands that allow for screening.

T4:C4 Material used on the side of buildings facing the creek should not include reflective materials, illuminated elements, bright colours or signage.

T4:C5 Buildings should avoid presenting blank walls to the creek.

T4:C6 The visual impact of services should be minimised especially on steep slopes down to the creek.

17*Design suggestions*

Prepare a detailed site analysis and documentation of proposals which shows
• existing paths, retaining walls and pits
• set backs to the Merri Path
• views to the site
• existing landscaping
• height of the proposal
• extent of excavation, if any
• views of the proposal when viewed looking into the parkland
• views of the proposal from the Merri Path
• details of external finishes.

Encourage innovative built form that responds to the natural beauty of the creek, wildlife habitat areas and places of natural and cultural significance

Ensure new development provides a positive interface with the creek. Design allotments to encourage development to face open space along waterways.

Place electric power lines and telephone lines underground.

T4:C7 Fill should not create steep batters that cannot be effectively landscaped.

Locate access roads on spurs and ridges to minimise visual impact, benching and verge formation. Align roads on steep slopes with the contours of the slope.

T4:C8 Fill or excavation should not create unnatural landforms which do not blend with adjacent soil surfaces.

Avoid filling slopes that face the creek, especially where they are within the 1% floodplain.

Cover filled areas with at least 250 mm of clayey soil.

T4:C9 Landscape treatments should reinforce local native communities and original landscape character.

Match local native plants used in landscaping to the plant communities characteristic of the site.

T 4:C10 Bushfire protection measures should be incorporated in areas of high bushfire risk.

T4:C11 Fences and other structures on or near the boundaries of private properties adjoining the creek parklands should complement the natural bush environment of the creek.

Theme 4
LANDSCAPE CHARACTER

Techniques

SUBDIVISIONS FACE ONTO CREEK

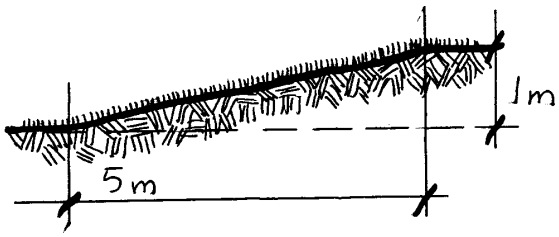
T4:T1 New subdivisions should create road frontage to public open space along the creek.

Poor subdivision layout as new lots back onto creek

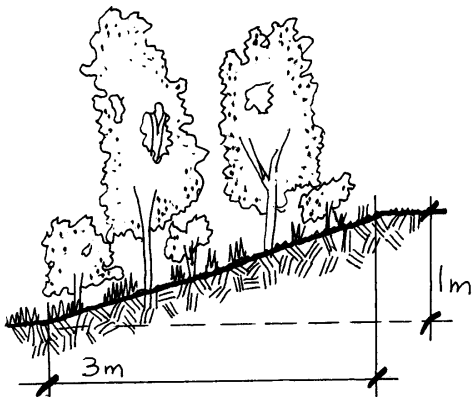
Better layout as new lots face the creek

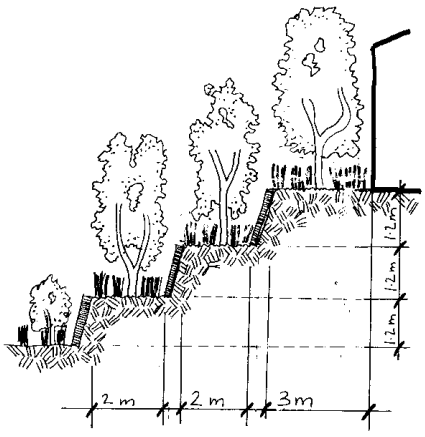
BATTERS AND FILL

T4:T2 Fill batters are less than 1 in 5 for grassed slopes, 1 in 3 for vegetated slopes, or, if no alternative if available, are benched with benches no more than 1.2 metres high and at least 2 metres wide with a top setback of 3 metres.



1 in 5 slope for grassed slope for moving.



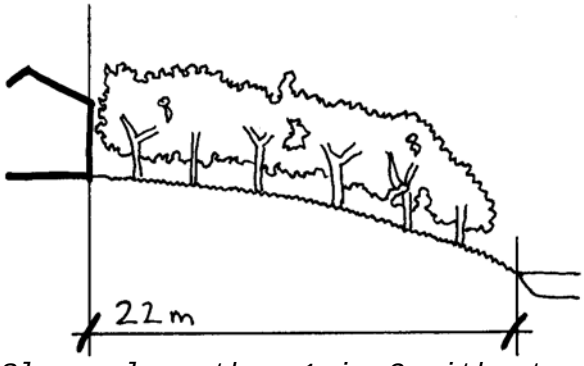


1 in 3 slope for dense planting

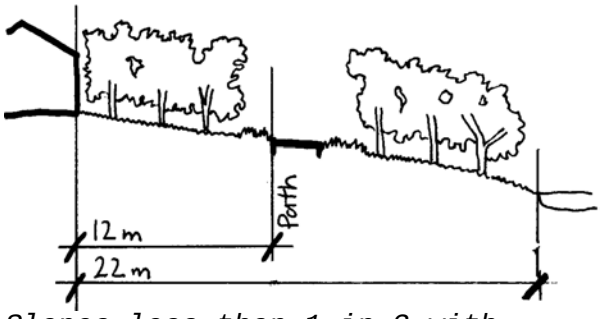
Benched slopes– to be used only when absolutely necessary

SET BACK FOR LANDSCAPING

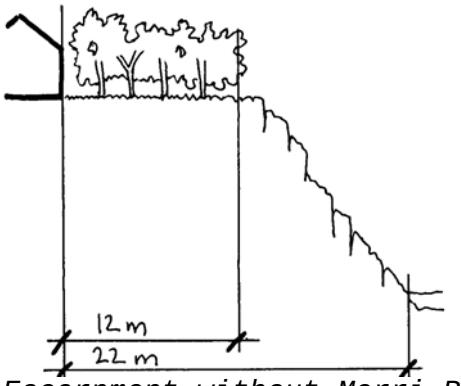
T4:T3 Areas for landscaping (minimum distances shown) are created as follows.



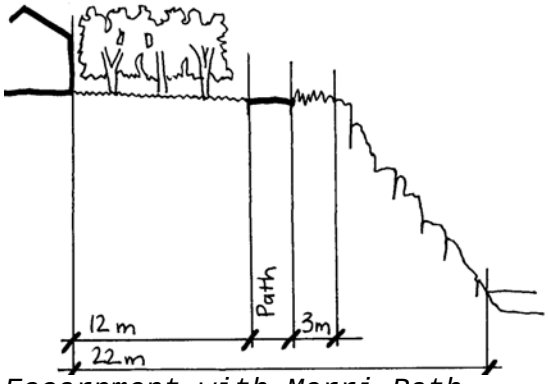
Slopes less than 1 in 3 without Merri Path



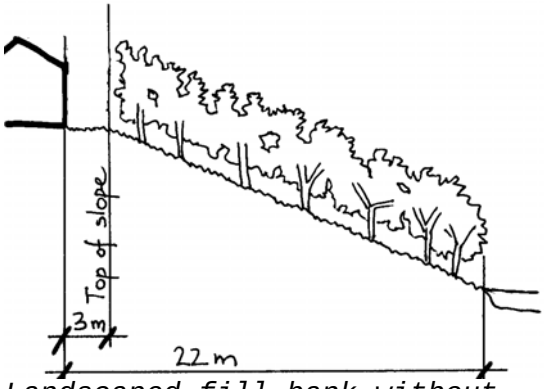
Slopes less than 1 in 3 with Merri Path.



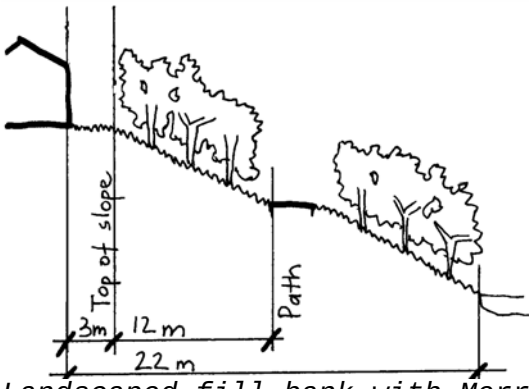
Escarpment without Merri Path



Escarpment with Merri Path



Landscaped fill bank without Merri Path



Landscaped fill bank with Merri Path

RESIDENTIAL BUILDING

T4:T4 Buildings in a residential zone are 6 metres or less above ground level. Foundation works are less that 1 metre below ground level.

REMNANT VEGETATION BUFFERED

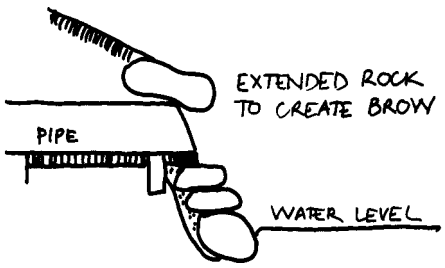
T4:T5 Areas of remnant vegetation are buffered by new planting at least 5 metres wide or twice the canopy of trees.

FENCES

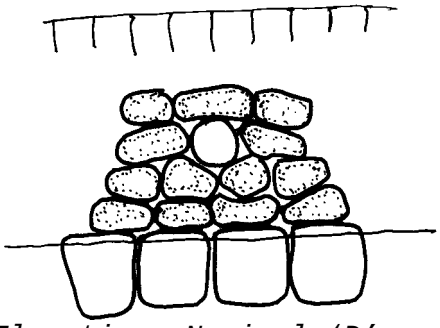
T4:T6 Fences on boundaries adjoining the creek are constructed from visually permeable wire— black or dark green.

DRAIN OUTFALLS

T4:T7 Existing outfall drains are reconstructed and new outfall drains constructed to disguise the pipe outlet as set out in Melbourne Water specifications.



Section: Outlet cut to match slope of batter



Elevation: Nominal 'D' mm rocks (minimum size D_{50})

19

Theme 5 HERITAGE

Objectives and Criteria

20OBJECTIVES

T5:O1 To protect areas of sensitivity for Aboriginal heritage.

T5:O2 To protect natural landforms and geological features.

T5:O3 To conserve and enhance heritage places of natural or cultural significance.

T5:O4 To conserve and enhance those elements that contribute to the significance of heritage places.

T5:O5 To ensure that development does not adversely affect the significance of heritage places.

21CRITERIA	***22Design suggestions***
T5:C1 Large sites, or sites identified as having high or medium archaeological sensitivity should be surveyed for Aboriginal heritage prior to development applications.	*Have an archaeologist recommend how to best protect the site during development and under any new use as part of a site survey* *Show the areas surveyed, locations of significant places, sites and objects as part of town planning applications* *Ensure old native trees with trunk or branch scars are inspected by a person qualified to identify an Aboriginal scar.*
T5:C2 Developments and subdivisions should avoid disturbing Aboriginal places, sites and objects including Aboriginal scar trees.	*Include Aboriginal places, sites and objects in open space areas.* *Do not disturb previously undisturbed ground.*
T5:C3 Disturbance should not occur without the permission of the Wurundjeri Tribe.	*Consider burying stone scatters if circumstances warrant.*
T5:C4 Sites included on the Victorian Heritage Register or the Register of the National Estate should be preserved and managed.	*The exact locations of sites should not be made public except where the site is a declared heritage place, or is completely within an allotment.*
T5:C5 Sites of local or regional heritage significance should be protected wherever possible.	*Landowners may be advised of locations for specific reasons (such as to improve protection) or where permission has been granted by the WTLCCHC.*

Theme 5
HERITAGE

Techniques

ARCHAEOLOGICAL SURVEYS

T5:T1 A survey by a qualified archaeologist has been carried out for Aboriginal places, sites and objects on all land likely to be affected by the development or Melbourne Water works on sites

- larger than 5 hectares or longer than 500 meters, or
- where the area has been identified as having high or medium archaeological sensitivity,

and

- Aboriginal Affairs Victoria and the Wurundjeri Tribe have been notified of the investigation, and
- sites have been registered with the AAV prior to the lodgement of a permit application to Council.

PERMISSION TO DISTURB

T5:T2 Written permission is obtained from the Wurundjeri Land Compensation and Cultural Heritage Council Pty Ltd (nominated under part 2A of the Aboriginal and Torres Strait Islander Heritage Protection Act 1984) to disturb any identified Aboriginal place, site or object.

PROTECTION OF HERITAGE SITES IN PUBLIC OPEN SPACE

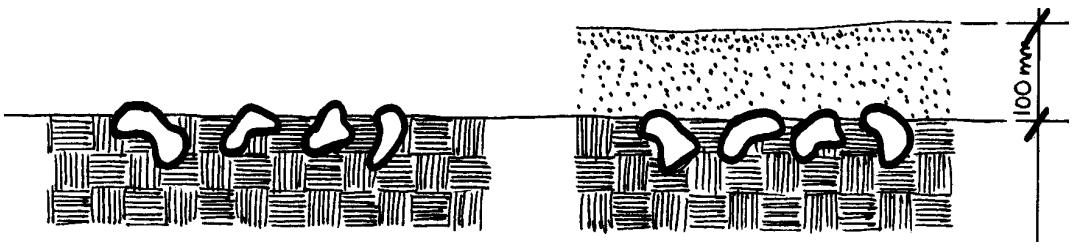
T5:T3 Sites of heritage significance are fully incorporated into public open space.

SCAR TREE PROTECTION

T5:T4 Pathways, works that disturb the soil and areas intended for more intensive use are located at least twice the canopy distance from any scar tree and 30 metres from a heritage site.

SURFACE ARTEFACTS RECORDED AND BURIED

T5:T5 The extent and nature of surface artefacts are recorded and the artefacts buried with at least 100 mm of top soil, with no other disturbance.



REFERENCES

Eight major studies have assessed the biological and cultural importance of sites and features along the creek. This material is on file at the Merri Creek Management Committee and it is understood that it is also held by all the councils abutting the creek. A number of other publications also provide useful information.

The Merri Creek Management Committee has a Geographic Information System (GIS) database which records the sites from a number of these studies.

Austroads 1993 *Guide to Traffic Engineering Practice Part 14: Bicycles* Austroads Publication No. AP–11.14/93.

This publication sets out detailed standards for bicycle path design. It is available from the VicRoads bookshop.

Beardsell, C 1997. *Sites of Faunal and Habitat Significance in North East Melbourne*. Report prepared for North East Regional Organisation of Councils (NEROC) Nillumbik Shire Council: Environment and Land Use Strategies.

This comprehensive study of sites of faunal significance identifies five nationally significant sites in the region including Bald Hill and Craigieburn Grasslands in the City of Whittlesea. It also identifies five state significant sites along the creek in Whittlesea namely Cooper Street Grasslands, Craigieburn to Donnybrook, O'Hernes Road Wetlands, Edgars Creek Headlands and Summerhill Road.

Carr et al 1992 *Environmental weed invasion in Victoria* DNRE

Ellender, I 1997. *The Aboriginal Heritage of the Merri Merri Creek: Including the Archaeological Survey for Aboriginal Sites from Craigieburn Road to Hernes Swamp*. Merri Creek Management Committee.

This project was carried out with funding from the Merri Creek Management Committee and funding from the National Estate Grants Program. The report is more than simply an archaeological survey and sets of maps identifying sites– it also provides important historic and cultural information based on a number of historic sources which puts the Merri Merri Creek into its correct historic context.

EPA 1991 *Construction Techniques for Sediment Pollution Control*, Publication No. 275, available from the EPA, Herald and Weekly Times Tower, Southbank 3006.

Frood, D. & Calder, M. 1987. *Nature Conservation in Victoria*. Study Report Vols 1 and 2. Victorian National Parks Association.

Frood, D 1992. *Vegetation of the native grasslands of the Merri Creek Valley, Outer Melbourne Area, Ecological Survey Report No 42*. Department of Conservation and Environment– Victoria. Melbourne. ISBN 0 7306 2747 0.

The primary objective of this study was to gather additional data at Craigieburn, Cooper St and Bald Hill grasslands, and to assess their long term viability and significance.

This study provides a wealth of detailed assessment and maps the subcommunities at the three sites.

It concludes with a strong call for better resources and management of these sites to prevent the loss of the Plains Grassland ecosystem.

Hall, R 1989. *Merri Creek Parklands* Aboriginal *and Historical Heritage Survey* Report prepared for the Merri Creek Bicentennial Committee, project management by the Board of Works.

The report provides a description and interpretation of the archaeology of the Merri Creek. It provides an inventory of prehistoric and historic sites found along the creek, an assessment of the significance of the sites and a number of recommendations for improved management of the creek.

Johnston C and E Ellender, 1993a. 'Cultural Heritage Report for Merri Creek Concept Plan Strategic and Statutory Planning Project.' Prepared by Chris Johnston of Context Pty Ltd and Isabel Ellender Consultant Archaeologist for Melbourne Water and Merri Creek Management Committee.

Johnston C and E Ellender, 1993b. 'Cultural Heritage Volume 2: Database for Merri Creek Concept Plan Strategic and Statutory Planning Project.' Prepared by Chris Johnston of Context Pty Ltd and Isabel Ellender Consultant Archaeologist for Melbourne Water and Merri Creek Management Committee.

This report and database provide a comprehensive listing of places identified as being of heritage value along the creek. The report and database include sites of both European and Aboriginal cultural heritage.

The report draws on a number of earlier heritage studies conducted by Councils along the creek. In preparing the report consultations were undertaken with representatives of the Wurundjeri.

McMahon, A and M Schultz 1993. *Merri Creek Concept Plan Flora and Fauna.* A report prepared for the Merri Creek Management Committee and Melbourne Water Ecological Horticulture Pty Ltd ACN 006 757 142

This report provides an overview of the flora and fauna of the Merri Creek Concept Plan Study Area. The report relies on earlier studies for some data and includes supplementary flora and fauna survey work.

Nine local native vegetation communities are described

- Plains Grassland
- Danthonia Grassland
- Stony Knoll Grassland
- Escarpment Shrubland
- Floodplain Grassland
- Riparian Scrub
- Drainage-line Complex
- Box Woodland
- Grassy Wetland

Seven of these nine communities were identified as being seriously depleted in a state or national context, and range from regional to

national significance depending on the size of the remnant, its species composition and degree of disturbance.

Eleven sites of botanical significance were identified.

Merri Creek and Environs Steering Committee 1999 *Merri creek and Environs Strategy*.

Provides an overview of the important issues along the Merri Creek and sets out an agreed vision, objectives and actions for the creek.

Merri Creek Management Committee 1994 *Plants of the Merri Merri* MCMC

The guide provides detailed information on locally native plants for use in landscaping and revegetation works.

Schultz M and A Webster 1991. *Sites of Biological Significance in the Merri Corridor— A Preliminary Investigation.* Department of Conservation and Environment, Melbourne Region. ISBN 0 7306 2645.

This report identified and described sites of biological significance within and fringing the Merri Corridor. The report was not a comprehensive statement of the area's flora and fauna values but rather a summary based on preliminary investigations.

A total of two national, seven state, six regional and ten local sites of biological significance were identified. Sites were assessed against a range of criteria based on established practices (Frood and Calder 1987, Cheal et al in preparation and DCE 1990).

A site was considered of National significance if the biological attributes of the particular site contributed substantially to the total number of examples of that attribute at a national level. For example Bald Hill was rated as being of national significance partly because it is one of only a few sites nationally that contain the threatened sub-species the Southern Lined Earless Dragon *Tympanocyptis lineata pinguicolla*.

Each site of significance is discussed in detail and the sites are mapped at 1:2500. Areas are based on known faunal attributes, as no detailed biological study was commissioned for the area.

Stuwe 1986. *An assessment of the Conservation Status of Native Grasslands on the Western Plains, and Sites of Significance*. Arthur Rylah Institute for Environmental Research Technical Report Series No. 48. Department Conservation, Forests & Lands, Victoria,

Wheeler A. 1996. Register of the National Estate Database Place Report. Database number 100591. File number 2/14/054/0017. Printed by Annabel Wheeler on 28 November 1996

Rosengren 1993 *The Merri Creek— sites of geomorphic and geomorphological significance* LaTrobe University, Bendigo

Appendix 1

APPLICATION OF THE ESO CONTROLS

The extent of the ESO control was generally determined by the following steps.

1. Areas where additional planning control was required to achieve the objectives of the SPPF and Council's MSSs were determined:

    a) Areas of biological significance in the Merri Corridor were identified– this included sites of national, state, regional and local significance as well as sites required for habitat links.

    b) Sites of faunal and habitat significance were identified.

    c) Sites of sensitivity for Aboriginal heritage were identified.

2. These areas were mapped on a common base map.

3. The area for overlay control was selected by including:

    a) Areas identified as significant

    b) Areas where development has the potential to seriously impact on the landscape quality of the Creek

4. The area of overlay was adjusted so that it follows title boundaries in urban areas for ease of mapping, use and reporting.

The approach taken by the Merri Creek Management Committee has been based on the considerable research and documentation of the Creek that has been carried out. Details of these studies are set out in the references section of these guidelines.