

6.1 INTRODUCTION

In relation to Indigenous and Non-indigenous heritage, and biodiversity, SEPP 59 requires that the Precinct Plan is to have regard to the following guiding principles:

- ❖ *the conservation of items of heritage significance identified in SEPP 59 or any other environmental planning instruments or subject to an order under the Heritage Act 1977;*
- ❖ *the conservation of significant bushland and other natural features; and*
- ❖ *development should be planned to minimise impacts on areas of high biodiversity or Aboriginal heritage significance and should seek to enhance the values of these areas.*

To provide information that could be used for planning and impact assessment, detailed archaeological, European heritage and ecological investigations have been completed for the Greystanes Estate. There has been consultation with local Aboriginal groups. These investigations have provided comprehensive baseline information about the biodiversity and heritage that will be used in planning future development and management of the site. The findings of the investigations together with recommendations for future management measures are provided in the Biodiversity and Heritage Background Report accompanying this Precinct Plan.

Due to the long history of quarrying and associated land uses, the majority of the site has been extensively disturbed and largely cleared. The Residential Lands have been subject to less disturbance than the Employment Lands which are located within the quarry area. Some archaeological

and ecological remnants of conservation significance are located in the Residential Lands.

The area is important to Aboriginal people as Prospect Hill and the surrounding area is known to have been a significant meeting place.

The site also has an interesting history since European settlement and there are some important historic associations with Prospect Hill that include Captain Arthur Phillip, William Lawson and Aboriginal communities.

For the purposes of addressing heritage and biodiversity on the Estate the following components have been identified. These are:

- ❖ Aboriginal artefacts and areas of high archaeological potential;
- ❖ remnant Cumberland Plain Woodland landscapes of cultural significance to Aboriginal communities;
- ❖ the European history of the site that includes associations with early pioneers, agriculture and quarrying; and
- ❖ threatened species listed in the *Threatened Species Conservation Act, 1995* and *Environment Protection and Biodiversity Act*.

The following sections address these components.

6.2 ABORIGINAL ARCHAEOLOGY AND HERITAGE

6.2.1 Strategic Archaeological Management

To give effect to the guiding principles of SEPP 59, a number of broad archaeological objectives have been formulated. These objectives preserve and enhance the Estate for its archaeological and heritage values.

Archaeological Objectives

Archaeological objectives are based on the survey findings described in the Biodiversity and Heritage Background Report. The objectives for Aboriginal archaeology are to:

- ❖ retain and preserve some representative areas of high potential for archaeological deposits (PAD);
- ❖ conserve representative Aboriginal artefacts, sites and PAD within open space where possible;
- ❖ salvage information and artefacts from PAD that are proposed to be developed; and
- ❖ recreate and manage elements of the cultural landscape by rehabilitating suitable areas of woodland communities to resemble those that existed prior to European settlement. This would be undertaken in consultation with the local Aboriginal community.

Archaeological Management Strategies

The primary archaeological strategies for the Estate are to:

- ❖ create an area of open space with the primary function being conservation of ecological and archaeological resources;
- ❖ retain a potential scarred tree in open space that is accessible to the Aboriginal community;
- ❖ undertake investigations prior to destruction of known or potential sites for the purposes of salvage and contextual information;
- ❖ develop a program to educate the local community in the pre-European history of the site; and
- ❖ recreate and manage the cultural landscape in conjunction with the local Aboriginal community by vegetating open space to resemble the natural landscape prior to European settlement.

The details for each of these strategies are outlined in the following sections.

6.2.2 Conservation Area Management

In protecting known areas of archaeological significance, its conservation is based on sound strategies for management. These strategies are detailed below.

Conservation Area Objectives

- ❖ To conserve areas of high PAD and significant known artefacts or sites.
- ❖ To define the boundary of the conservation area.
- ❖ To determine the ownership and ongoing management responsibility.
- ❖ To manage the impacts from recreation and access.
- ❖ To educate the local community in the pre-European history of the site.

Management Measures

- ❖ Create an appropriately located conservation area which incorporates areas of potential archaeological deposits and representative elements of the cultural landscape.
- ❖ A core conservation area has been identified in the south eastern corner of the site. This area has been selected as its conservation achieves the objectives outlined above by:
 - incorporating an open artefact scatter representative of those identified elsewhere within the survey area, shown in *Figure 30*.
 - the proposed conservation area is one of the few areas that retains native vegetation and so is relatively undisturbed in comparison to adjacent areas containing known archaeological potential; and
 - retaining the area on site that most closely reflects the pre-European cultural landscape.
- ❖ The boundary of the conservation area should be surveyed and appropriately delineated prior to development.
- ❖ The conservation area will be dedicated to Council prior to development of adjoining areas.
- ❖ A plan of management should be prepared detailing measures to appropriately manage the Aboriginal cultural heritage. This should be prepared in consultation with the local Aboriginal community, the National Parks and Wildlife Service (NPWS) and Council.

- ❖ Recreational opportunities in the conservation area should be limited to passive activities.
- ❖ A suitable educational program is to be developed in consultation with the local Aboriginal community, National Parks and Wildlife Service and Council.
- ❖ Interpretive signs and other educational material should be general in nature and should not draw attention to any physical aspects of the Aboriginal cultural heritage.

6.2.3 Scarred Tree

A potential scarred tree has been identified and will be retained. Similar consideration will be given to any other scarred trees if they are located during development. The scarred tree is located in the survey area shown in *Figure 30*. Given the increasing rarity and significance of scarred trees, the following management measures should be implemented:

Objectives

- ❖ To protect the potential scarred tree.
- ❖ To determine the ownership and ongoing management responsibility of open space areas.

Management Measures

- ❖ The tree is located within open space and the surrounding area is to be enhanced with native species.
- ❖ To protect the tree and avoid drawing attention to it, a screen using native shrubs is to be placed around the tree.
- ❖ Any developments such as playground structures, benches, barbecue facilities etc. are to be placed away from the tree.
- ❖ The open space within which the tree is contained will be dedicated to Council prior to development of the adjoining areas.
- ❖ The Aboriginal community shall be consulted in naming open space areas.

- ❖ Representatives of the Aboriginal community shall be involved in locating the tree prior to development commencing and to ensure that correct protection measures are in place.
- ❖ The existence and protected status of the potential scarred tree is to be noted in any bushfire management plan so that the tree is not impacted during any hazard reduction burning.

6.2.4 Excavation for Salvage and Consent to Destroy

Areas of PAD that are outside the proposed conservation area will be developed. In order to obtain archaeological information about the site before it is destroyed, a salvage excavation program is proposed prior to development. The rationale for the salvage operation is explained in the Biodiversity and Heritage Background Report.

Objectives

- ❖ To define the excavation program.
- ❖ To record findings.
- ❖ To obtain a Consent to Destroy.
- ❖ To educate the local community in the pre-European history of the site.

Management Measures

- ❖ A consent to destroy with salvage shall be sought from NPWS for the area outside the conservation area and outside the drip line of the scarred tree.
- ❖ A detailed salvage excavation program is to be developed for selected areas outside the conservation area shown in *Figure 30*.
- ❖ A detailed report is to be prepared that outlines the method and results of excavation. The report shall discuss the results in light of any surface survey results and excavation results on the adjacent CSIRO Lands.
- ❖ A copy of the report shall be provided to the NPWS, Holroyd City Council, the Deerubbin Aboriginal Land Council, Darug Tribal Corporation, Darug Custodian Aboriginal Corporation, and Gandangara Local Aboriginal Land Council.

Objectives

- ❖ To protect site locations.
- ❖ To reflect Aboriginal occupation and history in the public areas.

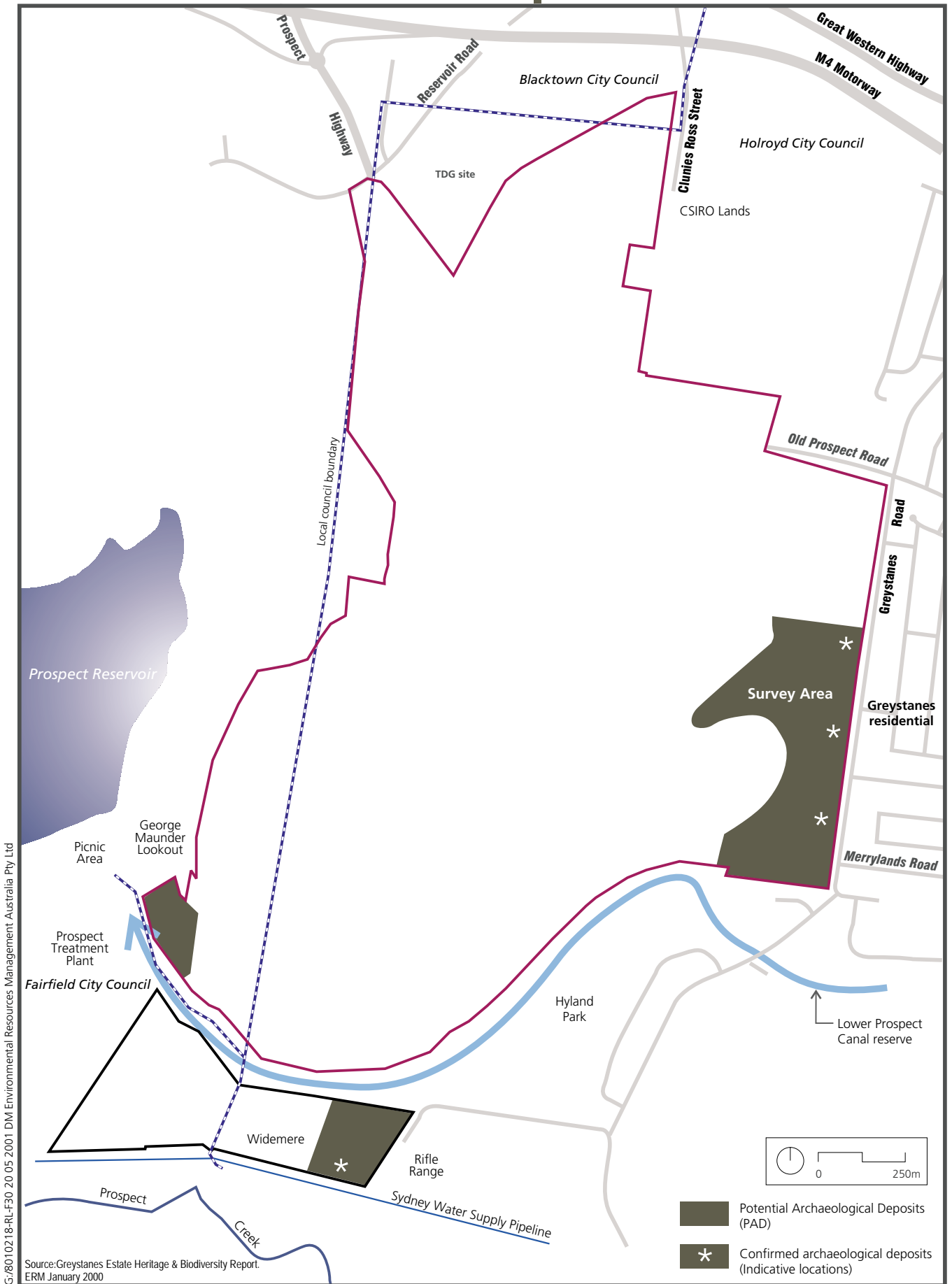
- ❖ Ground clearing is to be monitored in the event that archaeological material is encountered.
- ❖ If archaeological material is observed during or after clearing, work is to cease immediately and the Aboriginal community consulted and advice sought from NPWS.
- ❖ Information obtained from salvage excavation shall be used when developing an Aboriginal heritage education program including signage for the conservation area and other open space locations.

6.2.5 General Management Measures

Management Measures

- ❖ Site locations and descriptions shall not be made publicly available.
- ❖ General knowledge of Aboriginal sites and their legal protection shall be provided to developers and general maintenance staff.
- ❖ An education strategy for cultural heritage awareness is to be prepared for developers, contractors and Council including a fact sheet and sensitivity map indicating areas requiring particular attention and consultation with the Aboriginal community and NPWS.
- ❖ The Aboriginal community shall be invited to actively participate in developing the education strategy.
- ❖ The Aboriginal community is to be consulted prior to and during clearing and preliminary ground work to collect artefacts from areas to be developed.
- ❖ No signs are to be erected which draw attention to the archaeological sites so as to prevent disturbance of Aboriginal and archaeological sites.

-
- ❖ Naming of parklands and reserves is to incorporate recognition of Aboriginal occupation and the history of the area. The Aboriginal community shall be consulted in the naming of these features.
 - ❖ The Aboriginal community is to be consulted on the development of any walking routes or areas within the precinct which incorporate descriptive signs and interpretation along these tracks.
 - ❖ The Aboriginal community is to be consulted regarding the design of landscaping of waterways and parklands in the precinct as well as revegetation programs.



G:\8010218-RL-F30 20.05 2001 DM Environmental Resources Management Australia Pty Ltd

Source: Greystanes Estate Heritage & Biodiversity Report. ERM January 2000

Figure 30 Archaeological and Excavation Sites



6.3 EUROPEAN HERITAGE

The Prospect Hill area, has important associations with Captain Phillip, Charles Darwin and William Lawson. It is also associated with Pemulwuy who was an important figure symbolising the struggle of the Aboriginal community against the European Settlers.

Greystanes Estate is also important because of the role of the quarry in meeting the demands of the ever expanding Sydney settlement over the last 100 years. Prospect Hill quarry supplied necessary materials for construction and road building projects during this vast urban expansion.

Objectives

- ❖ To protect the integrity of the crown of Prospect Hill.
- ❖ To research and document the history of the site and its role in the history of Sydney.
- ❖ To educate the community on the history and role of the site.
- ❖ To utilise the history of the site as a theme in its redevelopment.
- ❖ To preserve the original gates of Greystanes House as an integrated part of the development.

Management Measures

- ❖ Development within the identified curtilage of Prospect Hill is to be carried out in consultation with the NSW Heritage Office.
- ❖ Development is to be sited so that the views of the ridgeline are maintained.
- ❖ A detailed history of the site will be prepared drawing on archival material and the oral history of residents and employees.
- ❖ All documentary, cartographic and photographic material related to the development, growth, buildings and history of the site should be sourced, accessioned and archived. Copies of accessible historic material will be collected into an archive which is lodged in the care of an organisation which is acceptable to Council and where it is available for research and educational purposes. Archive material held elsewhere is to be identified and cross-referenced with the above archive.

- ❖ Management plans for open space and other public domain areas should be prepared to identify how they will inform and educate the community and utilise the history of the site as a theme of the redevelopment, using interpretative trails, signage, environmental design and other features.
- ❖ All present structures should be photographed prior to development.
- ❖ A written description of major structures should accompany the photographic record.
- ❖ The Greystanes House gates should be incorporated into the development at an appropriate location and kept in a satisfactory condition.

The site as a whole should be recorded in its current state photographically, utilising aerial photography and possibly digital video recording.

6.4 BIODIVERSITY

6.4.1 Introduction

Ecological objectives for the Estate were developed, which take into account the provisions of SEPP 59, *National Parks and Wildlife Act 1974*, the *Threatened Species Conservation Act 1995*, *Environment Protection and Biodiversity Act* and recommendations of the *Urban Bushland Biodiversity Survey – Stage 1: Western Sydney* (NPWS, 1997).

Although Cumberland Plain Woodland occurs on site, these remnants are mostly small and not in good condition. Despite this, the endangered status of the woodland has been recognised by the formulation of objectives. A high proportion of the woodland will be conserved and added to by regeneration. However,

the ecological objectives of the site have been developed in recognition of the fact that the site has been extensively cleared. The objectives of the site have been devised to allow for retention and enhancement of the existing patches of native vegetation and, where possible, improving linkages between them.

In summary, it is intended that:

- ❖ the existing level of biodiversity be maintained during and after development;
- ❖ significant vegetation communities, i.e. Cumberland Plain Woodland be conserved where appropriate;
- ❖ threatened species populations and their habitats are conserved;
- ❖ fauna movement corridors are created within the site and link to external ecological resources (where practicable allowing for other site uses); and
- ❖ the ecological values of the site are balanced with other development requirements.

A number of management measures have been developed which will meet the above objectives. They are to:

- ❖ create an area of public open space with the primary function being conservation of ecological and archaeological resources; and
- ❖ provide an open space network which will have multiple functions including increasing areas of native vegetation and providing fauna movement corridors.

6.4.2 Conservation Area

Primary ecological objectives are to conserve Cumberland Plain Woodland, *Pimelea spicata* populations, protected threatened fauna populations and their habitat and to maintain the existing biodiversity. These objectives can be achieved by creating the proposed conservation area.

This area has been selected as it achieves the objectives outlined above by:









- ❖ incorporating the majority of the best quality Cumberland Plain Woodland remaining on the site;
- ❖ conserving the population of *Pimelea spicata* present within the precinct;
- ❖ retaining habitat in which all threatened fauna have been recorded; and
- ❖ maintaining the range of species currently present on site (i.e. biodiversity).

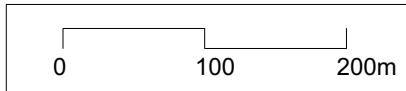
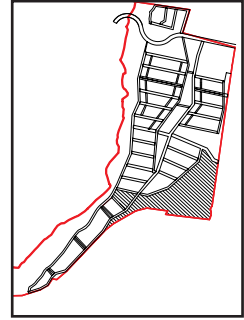
The conservation area will not be a major conservation reserve, nor is it likely to encourage use by ground dwelling fauna or other fauna which do not currently utilise the site for some part of their life cycle. However, should these opportunities be created through general management of the conservation area for its intended purposes, these will be additional benefits to the local community and ecological objectives of the site.

In addition to the ecological objectives, the conservation area will provide passive recreation and educational opportunities which will benefit the wider development. *Figure 31* shows how the conservation area could be treated. This will be further refined at the development application stage.



LEGEND

-  CONSERVATION AREA
Restricted access to existing natural woodland
-  REGENERATING WOODLAND
Extent of naturally regenerating woodland
-  RIDGELINE REHABILITATION
Planting of native woodland species
-  MERGING CANOPIES
Providing wildlife links across roads.
-  CYCLE/PEDESTRIAN ACCESS
-  PEDESTRIAN ACCESS
-  PLAY AREA
-  Ridgeline



Source: Spackman and Mossop

Figure 31 Conservation Area



6.4.3 Fauna Movement Corridors

For the core conservation area to remain viable, flora and fauna corridors which allow fauna to move into and out of the conservation area will be required. Whilst movement within the site is important, the primary function of these corridors should be to enable movement to and from external ecological resources.

Fauna corridors are shown in *Figure 32*. The general ecological functions of the corridors should provide vegetation which will facilitate movement through the site of non-ground dwelling fauna as well as providing additional foraging habitat. The main corridors must provide for connectivity with off-site linkages. Ridgeline and creekline corridors should have a minimum width of 20 metres. Locally indigenous species should be used in vegetating the corridor network including threatened and regionally significant species.

A fauna corridor is proposed along the central ridgeline. It should be a predominantly vegetated corridor with some passive recreational and aesthetic functions. This corridor should be located along the central ridgeline separating the Employment Lands from the Residential Lands. It should extend westward around the southern boundary of the Employment Lands which would then provide additional opportunities to link to Cumberland Plain Woodland around Prospect Reservoir. The development should retain existing canopy species typical of Cumberland Plain Woodland where possible throughout the site.

A north-south corridor through the centre of the Residential Lands should be maintained along the creekline. An appropriate buffer either side of the creekline should be provided to protect water quality, aquatic habitat and allow for fauna movement. Utility services and recreation uses may be located within



Figure 32 Fauna Corridors

the corridor provided they are sited and designed recognising the ecological function of the corridor.

In addition to these corridors, fauna movement should be facilitated through the vegetation in the parks, conservation area and street trees. Plantings should be propagated from locally collected seed and be hardened on site.

Development applications are to provide details which demonstrate how connectivity with these off-site linkages can be achieved.

6.4.4 Development Areas

Objectives

- ❖ To enhance and maintain biodiversity by complementing other conservation initiatives.
- ❖ Use locally indigenous plant species, including threatened and regionally significant species in drainage areas, streetscapes and open spaces.
- ❖ Reduce water and fertiliser demand.

Management Measures

- ❖ The development proposed for Greystanes Estate should be managed to provide opportunities to enhance and maintain biodiversity by complementing other conservation initiatives. For example, locally indigenous plant species, including threatened and regionally significant species could be used in drainage areas, streetscapes and open spaces. Use of local native species would not only enhance biodiversity but would reduce water and fertiliser demand, resulting in decreased water and nutrient volumes draining from the site.

6.4.5 Biodiversity Management Measures

Objectives

- ❖ To rehabilitate and regenerate native vegetation.

Management Measures

- The following measures shall be considered in the preparation of relevant management plans for the open space areas on site.
- ❖ Conservation area is to be designed to optimise edge to area ratios and to incorporate areas of greatest biodiversity.

<ul style="list-style-type: none"> ❖ To protect threatened species 	<ul style="list-style-type: none"> ❖ A bushland management plan is to be prepared prior to development which identifies areas to be revegetated, the species to be used and other detailed conservation area management issues. ❖ Seeds of locally indigenous species are to be collected and propagated as part of the development. These are to be used in revegetating the conservation area and open space corridors. ❖ Regeneration of the understorey in the conservation area is to be promoted to increase overall viability and robustness. ❖ Species other than locally indigenous species will be prohibited in the conservation area and the central ridgeline corridor, and strongly discouraged in the service/open space corridors. ❖ Use of native grasses shall be investigated for use in service/open space areas rather than kikuyu, couch or other conventional non-native grasses. ❖ Consult with NPWS and specialists in threatened flora to determine specific management measures for <i>Pimelea spicata</i> prior to development of the Southern Residential Lands. ❖ Prior to development of the Southern Residential Lands, a recovery plan for <i>Pimelea spicata</i> should be prepared which takes into account the population on Greystanes Estate and connectivity with the population found along the Lower Prospect Canal Reserve. ❖ Continuous canopy in the conservation area and open space corridors is to be retained and enhanced to allow for possible squirrel glider movement onto the site.
---	--

-
- ❖ To manage weeds
 - ❖ Foraging habitat (Cumberland Plain Woodland) to be retained and increased as appropriate within the conservation area to provide for Greater Broad-nosed Bat, Eastern Freetail Bat and Eastern Falsistrelle.
 - ❖ Where there is minimal potential conflict with urban development, retain significant mature trees with high ecological value as habitats for the Powerful Owl, Greater Broad-nosed Bat, Eastern Fasistrelle and the Masked Owl.
 - ❖ All weeds should be removed.
 - ❖ Weed control is to be an integral part of maintaining and enhancing biodiversity of the conservation area and corridors.
 - ❖ The bushland management plan is to address weed management and removal methods such as hand weeding, spraying etc. The plan is to give attention to the conservation and corridor areas.
 - ❖ Cleared areas are to be replanted with locally indigenous plants following weed removal, to minimise soil erosion.
 - ❖ A priority listing of target and noxious weed is to be outlined in the bushland management plan, including Lantana, African Olive, Small-leaved Privet and Large-leaved Privet.
 - ❖ Ensure houses have outlooks to the bushland to encourage residents to take ownership of the bush and minimise dumping of rubbish and garden clippings. Houses should not immediately abut conservation areas (ie separated by road or some other divider).

 - ❖ To minimise impacts from access to the conservation area.
 - ❖ Access to the conservation area should be minimised to allow the site to regenerate with minimal human contact.
 - ❖ Domestic animals are to be prohibited in the conservation area.

- | | |
|---|---|
| <ul style="list-style-type: none"> ❖ To manage boundaries of the conservation area to minimise edge to area effects. | <ul style="list-style-type: none"> ❖ The boundaries of the conservation area are to be fenced to minimise access. The fence should be of materials and design to allow for casual surveillance. ❖ Buffers to the conservation area are to be provided to minimise edge effects related to urban development. ❖ Buildings on allotments near the conservation area should be located as far as possible from the conservation area boundary. ❖ After the site has been developed, subsequent removal of Cumberland Plain Woodland canopy species on residential lots is prohibited unless the tree is dying or likely to cause significant damage or hazard to a residence as determined by a suitably qualified arborist. Tree removal is subject to Holroyd Council’s Tree Preservation order. |
| <ul style="list-style-type: none"> ❖ To minimise hazards and manage impacts from fire. | <ul style="list-style-type: none"> ❖ Prepare a fire management plan for the protection of life and property. The fire management plan should identify suitable fire regimes for the protection and maintenance of biodiversity. ❖ Ensure that fire management elements are incorporated into the design of the conservation zone and through the central ridgeline ie fire trails. ❖ Identify appropriate fire management regimes for vegetation management. |
| <ul style="list-style-type: none"> ❖ To minimise litter and waste. | <ul style="list-style-type: none"> ❖ Adequate signs and rubbish bins are to be provided to encourage proper disposal of litter. ❖ Rubbish bins are to be sufficiently secure to prevent feral cats, dogs, rats and other undesirable species from opening them. ❖ Bins are to be maintained and emptied on a regular basis to prevent waste accumulating. |

<ul style="list-style-type: none"> ❖ To control and minimise impacts from sediment disturbance and erosion 	<ul style="list-style-type: none"> ❖ Regular patrols of conservation area should be undertaken and rubbish dumpings reported. ❖ Implement appropriate sediment and erosion controls. ❖ Planting should commence and/or fencing be installed as soon as possible following weed removal to minimise erosion. ❖ A sediment and erosion control plan should be prepared for each subdivision stage. It should address the conservation area, open space corridors and creekline where applicable.
<ul style="list-style-type: none"> ❖ To replace the pine plantation. 	<ul style="list-style-type: none"> ❖ The majority of pine trees should be removed from the site, although some pine trees may be retained for street tree planting. A program for the removal of the pine trees is to occur on a staged basis.
<ul style="list-style-type: none"> ❖ To manage feral and domestic animals to minimise impacts on native flora and fauna. 	<ul style="list-style-type: none"> ❖ A feral and domestic animal management plan is to be prepared. ❖ Implement an education program on responsible pet ownership.
<ul style="list-style-type: none"> ❖ To protect water quality and aquatic habitat. 	<ul style="list-style-type: none"> ❖ Rehabilitate, enhance and re-establish on site waterways including creeklines and drainage lines. ❖ An appropriate buffer either side of creeklines is to be provided. Vegetation within the buffer should be rehabilitated and weeds removed. ❖ Install appropriate pollution controls such as gross pollutant traps in upper catchments (at site boundary if necessary) to prevent ingress of litter.
<ul style="list-style-type: none"> ❖ To protect significant trees. 	<ul style="list-style-type: none"> ❖ A tree survey has been undertaken to identify and flag all significant trees on the Estate. ❖ Hollow-bearing trees are to be retained and maintained on site for their fauna habitat value wherever possible.

- ❖ To involve the community.
 - ❖ Prepare a community consultation strategy to involve the community in ongoing biodiversity management including preparation of the bushland management plan.
 - ❖ Develop an educational program highlighting the significance of the site and how the community can be involved in restoring and maintaining the conservation area and open space corridors.
 - ❖ Ensure that the Aboriginal community is consulted in reserve design, revegetation and interpretation programs.
 - ❖ Involve community in weed removal and replanting programs; continue to involve community in maintenance to instil a sense of ownership.