NSW NATIONAL PARKS & WILDLIFE SERVICE

Developments adjacent to National Parks and Wildlife Service lands

Guidelines for consent and planning authorities

environment.nsw.gov.au

Cover photo: Urban development adjacent to William Howe Regional Park. John Yurasek/DPIE

Authorship and feedback

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1. Introduction

1.1 Background

These guidelines have been prepared for use by councils and other planning authorities when they assess development applications that may impact on land and water bodies managed by the National Parks and Wildlife Service (NPWS).

NPWS is directly or jointly responsible for managing a wide range of lands acquired or reserved under the *National Parks and Wildlife Act 1974* (NPW Act). Lands acquired under the NPW Act include those that are pending formal reservation under a formal category of reserve or can remain unreserved for operational reasons. Lands reserved under the NPW Act fall within one of the following categories of reserve:

- national parks
- historic sites
- nature reserves
- Aboriginal areas
- karst conservation areas
- regional parks
- state conservation areas.

These areas of land are commonly referred to as the conservation reserve system or protected areas. They fall within the definition of 'environmentally sensitive areas' under NSW planning legislation.

In this document, the terms 'NPWS park', 'NPWS lands' or 'land managed by NPWS' are used as abbreviated references to the full spectrum of parks and reserves, including acquired lands. Spatial data for reserved areas of NPWS land are available online and can assist in identifying areas of park near a proposed development, as well as the specific features and values of that particular park.[1]

NPWS recognises the benefits of working in partnership with planning authorities to ensure that developments adjoining or in the vicinity of NPWS parks are sympathetic to the values of those lands and NPWS ongoing capacity to manage its parks in the public interest. The issues and approaches outlined in these guidelines are provided to assist planning authorities in their decision-making.

Planning authorities can contact NPWS Communication Coordination[2] or the nominated contact for the relevant NPWS park[3] if they have further queries about the potential for developments that may impact lands managed by NPWS.

For developments in proximity to, or that may impact on marine parks or aquatic reserves, guidance and advice should be sought from the Department of Primary Industries[4].

[1] datasets.seed.nsw.gov.au/dataset/nsw-national-parks-and-wildlife-service-npws-estate3f9e7

[2] npws.commscoordination@environment.nsw.gov.au

[3] www.nationalparks.nsw.gov.au/visit-a-park

[4] www.dpi.nsw.gov.au/fishing/marine-protected-areas

1.2 Values of NPWS parks

Lands managed by NPWS include some of the most biologically diverse, culturally significant and scenic areas in Australia. Some of these parks contain wetlands of international significance (Ramsar wetlands), are in world heritage areas, or are on the National Heritage List or State Heritage Register. Approximately 30% of NPWS parks are declared wilderness areas under the *Wilderness Act 1987*.

These parks play an important role in protecting native plants and animals (including threatened species, migratory birds and endangered ecological communities) and natural features such as rainforests, old-growth forests, wetlands, estuaries and caves. They also protect natural and cultural landscapes that support Aboriginal sites and cultural heritage, and also sites of shared and historic heritage.

NPWS parks provide direct benefits to the community through opportunities for recreation, tourism, education and scientific research, and services in the form of clean water and amenity.

1.3 Applying the guidelines

The goal of these guidelines is to guide consent and planning authorities in their assessment of development applications that are adjacent to land managed by NPWS. This advice aims to avoid any direct or indirect adverse impacts on NPWS parks.

The guidelines will also be of assistance to planning authorities in the development of environmental planning instruments (such as local environmental plans) applying to land adjoining, or in the vicinity of, land managed by NPWS.

Councils and other consent authorities need to consider the following issues when assessing proposals adjacent to NPWS land and, in particular, their impacts on the park, its values and NPWS management of the park:

- erosion and sediment control
- stormwater runoff
- wastewater
- management implications relating to pests, weeds and edge effects
- fire and the location of asset protection zones
- boundary encroachments and access through NPWS lands
- visual, odour, noise, vibration, air quality and amenity impacts
- threats to ecological connectivity and groundwater-dependent ecosystems
- cultural heritage
- road network design and its implications for continued access to the park.

For each of these issues, the guidelines identify the key risks to NPWS land and a recommended approach for consideration by planning authorities. The potential for cumulative impacts from developments proximate or immediately adjoining NPWS land should be considered as part of case-by-case assessments.

There are also specific legislative requirements for development in the locality of wild rivers declared under the NPW Act. These requirements, which may include consultation with the Minister for Energy and Environment, are discussed below.

While every effort has been made to ensure that these guidelines are as comprehensive as possible, it is acknowledged that they cannot foresee every possible circumstance or proposed development that may potentially impact NPWS land. Nevertheless, where unique

or unusual circumstances arise, the main priority should still be to avoid and then minimise any direct or indirect adverse impacts on land managed by NPWS.

Special requirements for wild rivers

Wild rivers[5] are declared under s.61 of the NPW Act and can only be declared over areas in NPWS land. The purpose of declaration is to identify, protect and conserve any water course of natural origin and exhibiting substantially natural flow. Wild rivers are managed to restore or maintain natural processes, and to identify, conserve and protect Aboriginal objects and places associated with wild rivers.

Under s.61A of the NPW Act, a statutory authority **cannot** carry out development in relation to a wild river unless it has consulted with, and considered any advice given by, the Minister for Energy and Environment in relation to the development. This requirement could potentially apply to upstream developments that may affect a wild river.

[5] www.environment.nsw.gov.au/topics/parks-reserves-and-protected-areas/types-of-protected-areas/wild-rivers

2. Issues to be considered when assessing proposals adjacent to NPWS parks

2.1 Erosion and sediment control

Aim

To prevent erosion and the movement of sediment onto NPWS land.

Risks to NPWS land

Removal of vegetation and disturbance of groundcover from construction activities will expose the soil and increase the risk of erosion. Eroded sediments, including those from soil stockpiles, may be transported downstream or down slope, and deposited on vegetation and in creeks, rivers, wetlands and other aquatic habitats.

Works on development sites may increase the intensity and frequency of stream flows due to vegetation clearing and increasing the area of impermeable surfaces. Even if the development is occurring on lands that may not immediately adjoin parks, these changes can impact land managed by NPWS.

These changes can result in damage (sometimes permanent) to downstream aquatic habitats by scouring the bed and banks of watercourses, altering water quality and smothering sensitive areas (such as seagrass beds). Coastal lakes, which may intermittently be closed, are particularly susceptible to increased sedimentation. Several NPWS coastal parks, such as Cudgen Nature Reserve and Jervis Bay National Park, include important coastal lake systems. Consideration should be given increased sedimentation levels entering parks containing Ramsar wetlands, given the potential that such increases could have on the ecological character and international significance of these wetlands. The coastal lake system in Myall Lakes National Park is a wetland of international significance (Ramsar wetland).

Developments may also direct flows to a single discharge point thereby increasing erosion potential downstream.

Erosion can affect the landscape values assigned to a location by Aboriginal people and impact on any Aboriginal objects present through the removal and subsequent displacement of sediments. Changes to an Aboriginal site caused by erosion will affect the site's setting in the landscape which is important to Aboriginal people. The setting of a place is often as important as the objects the place may contain.

Furthermore, erosion can directly affect Aboriginal objects, including stone objects, shells and rock art, that may be present. It can expose objects to increased weathering and other impacts, resulting in a greater chance of displacement from the original location. Sediment accumulation over Aboriginal objects can also result in further damage if the objects are in contact with acidic soils.

Many parks also support significant historic heritage, including archaeological relics, convict-built roads, cemeteries, buildings and bridges, which is vulnerable to the impacts of erosion.

Recommended approach

Appropriate erosion and sedimentation control measures should be implemented before works commence, and maintained for the duration of construction and until soil is stabilised

after construction. In some cases, it will be necessary to prepare detailed sediment and erosion control plans (soil and water management plans) for the proposed development.

As general erosion and sediment control measures, NPWS recommends that:

- clearance of native vegetation is kept to a minimum
- areas of retained vegetation are fenced off during construction
- areas of bare soil and stockpiles are managed to prevent erosion during the construction process
- disturbed areas are rehabilitated and appropriately stabilised as soon as possible following construction (this includes removal of control measures, such as sediment fences, when they are no longer required).

To prevent sediment moving from an adjacent property onto NPWS land, and to avoid and minimise erosion risks, NPWS also recommends that appropriate controls should be applied in accordance with the following guidance documents:

- *Erosion and sediment control on unsealed roads* (OEH 2012)[6]
- *Managing Urban Stormwater – Soils and Construction, Volume I* (Landcom 2004)[7]
- *Managing Urban Stormwater – Soils and Construction, Volume II* (DECC 2008)[8]
- *A Resource Guide for Local Councils: Erosion and Sediment Control* (DEC 2006).[9]

Erosion and sediment control is an appropriate response for smaller scale developments with short term disturbance. Land and water management (such as sediment basins and flocculation) may be required where longer periods of disturbance or larger or steeper areas of land will be disturbed.

2.2 Stormwater runoff

Aim

Nutrient levels are minimised, and stormwater flow regimes and patterns mimic natural levels before reaching NPWS land, to ensure no detrimental change to hydrological regimes.

Risks to NPWS land

The discharge of stormwater to NPWS land poses a threat to the values of land and downstream environments by:

- dispersing litter and pest species (especially weeds)
- altering nutrient composition and pollutant levels, which can damage native vegetation and aquatic ecosystems, reduce water recreation safety and promote weed growth
- causing potential erosion and sedimentation in watercourses, particularly where new developments have led to an increased volume and concentration of flow

[6] www.environment.nsw.gov.au/Stormwater/ESCtrlUnsealedRds.htm

[7] www.environment.nsw.gov.au/research-and-publications/publications-search/managing-urban-stormwater-soils-and-construction-volume-1-4th-editon

[8] www.environment.nsw.gov.au/topics/water/water-quality/all-publications

[9] www.environment.nsw.gov.au/research-and-publications/publications-search/resource-guide-for-local-councils-erosion-and-sediment-control

- impacting on Aboriginal sites, which are frequently located close to watercourses, and historic heritage.

These potential impacts, which are also cumulative, have a range of implications for the management of NPWS land. They pose serious risks to the protection of park values and assets, and catchment ecological health.

These risks are recognised in provisions in the National Parks and Wildlife Regulation 2019 which requires the consent of NPWS to discharge stormwater into a park (for example, where a development proposes new infrastructure that alters stormwater flows and directs them into a park).

Developments which increase or interrupt natural flows can significantly impact the habitat for threatened species which use downstream riparian or wetland areas. Under the State Environmental Planning Policy (Coastal Management) 2018 development proximate coastal wetlands and littoral rainforest must not significantly impact the hydrological integrity of these areas, or the quantity and quality of surface and groundwater flows entering or leaving such sites.

Potential stormwater impacts of development should also be considered closely where development sites are proximate Ramsar wetlands. Ramsar wetlands are identified as having international importance due to various factors, including their hydrology. Impacts to this hydrological functioning, such as through changes to nutrient levels or stormwater flow patterns, has the potential to affect the ecological character of these internationally significant wetlands.

Recommended approach

- Development proposals for areas adjacent to NPWS land should incorporate stormwater detention and water quality systems (with appropriately managed buffer areas) **within** the development site.
- Water sensitive urban design (WSUD) principles should be applied to developments in catchments upstream from wetlands.[10]
- Stormwater should be diverted to council stormwater systems or to infiltration and subsurface discharge systems **within** the development site.
- The discharge of stormwater to NPWS land, where the quantity and quality of stormwater differs from natural levels, must be avoided.

Infrastructure associated with stormwater treatment must **not** be located on NPWS land and any stormwater outlets should disperse the flow at pre-development levels. Landowners and development proponents are responsible for ensuring that all tanks, storage areas and associated infrastructure are appropriately sized and maintained to ensure that there is no unauthorised overflow onto NPWS land.

MUSIC software modelling is commonly used to estimate pollutant loads resulting from developments and different treatment options. Online tools such as the eWater Toolkit[11], employ MUSIC software to project runoff quantity and quality post development. Such tools allow assessing authorities to ensure WSUD principles are applied and potential impacts resulting from changes to stormwater discharge to park are avoided. It is recognised that councils commonly require a percentage decrease of pollutant levels immediately downstream of a development relative to the ‘no treatment’ (post development) option. However, given the potential for pollutants to significantly impact park values, NPWS

[10] https://www.hccrems.com.au/wp-content/uploads/2016/02/wsud-for-catchments-above-wetlands-final.pdf

[11] https://toolkit.ewater.org.au/

recommends that developments proximate to parks should not result in any net increase in pollutant levels discharged to NPWS land.

NPWS acknowledges that in some limited and exceptional cases it may not be possible to avoid the discharge of stormwater from development sites onto NPWS land. In these cases, NPWS may be willing to grant an approval to allow the discharge of stormwater onto NPWS land. Such an approval will only be granted where it can be clearly shown to be in the best overall interests of the environment (for example, by addressing existing impacts from unmanaged stormwater). The final decision rests solely with NPWS.

Any person seeking approval to discharge stormwater onto NPWS land should provide a written request to the relevant NPWS Area Manager containing detailed information on the proposal which should include:

- current stormwater flows (volume and quality) emanating from the nearby property into NPWS land, including existing undeveloped and developed areas
- current stormwater management arrangements (if any)
- identification of any existing impacts on the land as a result of stormwater from the property (including erosion, sedimentation, weeds and tree dieback)
- proposed changes to stormwater related to the development where the following stormwater management standards should be met:
    - for subdivisions, multi-unit dwellings, commercial and industrial development:
        - no increase in pre-development peak flows from rainfall events with a 1 in 5 year and 1 in 100 year recurrence interval
        - no increase in the natural annual average load of nutrients and sediments
        - no increase in the natural average annual runoff volume.
    - for single residential dwellings or small developments on highly constrained lots:
        - standard local council discharge requirements and best practice stormwater treatment to reduce nutrient and sediment loads and average annual runoff volumes to pre-development levels.
- likely impacts from those changes to NPWS land
- clear explanation of the reasons why stormwater discharge is considered unavoidable
- an explanation of the overall environmental benefits to NPWS land from the proposed stormwater management system.

In considering any requests to allow stormwater discharge, NPWS may also require the proponent to submit an environmental impact assessment to meet relevant requirements of Part 5 of the *Environmental Planning and Assessment Act 1979*.

Councils and other planning authorities should **not** grant approvals that involve the discharge of stormwater to NPWS land or include conditions requiring such an outcome from NPWS.

The Environmental Protection Authority has developed a *Risk-based Framework for Considering Waterway Health Outcomes in Strategic Land-use Planning Decisions*.[12] The framework assists in assessing land-use decisions that have the potential to change the health of a waterway and the principles can also be applied to waterways that flow through park and are likely to be impacted by upstream development.

[12] https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Water/Water-quality/risk-based-framework-waterway-health-strategic-land-use-planning-170205.pdf

Where new stormwater infrastructure may discharge into marine parks or aquatic reserves, planning authorities should consult with the Department of Primary Industries.

2.3 Wastewater

Aim

There are no adverse impacts on NPWS land due to wastewater from nearby development.

Risks to NPWS land

Some new developments, particularly in remote or rural areas, do not have access to mains sewerage systems. In these cases, other options for sewage disposal are required, including septic tanks and composting toilets. Some developments (such as horticultural or turf industries) may propose to undertake effluent irrigation or the discharge of other types of wastewater into the environment.

If wastewater disposal systems are not designed, installed, operated and maintained correctly they can pose significant risks to NPWS land. These risks are similar to the risks from stormwater runoff, although the degree of risk is relatively greater given the nature of waste products involved and the potential impacts to the ecosystem and human health.

Recommended approach

In considering proposals involving wastewater disposal, including sewage management, consent authorities should ensure that disposal systems will be designed and operated to the highest standards. This will require consideration of compliance measures that will be used to ensure ongoing satisfactory operation of the systems.

Except for facilities that are directly related to the provision of park visitor or management facilities, wastewater management infrastructure must **not** be located on NPWS land. Also (with the same exception), there must be no discharge of wastewater to NPWS land, including nutrient or pathogen export from effluent disposal areas.

- As well as any current Office of Local Government guidelines, planning authorities should refer to the Environmental Protection Authority's water quality[13] guidelines when considering wastewater management.

2.4 Pests, weeds and edge effects

Aim

Adjoining or nearby development does not:

- lead to increased impacts from invasive species (weeds and pests), domestic pets and stock
- facilitate unmanaged visitation, including informal tracks, resulting in negative impacts on cultural or natural heritage values
- lead to impacts associated with changes to the nature of the vegetation surrounding the park

[13] www.environment.nsw.gov.au/topics/water/water-quality

- impede NPWS access for management purposes, including inappropriate fencing (refer also to section 2.10).

Risks to NPWS land

Development adjoining or in the vicinity of NPWS land has the potential to significantly affect the management of NPWS land, resulting in damage to conservation values and cost implications for future management. Development may result in:

- inappropriate and unauthorised access and uses (such as by trail-bike riders)
- increase in invasive species and decline in biodiversity and ecosystem health (such as dieback)
- impacts on areas of particular environmental sensitivity, including Aboriginal and historic heritage sites, watercourses, threatened ecological communities and threatened species habitat
- disturbance and predation by domestic pets or ingress by stock animals.

Clearing of vegetation (including aquatic vegetation) along or near the boundary of NPWS land can lead to edge effects such as:

- increased drying of soils and consequent changes to vegetation at the land boundary
- decline in fauna species that are sensitive to changes in vegetation along newly created edges
- increased predation in the vicinity of the NPWS land boundary associated with aggressive species in open situations (such as nest predation by ravens and currawongs).

NPWS encourages and supports the sustainable management and development of nearby land, particularly where it is sympathetic to the protection of conservation values in NPWS parks and reserves. The Biodiversity Conservation Trust provides support for landowners interested in voluntarily protecting the conservation values of their land through the Conservation Partners Program.[14]

NPWS also works with adjoining neighbours and other authorities to undertake strategic pest management programs. Regional Pest Management Strategies focus efforts on the highest priority pest species across NPWS lands.[15]

Recommended approach

In assessing proposals, consent authorities should consider the types of impacts associated with development close to land managed by NPWS. NPWS considers that site layout and design should seek to avoid (and then minimise and mitigate) any adverse environmental impacts.

NPWS encourages consideration of an appropriate buffer, vegetated where possible, or set-back between any development and NPWS land. Where managed effectively, a buffer may minimise the impact to the natural and cultural values of NPWS parks, and increase the resilience of the area to counter potential impacts of climate change. Given the differences between sites and development types, it is not possible to specify a standard buffer; each development will need to be assessed on its merits. Developments that are designed to be

[14] www.bct.nsw.gov.au/conservation-partners-program

[15] www.environment.nsw.gov.au/topics/animals-and-plants/pest-animals-and-weeds/regional-pest-management-strategies

sympathetic to adjoining lands, and to integrate with the landscape, are likely to require less need for buffers or set-backs.

Where there is no buffer, consideration should be given to developing appropriate conditions or land management practices that minimise the potential edge effects from development. This might mean requiring the retention of areas of vegetation or siting a building back from a NPWS boundary.

During construction works adjoining parks, the boundary of the NPWS park and any buffer will require demarcation using a visually obvious barrier such as temporary fencing or flicker tape to reduce the risk of accidental encroachments.

The management of companion animals, such as cats and dogs, and stock is a particular challenge for developments close to NPWS land. NPWS recommends that planning authorities investigate all available options for minimising the risks from domestic pets and stock that may arise from new development. This includes educational tools (such as signage), compliance (such as regular council patrols), physical controls (such as fencing), and other options (such as restrictive covenants where legally possible). For proposals involving boundary fencing, NPWS has established policies and procedures to guide the choice of suitable fencing and cost-sharing arrangements. Consent authorities should refer development proponents to the *Boundary Fencing Policy*.[16]

NPWS acknowledges that in some situations clearing of vegetation on neighbouring land is required to manage risks associated with bushfire (see section 2.5). NPWS nevertheless recommends the retention of existing native vegetation where appropriate. This will assist in reducing edge effects, as well as retaining wildlife corridors and minimising the isolation of NPWS parks (see section 2.8).

2.5 Fire and the location of asset protection zones

Aim

All asset protection measures are within the development area, and there is no expectation for NPWS to change its fire management regime for the land it manages.

Risks to NPWS land

NPWS recognises fire as a natural and recurring factor which shapes the environment. However, it also acknowledges that fire poses a significant threat to life and property, and that altered fire regimes may degrade park values including biodiversity, cultural heritage and tourism. The onset of climate change is likely to exacerbate these risks.

NPWS lands are mapped as bushfire prone lands. The majority of fires on NPWS parks, however, originate from sources outside the park and from human-caused ignitions.

Fire management is one of the most important tasks in managing NPWS lands[17]. Adjacent land uses have implications for fire management in parks and so fire management in parks needs to be integrated with bushfire management on adjacent lands.

[16] www.environment.nsw.gov.au/topics/parks-reserves-and-protected-areas/park-policies/boundary-fencing

[17] www.environment.nsw.gov.au/topics/parks-reserves-and-protected-areas/fire/managing-fire

Recommended approach

Councils and other planning authorities should not grant approvals that involve the undertaking of bush fire hazard reduction works within NPWS land, including the establishment of asset protection zones, or include conditions requiring such an outcome.

For any proposals adjacent to NPWS land, consent authorities need to consider an assessment of the fire risk in accordance with the bushfire guidelines.[18] The assessment should address appropriate fire management practices for the area. Councils should also ensure that the provisions of the *Rural Fires Act 1997* and section 4.14 of the *Environmental Planning and Assessment Act 1979* are implemented in the area proposed for development. Further consultation with the NSW Rural Fire Service may be required.

While the bushfire guidelines note that asset protection zones are possible but not encouraged, they also state that easements for bushfire protection should not be considered where the adjoining land is used for a public purpose and where vegetation management is not likely or is unable to be granted, such as in a national park. This means that asset protection zones should be provided in the development site and not extend into NPWS land or rely on actions being undertaken by NPWS. Appropriately designed fire protection zones and firefighting access should be located on the land where development is proposed.

Fencing to be erected between the boundary of the property and NPWS land should be of non-combustible material and designed for the intended purpose (for example, stock exclusion). Factors such as disruption to wildlife movements and impacts on fire suppression activities (including the ability of firefighting personnel to safely evacuate an area) should always be considered.

2.6 Boundary encroachments and access through NPWS land

Aim

No pre-construction, construction or post-construction activity occurs on land managed by NPWS. Any access that does occur must be legally authorised and comply with park management objectives.

Risks to NPWS land

Unauthorised access to NPWS land can have direct physical impacts on the conservation values of parks, such as those due to the removal of vegetation, erosion and soil disturbance. If such access continues or other encroachments occur (such as the construction of buildings, car parks or roads) this can have long-term implications affecting park management (for example fire protection), and public use and enjoyment of the park.

Recommended approach

Spatial data for NPWS land is available online and can assist in identifying park locations and boundaries in relation to development sites.[19] Consent authorities should ensure that

[18] NSW Rural Fire Service 2019, *Planning for Bushfire Protection,* www.rfs.nsw.gov.au/plan-and-prepare/building-in-a-bush-fire-area/planning-for-bush-fire-protection

[19] datasets.seed.nsw.gov.au/dataset/nsw-national-parks-and-wildlife-service-npws-estate3f9e7 (requires GIS software)

where land involved in a proposal shares a common boundary with NPWS land the boundary has been accurately surveyed to ensure there is no encroachment on NPWS land as a result of the proposed development.

NPWS land is **not** to be used:

- to access development sites
- to store materials, equipment, workers' vehicles or machinery
- for maintenance access after development.

Measures, such as temporary fencing of 'no-go' areas during construction or installation of permanent, wildlife-compatible fencing should be considered, and will require NPWS approval if they are proposed to be located along the site boundary.

In addition, where ongoing access to the development site requires access through NPWS land, the consent authority should ensure that there is a legal basis for such access before granting approval. Consent authorities should specifically consider whether:

- access will be via an existing public access road
- access has been, or will be, granted by NPWS including any conditions or limitations on such access (such as road widths) if there is no existing public access road
- there are any statutory limits on the rights for continued use of access roads through parks recognised by national park reservations acts since 1996
- councils and other planning authorities should not grant approvals that involve access through or across NPWS land, or include conditions requiring such access, without clear written evidence of an agreement from NPWS.

2.7 Visual, odour, noise, vibration, air quality and amenity impacts

Aim

There is no reduction of amenity on NPWS land due to adjacent development.

Risks to NPWS land

Certain developments may significantly intrude on the environment of NPWS lands, affecting the senses of wildlife and park visitors. For example, noise, vibration and lighting may disrupt foraging and breeding habits of native animal species. These impacts and any degradation of air quality (including odours) may adversely affect the use and public enjoyment of walking tracks, campgrounds and picnic areas in the park.

Recommended approach

Planning authorities should take into account the visual (including lighting), noise, odour and air quality impacts of development adjacent to NPWS land to ensure that they do not affect the amenity or public enjoyment of the land. NPWS land should never be considered as a buffer zone between a development and other surrounding uses (such as residential areas).

Planning authorities should consider whether it is appropriate to apply control measures so that the development is sympathetic with the park's natural and cultural heritage values. Such controls may include landscaping with local native plant species, implementing buffer areas and set-backs, limiting hours of operation, and use of appropriate colours, building

materials, lighting and height controls. Light trespass into parks from street or security lighting should be minimised.

Some types of developments, such as quarries and road works, can result in particularly significant impacts (for example noise and dust). Large-scale developments of this type are likely to need detailed site-specific management plans.

2.8 Threats to ecological connectivity and groundwater-dependent ecosystems

Aim

Native vegetation and other flora and fauna habitats that provide a linkage, buffer, home range or refuge role on land that is adjacent to parks are maintained and enhanced, where possible.

Groundwater-dependent ecosystems in NPWS land are protected.

Risks to NPWS land

Naturally vegetated areas adjoining NPWS land provide essential linkages for the maintenance of biodiversity and also minimise potential edge effects. These areas have a role in maintaining the viability of local populations and form an important component of home ranges of mobile species, as well as providing valuable wildlife refuge areas (including during periods of stress). Streams, rivers and other water bodies close to NPWS land may play similar roles.

Avoiding native vegetation clearing and fragmentation and retaining landscape connectivity will also assist in mitigating some of the impacts of climate change on biodiversity. Native vegetation in good condition and with a minimal edge to area ratio will be better able to resist weed invasion, wind damage, desiccation and other edge effects.

Development in areas of native vegetation or along water bodies that adjoin NPWS land can result in fragmentation of habitat corridors and isolation from other areas of habitat in the locality. Landowners are encouraged to protect and manage the conservation values of their properties, such as through the Conservation Partners Program noted in section 2.4.

Recommended approach

NPWS recommends that vegetation, waterways and water bodies close to NPWS land that exhibit ecological connectivity should be retained, protected and, where necessary, rehabilitated. Consent authorities should consider the corridor values, or connective importance, of any vegetation (not only trees) and waterways or water bodies and possible impacts from the proposed development.

For proposals involving the extraction of groundwater, NPWS recommends that consent authorities obtain and consider a comprehensive assessment of any potential impacts that may occur to groundwater-dependent ecosystems in NPWS lands. This can include wetlands, vegetation, mound springs, river base flows, cave ecosystems, playa lakes and saline discharges, springs, mangroves, river pools, billabongs and hanging swamps. The groundwater dependence of ecosystems can range from complete reliance to a partial reliance on groundwater, such as might occur during droughts.

Ecological processes in groundwater-dependent ecosystems are threatened by the regular extraction of groundwater and changes in land use or management.

The protection of groundwater-dependent ecosystems is a key principle of the NSW State Groundwater Protection Policy.[20] Further information on groundwater, including groundwater vulnerability maps, is available from the Department of Planning, Industry and Environment.[21]

2.9 Cultural heritage

Aim

Areas and sites of heritage value on NPWS land, including Aboriginal cultural heritage, are protected.

Risks to NPWS land

NPWS land contains some of the most significant and intact areas of Aboriginal[22] and historic cultural heritage values in NSW. This includes physical objects, items and places, as well as areas that are significant with respect to cultural traditions, customs, beliefs and history. It can include values that pre-date the arrival of settlers to Australia (for example, Aboriginal objects), as well as more contemporary associations (such as cemeteries). Some NPWS parks or sites in parks are world heritage or national heritage listed or on the State Heritage Register.

Cultural heritage values can, and often do, extend across the landscape, spanning multiple land tenures and properties. Ensuring that these values endure and can be interpreted and appreciated by future generations requires protective action across boundaries.

As noted above, there are a number of NPWS parks that are world heritage listed (such as Blue Mountains National Park) and/or on the National Heritage List (such as Ku-ring-gai Chase National Park) [23],. The Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* requires that approval be obtained from the Australian Government before undertaking any action that could have a significant impact on the world heritage or national heritage values of a listed place. Such impacts are not limited to those from adjoining properties, and could occur due to developments some distance away.

There are also many NPWS lands (or areas, items or features in parks) that are listed on the State Heritage Register[24] and protected under the *NSW Heritage Act 1977*. Many heritage items in NPWS parks are listed under local environmental plans.

Impacts on these values may be related to the issues discussed in previous sections (for example, there may be impacts on Aboriginal objects resulting from erosion, sediment and stormwater from nearby developments). The cultural context or significance of a site may be dramatically affected by unsympathetic nearby development.

[20] www.water.nsw.gov.au/ArticleDocuments/34/nsw_state_groundwater_quality_policy.pdf.aspx

[21] www.industry.nsw.gov.au/water/science/groundwater

[22] www.nationalparks.nsw.gov.au/conservation-and-heritage/aboriginal-culture

[23] www.environment.gov.au/heritage/index.html

[24] www.environment.nsw.gov.au/heritageapp/heritagesearch.aspx

Recommended approach

Consent and planning authorities should ensure that they give adequate consideration to potential impacts of nearby development on the heritage values of NPWS land. In particular, this includes:

- Aboriginal heritage values on NPWS land which can, but do not always, include areas declared as an Aboriginal Place
- historic heritage values, especially any areas or specific places listed on the State Heritage Register
- world heritage or national heritage values.

2.10 Access to parks

Aim

Adjacent developments do not compromise public and NPWS access to parks.

Risks to NPWS land

Maintaining legal and viable access to NPWS land is important in ensuring park values are conserved and that NPWS can undertake its functions as the manager of the land. Where proposals include changes to local access, such as road closures, new master planned areas or subdivision, any potential impacts to park access should be assessed.

Planning authorities should recognise NPWS has a responsibility to establish, maintain and protect a sustainable network of fire trails to prevent and control bushfires. Ensuring ongoing access to this network of trails aids in the protection of neighbouring lands as well as the park.

Proposals that remove, destroy, obstruct or limit access to a strategic or tactical fire trail have the potential to impede NPWS's ability to undertake preventative bushfire hazard reduction and to respond in the event of a bushfire. Even temporary closures of or obstruction to fire trails can cause significant risk to life, property and park values. Subdivision proposals or developments involving landform modifications may block park access through new retaining walls, and the exclusion of trail entry points from new road networks, or through new guttering or other infrastructure at trail heads that hinders or blocks vehicular access.

Access to existing visitor sites in NPWS parks (including lookouts, picnic areas, campgrounds and tourist drives) may also be blocked by poorly planned road networks on lands adjacent to parks. This may impact on the recreational values of the park to the broader community and opportunities for tourist operators.

Recommended approach

Consent and planning authorities should ensure that they consider any potential impacts on the accessibility to NPWS parks due to a proposed development in both the long- and short-term.

Road networks and landform modifications in new subdivisions should be designed to ensure that they accommodate current access points to parks. Conditions may need to specify that the storage of materials, equipment, workers' vehicles or machinery should not block or impede access to park roads and fire trails. The location of temporary fencing should also be considered with regard to the access to park roads and fire trails.

Consideration should also be given to the planning for strategic or tactical fire trails proximate to the development. The Fire Access and Fire Trail (FAFT) plan and the NPWS reserve fire management strategy for the park should be consulted as to the location of such trails.

Once designated under the relevant FAFT plan, strategic fire trails cannot be closed under Section 62ZI of the *Rural Fires Act 1997*, with closure encompassing obstruction or impacts that do not allow for the proper use of the fire trail.

While not necessarily designated or registered, tactical fire trails play an important role in supporting the prevention and suppression of fire. Consent authorities should ensure that development does not block or in any way impede tactical fire trails.