Vegetation Management Plan for Blue Gum High Forest Habitat

A guide to the rehabilitation and reconstruction of a native vegetation community at *35 Water Street Wahroonga*

Prepared for
Murlan Consulting Pty Ltd &
Waterbrook at Wahroonga Pty Ltd

27 February 2009

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Executive Summary

UBM Ecological Consultants Pty Ltd has been retained by Murlan Consulting Pty Ltd on behalf of their clients ***Waterbrook at Wahroonga Pty Ltd*** to prepare a Vegetation Management Plan for an area of Blue Gum High Forest located within the former John Williams Respite Care Centre at Wahroonga, in Ku-ring-gai Local Government Area.

The Wahroonga Property –originally known as **Rippon Grange** - is located at 35 Water Street, zoned Special Uses 5(a) Hospital. The Property is some 2.13 hectares in size, and comprises Lot 1 DP 375262 with frontages to Water Street and Young Street.

The Proponents *Waterbrook* will shortly be lodging an **Environmental Impact Assessment** with the NSW Department of Planning for approval to develop a **Private Hospital** on Lot 1 DP 375262, which forms part of the former Respite Care Centre. The Proposal will provide hospital facilities for a variety of patients who require professional health services.

The Proposal includes the adaptive re-use of heritage-significant buildings, refurbishment of Rippon Grange, and the restoration of significant landscape elements within the heritage-listed Property. It will also preserve and rehabilitate existing areas of Blue Gum High Forest, while reconstructing significant additional areas of this critically endangered vegetation community elsewhere on the Property.

Some 6,350 sq metres (0.64 ha) of the Subject Property is occupied by a simplified form of **Blue Gum High Forest** (Smith & Smith 2006), covering about 30% of the site. As the vegetation is mainly comprised of mature canopy trees over exotic garden beds, lawns and weed thickets the remnant community is hereafter described as **Blue Gum High Forest Habitat** to distinguish it from a structurally intact and floristically diverse stand of this community – as described in the Final Determination for Blue Gum High Forest in the Sydney Basin Bioregion.

Under the Proposal, 6,234 sq metres or 98.2% of the total area of BGHF Habitat mapped by Smith & Smith (2006) will be retained and rehabilitated. Further, as compensatory offsets, some 1,770 sq metres (0.177 hectares) of BGHF Habitat will be reconstructed in order to extend and enhance existing stands of the community (Taylor Brammer 2009). Based on these figures the net gain in BGHF Habitat will be 1,654 sq metres, representing an increase of some 26.04%.

A **Species Impact Statement** has been prepared in support of the proposed Hospital development (Cumberland Ecology February 2009), while the Vegetation Management Plan (this report) has been prepared in accordance with the recommendation of the SIS to provide a management plan for the remnant BGHF Ecological Community.

The **Vegetation Management Plan** provides for the rehabilitation of existing areas of BGHF Habitat via a long-term bush regeneration program, while a simplified form of BGHF Habitat will be reconstructed via an indigenous planting program in those areas where currently only native canopy trees occur. The primary aim of the VMP is to identify appropriate management strategies and actions for the rehabilitation and future management of the BGHF Habitat occurring within the Subject Property.

The VMP also provides guidelines for the reconstruction of additional areas of BGHF Habitat, principally in those areas retaining only canopy trees characteristic of the BGHF Ecological Community (e.g. Sydney Blue Gums, Blackbutt and others), as listed in the Final Determination of the Scientific Committee for Blue Gum High Forest in the Sydney Basin Bioregion.

Further, as the Proposal incorporates buildings and landscape elements of heritage value, the VMP has been designed to accommodate the retention of a number of early garden plantings, principally those trees listed as 'significant' – as identified in the *Arboricultural Impact Assessment Report* (Tree Wise Men February 2009).

While the VMP recommends the retention of a number of non-invasive culturally significant plantings within areas of BGHF Habitat, this Plan does not attempt to address the refurbishment of Rippon Grange's heritage gardens.

The proposed rehabilitation and restoration of BGHF Habitat in the Subject Property at Wahroonga will be undertaken over a period of at least 10 years, and will require both firm commitment and a significant level of funding over this period. The remnant BGHF Habitat on the Property at this time comprises predominantly native canopy trees over an introduced understorey which has been comprehensively invaded by weeds, which means that virtually all of the understorey (i.e. small trees, shrub and the ground cover strata) will be to be either regenerated, or reconstructed via an indigenous planting program.

While the proposed rehabilitation and reconstruction of BGHF Habitat is an ambitious task, it is considered that with firm long-term commitment from the landowners Waterbrook and with careful planning and management in accordance with the recommendations of this VMP, the ecological objectives of this Plan will be realised.

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Certification

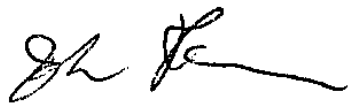
I, Judith Rawling Managing Director of UBM Ecological Consultants Pty Ltd hereby state that the **Vegetation Management Plan for the Rehabilitation and Reconstruction of Blue Gum High Forest Habitat at 35 Water Street Wahroonga** has been prepared in consideration of the NSW Department of Water & Energy's *Urban Bushland Management Guidelines* and their publication entitled '*How to Prepare a Vegetation Management Plan Version 7*'.

Reference has also been made to Ku-ring-gai Council's *Biodiversity Strategy*, to the draft *Best Practice Guidelines for the Management of threatened Blue Gum High Forest in St Ives* (DECC 2007), *and to Recovering Bushland on the Cumberland Plain* (DEC 2005).

`The UBM Ecological Consultants project team charged with preparing the Vegetation Management Plan were:

- Judith Rawling (BA,DipEd,DipEnvStud,MEnvSt)
- Belinda Pellow (Dip. App. SC. Ag.)
- Kylie Reed (B.Env.Sc.[Hons])
- Gabriel Wardenburg (BEnvMgt)

Special thanks are due to Ben MacGibbon (Murlan Consulting); David Earp (Tanner Architects); Peter Castor and Alexis Anderson (Tree Wise Men); Matthew Taylor (Taylor Brammer; and David Robinson and Joanne Ironside (Cumberland Ecology). Thanks are also due to David Thomas (Consultant Botanist) for specialist advice on planting densities and species selection.



Judith Rawling

Managing Director UBM Ecological Consultants, Principal UBM Projects

Member AIB, MESA, MEIANZ, Vice-president ECA (NSW), Member Noxious Weeds Advisory Committee to the Minister Department of Primary Industries

27th February 2009

1 INTRODUCTION

1.1 BACKGROUND INFORMATION

UBM Ecological Consultants Pty Ltd[1] (‘**UBM’**) has been retained by Murlan Consulting Pty Ltd on behalf of their clients *Waterbrook @ Wahroonga Pty Ltd* (hereafter ‘***Waterbrook***’) to prepare a Vegetation Management Plan for an area of Blue Gum High Forest located within the former John Williams Respite Care Centre at Wahroonga, in Ku-ring-gai Local Government Area.

The Wahroonga Property –originally known as **Rippon Grange** - is located at 35 Water Street, zoned Special Uses 5(a) Hospital. The Property is 2.13 hectares in size, and comprises Lot 1 DP 726091 with frontages to Water Street and Young Street.

The Proponents *Waterbrook* will shortly be lodging an Environmental Assessment Report to the NSW Department of Planning for approval to develop a **Private Hospital** on Lot 1 DP 375262, which previously operated as part of the former John Williams Respite Care Centre. The **Proposal** will provide hospital facilities for a variety of patients who require professional health services.

The Proposal includes the adaptive re-use of heritage-significant buildings, refurbishment of Rippon Grange, and the restoration of significant landscape elements within the heritage-listed Property. It will also preserve and rehabilitate existing areas of the Blue Gum High Forest Ecological Community, while reconstructing significant additional areas of Blue Gum High Forest Habitat elsewhere on the Property.

A Species Impact Statement (‘**SIS’**) has been prepared in support of the proposed Hospital development (Cumberland Ecology March 2009), while the Vegetation Management Plan (this report) has been prepared in accordance with the recommendation of the SIS to provide a management plan for the remnant BGHF Ecological Community.

The subject of this Vegetation Management Plan is the area proposed for development as a Hospital on Lot 1 DP 375262, which is hereafter described as the ‘**Subject Property’.**

The Development Proposal is detailed in Section 1.4 of this Report.

The regional positioning of the Subject Property is shown on Figure 1.1.

[1] Formerly trading as Urban Bushland Management Consultants Pty Ltd (‘**UBMC**’)

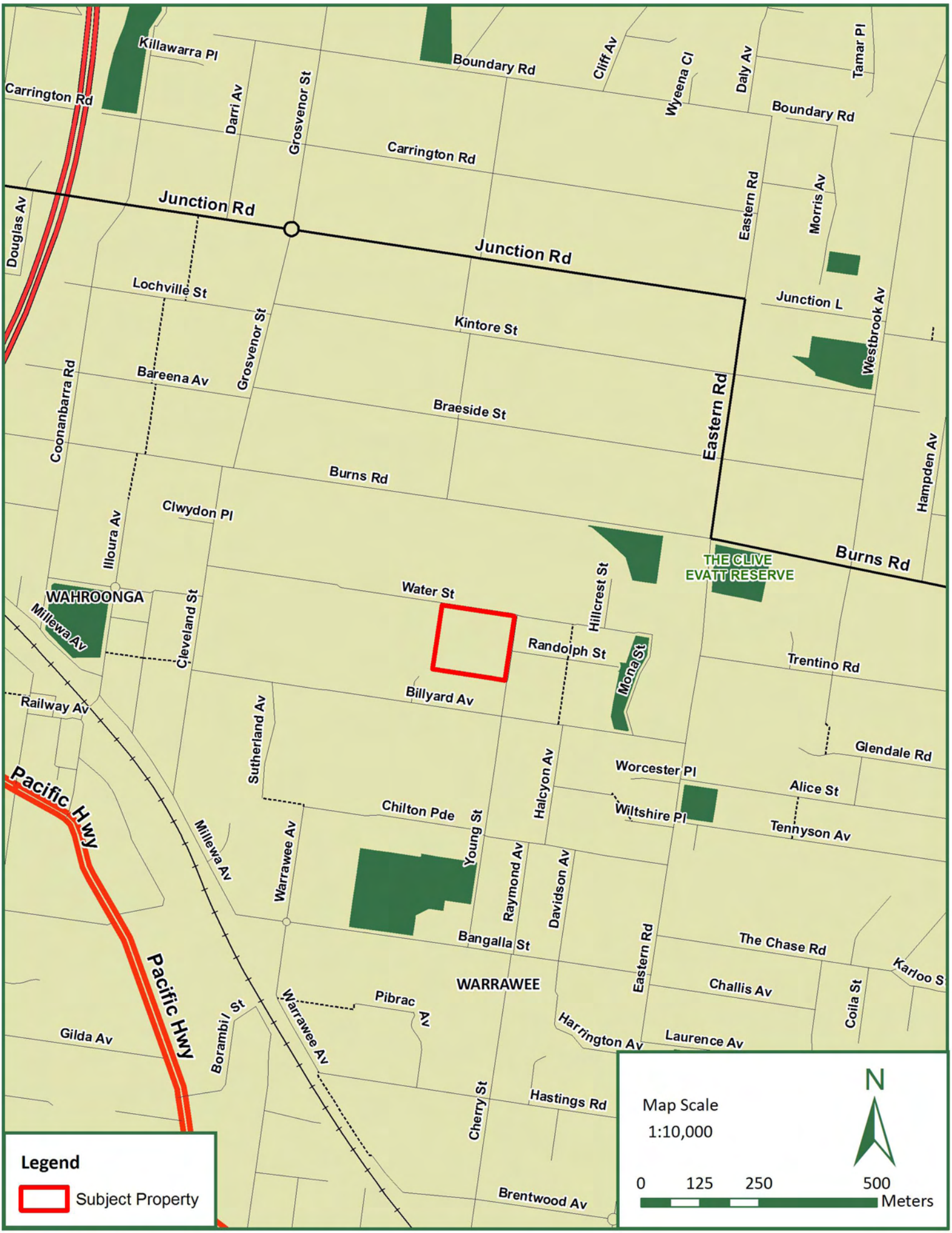


Figure 1.1: Regional Positioning of the Subject Property

1.2 SITE HISTORY

The Subject Property Rippon Grange was developed in the late 19th Century, soon after the railway line was extended to Sydney's Upper North Shore (c. 1890). The main building on the Property is **Rippon Grange**, which was constructed as a two (2) storey residential dwelling in 1898 in an architectural style known as the 'Arts and Craft Movement'. For many years Rippon Grange was used as a private residence; and its extensive grounds were developed as a series of formal gardens; incorporating recreational and service areas, and an arboretum containing many rare and unusual specimen trees imported from other parts of the world.

Rippon Grange, with a number of significant outbuildings and its heritage gardens, has been classified by the National Trust of Australia (NSW), and it is also listed as an 'Indicative Place' on the Australian Heritage Commission's Register of the National Estate.

In the early 1950s, the Property was donated to the State Government for use as a Hospital, and it continued to serve this function - latterly as the **John Williams Respite Care Centre** - until 2002 when it was declared 'surplus to needs'. During this period, some parts of the gardens were generally neglected, with invasive garden plants and other weeds establishing in the remnant stand of Blue Gum High Forest which had been retained along the boundaries of Water and Young Streets.

In 2005, the State Property Unit of the NSW Department of Commerce commissioned a preliminary investigation of ecological issues and an opportunities and constraints study (UBMC February 2005), which identified the presence of ~2,600 sq metres (0.26 ha) of highly simplified Blue Gum High Forest on part of the Property.

On June 30 2005, the Subject Property was acquired by the Proponents *Waterbrook* with the intention of redeveloping the Property under *State Environmental Planning Policy (Senior Living) 2004*. Subsequent more detailed ecological surveys carried out on behalf of *Waterbrook* (UBMC February 2006) confirmed the findings of the earlier ecological investigations.

At that time, *Blue Gum High Forest in the Sydney Basin Bioregion* (**hereafter 'BGHF'**) was listed under the Schedules of the NSW *Threatened Species Conservation Act 1995* ('***TSC Act'***) as an 'endangered ecological community', and as 'threatened' under the Commonwealth *Environment Protection of Biodiversity Conservation Act 1999* ('***EPBC Act'***).

Since the acquisition of the Subject Property by *Waterbrook* in mid-2005, the ecological status of the BGHF has been reviewed by the Scientific Committee established under the *TSC Act*; resulting in this ecological community now being declared to be 'critically endangered' (Final Determination 20 April 2007). Of most importance, the criteria for identifying the BGHF Ecological Community were also amended, thus allowing for a larger portion of the Subject Property to be reclassified as BGHF.

As the result of these changes to the legislation, Ku-ring-gai Council and the National Parks & Wildlife Group of the Department of Environment & Climate Change (hereafter '**DECC**') required the Proponents to review and reassess the extent of BGHF occurring at 35 Water Street, Wahroonga.

Subsequent investigations by Smith & Smith (December 2006) revised the area of BGHF extant on the Subject Property from the original 2,600 sq metres (0.26 ha) mapped by UBMC (2006) to 6,350 sq metres (0.64 ha). This latter area was established by identifying each of the trees listed in the Final Determination and drawing a line around the extent of each tree canopy. Subsequently all areas retaining large native canopy trees were joined to form an area of BGHF some 3,750 sq metres greater than the area mapped in 2006.

Dr Peter Smith was subsequently appointed to the Land & Environment Court as an expert witness. The BGHF area mapped by Smith & Smith (2006) was defined as part of a Hearing in the NSW Land & Environment Court in June 2007 (No 11193 of 2006). The larger area of 6,350 sq metres of BGHF has been adopted by Cumberland Ecology, the authors of the Species Impact Statement prepared for this application, and used as a base point for all subsequent reports and investigations, including this Vegetation Management Plan.

Note: areas within the Subject Property supporting remnant vegetation characteristic of the BGHF Ecological Community are hereafter described as **'BGHF Habitat'** in order to distinguish this type of vegetation from a fully functional and BGHF 'ecological community', which is typically floristically diverse and structurally intact (see Final Determination, Appendix 1).

1.3 CHRONOLOGY OF DEVELOPMENT PROPOSALS

On June 30 2005, the Subject Property was acquired by the Proponents *Waterbrook* with the intention of redeveloping the Property under *State Environmental Planning Policy (Senior Living) 2004*.

In August 2006 a Development Application ('**the DA**') was submitted to Ku-ring-gai Council (hereafter '**Council'**) for a 78-unit self care retirement resort development. This application was rejected by Council and it was subsequently rejected by the NSW Land & Environment Court (May 2007). The Court's decision was appealed and was dismissed in October 2007.

In December 2007 a revised Development Application was submitted for a 61 unit version of the self care retirement resort, which was again rejected by Council in June 2008. This application included a Species Impact Statement prepared by Cumberland Ecology (December 2007), a Vegetation Management Plan prepared by UBM Ecological Consultants (October 2007), and other specialist reports.

March 2009 – An Environmental Assessment Report is shortly to be lodged with the NSW Department of Planning for a Hospital (under Section 3A of the *Environmental Planning & Assessment Act – **'EP&A Act'**).* This Report will include a new Species Impact Statement, a revised Vegetation Management Plan (this Report), and other specialist reports.

1.4 CURRENT DEVELOPMENT PROPOSAL

1.4.1 Description

The Proponents *Waterbrook* are shortly to lodge an Environmental Assessment Report to the NSW Department of Planning for the development of land located on Lot 1 DP 375262, 35 Water Street Wahroonga for the purposes of a Hospital. The proposed Hospital is deemed to be a 'major project' for the purposes of *State Environmental Planning Policy (Major Projects) 2005* and Part 3A of the *EP&A Act.*

The Proposal comprises a Hospital, consisting of 137 rooms which will accommodate patients who require professional health services.

The Proposal involves the demolition of non-heritage-significant existing buildings, removal of various non-heritage-significant landscape elements, adaptive re-use (for hospital and related purposes) of the heritage-significant buildings, restoration of heritage-significant landscapes, preparatory excavation and bulk earthworks, and the protection and restoration of almost all of the BGHF Ecological Community on the site.

The proposed Hospital will comprise two (2) new interconnecting buildings to be built across the south-western and south-eastern parts of the Property, and in central area south of Rippon Grange.

The West Hospital Wing will be located in the south-western portion of the Subject Property, where a schoolhouse currently exist, and will extend southwards. The Main Hospital Wing will be located south of Rippon Grange and north of the Stables, running in an east-west direction. It will be positioned in part on the site of the original garage and pool house.

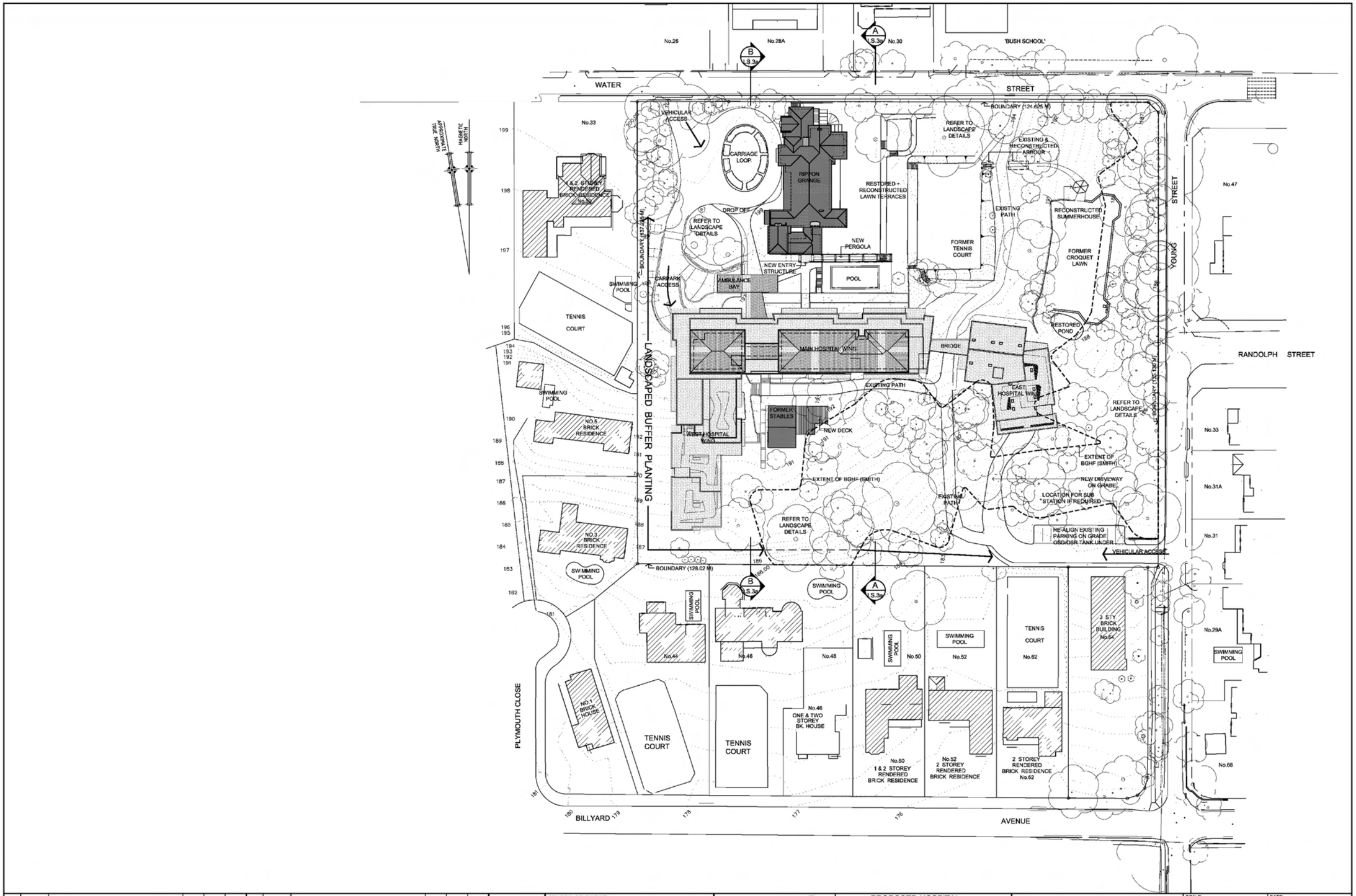
The East Hospital Wing will be located in the south-eastern portion of the Property, adjacent to a stand of BGHF trees located along the boundary of Young Street. At 116 sq metres, the construction of the East Wing and driveway will require the removal of a small area of BGHF Habitat (~1.8%).

Each of these new buildings will be located so as to ensure minimal impact on the Blue Gum High Forest and historic Rippon Grange and its curtilage. As part of the Proposal, Rippon Grange will be renovated to its former grand state, and important heritage landscapes will be restored.

This Proposal has been developed in accordance with:

- *Environmental Planning & Assessment Act 1979*, Part 3A (amended 1 August 2005) and its accompanying Regulations and Guidelines;
- State Environmental Planning Policy (Major Projects) 2005; and
- Sydney Regional Environmental Plan #20 – Hawkesbury Nepean River ('**SREP-20**').

The Subject Property Lot 1 DP 375262 is 21,320 sq metres (~2.13 ha) in size. Of this area, it is proposed to utilise approximately 2,887 sq metres (0.288 hectares) or 13.5% of the total area of Lot 1 for new works within the proposed Hospital development. The proposed Development Footprint is shown in Figure 1.2.



REV.	DATE.	DOCUMENT STATUS/AMENDMENT:	DRAWN.	VERIFIED	AUTH.
p10	02.02.2009	draft ISSUE FOR PROJECT APPLICATION	AW/DE	DE	CMJ
p9	29.01.2009	draft ISSUE FOR PROJECT APPLICATION	AW/DE	DE	CMJ

NORTH

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WATERBROOK HEALTH
MURLAN

PROJECT: PROPOSED HOSPITAL
35 WATER ST WAHROONGA
(LOT 1 DP 375262)

CLIENT: WATERBROOK HEALTH

DRAWING: SITE & ROOF PLAN

DO NOT SCALE DRAWINGS. VERIFY ALL DIMENSIONS ON SITE. NOTIFY ARCHITECT OF ALL DISCREPANCIES.

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REV:	DRWG No.:		
P10	AR.DA.002		

Figure 1.2: Development Footprint for Private Hospital with BGHF Habitat Illustrated (Tanner Architects 2009)

1.5 MANAGEMENT OF ECOLOGICAL & NATURAL HERITAGE VALUES

An area of 6,350 sq metres (0.635 hectares) of BGHF Habitat has been mapped by Smith & Smith (2006) within the Subject Property. This area was calculated by Smith & Smith by drawing a line around the outside edge of the BGHF tree canopy; joining the canopy lines and then incorporating all land inside those canopy lines.

Under the Proposal, 6,234 sq metres or 98.2% of the total area of BGHF Habitat mapped by Smith & Smith (2006) will be retained and rehabilitated. Further, some 1,770 sq metres (0.177 hectares) of BGHF Habitat will be provided as '**compensatory offsets'**; and these areas will be planted in order to extend and enhance existing stands of the community (Taylor Brammer 2009). Based on these figures the net gain in BGHF Habitat will therefore be 1,654 sq metres or 26.04%.

The VMP provides for the rehabilitation of existing areas of BGHF Habitat via a long-term bush regeneration program, while a simplified form of BGHF Habitat will be reconstructed via an indigenous planting program in those areas where currently only native canopy trees occur.

The positive direct impacts of the Proposal as they relate to the ecological and natural heritage values of the Subject Property are:

- Restoration of the heritage gardens within the curtilage of historic Rippon Grange;
- Retention of historic and culturally significant trees and other plantings, including two (2) mature specimens of Magenta Lilly Pilly (*Syzygium paniculatum*) – a threatened species;
- Retention and management of the majority (76%) of existing canopy trees, including retention of 98.2% of existing characteristic BGHF species;
- Supplementary planting of BGHF species adjacent to areas of existing BGHF Habitat is also proposed to rationalise site boundaries and extend existing Habitat. These are described as 'compensatory offsets' and total 1770 sq metres (0.177 hectares)
- There will be no net loss of BGHF Habitat as the result of the Proposal The Total area of BGHF on Subject Property will be 8004 sq metres (0.8 hectares) – a gain of 1,654 sq metres or 26.04%

A Native Vegetation Balance Sheet has been prepared and is included in the VMP as Table 1.3 (overleaf). The proposed Development Footprint is shown on Figure 1.2 (Tanner Architects, February 2009).

35 Water St, Wahroonga
BGHF area impact comparison

		Proposed Hosptial Scheme			
		Sqm	Total Sqm	% of BGHF area retained	% of BGHF area removed
	Extent of Dr Smith 2007 mapped Blue Gum High Forest (BGHF) mapped area				
	Blue Gum High Forest (BGHF) Dr Smith mapped area		6350.0 sqm	**100.0%**	
	Total area of BGHF affected/ removed comprising of:-				
	A. Building footprint	-42.0 sqm		99.3%	0.7%
	B. On grade driveway	-74.0 sqm		98.2%	1.8%
		-116.0 sqm	**-116.0 sqm**	**98.2%**	**1.8%**
	Sub Total		**6234.0 sqm**		
	Area of landscape to be revegetated as BGHF		1770.0 sqm		
	Total area of BGHF area following removal and revegetation works		**8004.0 sqm**	126.0%	-27.9%
	Area of earlyworks planting (completed in 2006)		583.0 sqm		
	Site Boundary				

taylor brammer

project:
PROPOSED PRIVATE HOSPITAL
35 WATER STREET (LOT 1 DP 375262)

client
WATERBROOK AT WAHROONGA

scale: 1:1000@A4
date: 16.01.2009
job no: 05-167S

drawing no: **LV01**
revision: **G**

Figure 1.3: Native Vegetation Balance Sheet (Taylor Brammer January 2009)

1.5.1 Impact of the Proposal on Blue Gum High Forest Ecological Community

Within the Subject Property, some 6,350 sq metres (0.64 hectares) is occupied by a simplified form of BGHF Habitat (Smith & Smith 2006). 116 sq metres (0.012 hectares) of this Habitat will be removed to facilitate the construction of the East Wing and driveway, providing a residual area of BGHF Habitat of 6,234 sq metres (0.6234 hectares) (Taylor Brammer 2009). The total area of BGHF Habitat to be removed comprises ~1.8 % of the total area of BGHF Habitat on the Property.

In addition to those areas to be preserved, rehabilitated as BGHF Habitat, seven (7) areas totalling approximately 1,770 sq metres in size and located adjacent to existing stands of BGHF Habitat have been identified as 'compensatory offsets', giving a total area of 8,004 sq metres (~8 hectares) of BGHF Habitat on the Property (see Table 1.1 and Native Vegetation Balance Sheet in Figure 1.3).

Table 1.1: Total Area of Building Footprint within the Mapped Area of BGHF Habitat Identified by Smith & Smith (2006)

FOOTPRINT ELEMENT	Area m^2	Cumulative changes	%age	Cumulative total
1. BGHF AREA (Smith 2006)	6,350 m^2	-	100%	6,350 m^2
A: BUILDING FOOTPRINT*	-42 m^2	-42 m^2	-0.7%	6,308 m^2
D: ON GRADE DRIVEWAY*	-74 m^2	-116m^2	-1.8%	6,234 m^2
H: ADDITIONAL AREAS OF LANDSCAPE TO BE RE-VEGETATED AS BGHF – (TOTAL)*	1770 m^2	1,654m^2	26%	8,004 m^2

* (Taylor Brammer 2009)

1.5.2 Impact of the Proposal on Blue Gum High Forest Canopy Trees

An *Abroricultural Impact Assessment* for the proposed Private Hospital Development has been prepared by Tree Wise Men (March 2009).

Of the 310 trees[2] in the Subject Property (see Figure 1.4) nine (9) species are naturally occurring. Some are species characteristic and/or diagnostic of the BGHF Ecological Community *(*e.g. Sydney *Blue Gum Eucalyptus saligna,* Blackbutt *E. pilularis,* Grey Ironbark *E. paniculata* and Rough-barked Apple *Angophora floribunda*); and the remainder are either native trees commonly found in a range of local plant communities (e.g. Sydney Red Gum *Angophora costata*), horticultural introductions, or non-indigenous native plantings (e.g. Silky Oak *Grevillea robusta,* Lemon-scented Gum *Corymbia citriodora*).

While some BGHF trees are considered to be remnant[3] others have been planted in the grounds of the former John Williams Respite Care Centre. Large native canopy trees, particularly Sydney Blue

[2] Ku-ring-gai Council's Tree Preservation Order defines a tree as "having a height exceeding five (5) metres, or a canopy spread of 4.0 metres".

[3] Remnant being specimens that are not planted, and which occur naturally on the site – i.e. indigenous to the BGHF ecological community

Gums, have also been widely used as landscape features in the locality, occurring as street trees, in neighbourhood parks and in private gardens.

In their *Abroricultural Impact Assessment* (March 2009) Tree Wise Men identifY 126 trees located within the BGHF. Of these, 111 or 88% will be retained. Refer to Table 1.2 for details.

Table 1.2: Tree Retention and Removal within BGHF Mapped Areas

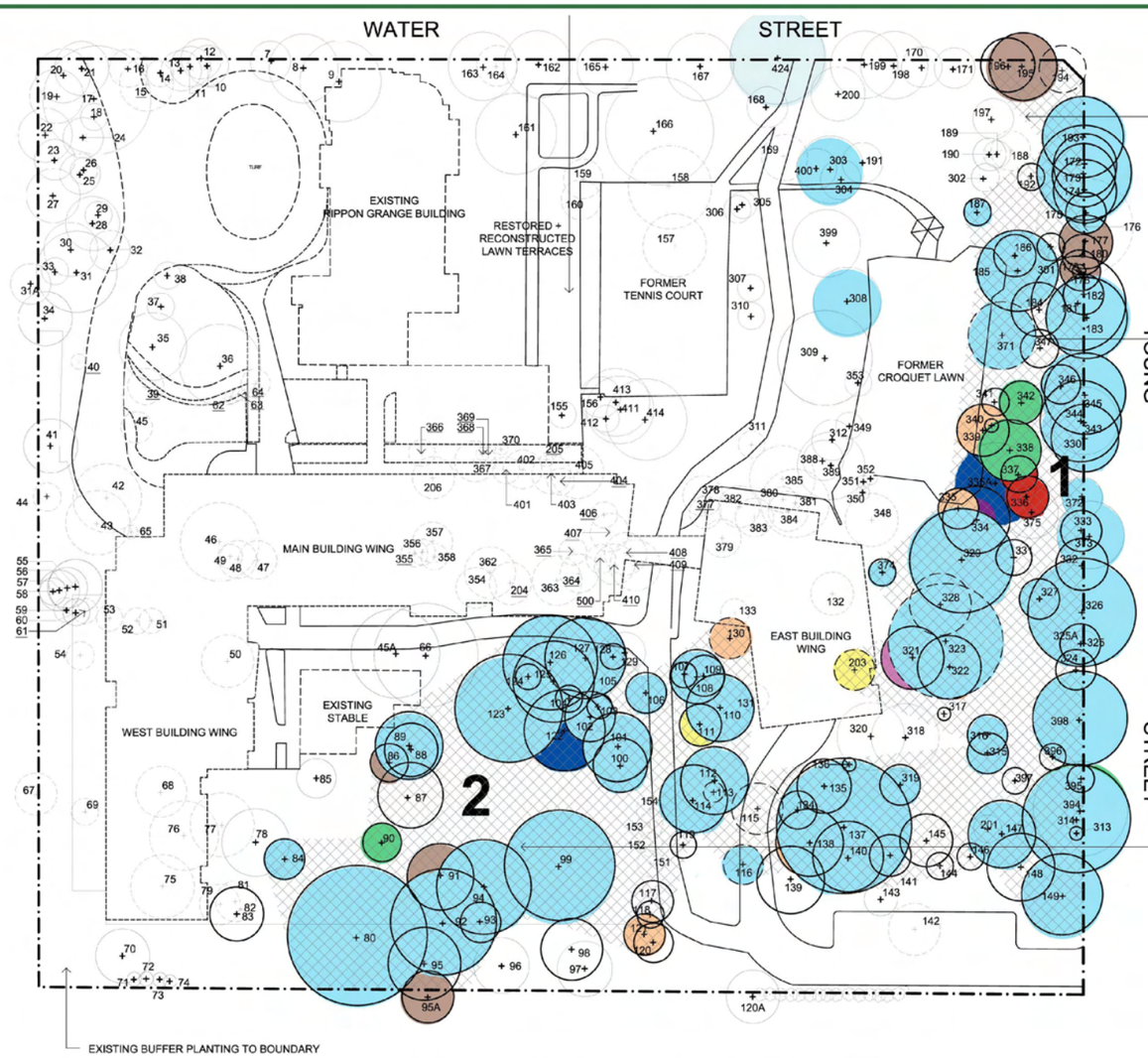
	No.	%
Trees retained within BGHF	111	88%
Trees removed as weeds* or dead/dangerous**	11	9%
Trees removed for driveway, building or other construction***	4	3%
Total existing trees within BGHF mapped areas	126	100
Reasons for Removal		
**Weeds: T113, T151, T152, T153, T154, T194. All Jacarandas with ©Significance Rating of "4".*		
***Dead/dangerous: T105 (Sydney Blue Gum), T176 (unknown species), T323 (Sydney Blue Gum), T328 (Coral Tree), T371 (Sydney Blue Gum)*		
****Trees within Construction: T115 (Jacaranda), T116 (Jacaranda), T130 (Pittosporum), T203 (Blueberry Ash). All four trees had ©Significance Rating of 4.*		

*Source: Tree Wise Men (March 2009).

1.5.3 Landscape Planting to Reconstruct Blue Gum High Forest Habitat

Supplementary or enrichment plantings proposed by Landscape Architects Taylor Brammer (see Figure 1.4) will primarily utilise characteristic BGHF species, as recommended in this VMP, thereby extending the area of BGHF Habitat within the Property, increasing biodiversity values and enhancing the long-term viability of the critically endangered BGHF Ecological Community.

See Section 5.2.1 and Section 7.3 for a discussion of trees and landscaping issues within the Subject Property. However, for the purposes of this VMP, note that only those issues related to BGHF Habitat within the designated BGHF rehabilitation and reconstruction areas have been addressed.



EXTENTS OF EXISTING BLUE GUM HIGH FOREST AREA SHOWN HATCHED

CORE BGHF AREA 1

TO BE REHABILITATED & REGENERATED AS BGHF
Bushland (canopy, understorey & groundcovers etc.)

INDICATIVE SPECIES LIST

SPECIES	COMMON NAME
TREES	
Eucalyptus saligna	Sydney Blue Gum
Syncarpia glomulifera	Turpentine
SHRUBS	
Clerodendron tomentosum	Hairy Clerodendron
Indigofera australis	Native Indigo
Leucopogon juniperinus	Prickly Beard-heath
Pittosporum revolutum	Yellow Pittosporum
Polyscias sambucifolia	Elderly Panax
GROUNDCOVERS	
Clematis aristata	Old Man's Beard
Dianella caerulea	Blue Flax Lilly
Hardenbergia violacea	False Sasparilla
Kennedia rubicunda	Red Kennedy Pea
Lomandra longifolia	Spiny-headed Mat-rush
Microlaena stipoides	Weeping Grass
Pandorea pandorana	Wonga Wonga Vine
Pratia purpurascens	Whiteroot

NOTE:
FOR FULL LIST OF BGHF SPECIES REFER TO VEGETATION MANAGEMENT PLAN AS PREPARED BY UBM Ecological Consultants, DATED FEBRUARY 2009 FOR DETAILS

CORE BGHF AREA 2

TO BE REHABILITATED & REGENERATED AS BGHF
Bushland (canopy, understorey & groundcovers etc.)

INDICATIVE SPECIES LIST

SPECIES	COMMON NAME
TREES	
Eucalyptus saligna	Sydney Blue Gum
Syncarpia glomulifera	Turpentine
SHRUBS	
Clerodendron tomentosum	Hairy Clerodendron
Indigofera australis	Native Indigo
Leucopogon juniperinus	Prickly Beard-heath
Pittosporum revolutum	Yellow Pittosporum
Polyscias sambucifolia	Elderly Panax
GROUNDCOVERS	
Clematis aristata	Old Man's Beard
Dianella caerulea	Blue Flax Lilly
Hardenbergia violacea	False Sasparilla
Kennedia rubicunda	Red Kennedy Pea
Lomandra longifolia	Spiny-headed Mat-rush
Microlaena stipoides	Weeping Grass
Pandorea pandorana	Wonga Wonga Vine
Pratia purpurascens	Whiteroot

NOTE:
FOR FULL LIST OF BGHF SPECIES REFER TO VEGETATION MANAGEMENT PLAN AS PREPARED BY UBM Ecological Consultants, DATED FEBRUARY 2009 FOR DETAILS

GENERAL NOTES FOR BLUE GUM HIGH FOREST:

BLUE GUM HIGH FOREST
Existing Area = approximately 6,350 square metres.
(Note: existing condition of this area is to some degree disturbed and neglected and invaded by exotic weed species).
Approximate percentage of BGHF affected (removed) by the proposed building development = 6%
(Note:The 7 existing BGHF trees to be removed in the proposed development area generally have a low SIG rating and have trees defects such as trunk hollows, bracket fungus, and dead wood. With consideration of these factors as well as the low SULE ratings (Arboricultural Impact Assessment, [ref: 1622dahosp] as prepared by *Tree Wise Men Australia pty ltd*, dated: February 2009) this area has been identified as an appropriate location for development.

AREA 1:
* Selective removal of identified weed species.

* No physical disturbance to soil profiles, existing endemic vegetation and habitats.
* Conditions retained that encourage the natural regeneration of endemic flora species.
* All non-endemic flora species shall be removed (Trees noted on plan).
* The area is to be maintained periodically so as to achieve less than 5 % exotic flora & weed biomass at all times.
* All trees identified for retention shall be retained so as to display good health & vigour or in a condition equivalent to their pre-development condition.
* There must be no signs of active erosion & sediment deposition at all times.
* Where there are no signs of the natural regeneration of endemic species or the limited potential for natural recruitment of endemic species, supplementary planting of Blue Gum High Forest species may be necessary.

AREA 2:
* Removal of grasses by non injurous methods.

NOTES:
* BGHF = BLUE GUM HIGH FOREST AREA
* FOR REFERENCE TO TREE NUMBERS AND REMOVAL COMMENTS REFER TO: Arboricultural Impact Assessment, [ref: 1622dahosp] as prepared by *Tree Wise Men Australia pty ltd*, dated: February 2009
* FOR LOCATIONS OF TRANSPLANTED SPECIES REFER TO DETAILED PLANTING PLANS LS.DA.06 AND LS.DA.07
* TREE SCHEDULE TO BE READ IN CONJUNCTION WITH TREE WISE MEN TREE IMPACT REPORT
* REFER TO VEGETATION MANAGEMENT PLAN AS PREPARED BY UBM Ecological Consultants, DATED FEBRUARY 2009 FOR BGHF REVEGETATION DETAILS

LANDSCAPE STRATEGY PLAN
NOT TO SCALE

THE LANDSCAPE STRATEGY IS TO INCREASE THE AREA OF BLUE GUM HIGH FOREST (BGHF), REHABILITATE AND REGENERATE EXISTING AREAS OF BGHF, AND RESTORE THE LANDSCAPE CULTURAL VALUES OF THE GARDEN AROUND 'RIPPON GRANGE'.

LEGEND

- SITE BOUNDARY
- EXISTING TREE RETAINED (+199)
- EXISTING TREE REMOVED (+170)
- EXISTING TREES TO BE TRANSPLANTED (LOCATIONS IDENTIFIED ON SHEETS LS.DA.06, LS.DA.07). (+40)
- BLUE GUM HIGH FOREST TREE SPECIES RETAINED OUTSIDE NOMINATED BGHF AREA (16)
- BLUE GUM HIGH FOREST TREE SPECIES REMOVED (303)
- LANDSCAPE MANAGEMENT AREA BLUE GUM HIGH FOREST REFER TO VMP AS PREPARED BY UBM Ecological Consultants, DATED FEBRUARY 2009
- LINE OF PROPOSED BUILDING

BGHF RENDERING KEY

Rendering as per BGHF Mapped area 2007, Dr. Smith.

SPECIES

- *Eucalyptus saligna*
- *Eucalyptus pilularis*
- *Eucalyptus paniculata*
- *Angophora floribunda*
- *Syncarpia glomulifera*
- *Elaeocarpus reticulatus*
- *Acmena smithii*
- *Polyscias sambucifolia*
- *Pittosporum undulatum*
- *Ficus rubiginosa*

H	CONSULTANT REFERENCE DATES	26.02.2009
G	TREE 130 REMOVED	10.02.2009
F	TREE 130 RETAINED	22.01.2009
E	REVISED EAST BUILDING WING	16.01.2009
D	REVISED DA	10.11.2008
C	TREES REMOVED/RETAINED	11.08.2008
B	REVISED DA SUBMISSION -S2a APPEAL	05.08.2008
A	REVISED DA SUBMISSION	17.12.2007
Issue	Description	Date

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project:
PROPOSED PRIVATE HOSPITAL
35 WATER STREET (LOT 1 DP 375262)

drawing title:
SITE STRATEGY PLAN

client
WATERBROOK AT WAHROONGA

scale: 1:500@A1 | checked: DMT | drawing no: LS.DA.05 | revision: H
date: 26.02.2009 | job no: 05-1675
drawn: AL | designed: DMT

Figure 1.4: Landscape Strategy Plan (Taylor Brammer January 2009)

2 VEGETATION MANAGEMENT PLAN

2.1 OVERVIEW

The Proposal to develop a Hospital in the grounds of the former John Williams Respite Care Centre includes the retention and rehabilitation of existing BGHF Habitat in the eastern, south-eastern and central sectors of the Subject Property, and the reconstruction (or recreation) of areas of BGHF Habitat elsewhere on the Property.

The BGHF Rehabilitation & Reconstruction Program will be planned, implemented and managed through the preparation of a **Vegetation Management Plan**.

This Vegetation Management Plan (hereafter **'the VMP'**) has been prepared in accordance with the recommendation of the Species Impact Statement (Cumberland Ecology, March 2009) to prepare a management plan to guide the restoration and rehabilitation of the BGHF Habitat within the Subject Property.

Recommendations of the VMP for the reconstruction of BGHF Habitat via an indigenous planting program have been considered in close consultation with Taylor Brammer Landscape Architects, who have prepared the *Landscape Strategy Plan* (February 2009). However, it is possible that minor details of this Landscape Plan may be amended at some future time to accommodate natural regeneration of BGHF species, which is anticipated on at least part of the Subject Property.

The TB Landscape Plan has been included as Figure 1.4 in Section 1 of the VMP. The list of indigenous flora species recommended for landscaping elsewhere on the Subject Property has been designed to generally complement the floristic composition of the BGHF Ecological Community, using the species list provided in the Final Determination (see Appendix 1).

The primary aim of this VMP is to identify appropriate management strategies and actions for the rehabilitation and future management of BGHF Habitat occurring within the Subject Property.

The VMP also provides guidelines for the reconstruction of additional areas of BGHF Habitat, principally in those areas retaining only canopy trees (e.g. Sydney Blue Gums, Blackbutt and others), listed in the Final Determination (see Appendix 1).

Further, as the Proposal incorporates buildings and landscape elements of heritage value, the VMP has been structured to accommodate the retention of a number of early garden plantings, principally those trees listed as 'significant' – as identified in the *Arboricultural Impact Assessment* (Tree Wise Men March 2009). See Table 7.1 for a list of culturally significant plantings to be retained.

While the VMP recommends the retention of a number of non-invasive culturally significant plantings within areas of BGHF Habitat, this Plan does NOT attempt to address the refurbishment of Rippon Grange's heritage gardens.

2.2 VISION STATEMENT

The native vegetation within the Subject Property at Wahroonga will be rehabilitated and conserved as a valuable remnant of the Blue Gum High Forest Ecological Community and managed for its natural conservation values. The restored BGHF Habitat will be available to the patients and staff of the proposed Hospital for their enjoyment and passive recreational usage.

In order to achieve this Vision, a series of management objectives is proposed. These incorporate objectives specifically relevant to the management of the Subject Property's natural heritage values – i.e. the remnant BGHF Ecological Community extant on the Property.

2.3 PLAN AIMS & OBJECTIVES

A plan of management is required to guide the conservation, rehabilitation and on-going management of the remnant BGHF Habitat within the Subject Property at 35 Water Street, Wahroonga.

A plan of management is an important document as it serves to clarify the goals and objectives of management, and clearly sets out the proposed actions and their general sequence. It determines best-practice management strategies and actions, and provides guidelines for on-going assessment and review. The plan also serves as a vehicle for agreement between all stakeholders.

Where native vegetation occurs, such a plan (more properly a 'vegetation management plan'), guides the activities of the restoration and rehabilitation program and thereafter, the on-going management of the site's natural conservation values. Infrastructure works (track construction, fencing and signage), and activities related to the proposed development (drainage and erosion control works) are integral to any such plan.

The specific aims and objectives of the VMP for BGHF Habitat within the Subject Property will ensure the development of appropriate planning and management policies to conserve the natural areas identified within this Plan.

The objectives of the VMP for areas of BGHF Habitat are:

- To conserve and rehabilitate those areas of BGHF Habitat occurring within the Subject Property and to promote local biodiversity values;
- To restore, and where appropriate to reconstruct, additional areas of BGHF Habitat within the Subject Property;
- To manage the bushland rehabilitation and reconstruction process to ensure the retention of suitable habitat for those threatened and/or significant flora and fauna species present within the Subject Property and environs;

- To maintain and improve connectivity locally and within the Subject Property itself, principally through the tree canopy, but also through the restoration of a native understorey;
- To enhance local landscape values (screening/aesthetics) in line with Council's Policies and Development Control Plans; and
- To fulfil the Proponent's legal obligations in terms of local planning controls, State and Federal environmental legislation.

Note: this VMP does NOT constitute a detailed 'works plan' for undertaking of on-ground works. The role of a VMP is to identify appropriate goals and objectives, determine best-practice management strategies, and provide guidelines for on-going assessment and review. Detailed actions and tasks are more appropriately contained in a site-specific 'works plan', which is prepared by the contractor(s) proposing to undertake on-ground works, and presented at time of tendering.

2.4 SCOPE OF WORKS

The VMP for areas of BGHF Habitat *at 35 Water Street Wahroonga* has been prepared in consideration of the guidelines prepared by the NSW Department of Water & Energy ('**DWE**')[4], as set out in their publication *How to Prepare a Vegetation Management Plan* (*Version 7*).

The scope of works for preparing a plan of management for an area of native vegetation is as follows.

- Undertake a comprehensive review of information and other baseline data relating to the geophysical and biological resources and values of the Subject Property.
- Identify and map extant ecological communities, plant associations and location of threatened species occurring within the Subject Property.
- Review local planning, State and Federal government policies and legislative requirements and explain their relevance to the Subject Property, with the landowner's role and responsibilities clearly defined.
- Clearly define goals, objectives and strategies for the purposes of nature conservation, passive recreation, education, landscape enhancement and other values (as appropriate).
- Develop bushland restoration and rehabilitation strategies, including the identification of remedial measures for existing impacts and strategies to ameliorate potential future threats.
- Consider infrastructure requirements, including signage, pathways, seating, lighting and other public amenities (if appropriate); ……and where appropriate,
- Consider stakeholder participation[5] – including a review of existing roles/contribution, recommendations for role enhancement, educational opportunities etc.

[4] Formerly Department of Sustainable Natural Resources (DSNR)

2.5 PLAN TENURE

This VMP has been prepared to cover the next 10-year period, commencing from the date of its adoption by the Proponents and approval by the NSW Department of Planning.

As the VMP deals specifically with the restoration and management of a native vegetation community (i.e. 'bushland') - which is a dynamic process - after five (5) years this Plan should be reviewed; the progress of works assessed using the Performance Indicators identified in this Report (see Section 8.9); and where necessary, management strategies and actions should be amended or modified.

The long-term nature of a bushland restoration and rehabilitation project is strongly emphasised.

2.6 AREAS TO WHICH THE VEGETATION MANAGEMEN PLAN APPLIES

The areas of BGHF Habitat to which this VMP applies are illustrated on Figure 2.1

2.6.1 Core BGHF Habitat Areas

The two (2) Core BGHF Habitat areas described below were identified by UBMC (2006) as simplified stands of BGHF, comprising native trees over an introduced and generally weedy understorey.

Young & Water Street Boundaries

The **Core BGHF Habitat** forms a reversed 'L-shape', running along the residential boundary on the southern side of Water Street, and extending along Young Street on the eastern property boundary. This area is ~10 to 45 metres in width and approximately 125 metres long along Young Street, and 15 to 40 metres wide and 90 metres long near the southern boundary. The east-west length of the widest section near the southern boundary is approximately 50 metres. Updated GIS assessment shows this area to account for approximately 49% of the 6,350 sq metres of BGHF area appraised by Smith & Smith (2006).

The vegetation in the Core BGHF Habitat ranges from a tall forest – with a dense understorey of small trees and/shrubs (again a mixture of native and introduced species) – to a small area of exotic (introduced) grassland at its southern end, with only the occasional small tree and/or shrub present.

Photographic and anecdotal evidence (e.g. horticultural plantings, stone retaining walls and pathways, a grotto, and other garden features) suggests that this part of the Subject Property would have been maintained as a wild or 'natural garden' for many years.

At least part of the native vegetation in this area appears to be a true remnant[6] of the BGHF, once widespread in the Locality[7] - although the straight line of even-aged Sydney Blue Gums along the Water and Young Street boundaries are likely to be horticultural plantings. The tree canopy

[5] Community consultation was held prior to the submission of the previous (2007) DA to Council

[6] For the purposes of this VMP, the term 'remnant' also describes a regrowth form of the community

[7] See Plates, showing this stand of trees *in situ* circa 1900

generally intact, although variable, comprising characteristic Sydney Blue Gums and Blackbutt, as well as a number of other large canopy trees – some being indigenous species and others horticultural introductions (see Plate 1).

The small tree and shrub strata have been largely replaced by horticultural plantings and weeds. Native groundcovers are restricted to relatively small areas where aggressive ground cover weeds are absent, or edge site where light levels are higher.

Plate 1: Core BGHF Habitat along the Young & Water Street Boundaries

Central & South-western Areas:

The vegetation in the central and south-western sections of the Property (forming the lower arm of the reversed L-shape) retains far fewer native species, and displays highly simplified structural integrity, comprising canopy trees and some large native shrubs over garden beds edged by sandstone flagging and adjoining a large area of (unmaintained) lawn. Updated GIS assessment shows that this area accounts for approximately 14% of the 6,350 sq metres of the BGHF area appraised by Smith & Smith (2006).

For the purposes of this VMP, this second, smaller area has also been described as **Core BGHF Habitat.** The central and south-western Habitat areas are separated from the main BGHF remnant by a paved road, and fragmented internally by informal walking tracks. Most of this area has now been overtaken by weeds and unchecked garden escapes (see Plate 2).

Some of the large canopy trees in this area are non-indigenous native species from other parts of Australia (e.g. Lemon-scented Gum *Corymbia citriodora*), while others are introduced horticultural specimens (e.g. Jacaranda *Jacaranda mimosifolia)* – these trees are part of the original garden design for Rippon Grange – which included a significant arboretum.

Native understorey species are represented only by a small number of herbaceous species growing in the garden beds and lawns. The understorey species recorded in these areas, while generally 'native' in origin, are not necessarily 'characteristic' of the BGHF Ecological Community, and such species are commonly found in bushland, parks and local gardens throughout the Sydney Basin and Central Coast. Such species include, but are not limited to, Kidney Weed *Dichondra repens*, Panic Grasses *Entolasia* spp, Hedgehog Grasses *Echinopogon* spp, Basket Grass *Oplismenus imbecillis*, and Pastel Flower *Pseudoranthemum variabile.*

Plate 2: Core BGHF Habitat Management Zone 2: tall Blue Gum trees over an unmanaged introduced and now weedy understorey

Croquet Lawn

The L-shaped remnant described as Core Habitat adjoins a disused croquet lawn, which has been constructed using 'cut and fill' and now located on an elevated fill platform and enclosed by low stone walls. Recent (September/October 2008) site investigations show that the croquet lawn is rapidly being invaded by woody weeds (Cootamundra Wattle *Acacia baileyana*, *Cotoneaster glaucophyllus* and Blackberry *Rubus fruticosus*), as well as weedy perennial herbs such as Crofton Weed *Ageratina adenophora* and Fireweed *Senecio madagascariensis*) (see Plate 3). Total area approximately 300 sq metres (0.03 ha).

Hitherto the Croquet Lawn has not been included in any discussion of BGHF Habitat Area, but because it has been identified by Council's ecologist (James 2007) as 'regenerating BGHF', the VMP will provide comment on its status and future management.

Plate 3: Former Croquet Lawn showing weed invasion (Cootamundra Wattle & Fireweed

2.6.2 Non-Core BGHF Habitat Areas

The supplementary Non-Core BGHF Habitat areas described below were identified as BGHF by Smith & Smith (2006) and confirmed by the Land & Environment Court (June 2007). The basis for their identification as BGHF was the presence of native canopy trees, albeit that they occurred over a wholly introduced or weedy understorey.

Far South-western /Service Area

In order to provide for the upkeep of a large garden, parts of the Property were developed as 'service areas' (composting facilities, work sheds), to provide food for the main house (chicken coops, vegetable gardens and a small orchard). Surviving property plans and old photographs indicate that these facilities were located in the south-western part of the Property, behind the Stables (see Plate 4) – an area which has now been identified for 'reconstruction' to BGHF Habitat.

This part of the Property was originally excised from the area of BGHF Habitat extant on the Subject Property (UBMC 2005, 2006), but has since been determined to be 'potential BGHF' by Smith & Smith (2006). As a result, this additional area has been incorporated into the larger BGHF Habitat area to be rehabilitated, or more accurately, totally reconstructed.).

Plate 4: Non-Core BGHF Habitat in the South-Western Corner: Former Service Area behind Stables – Management Zones 3-4 (photo facing south)

Summary

The total area to which this VMP applies – the 6,350 sq metres of existing BGHF Habitat, *plus* the 1,770 sq metres of compensatory offsets to be reconstructed, and minus the 116 sq metres to be removed to facilitate construction totals 8,004 sq metres. This area has been divided into five (5) **Management Zones** according to their location within the Subject Property, their structural and floristic integrity, condition (health), weed densities, soil conditions, anticipated site resilience, and the different rehabilitation and restoration strategies required to re-establish a representative sample of the BGHF Ecological Community.

Management Zones are discussed in Section 4.7 and are illustrated on Figure 4.6.

Figure 2.1 provides an Aerial Photograph of the Subject Property, with an overlay showing the extent of all BGHF Habitat Areas.

Figure 2.1: Areas of BGHF Habitat to Which the Vegetation Management Plan Applies