

Appendix L

Visual impact assessment

Googong Township water cycle project

Environmental Assessment

November 2010



CLOUSTON associates

**GOOGONG TOWNSHIP
WATER CYCLE PROJECT
Visual Impact Assessment
NS 1113 R-01L 12/08/2010**

GOOGONG TOWNSHIP WATER CYCLE PROJECT VISUAL IMPACT ASSESSMENT



Prepared in association with

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for

CIC Australia P/L

by

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Date	Issue	Status	Checked
12.08.10	Issue L	Final Rev'd	
30.07.10	Issue K	Final Rev'd	CL
16.11.09	Issue J	Final Rev'd	CL
09.11.09	Issue I	Final Rev'd	CL
30.10.09	Issue H	Final Rev'd	CL
27.10.09	Issue G	Final Rev'd	CL
22.06.09	Issue F	Final Rev'd	CL
21.05.09	Issue E	Final	CL
24.04.09	Issue D	Final Draft Rev'd	CL
21.04.09	Issue C	Final Draft	CL
17.04.09	Issue B	Draft for review	CL
9.4.09	Issue A	Draft for review	CL

TABLE OF CONTENTS

0.0 EXECUTIVE SUMMARY	5
1.0 INTRODUCTION	7
1.1 PURPOSE OF THE REPORT AND PLANNING CONSIDERATIONS	
1.2 SCOPE AND LIMIT OF THE REPORT	
1.3 REPORT METHODOLOGY AND BACKGROUND DOCUMENTS	
1.4 TERMS USED IN THE REPORT	
2.0 DISTRICT & LOCAL CONTEXT & CHARACTER	12
2.1 DISTRICT LANDSCAPE CHARACTER	
2.2 LOCAL LANDSCAPE CHARACTER & VISUAL ACCESSIBILITY	
2.3 SITE CHARACTER & VISUAL ACCESSIBILITY	
2.4 BUILT FORM AND INFRASTRUCTURE	
2.5 VISUAL LANDMARKS AND DETRACTORS	
2.6 PUBLIC ACCESS	
2.7 LANDSCAPE CONDITION	
2.8 VISUAL SENSITIVITY	
2.9 KEY VISUAL RECEPTORS	
3.0 PROPOSED DEVELOPMENT	27
4.0 VISUAL IMPACT ASSESSMENT	37
4.1 QUANTITATIVE ASSESSMENT	
4.2 QUALITATIVE ASSESSMENT	
4.3 SUMMARY OF IMPACTS	
5.0 SUMMARY OF VISUAL IMPACTS	43
6.0 MITIGATION MEASURES	45
6.1 AVOIDANCE	
6.2 REDUCTION & ALLEVIATION	
6.3 OFF-SITE MITIGATION	
6.4 OFF-SITE COMPENSATION	

TABLE OF CONTENTS

7.0 CONCLUSIONS AND RECOMMENDATIONS	49
7.1 GENERAL OVERVIEW & CONCLUSIONS	
7.2 RECOMMENDATIONS	
8.0 REFERENCES	53
FIGURES	
1.1 LOCATION PLAN	10
1.2 WATER CYCLE PROJECT	11
2.1 LANDSCAPE CHARACTER	16
2.2a LOCAL VISUAL CATCHMENT - WCP	17
2.2b LOCAL VISUAL CATCHMENT - WCP	18
2.3 SCENIC SENSITIVITY	19
2.4 VISUAL RECEPTORS, WCP & NH1A	20
2.5a PHOTO LOCATIONS, LOOKING AT HILL 800	21
2.5b PHOTO LOCATIONS, LOOKING AT HILL 765	22
3.1a WATER RESERVOIR SITES (PERMANENT)	28
3.1b WATER RESERVOIR SITES (TEMPORARY)	29
3.2 HILL 800	30
3.3 HILL 800	31
3.4 PERMANENT RESERVOIR LOCATIONS BEFORE AND AFTER	32
3.5 PERMANENT RESERVOIR LOCATIONS BEFORE AND AFTER	33
3.6 INTERIM RESERVOIR: HILL 765	34
3.7 INTERIM RESERVOIR: HILL 765	35
3.8 INTERIM RESERVOIR: HILL 765	36
TABLES	
01 VISUAL RECEPTOR IMPACT ANALYSIS WATER CYCLE PROJECT	38
02 KEY TO MATRIX TABLES AND SCORING	41
03 MITIGATION OPTIONS	46

EXECUTIVE SUMMARY

THE PROPOSAL

This Visual Impact Assessment (VIA) forms part of the baseline data for an Environmental Impact Assessment of the Water Cycle Project (WCP), which is the water treatment and supply infrastructure required to service the proposed Googong township.

This VIA should be read in close conjunction with the parallel VIA for Neighbourhood 1A (NH1A), being the first neighbourhood proposed to be constructed in Googong township. The visual impacts of both projects are closely related.

The WCP comprises an array of five reservoirs, associated plant, chemical shed and access roads located on a local hilltop (Hill 800), a Water Recycling Plant (WRP), pumping stations and underground mains pipework network. Stage 1 of the project includes interim reservoirs (temporary) at Hill 765.

It is anticipated that the interim reservoirs on Hill 765 would be in place during the construction of NH1A. However, by the time NH2 is constructed, the interim reservoirs would need to be removed as they stand within the streets of the neighbourhood. By this stage, the permanent reservoirs on Hill 800 would have been constructed. It cannot be definitely determined for how long the interim reservoirs would be in place, but it can be assumed to be a period anywhere from three to eight years. Consequently, this assessment treats their visual impact as if they were permanent structures.

The landscape in which the WCP is proposed principally comprises a shallow valley in the Queanbeyan River catchment, mostly under postoral farmland management. The surrounding landscape of rolling hills and mountain backdrops is of high scenic quality. Some parts of the site are also of high scenic sensitivity (i.e. cannot readily absorb change without that change being highly visible) by virtue of the open valley floor landscape, viewed from surrounding local high points.

KEY ISSUES AND IMPACT ASSESSMENTS

This VIA notes that although the construction of the WCP would change the nature of the existing landscape, the overall visual impacts are reduced by virtue of the local topography which limits the size of the visual catchment of the proposals (i.e. extent of land from which the proposals can be seen). The relatively sparse population of the valley means that the number of existing permanent visual receptors (e.g. those viewing the landscape from residential properties) is also limited.

However, one aspect of the WCP that does create high visual impact is the proposed array of five reservoirs on the top of Hill 800 and the interim reservoirs on Hill 765. These elements are in sharp contrast to the existing open rolling landscape of the hill and would be highly visible from various locations including from Old Cooma Road and some nearby residential properties.

MITIGATION MEASURES

The VIA provides a range of mitigation measures and options for reducing all visual impacts of the WCP (from high to low) and analyses the relative merits of various mitigation options for the reservoirs. As outlined above, the interim reservoirs have been assessed as if they were permanent structure. The conclusion in Section 7 of this report identifies implications of their ultimate removal.

RECOMMENDATIONS

The VIA concludes with a suite of recommendations for mitigation of the WCP project; these include:

- Careful selection of the pipeline alignments to minimise existing tree loss.
- Fine tuned siting of the pump stations and their stacks to ensure integration with the landscape design.
- Selection of lightweight materials for the WRP, and
- Careful siting of the stack for the WRP to minimise its local visibility.

For the reservoirs on Hills 800 and 765 the mitigation recommendation is that the detailed landscape design of the hill includes carefully located informal groups of native trees, around and across the hilltop, to limit views of the reservoirs from key receptors. An option for artwork to the structures of the permanent reservoirs is also addressed for closer viewing on the hilltop and some recommendation on shorter term mitigation of the interim reservoirs is also included.

1. INTRODUCTION

This Visual Impact Assessment (VIA) report evaluates the Water Cycle Project (WCP) of the Googong township, a proposed residential estate south of Queanbeyan.

The WCP will be rolled out in stages, in parallel with the progressive development of the Googong township, ultimately serving a projected township population of 16,000 people.

This VIA has been prepared with Manidis Roberts P/L and forms part of a suite of technical studies to provide the baseline data and guidance for the preparation of an Environmental Impact Assessment for CIC Australia.

This VIA should also be read in close conjunction with the VIA for the Neighbourhood 1A (NH1A), prepared in parallel with this report and relating to the visual impacts of the first neighbourhood proposed for the Googong township (see Figure 1.1).

1.1 PURPOSE OF THE REPORT AND PLANNING CONSIDERATIONS

The purpose of this report is to provide an objective assessment and includes:

- The scenic impacts of the WCP development.
- The means by which such impacts might be mitigated through the appropriate siting and design of the proposed development.

The report has been prepared in such a manner that it informs the design of the development proposal as well as assessing the impacts that the proposal generates.

The permanent elements of the WCP consists of five reservoirs, two pumping stations, associated pipework and a Water Recycling Plant (WRP). Of these components, the reservoirs and the WRP buildings, and associated stacks and the pumping station stacks are the only elements that are more than two metres high when constructed (see Figure 1.2). Gravity-fed sewers within the development will also have stacks, however they have not been addressed in this VIA as their position is as yet not confirmed. The temporary elements of the WCP located on Hill 765 comprise:

- two water storages (recycled and portable),
- two elevated recycled water tank (recycled and portable),
- two booster pumps, and
- a chlorine dosing kiosk.

Although the subject of this report is the WCP, this document consistently references the parallel VIA for the NH1A as many of the development impacts are closely related. NH1A consists of residential dwellings and recreation facilities sited immediately south of the Googong Dam Road. That project is being assessed as part of a separate approval process.

1.2 SCOPE AND LIMIT OF THE REPORT

This assessment and independent report is based on a professional analysis of the landscape and the proposals. It seeks to establish the anticipated visual impacts of the proposal on a wide range of existing and future viewers of the landscape, most of whom cannot be specifically identified and whose actual perceptions it is therefore not possible to canvas.

The primary focus of this report is the post-construction and operational phase of WCP (both permanent and temporary) as it is at this juncture that the most permanent visual impacts will be experienced. However, the visual impact of the construction phase of the WCP has also been addressed in the report. Construction of the permanent WCP elements is to be undertaken in three stages. The report addresses completed construction of the entire project comprising all the components noted.

It should be noted that the report assesses the visual impacts based on existing viewers of the landscape (visual receptors). Visual impacts on future occupants of Googong township are not evaluated as they would be moving into an existing developed or developing township, aware of the evolving landscape.

1.3 REPORT METHODOLOGY AND BACKGROUND DOCUMENTS

The principal methodology adopted and adapted for this VIA is modelled on the approach outlined in 'Guidelines for Landscape and Visual Impact Assessment' (GLVIA, 2002) prepared by the Landscape Institute (UK) and The Institute of Environmental Management and Assessment.

Key components of the project methodology include:

- Review of all background documentation and previously prepared reports for the project.
- A preliminary desktop study using Geographic Information System (GIS) to outline potential visual catchments, visual receptors and lines of site.
- A detailed site visit to groundtruth the preliminary GIS findings, photographically document the site and locality and evaluate scenic sensitivity to determine visual landmarks and detractors.
- Preparation of the report based on the GLVIA methodology and reviewed in association with Manidis Roberts.

Key background documents that have informed the VIA include:

- The Landscape and Open Space Strategy (LOSS) (Draft) prepared for Googong by EDAW.
- Topographic survey, tree survey and civil engineering drawings by Browns Consulting P/L.
- Documents by MWH covering concepts for the WCP.
- NH1A concept by Roberts Day.
- Preliminary Environmental Assessment and mapping by Manidis Roberts.

1.4 TERMS USED IN THE REPORT

The following provides a brief explanation of the terms and abbreviations commonly used in VIA reports and which appear in this report:

- **Visual Catchment:** An area or areas from which a subject site is visible, the boundaries of which are normally determined by what may be seen from the site itself up to and including the visual horizon.
- **Visual Receptors:** The public or community at large who would have views of the subject site either by virtue of where they live and/or work or from transport routes, paths, lookouts and the like.
- **Visual Accessibility:** The number of people that would regularly view the site. High visual accessibility would include locations from which large numbers of people would view a subject site, such as from a major highway or dense urban area.
- **Visual Sensitivity** (sometimes referred to as Scenic Absorption Capacity): The degree to which a given landscape can absorb change (i.e. from development) without significant detrimental effects (i.e. open level grass plains have high sensitivity/low absorption capacity). High sensitivity implies that even small changes in the landscape would be highly visible and would visibly alter the key characteristics of a landscape.

Note that all of the above definitions relate to quantitative and measurable non-subjective aspects of visibility and impact. A secondary qualitative assessment is also included in the methodology.

Section 4 of this document contains Table 01 which has been used to evaluate the visual impact of the WCP on the key visual receptors.

This table places ratings against a series of objective quantitative criteria used to evaluate the visual measurable visible changes created by the development.

The qualitative component relates to the experience of the viewer and is based on professional judgement based on previous project experience with receptors of a similar nature.

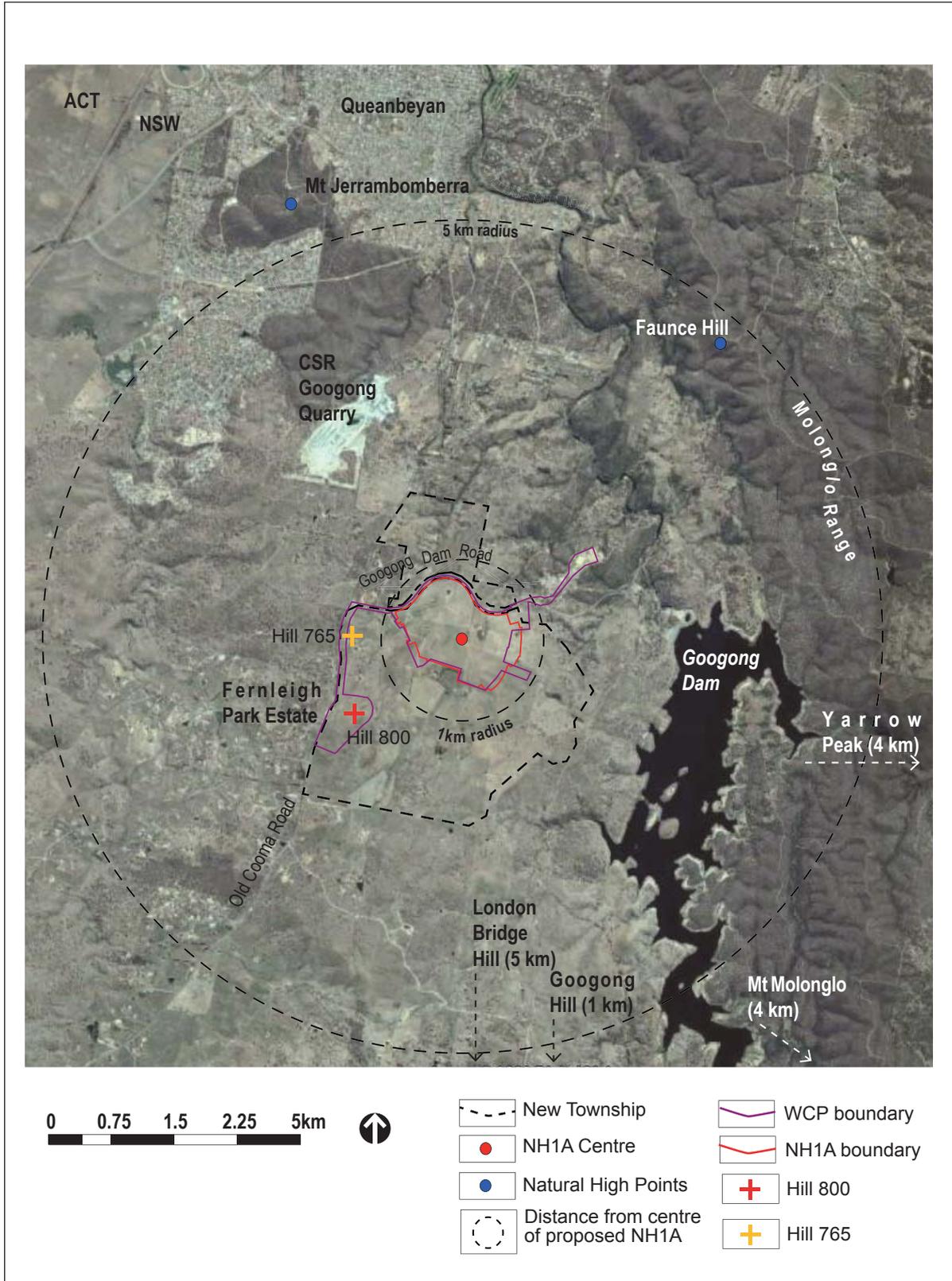


Fig 1.1

**Googong • visual impact assessment
LOCATION PLAN**

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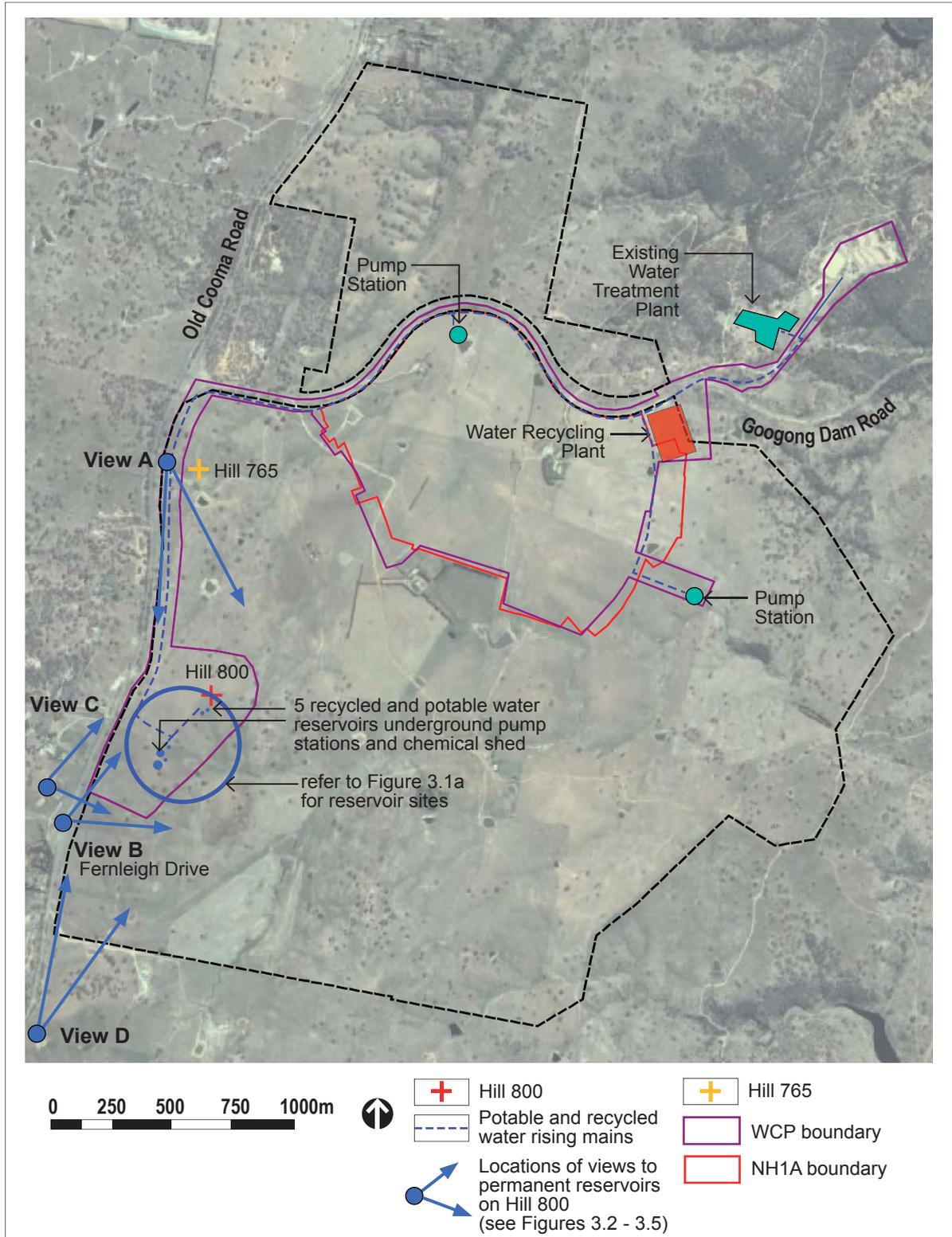


Fig 1.2

**Googong • visual impact assessment
WATER CYCLE PROJECT**

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2. DISTRICT AND LOCAL CONTEXT AND CHARACTER

2.1 DISTRICT LANDSCAPE CHARACTER

The proposed site of the WCP is located south of the town of Queanbeyan and immediately east of the Old Cooma Road (refer Figure 1.1). The landscape of the area is diverse in its topography; the mountain ranges and foothills of the Molonglo Range are strong visual backdrops to the north, east and south of the site, lying above the more expansive and flatter areas of farmland valleys that are interspersed with narrow gullies of native vegetation.

While the large town of Queanbeyan is not visible from the site itself there are a range of industrial land uses in the district that are very evident from the principal north/south arterial road, being Old Cooma Road, which runs immediately to the west of the site. For the most part the Queanbeyan River to the east of the site is not generally visible.

A large stone quarry owned by CSR lies one kilometre north of the site and the Googong Dam and associated infrastructure is visible from elevated viewing points along Old Cooma Road and Googong Dam Road to the east of the site. Googong Dam is signposted as a tourist attraction in Queanbeyan town and at the junction of Old Cooma Road and Googong Road.

The vegetation of the district ranges from heavily timbered slopes and gullies to open, expansive valleys of pastureland, in places punctuated by single large native trees, groups of trees or stands of planted windbreaks.

Being mostly rural residential in nature, residential built form in the immediate district is scattered and generally visually recessive in the landscape, often rendered most evident by associated windbreak plantings or groups of exotic tree species in the immediate vicinity of the residences.

2.2 LOCAL LANDSCAPE CHARACTER AND VISUAL ACCESSIBILITY

The site of the WCP is located in the wider Queanbeyan River valley. The landscape of the site and immediate locality is dominated by the dramatic backdrop of various hill ranges including the Molonglo Range and Yarrow Peak to the east, Googong Hill and London Bridge Hill to the south and Faunce Hill to the north (refer Figure 1.1 and 2.1).

Key local views to the various parts of the WCP site are predominantly from Old Cooma Road and Googong Dam Road which crosses contours running east from Old Cooma Road through cuttings and embankments, intermittently revealing and obscuring views of the site and locality. Land immediately to the north and east of the site falls away sharply into the Queanbeyan River Valley below Googong Dam limiting any significant views to the site from this location.

Consequently, the site of the WCP components have moderate to high visual accessibility from a range of locations at all points of the compass. Figure 2.2a and 2.2b show the areas from which Hill 800, Hill 765 and the WRP will be visible. Areas from which the site is not visible occur when localised topography drops, thereby creating ridgelines that obscure views.

The wide, mostly unvegetated Hill 800 (which will be the site for the WCP reservoirs) to the southwest of the NH1A rises above the landscape and is evident in most views from the site, the Old Cooma Road which it adjoins, and the Googong Dam Road (see Photo 4, 8 and 9a).

While a small number of existing residences have views to the various elements of the WCP (refer Fig 2.4 Visual Receptor Locations), the highest numbers of receptors viewing the sites of the WCP are from the Old Cooma Road to the west of the site, which carries local traffic and tourist visitors to the area.

2.3 SITE CHARACTER AND VISUAL ACCESSIBILITY

The most obvious topographical feature within the site proposed for the WCP is Hill 800 (refer figure 2.1) to the south of the proposed NH1A and immediately east of Old Cooma Road. Hill 800 comprises of a ridgeline saddle between two higher peaks that is clearly visible from both foreground and middle distance from all points of the compass in the immediate locality.

The landscape of the Hill 800 consists of pastoral grasses on its slopes and a small number of single mature Eucalypt species on the lower slopes and at the base of the hill. The underlying rock outcrops widely on the surface of the crest of the hill and the hill is particularly visible from a 1 km length of Old Cooma Road to the west. This is the proposed site of an array of five permanent reservoirs and associated plant and chemical shed (refer Figure 3.1a).

Hill 765 will be the location of the interim reservoirs illustrated in Figure 3.1b. This hill is a small local rise in the land south of the Old Cooma Road and Googong Dam Road. Given its slightly elevated form and immediate proximity to Old Cooma Road it would be described as highly visually accessible. However, the intersection and Googong Dam Road are situated below an embankment.

The landscape of the proposed WRP is primarily sloping ground in the form of a broad gully running southwest from Googong Dam Road. Occasional mature or dead Eucalypts stand as individuals in the gully. By virtue of this topography and aspect this area is not generally visible from Googong Dam Road or most of the key receptor locations for WCP.

The locations and alignments of the proposed major pipework for the WCP include the eastern nature strip of Old Cooma Road, south of the Googong Dam Road junction, which is currently vegetated with rough grasses and small groups of Eucalypts, the northern section of pipework to the proposed WRP follows the alignment of the Googong Dam Road and from there to the existing Water Treatment Plant across an exposed and largely unvegetated ridgeline.

2.4 BUILT FORM AND INFRASTRUCTURE

The most visible built form within the immediate vicinity is associated with Googong Dam, namely the dam wall itself, access roads and visitor centre, operational buildings and associated plant and machinery, as also the existing Water Treatment Plant. The three existing residences within the NH1A site are generally of a low scale.

2.5 VISUAL LANDMARKS AND DETRACTORS

In the locality of the site the principal visual landmarks that make positive contributions to the rural landscape include:

- The wooded hills and mountain backdrops.
- The water body of Googong Dam viewed at distance.
- Open agricultural landscapes in the river valley.
- Deep gullies to the north of the site.
- Groups of roadside trees and individual specimens on Old Cooma Road.
- Hill 800 and slopes.

Visual detractors in the rural landscape include the following:

- Some existing buildings within the locality such as the Water Treatment Plant and the Dam Visitor Centre and maintenance facility.
- Powerlines across the locality.
- Unformed eroded road edges on Old Cooma Road and Googong Dam Road.
- Unvegetated and eroded cuttings and embankments on Googong Dam Road.
- Some over-grazed paddocks with minimal grass cover and some neglected paddocks affected by agricultural weeds, mostly north of the Googong Dam Road site.

2.6 PUBLIC ACCESS

For the most part public access to the site and locality is confined to Old Cooma Road and Googong Dam Road. The land adjoining Googong Dam provides visitor facilities, a lookout across the Dam and associated valley walks, although none of these, with the exception of limited views of the WRP fall within the immediate visual catchment of the WCP.

2.7 LANDSCAPE CONDITION

While much of the original natural vegetation of the valley has been removed by agricultural land uses, the landscape of the site itself is in generally sound condition with productive land appearing well cared for and the vegetated natural vegetation of the hills and ranges surrounding the site adding significant visual appeal to the scene. Some weed vegetation in farmland and on roadsides is evident in places and some of the farmland creeks are devoid of associated vegetation.

2.8 VISUAL SENSITIVITY

Based on the above descriptions of the site's character and its visual accessibility in the locality the following is a categorisation of the visual sensitivity of the key locations where water infrastructure is proposed for the WCP (see also Fig 2.3):

High Sensitivity

- Hill 800, site of proposed location for water reservoirs: due to the elevated landform with wide visual catchment across the locality and open grassland landscape.

Moderate to High Sensitivity

- The site of the proposed WRP.
- Hill 765, the site of the proposed interim reservoirs.

Moderate Sensitivity

- All pipework routes along Old Cooma Road, Googong Road and the ridgeline to the exiting Water Treatment Plant.

Moderate to Low Sensitivity

- Not applicable.

Low Sensitivity

- Not applicable.
-

2.9 KEY VISUAL RECEPTORS AND PHOTOGRAPHS

The location of the key visual receptors for the permanent and temporary works as well as relevant photo locations are illustrated in Figures 2.4, 2.5a and 2.5b. In this locality the principle visual receptors are:

- Occupants of existing residences or associated gardens or farmland.
- Users of local roads, be they members of the local community, commercial vehicle drivers or tourists.

The specific views of the permanent reservoirs used for the creation of the photomontages are located in Figure 1.2 and shown in views A, B, C and D in Section 5.

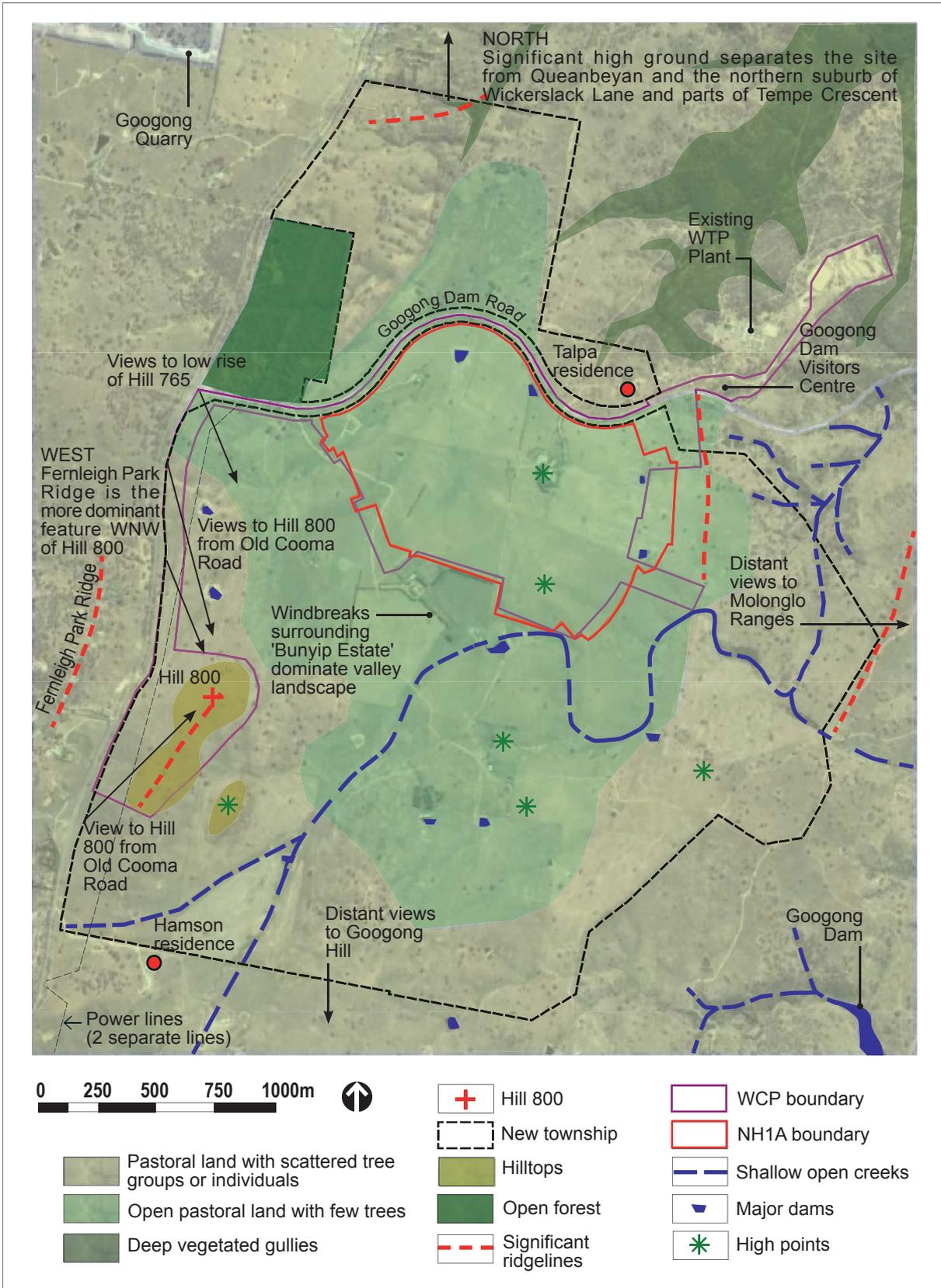


Fig 2.1

**Googong • visual impact assessment
LANDSCAPE CHARACTER**

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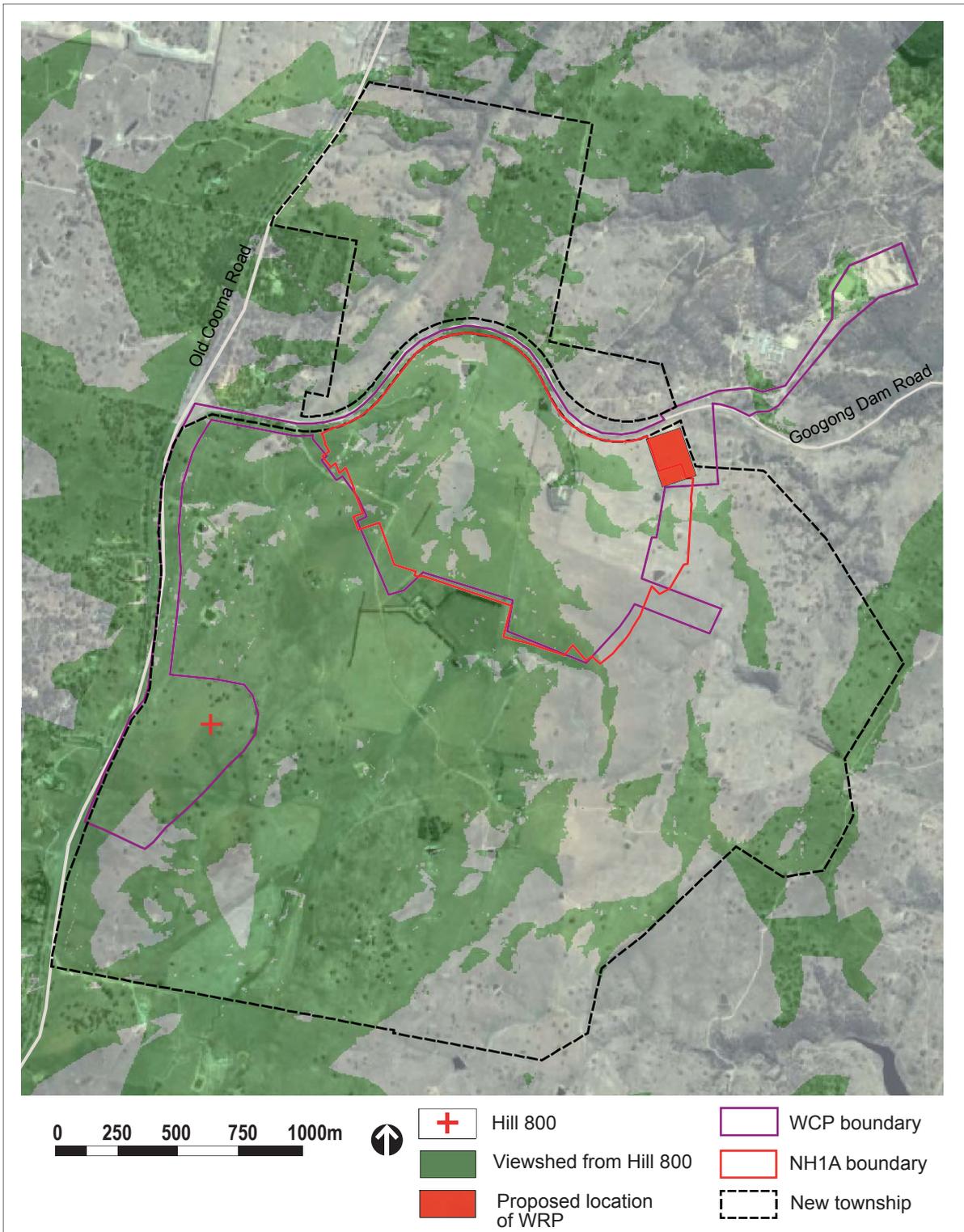


Fig 2.2a

**Googong • visual impact assessment
LOCAL VISUAL CATCHMENT - WCP**

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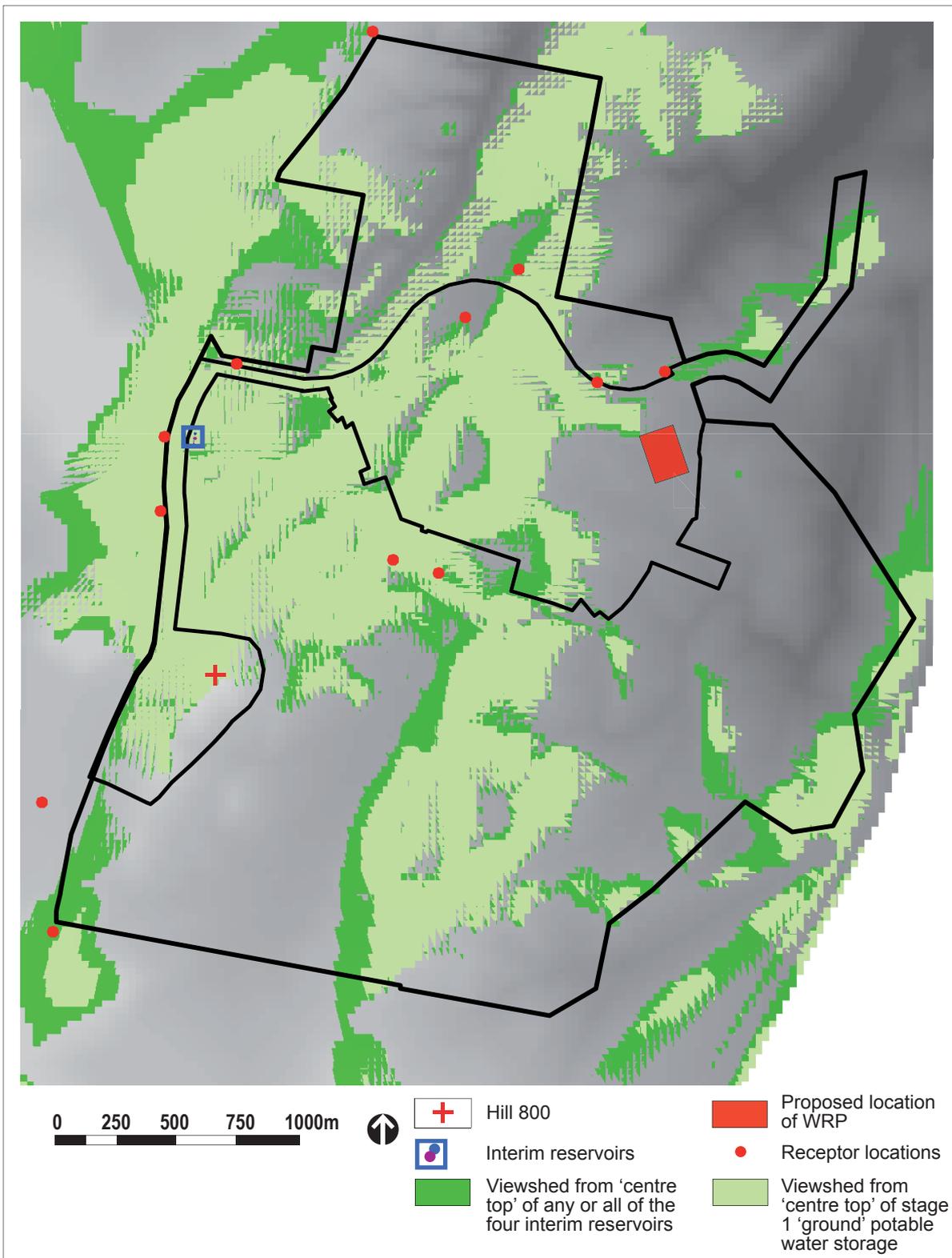


Fig 2.2b

**Goongong • visual impact assessment
LOCAL VISUAL CATCHMENT - WCP**

NS 1113

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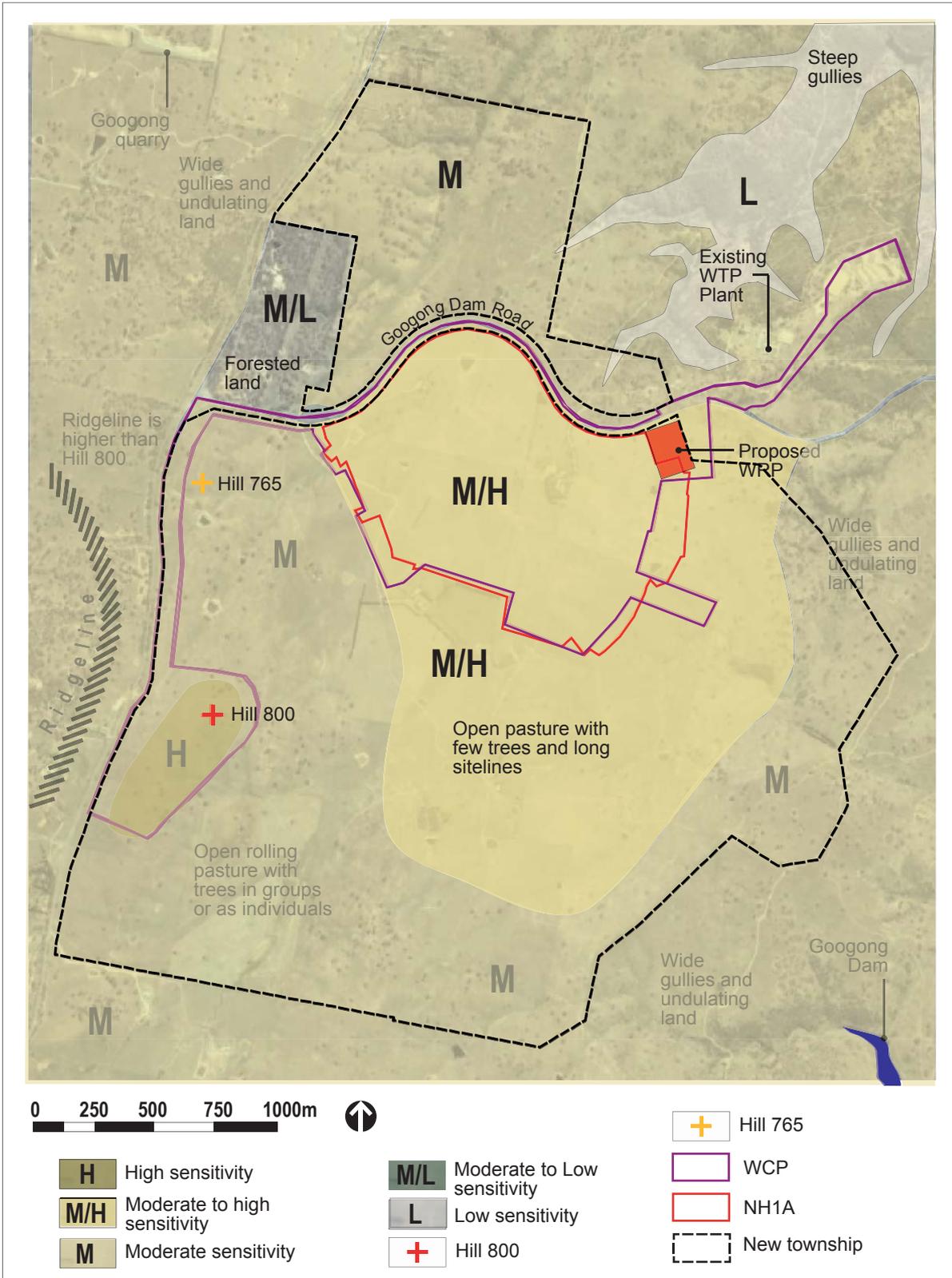


Fig 2.3

**Googong • visual impact assessment
SCENIC SENSITIVITY**

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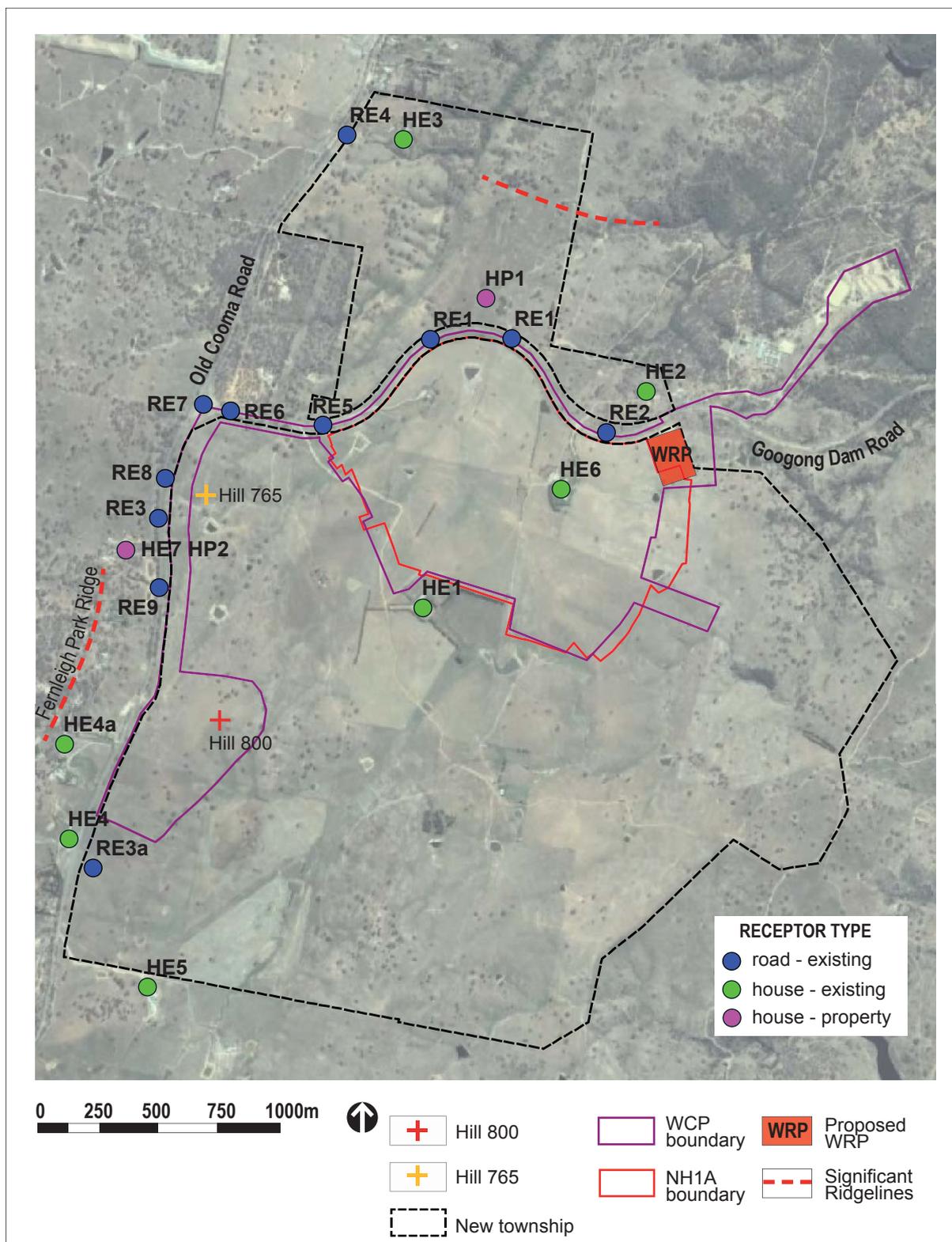


Fig 2.4

Googong • visual impact assessment
VISUAL RECEPTORS, WCP AND NH1A

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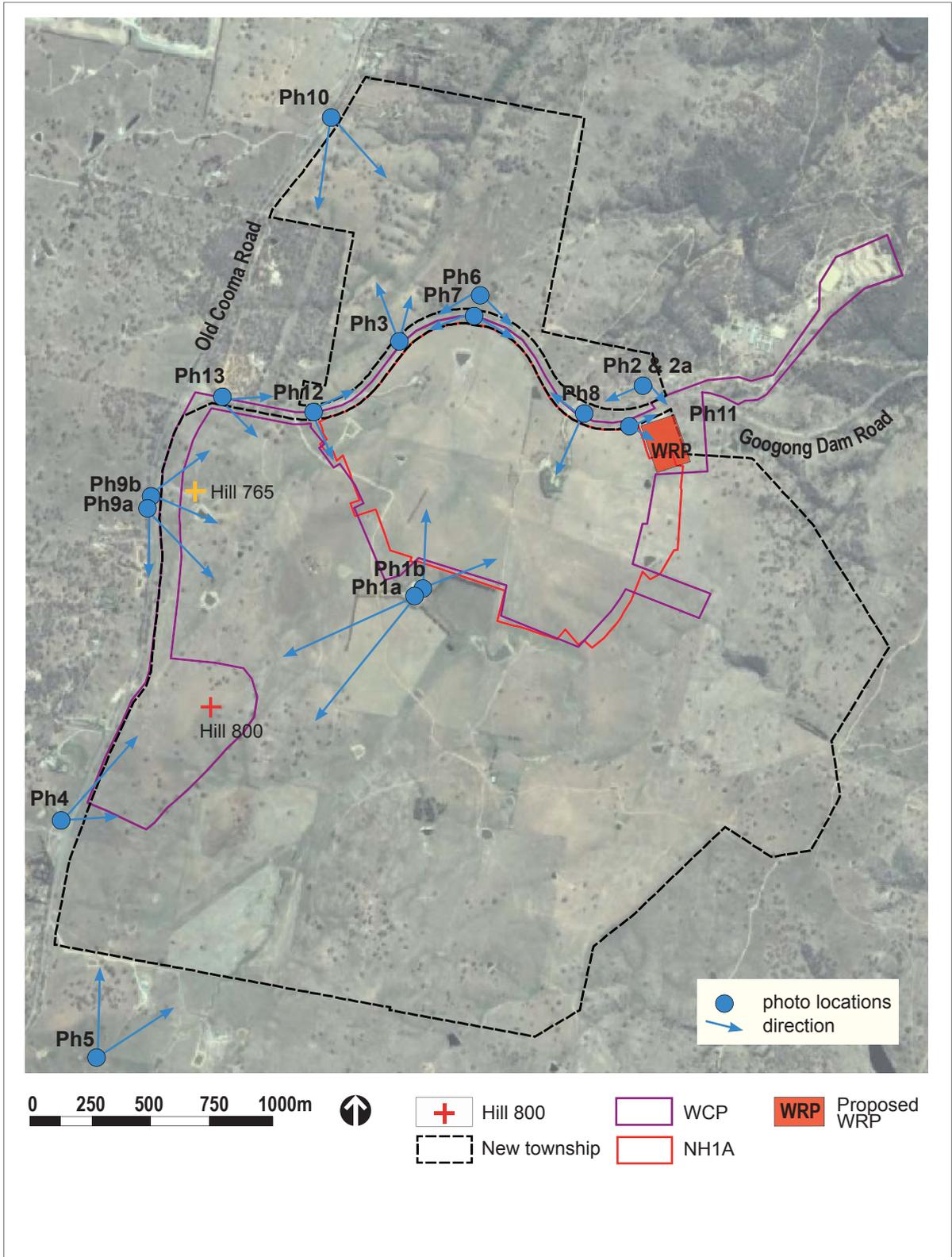


Fig 2.5a

Googong • visual impact assessment
PHOTO LOCATIONS, LOOKING AT HILL 800

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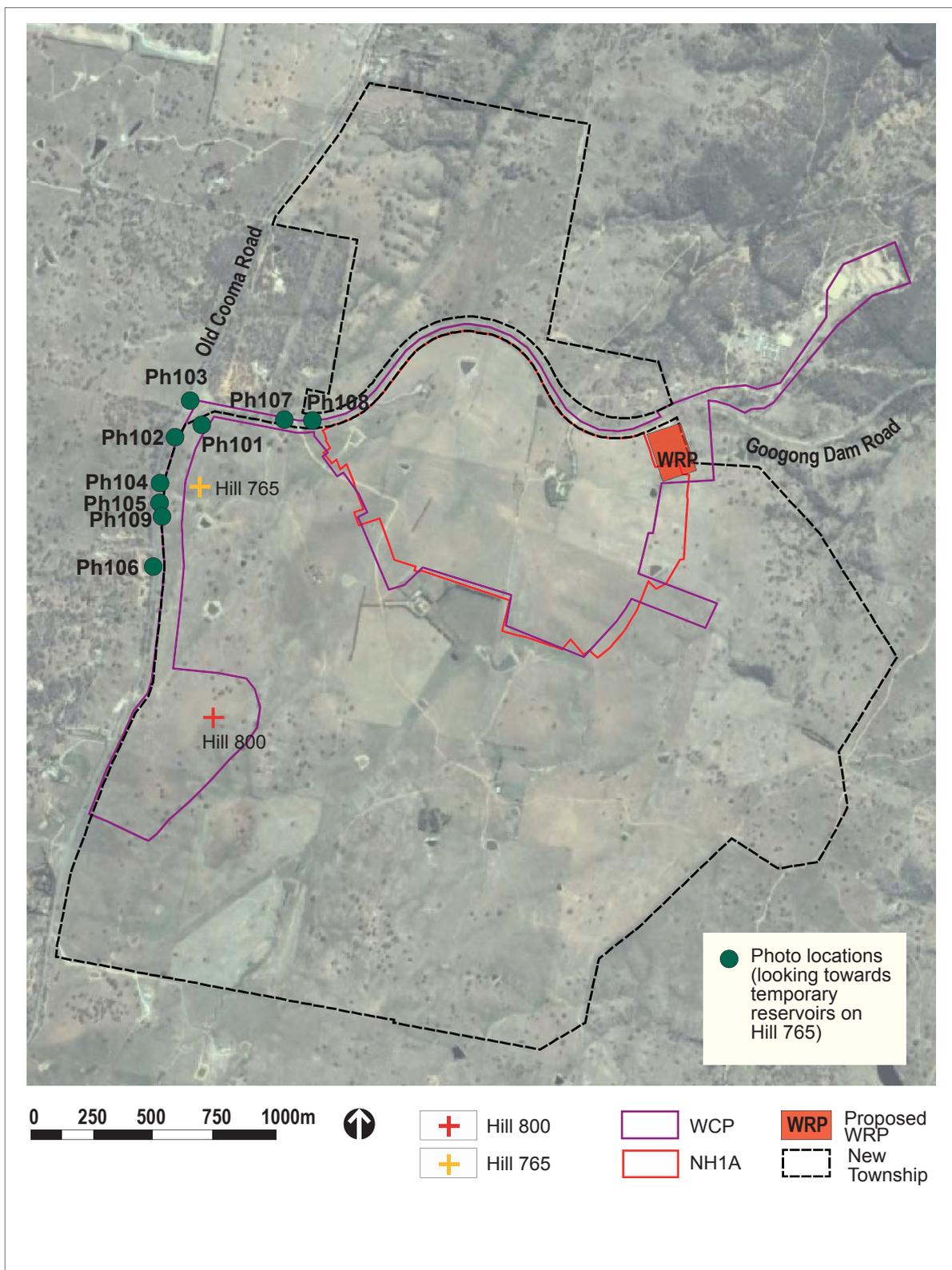


Fig 2.5b

**Googong • visual impact assessment
PHOTO LOCATIONS, LOOKING AT HILL 765**

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Photo 1b - View North to development from the Bunyip Estate boundary.



Photo 2a - View to WRP site from Talpa residence. Most of the WRP building structure, with exception of the top of the stack, will be hidden by the local topography.



Photo 1a - View of Hill 800, obscured by trees along the Bunyip Estate southern boundary.



Reference Tree →

Photo 2 - Tree used as approximate height and position reference for WRP stack, viewed from Talpa boundary fence.



Residence →

Photo 3 - Old Cooma Road North residences from Googong Dam Road.



Hill 800 →

Photo 4 - View from Old Cooma Road South Residence shows clear and close views of Hill 800.

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	SITE PHOTOGRAPHS		12.08.10



Photo 5 - View from South of Hamson property towards eastern sector of NH1A.

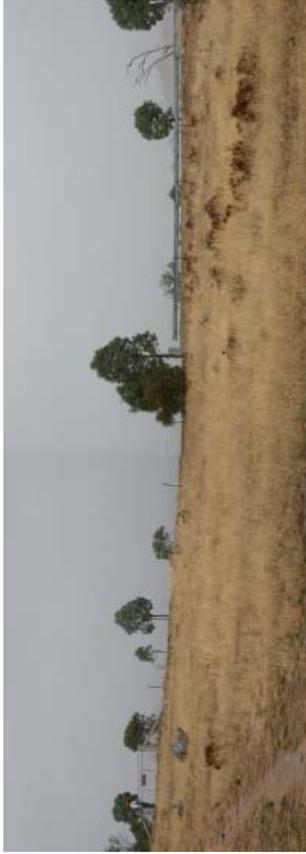


Photo 6 - View South from Cooke property - Hill 800 not visible.



Photo 7 - View from top of cutting above Cooke property, looking toward development. The view is blocked at road level by the southern side of the cutting seen in the foreground.

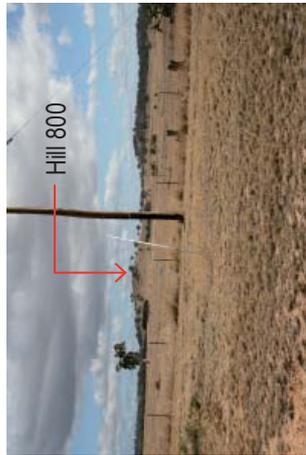


Photo 8 - Clear view from top of embankment west of Talpa towards Hill 800. View may be obstructed by the proposed NH1A development.



Photo 9a - View from Old Cooma Road South, towards Hill 800.

