

Attachment 1

PAC request for additional information form DECCW on 12/01/1010 and 1/02/2010

- 6) Can DECCW identify domains or areas of special significance to which a negligible impact outcome could be applied based on aggregated impacts? For example, collectively considering the streams/swamps/ threatened species/EEC/ACH/flora/fauna values of special significance identified in the DECCW submission. Is there some synergy in agglomerating these values? These domains could include for example Appin Areas 2 and 3, and part of Northcliff.

Features of special significance are found across the entire study area (Map 1). Consideration of the 'special significance' values of swamps and streams for protection from likely impacts of longwall mining as individual assets is important, as argued by DECCW in our second submission on the EA. Additionally, these individual assets and their associated values, such as their scientific importance, biodiversity and cultural significance, can also be considered collectively in a landscape context. DECCW agrees that there are areas in the study area that have aggregations of features of special significance, which were identified in the response to Supplementary Question 2. This concentration of features of special significance could be used to identify 'domains' within the project area to which a negligible impact outcome can be applied.

DECCW supports this approach because this recognises the complex interrelationship and interdependency of natural processes and the ecosystem processes that they provide. For example the swamp clusters and streams in the North Cliff and Appin Areas 2 and 3 provide a critical perennial flow in these areas that sustain a high level of biodiversity, diverse ecosystem processes and important water resources. There is also evidence of a high level of use of this area by Aboriginal people that would have utilised the diversity of natural resources. If these swamps and perennial streams are impacted by subsidence such that they become intermittent or ephemeral, the natural resources they provide may be significantly compromised.

Taking the above into account DECCW has identified 'domains of special significance', based upon 3 over-lapping areas containing concentrations of features of special significance. These are shown in Map 2 and comprise:

- Area A
- Area B1; and
- Area B2

For the purposes of this environmental assessment the domains are focussed on lands within the area of the Bulli Seam Operations mining lease, however extend more widely across the Woronora Plateau and beyond. DECCW considers that a criterion of *nil or negligible environmental impact* (please refer to Question 8) should be applied as the outcome of any future longwall mining operation proposed for these domains to protect the high biological and cultural assets they contain. The importance of these domains and the agglomerated values they contain is discussed below.

Domain of special significance – Area A

This area is focussed on the southern part of North Cliff and the eastern half of Appin Area 2 (Map 2). It includes parts of the upper catchments of O'Hares and Stokes Creeks and the Woronora River in North Cliff, and parts of the Cataract Reservoir catchment in Appin Area 2. The special significance of this domain (and its associated risk management buffer) has been identified on the basis of the following key reasons:

- It contains a large cluster of upland swamps (80% of the upland swamps within the study area) that form the headwaters of perennial streams and rivers, which:
 - are all likely to meet the Commonwealth's definition of Temperate Highland Peat Swamps on Sandstone, an Endangered Ecological Community (EEC) under the EPBC Act. (see 'Swamp matrix' referred to in answer to Question 2)
 - contain the largest swamps in the study area with high complexity, providing a diversity of contiguous habitat
 - provides the critical resource of perennial flow in the catchment that sustains the high level of biodiversity, ecosystem processes and natural resources.
- Contains streams which are pristine and are of special significance which includes the O'Hares and Stokes Creeks and Woronora River catchments being:
 - 3rd order and above streams on sandstone geology that have permanent flow
 - 1st and 2nd order streams associated with swamps as part of their headwaters (as an indicator of streams with permanence of flow)
- Is a stronghold for a number of threatened species that are swamp habitat specialists, including species with few known populations in the region, such as Littlejohns Tree Frog and the Eastern Ground Parrot (DECC 2007)
- The domain is important for continued scientific research as it includes the scientifically important Dharawal upland swamp study area. This area is part of an internationally important reference area for research on edaphic control of wetlands, fire-driven vegetation dynamics, and climate change impacts on wetlands. (See Question 1)
- Has a high density of Aboriginal sites within the Dharawal State Conservation Area and Nature Reserve, including exceptionally well preserved examples of drawings, stencils and paintings. The art sites represent a style within a style, differing from the rest of the Sydney Basin in some respects. The concentration of sites in this area together with the Woronora plateau is the highest in NSW.
- The domain contains a significant portion of Dharawal SCA that contains the following values:
 - Restrictions on development, including restricted public access, since the late 1920s has contributed to the relatively undisturbed nature, as a result, the significant biodiversity, ecosystems (both terrestrial and aquatic), Aboriginal heritage and aesthetic values have been exceptionally well conserved. The O'Hares Creek catchment has been included on the Register of the National Estate, and the National Trust of Australia (NSW) Register as a Landscape Conservation Area.
 - The Dharawal reserves are located within and form an integral part of a much larger protected area system that extends from Royal National Park in the north, Budderoo and Morton National Parks in the south and the Nattai and Blue Mountains reserve systems in the west. Together with the Special Areas, these lands combine to form one of the largest contiguous protected areas in the state providing unparalleled opportunities for the maintenance of ecological processes. The Commonwealth has identified Dharawal SCA in the top 30 sites for protection in the recent report titled "Prioritisation of High Conservation Status Mainland Islands" highlighting the reserves ecological importance.

- The reserves conserve exceptional upland swamps, which contain some of the highest species-richness values in the world (Keith and Myerscough, 1993) and are listed on the Directory of Important Wetlands of Australia. Over 500 plant species have been recorded in the reserves including four listed as Vulnerable on Schedule 2 of the *Threatened Species Conservation Act 1995*. Fourteen are on the list of Rare or Threatened Australian Plants (Briggs and Leigh, 1988). A further 24 species are regionally rare or threatened. Major populations of three nationally significant plant species are also conserved within the reserves and eleven species reach their southern limit of distribution in the area. One Endangered Population, the Woronora Plateau population of *Callitris endlicheri* Black Cypress Pine, is conserved within the reserves and one Endangered Ecological Community, the O'Hares Creek Shale Forest Community, is partly conserved within the reserves.
- The reserves contain a diverse range of high quality habitats which conserve a significant faunal assemblage including at least twenty animal species listed as Endangered or Vulnerable under the *Threatened Species Conservation Act 1995*. As described in Question 4, at least 128 fauna species are known to utilise the swamp habitats that are such a feature of the reserves.

Domains of special significance – Areas B1 and B2

All of the watercourses identified within domains of special significance B1 and B2 are located within Special Areas declared under the *Sydney Water Catchment Management Act 1998* (Maps 1 and 2). The majority of both Appin Areas 2 and 3 (Area B1) are located in the Metropolitan Special Area. That part of the North Cliff mining area located in the catchment of Woronora Dam (Area B2) is entirely located within the Woronora Special Area.

The Special Areas are declared for their value in protecting the quality of the raw water used to provide drinking water to Sydney and for their ecological integrity. The Special Areas are a critical barrier in a multi-barrier approach to protecting water quality. They act as a filtration system for water entering water storages by reducing nutrients, sediments and other substances that can affect water quality. The greater the ecological integrity of the Special Areas, the more effective their role as a barrier.

The Metropolitan and Woronora Special Areas are categorised as Schedule 1 lands. Public lands including SCA land located in Schedule 1 Special Areas have the highest level of restriction on access. No public entry is permitted within these areas.

- Area B1 – Cataract Catchment

The SCA considers the section of the Cataract River within Appin Areas 2 and 3 is of special significance for many reasons. This section of river is a key component of the Sydney water supply system as it is used to transfer raw drinking water from Cataract Dam to Broughtons Pass weir. It is largely in pristine condition, due in part to its classification as a Schedule 1 Special Area where public access is prohibited. While the flow in this section of the river is significantly affected by releases from Cataract Dam, the SCA releases a minimum of 1.3 ML/d for environmental purposes and it is important that this flow is protected and reserved for the purpose for which it is released. From July 2010 the environmental flow releases from the dam will be dependent upon inflows to the dam (80th percentile transparent flows and 20 percent translucent flows) and consequently the minimum release from the dam is expected, on average, to be greater than the current minimum release. Furthermore a significant waterfall, known as the Appin Falls, is located on this section of the river. Within the Project area Appin Falls is the largest waterfall, the top of the falls is the largest rockbar and the pool at the base of the falls is understood to be the deepest of any pool. It is also understood that the Appin Falls is the largest falls on the entire Woronora plateau.

Other features/values of the Cataract River are:

- the river is a 6th order stream;
- the catchment is very large - 220 square kilometres;
- the river flow is permanent;
- the high importance to catchment yield;
- the very high significance to water supply;
- the water quality is very good;
- the presence of threatened species;
- the presence of a large number of rockbars and pools; and
- the relatively shallow depth of cover.

Lizard Creek, Wallandoola and Cascade Creeks are of special significance because:

- they are all at least 3rd order streams – Lizard Creek is a 5th order stream;
- the collective catchment is large – 64 square kilometres;
- the flow in each watercourse is permanent and/or there is permanent water;
- the moderate importance to catchment yield;
- the high significance to water supply;
- the water quality is very good;
- they drain to the section of the Cataract River which flows to Broughtons Pass Weir and therefore there is minimal buffering opportunity before water reaches a critical water supply off take; the presence of a large number of rockbars and pools; and
- they are all largely pristine.

Cataract Reservoir Tributary 1 and Cataract Reservoir Tributary 2 warrant a high level of protection because:

- they are 3rd order streams;
- the flow in each watercourse is permanent and/or there is permanent water;
- the water quality is very good;
- they drain direct to Cataract Reservoir;
- the quality and quantity of water flowing from these watercourses is predicted to decline as a result of mining and this will have a direct impact on stored waters;
- there is strong nexus with upland swamps;
- the presence of a large number of rockbars and pools; and
- they are pristine.

- Area B2 – Woronora Catchment

The SCA considers the Woronora River (tributary downstream of the crossing of Fire Trail 14 and adjacent to the northern end of Longwall 19 – and 3rd order tributary downstream of Longwall 18) warrant a high level of protection because:

- the flow in the Woronora River is permanent;
- there is strong nexus with large upland swamps for Woronora River;
- the high to moderate importance to catchment yield;
- there moderate significance to water supply;
- the water quality is very good;
- the presence of a large number of rockbars and pools;
- the presence of threatened species; and
- they are pristine.

In addition, the most archaeologically significant site within the study area (52-2-0854) has been identified in North Cliff, within the Woronora catchment. This site has been assessed as having high significance on the basis of its features (rock shelter with art, deposit and grinding grooves) and art motifs. However, it is important to note that while a site may be assessed as having particular significance on the basis of archaeological features, its location within the landscape is also significant, as the landscape provides context for the site.

8) The PAC is interested in defining outcomes more precisely with a view to making compliance monitoring simpler for both the proponent and the regulator. Does DECCW have information or suggestions that would assist in achieving this objective?

In developing effective and enforceable licence conditions the DECCW considers the following broad principles:

- A condition should be measurable, including quantitative rather than qualitative requirements
- A condition should be as concise as possible
- A condition should not be ambiguous and should clearly state what is required. Consideration should be given to the various interpretations that could be made of a condition
- The enterprise should be able to comply with the condition
- A condition should be practical and reasonable

Recommendation 18 of The Metropolitan Coal Project (2009) report stated that 'negative environmental consequences are considered undesirable for all swamps and: (a) swamps of special significance will be protected from negative environmental consequences; and a presumption of protection from significant negative environmental consequences will exist for all other swamps...'

Schedule 3 of the Metropolitan Coal Project (08_0149) specified 'Negligible Impact' for 'Biodiversity, threatened species, populations, or ecological communities', and 'Negligible environmental consequence' for sections of Waratah Rivulet and the Eastern Tributary. 'Negligible' was also used to describe the allowable reduction in water quality or quantity reaching Woronora reservoir, and 'Negligible' leakage from Woronora Reservoir was conditioned.

Under the Metropolitan Consent definitions, 'Negligible' was defined as "Small and unimportant,