

John Hong
PO Box 432
Ermington NSW 2115

Email: john80@gmail
Mob: 0410 455 350

On behalf of
Jong and Min Hong
6 Oak Street
Schofields NSW 2762

16th September 2015

**RE: Ecological input to Submission to Riverstone East Draft Precinct Plan
Exhibition regarding 6 Oak St, Schofields**

Dear Department of Planning,

GIS Environmental Consultants have been engaged by John Hong (son of the owners) to provide independent Ecological expert opinion on:

- The current ecology of the site and the extent of past disturbance
- The appropriateness of the mapping of the property as part of the Native Vegetation Protection Zone
- The suitability of the property as part of the RE1 based on biological/biodiversity conservation attributes
- Whether nearby area are more appropriate for the RE1 zoning based on tree cover and riparian values.

Relevant Qualifications of the Author

I am a qualified and experienced professional ecologist that has been assessing vegetation and ecological constraints in the Sydney Metropolitan area for 22 years. I am a qualified BioBanking and Bio Certification Assessor and I am very familiar with the planning processes and ecological values of the area.

For more details on my qualifications and experience see my attached CV and Company Profile.

Site Description and Ecological Description

6 Oak St (Lot 30 DP 39341) is approximately 2 Ha in size with an irregular shape, See attached Map. The property is currently mostly covered with exotic grass and weeds and has been used for the past 25 years as a market garden with the owners living on the property. There is a house and yard occupying the western third of the property. Remnant trees occur on the southern and eastern boundary line. There is no native understorey canopy.

There is a north to south riparian corridor the west and another to the north east. The property is not in a Riparian Protection Area.

The properties to the south did contain extensive native vegetation that has been recently cleared for the rail yard.

The property to the North is fully occupied by a market garden. The street frontage to the west is very short. The properties to the east contain scattered remnant trees and some native understorey.



Current (5 July 2015) view of the property, by Nearmap. The trees on the property are limited to the southern and eastern edges with an exotic ground cover. The tree to the South had extensive remnant native tree cover, that has now been removed.



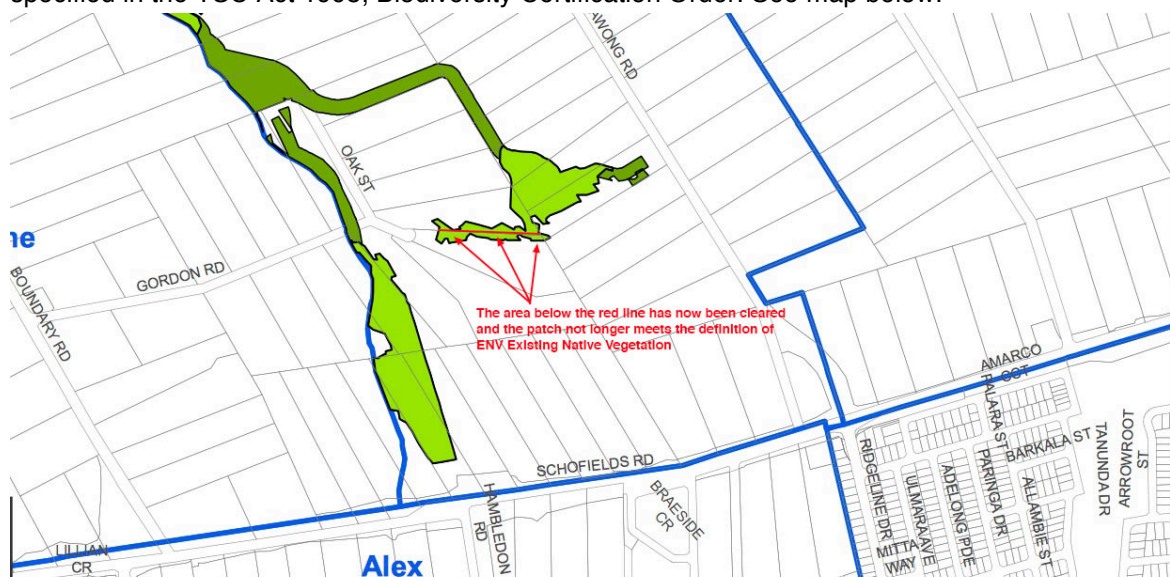
The 30 December 2014 view of the locality showing the extensive tree and native vegetation cover to the south.



The thin line of trees along the eastern end of the southern boundary

Native Vegetation Protection Mapping

The mapping of the property shows a long east-west patch of vegetation running along the southern boundary of the property. The southern part of this patch has been removed for the rail yard construction. This area of ENV has been sliced in half along the east west axis making the area no longer viable as a patch of native vegetation. This patch no longer meets the definition of ENV (Existing Native Vegetation). This no longer contain more than 10% over storey canopy cover or part of a patch greater than 0.5 Ha. This patch no longer meets the definition of ENV as specified in the TSC Act 1995, Biodiversity Certification Order. See map below.



Werstone East - North West Growth Centre - Native Vegetation Protection Map

State Environmental Planning Policy (Sydney Region Growth Centres) 2006

Disclaimer: The information contained on this map is, to the best of the Government's knowledge, correct. However, no warranty or guarantee is provided by the Government and no liability is accepted for any loss or damage resulting from any person relying upon or using the information contained in the map.



Planning & Environment

Extract from the Biodiversity Certification Order *Ground-truthing of existing native vegetation*

*Section 13 If new information becomes available after the biodiversity certification order took effect that demonstrates that the vegetation within an area does not otherwise meet the definition of **existing native vegetation**, then for the purposes of conditions 7 to 8 and condition 11 to 12 only the area of confirmed **existing native vegetation** shall be considered.*

The ENV mapping no longer applies to this part of this property and this long narrow discontinuous sliver of mapping is a result of a GIS overlay error made when the Rail yard was clipped from the ENV GIS layer.

This error should have been corrected on the maps in the Growth Centres Biodiversity Certification document and this sliver does not need to be protected by and RE1 or SP2 zoning.

Native Vegetation Retention area

The whole of the property has been mapped as a Native Vegetation retention area on the maps of the Biodiversity Consistency Report. There is no native vegetation to retain in 95% of this property. When looking at the aerial photograph of the locality or the vegetation mapping it is clear that this is not appropriate for this property and would be better on nearby properties. The Native Vegetation Retention area needs to be re assessed on this part of the plan.

Conclusion

The patch of ENV along the southern edge of this property no longer exists due to the removal of the trees in the southern part of the patch for the rail yard. These slivers do not meet the definition of ENV. The presence of this sliver polygon is an error and should have been removed from the maps prior to publication. The only part of the property that would meet the definition is the along the eastern boundary. The rest of the property should not be burdened with the RE1 zoning due to the tiny amount of ENV on the eastern edge of the property.

The property does not contain any ecological value that would require RE1 zoning or mapping as Native Vegetation Retention as 95% of the property has been cleared and cropped for more than 25 years. There is nearby land that has much higher ecological values and would be much more deserving of the RE1 zoning and Native Vegetation Retention in particular this applies to the land a few hundred metres to the north. This alternative area would make a much better wildlife corridor as it is adjacent to the riparian corridor and is currently heavily treed.

There is no ecological reason to zone 95% of this property RE1.

Yours sincerely,

Yours sincerely,



Nicholas Skelton - BSc. (Hons) (USyd), M. App. Sc. (UNSW), ECANSW, ESA, EIANZ, AURISA, MRZS, MBA
Director – GIS Environmental Consultants

Attached:

CV of the Author Nicholas Skelton and

Company Profile

Curriculum Vitae

Name: Nicholas John Skelton BSc (Hons) (Syd), MAppSc (UNSW), ESA, ECANSW, EIANZ, RZS, BA
Address: 45 Austin Avenue,
North Curl Curl
Sydney NSW 2099
Australia
Telephone: +61(2) 9939 5129
Mobile: 041 943 8672
Email: nick.skelton@ecology.net.au
Nationality: Australian

Academic Qualifications:

**Master of Applied Science GIS, M. App. Sc. (GIS, Vegetation Management) awarded a High Distinction
University of New South Wales 1993 - 1997**

Completed research and wrote a thesis titled "Spatial Patterns in the Vegetation of Beecroft Peninsula". Course subjects: Principles of geographic information systems, Advanced geographic information systems, Land information systems, Introduction to spatial data processing, Application and management of geographic information systems, Vegetation management and Remote sensing

un-completed

**Doctor of Philosophy, Ph.D. (Geography)
Spatial modeling patterns in threatened species habitat
University of New South Wales, January 1998 – December 2001**

Did not completed research due to death of supervisor and need to work and look after baby daughter. Project; Predicting the spatial distribution of suitable habitat for threatened plant species using a combination of a wide variety of environmental parameters and expert knowledge. Testing the models was carried out using historic records and field verification in the Sydney region and Jervis Bay.

**Bachelor of Science degree with Honours B.Sc. (Hons)
University of Sydney 1984 – 1986 Honours 1988**

Botany, Introductory ecology, Plant ecology, Management of plant populations, Plant physiology, Marine botany, Environmental physiology, Biology of terrestrial vertebrates, Animal behavior and population ecology, Zoology, Microbiology, Biology, Mathematics, Chemistry, Physics

For Honours completed own research and wrote a thesis titled "Gas Movement and Changes in the Internal Atmosphere of the Roots of the Grey Mangrove *Avicennia marina* (Forsk.) Vierh." and completed the following course subjects: Principles in the design of biological experiments, Plant/animal interactions, Electron microscopy

Professional Qualifications:

GIS Skills	Experienced with wide variety of GIS software packages Spatial Data Analysis Data formatting, storage and retrieval Remote sensing Aerial Photograph Interpretation Data capture, GPS, data conversion, projection, geo-referencing Database querying Map production
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Professional Association Memberships

Ecological Society of Australia, ESA
Environmental Consultants Association of NSW, ECANSW Founding member and on executive for 8 years
Environmental Institute of Australia and New Zealand, Since 1996, No. 960099 EIANZ
Royal Zoological Society, RZS
Birds Australia no. 38840, BA
Friends of the Royal Botanic Gardens Sydney No. 6131
Frog and Tadpole Study Group

Professional Licenses and Qualifications

- OEHL, Office of Environment and Heritage, Scientific Licence: S10749
- OEHL, Office of Environment and Heritage, Wildlife Atlas Licence: CON97043
- NSW Department of Primary Industries, Animal Care and Ethics Committee: 01/4291
- BioBanking Certification Course TAFE
- BioBanking Assessor Number: 0119
- Biodiversity Survey and Assessment Certification Assessor TSC Act, Part 7AA

Other Professional Positions

- DPI Noxious Weeds Advisory Committee member 2010 - current
- IHAP Panelist of the Independent Public Hearing Panel, Environmental Expert for the assessment of larger and more complex Development Applications for Sutherland Council. 2009 - current
- IHAP Panelist of the Independent Public Hearing Panel, Environmental Expert for the assessment of larger and more complex Development Applications for Wollongong Council. 2009 - current
- MIAP Mainly Independent Assessment Panel Environmental Expert for determining of DAs. The panel has determining powers. 2008 - current
- IHAP Panelist of the Independent Public Hearing Panel, Environmental Expert for the assessment of larger and more complex Development Applications for Liverpool Council. 2009 - current
- IHAP Independent Public Hearing Panel, Environmental Expert for the determining of DAs for Warringah Council. The panel has determining powers. 2003 – 2006
- IHAP Panelist of the Independent Public Hearing Panel for the assessment of Category Three Developments for Warringah Council. 2003 - 2005

- Biobanking Course completed for the use of the biometric tool for determination of ecological offsets
- Chairperson of the NPWS DECC Quarantine Station Consultative Committee 2005 - current
- Warringah - Pittwater Bush Fire Management Committee. 2001 - current
- Manly – Mosman - North Sydney Bush Fire Management Committee. 2004 - current
- Environment Defenders Office EDO Scientific advisory panel. 2007 - current
- Honorary Research associate University of Sydney 1997 - 2000

Professional Experience:

Principal Ecological Scientist, GIS Environmental Consultants

2001 – Current occupation

Principal Environmental Scientist, Senior Ecologist, Botanist, Zoologist, Arborist and Project Manager

Responsible for acquiring, managing and conducting large and small ecological and GIS projects such as BioBanking, Review of Environmental Factors (REF), Environmental Impact Assessments and Statements (EIA, EIS), Species Impact Statements (SIS), Flora and Fauna surveys, Biodiversity Certification, Vegetation mapping, Ecological monitoring, Identifying Environmental constraints, Vegetation mapping, and Bushland management planning. Duties include Team building and development, Mentoring, Liaison with government departments, GIS analysis, Spatial modeling, Supervision of staff, Controlling finances, Field work coordination, Statistical analysis, Writing and editing, Biobanking brokering and Expert witness testimony in the Land and Environment Court.

Lecturer/Course Coordinator, University of NSW

2000 and 2001

Responsible for lecturing, co-ordination, curriculum and assessment of the postgraduate course titled Vegetation Management for 25 Honors and masters students. Lecturing in the courses Biogeography and Vegetation and climate change. Also various casual GIS lecturing and practical teaching positions. Involved writing of manuals and documentation and compiling of GIS databases.

Principal Ecological Scientist, GIS Environmental Consultants

September 1994 - June 2000

Managed many ecological and GIS projects, including: planning, budgeting, finances, field and office co-ordination, negotiation, supervising personnel, survey design, analysis and report writing.

Projects included: Aquatic and Riparian vegetation of forests in the Morisset district (State Forests), Cromer sewerage works (Landcom), Berowra housing development (SMEC), Wahroonga housing development (Australian Museum), extension to the Howick open-cut coal mine (Australian Museum), Balmain Power Station (Pacific Power), Narrabeen Lagoon (Australian Museum), contribution to Fire Management Plan of Beecroft Peninsula (for Department of Defense), development of a Wetland Assessment Technique (Hawkesbury Nepean Trust) and many others (see publications list).

Project Manager, Beecroft Peninsula Vegetation Survey for (ANCA) Environment Australia and the Environmental Resource Information Network (ERIN)

September 1993 - October 1994

Survey of the vegetation of the Beecroft Peninsula including 167 survey quadrats, a 250 page report and a 70 page monitoring strategy.

Solely responsible for managing and coordinating of all aspects of the project including: negotiating and signing contracts, recruiting 9 staff, supervision of botanists, office staff and sub-consultants, managing accounts, field logistics, liaison with government departments, experimental design and data analysis. Co-author of GIS maps, GPS coordinates and reports.

GIS Data Librarian, State Forests of NSW

June 1995 - September 1996

Managed the corporate GIS database of natural resource information to ensure data quality, availability and cover. In charge of data integrity, metadata, supervised import export officer setting spatial and attribute standards, designing new databases, analysing user needs, finding new data sources, improving technical capabilities, implementation of new software designed methods of data verification, recording of metadata. Conducted the more complex database and spatial analyses, trained users and specialists in the use of software, techniques and data, liaison with internal and external clients/data suppliers, map production, conducting meetings. Tools used include SUN SPARC UNIX workstations, PCs, LAN and WAN networks, ArcGIS, databases, spreadsheets.

**Research Assistant, University of Sydney, School of Biological Sciences, Plant Ecology,
February 1990- September 1993 half time**

Investigation of the ecology of heath land at Myall Lakes.

Responsible for - data entry, data management, conducting glasshouse experiments, multivariate analysis and other statistical analysis. Played a major role in experimental design, field work, plant identification, liaising with government departments and writing of papers for scientific journals.

Research Assistant, University of Sydney, School of Biological Sciences, Plant Eco-Physiology

June 1992 - June 1993 half time

Experimentation and development of new methods for investigating gas pathways in mangrove roots. Responsible for - experimental design, developing scientific methods and equipment, conducting experiments, data management, statistical analysis, literature searching, laboratory management, use of scientific equipment, computing and co-authoring scientific papers.

**Technical Officer, Royal Botanic Gardens Herbarium, Sydney
February 1992 - June 1992**

Research into the taxonomy of plants in the family Epacridaceae.

Responsible for - data recording, data analysis, herbarium curation, laboratory management, use of scientific equipment, laboratory techniques, photography electron microscopy, and computing.

**Technical Officer, University of NSW, School of Biological Science, Plant Ecology
February 1990- February 1992 (Half time)**

Investigated the ecology of vegetation of headlands of Central NSW and assisted with under-graduate teaching courses, plant identification, plant collection, computing, correspondence, data analysis, fieldwork, supervision of glasshouse experiments, computing, herbarium curation and tutoring.

**Environmental Consultant, Self Employed, GIS Environmental Consultants
1990 - 1993 various small and medium sized jobs**

Various projects including a vegetation survey for Scheyville housing development proposal, Vegetation survey for the Kandos Limestone mine development proposal. Work involved - contract negotiation, project coordination, logistics, field survey, plant identification, report writing, literature searching.

Technical Officer, National Parks and Wildlife Service, NSW

October 1987 - February 1988

Responsible for- set up a plant ecology data base, liaised with other government departments, wrote reports, interpreted aerial photographs, mapping, contributed to the rare plant directory, organised field trips

Other work **Lecturer in charge of 4th years Vegetation Management Course UNSW,**
Lectured GIS at University of Western Sydney, Lectured and demonstrated 3rd
year botany students USYD, tutored 1st year university biology 1989,
conducted short courses on plant identification for Sydney TAFE 1993,
conducted own part time landscaping business 1985- 1993.

Publications:

Consulting Reports:

Over 800 ecological reports including:

- 617 Flora and Fauna surveys,**
- 120 Bush-land Management Plans,**
- 10 Species Impact Statements,**
- 12 Review of Environmental Factors,**
- 3 Environmental Impact Statements**

Skelton N., E. Donner, and P. Wong, 2004, Flora and Fauna of Manly Council's
Bushland Reserves, GIS Environmental Consultants

Skelton N., 2004, Flora and Fauna survey for Management Planning of 7 reserves for
Manly Council, GIS Environmental Consultants

Skelton N., 2004, Flora and Fauna Survey and Management Recommendations for
Sydney Harbour National Park (Dobroyd Head), GIS Environmental Consultants.

Skelton, N., O. Richmond, T. Gilson and P. Wong 2003, Flora of North Head, Sydney,
Sydney Harbour Federation Trust, GIS Environmental Consultants.

Skelton, N., O. Richmond, T. Gilson and P. Wong 2003, Fauna of North Head, Sydney,
Sydney Harbour Federation Trust, GIS Environmental Consultants.

Skelton and Lembit 1998, Vegetation of the 4 NPWS reserves in the Bathurst district

Sainty, Jacobs and Skelton, 1996, Method for the rapid assessment of wetlands in the
Hawkesbury Nepean, Hawkesbury-Nepean Catchment Management Trust

GIS Environmental Consultants 1998 and Oculus, Green Corridors Management
Strategy for the Upper Parramatta Catchment

Skelton, N. J., (1997) Spatial patterns in the vegetation of Beecroft Peninsula, M. App.
Sc. (GIS) Thesis in the School of Geography, UNSW, Sydney. 80 pages

Skelton, N. J., (1997) Vegetation of Beecroft Peninsula, GIS Environmental Consultants,
Sydney. 195 pages

Skelton, N. J., (1996) Manly Lagoon exotic vegetation management strategy, report and
maps prepared for Manly and Warringah Councils, GIS Environmental Consultants,
Sydney. 120 pages

Skelton, N.J., and Adam, P., (1994), Beecroft Peninsula Vegetation Survey, Australian
Nature Conservation Agency/ERIN, Canberra.

Skelton, N.J., and Adam, P., (1994), Beecroft Peninsula Vegetation Monitoring Strategy:
a Discussion Paper and Manual of Methods, ANCA/ERIN, Canberra.

Skelton, N.J., (1995), Vegetation on the site of the proposed extension to the Howick
open-cut coal mine, Novacoal, Australian Museum.

Skelton, N.J., (1995), Aquatic and riparian vegetation in forests of the Morisset Forestry
district, NSW Forests, Australian Museum.

Skelton, N. J., (1990), Scheyville Development Proposal, Natural habitat Study
Vegetation Survey for Kinhill Engineering Pty. Ltd.

Scientific Papers:

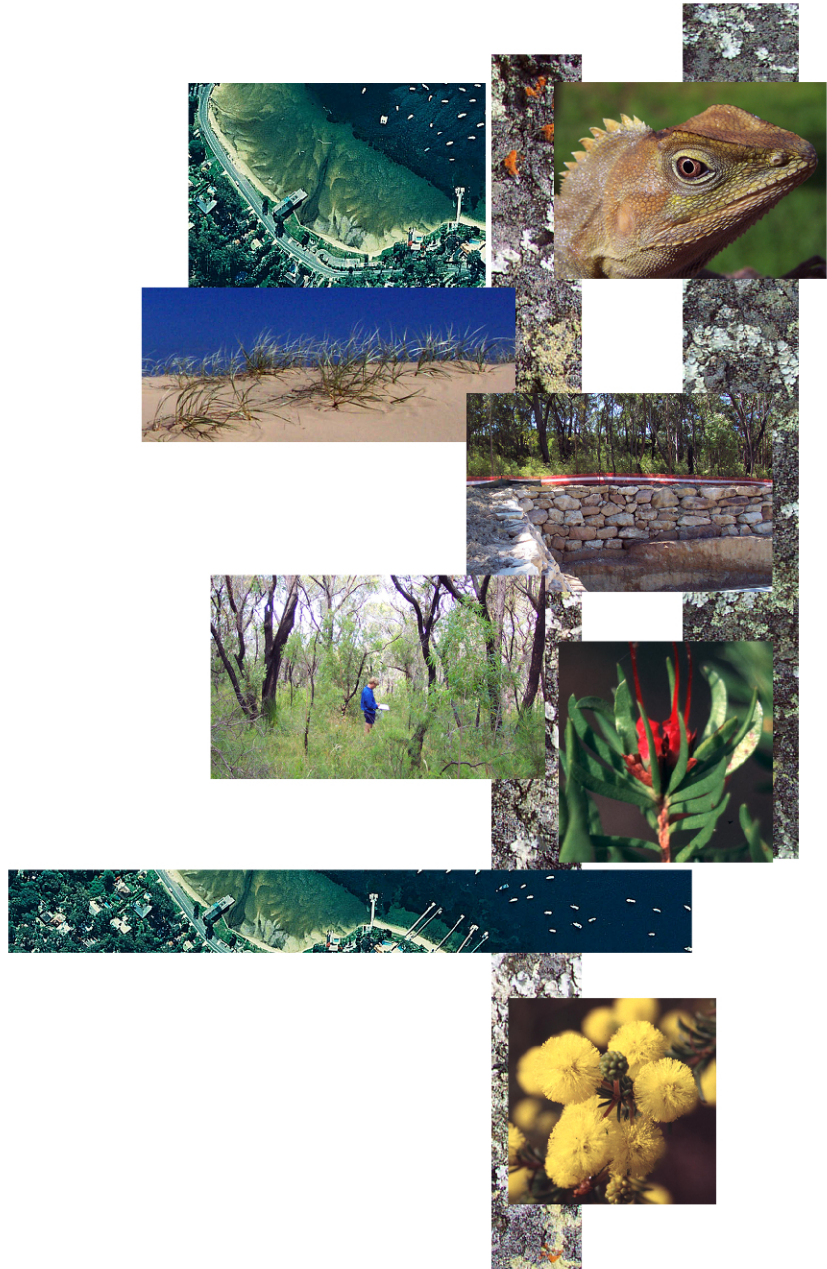
- Allaway, Curran, Hollington, Ricketts and Skelton, 2000, Gas Space and Oxygen exchange ion roots of *Avicennia marina* (Forssk.) Vierh. Var. *australasica* (Walp.) Moldenke ex N. C. Duke, the Grey Mangrove
- Myerscough, P.J., and N. J. Skelton, (1995), Management and vegetation of coastal sands in New South Wales, Australia, with special reference to Pleistocene beach sands, *Landscape and Urban Planning*, 34 (1996) 347 - 350.
- Skelton, N. J., and W.G. Allaway, (1996), Oxygen and pressure changes measured *in situ* during flooding in roots of the Grey Mangrove *Avicennia marina* (Forssk.) Vierh. *Aquatic Botany* 1043 1-11.
- Myerscough, P. J., N. J. Skelton and P. J. Clarke, (1995), Plant co-existence in heath vegetation: floristic variation and species attributes, accepted to *Australian Journal of Ecology* 1995.
- Myerscough, P. J., N. J. Skelton and P. J. Clarke, (1995), Plant co-existence in heath vegetation: Post fire establishment and the physiological niche, accepted to *Australian Journal of Ecology* 1995.
- Myerscough, P. J., N. J. Skelton and P. J. Clarke, (1995), Plant co-existence in heath vegetation: Effects of dispersal, disturbance, predation, and competition on the regeneration niche, accepted to *Australian Journal of Ecology* 1995.
- Skelton, N.J. and Allaway, W.G., (1995), Thermo-osmotic gas supply not detected in *Avicennia marina* seedlings., *Hydrobiologia* 295: 1 - 4.
- Hovenden, M.J., Curran, M., Cole, M.A., Goulter, P.F.E., Skelton, N.J., and Allaway W.G., (1995) Ventilation and respiration in one-year-old seedlings of Grey Mangrove *Avicennia marina* (Forssk.) Vierh. *Hydrobiologia* 295:23 - 29
- E.C. Morris, N.J. Skelton, and S.J. Durham, (1990), Vegetation of three headlands of the central coast of New South Wales, Wamberal and Wybung Heads. *Wetlands* (Australia) Vol 9, (2) 49 - 67
- Skelton, N.J., (1988) Gas movement and changes in the internal atmosphere of the roots of the Grey Mangrove *Avicennia marina* (Forsk.) Vieh., Honours thesis, School of Biological Sciences, Sydney University

Court Expert Witness Experience:

- War Veterans association at Warringah Council 1998
- Course on How to be an Expert Witness by EIA and NELA 1998
- Gave testimony and statements of evidence for Carstans at Pittwater Council 1999
- Gave testimony and statements of evidence for Bamfield at Baulkham Hills Council 1999
- Course on Becoming an Expert Witness Held by EIA 1999
- Gave testimony and statements of evidence, Harris at Willoughby Council 2000
- Gave testimony and statements of evidence Oosthuizen at Sutherland Shire Council, at Dolans Bay, 2000
- Gave testimony and statements of evidence Fowler at Pittwater Council, 2001
- Gave testimony and statements of evidence A Anderson at Pittwater Shire Council, at Elanora, February 2001
- Preparation of evidence for the Land and Environment Court proceedings Kozman at Valuer General 30157/00 2001
- Preparation of evidence for the Land and Environment Court proceedings Mutch & ORS at Valuer General 30061/00 2001
- Preparation of evidence for court for War Veterans association at Warringah Council 2003

Preparation of evidence for court for War Veterans association ats Warringah Council 1998
Court Appointed Expert K & V Weston ats. Pittwater Council
LSR Developments Pty. Ltd. ats. Sutherland Shire Council
Warringah Council and Duffys Forest Residents Assoc ats. Maxwell and Corbett 2003
Jambin Pty Ltd ats Pittwater Council 2004
RSL Veterans Retirement Villages Pty Ltd ats Warringah Council 2004
RSL Veterans Retirement Villages Pty Ltd ats Warringah Council 2005
Monavale Corporation Pty Ltd ats Pittwater Council 2005
Gretch and Payten Holdings ats Manly Council 2005
Marcolongo ats Pittwater Council 2005
Buchanan ats Sutherland Shire Council 2005
Moyle ats Sutherland Shire Council 2005
Kapanke ats Sutherland Shire Council 2005
Lang & Lang v Pittwater Council 2006
The Mall, Warrimoo 2006
Chivers v Hornsby Council 2006
Bradley v Manly Council and Department of Planning 2007
Woolongong City Council v Ensil P/L 2007
Woolongong City Council v Hogarth 2007
Bendent P/L v Blue Mountains Council 2007 v Department of Planning
Expert evidence for Supreme Court, Coronial enquiry 2007
Beluga Properties Pty Ltd 2008
North Western Estates Pty Limited v Baulkham Hills Shire Council 2008
De Carvalho v Ku-ring-gai Council 2009
Ku-ring-gai Council ats Dazdon Pty Ltd 2009
Vigor Master Pty Ltd v Hornsby Shire Council 2010
Sternhell v Warringah Council 2013
Parkes Shire Council v South West Helicopters Pty Ltd, Supreme Court 2013
Inspector Stephens v Ford, Arborist Death Industrial Court 2014
Poche and Van Norton v Manly Council 2013
Lake Macquarie City Council v Australian Native Landscapes Pty Ltd 2014

Company Profile



GIS
Environmental
Consultants

web: www.ecology.net.au

phone: 9939 5129 fax: 9401 0715 mobile: 041 943 8672

Table of Contents

Professional Expertise and Services	2
Typical Projects	5
Clients	7
Quality Assurance	8
Work Health and Safety	8
Insurance Cover	8
Licences and Accreditations	8
Professional Memberships	9
Company Structure	10
Director Profile	10

“Finding the path through Environmental Legislation”



Please direct all enquiries to:

Nicholas Skelton

Director – GIS Environmental Consultants

Phone: 9939 5129
Fax: 9401 0715
Mobile: 0419 438 672
Email: ecology@ecology.net.au
Web: www.ecology.net.au
Post: 45 Austin Avenue,
North Curl Curl, NSW 2099

Professional Expertise and Services

GIS Environmental Consultants has been providing expert environmental reports, maps, advise and witness testimony for environmental planning and ecological management to a wide range of property development clients for more than 17 years. Our consulting group comprises of an integrated team of specialist in the areas of Threatened Species surveys, Impact Assessment, Bushfire Protection Planning, Biobanking, Offsetting, Biometric Calculation, Environmental Legislation, and computer mapping and analysis.

We specialise in assisting our clients in finding a way through the environmental legislation and regulation process.

Our overall goal is to provide timely, reliable and accurate ecological advice to our clients to assist in decision making to achieve their project objectives and to provide the required documentation to meet the needs of environmental legislation. Most importantly, we aim to provide practical and appropriate solutions to allow justifiable decisions to be made. We achieve this by dedicating an appropriate team with the required expertise for each project.

Services offered by GIS Environmental Consultants:

- Flora and Fauna surveys
- Bushfire Protection Planning
- Vegetation Mapping
- Assessments of Significance (7-part Tests)
- Biobanking and the Biometric Offset Calculation
- Environmental Impact Assessment (EIA)
- Review of Environmental Factors (REF)
- Species Impact Statements (SIS)
- Bushland Management Planning (BMP)
- Tree Surveys
- Endangered Ecological Community Assessment
- GIS data capture, analysis and map production
- Land & Environment Court expert witness testimony
- Construction Vegetation Management Planning (CVMP) and Project Ecologist supervision
- Assistance and advise regarding permit applications such as an 'Controlled Activity Approval' from the Office of Water
- EPBC referrals

GIS Environmental Consultants also have strong, long-term working relations with specialist consultants and companies covering areas as diverse as:

- Aboriginal Heritage Assessment
- Bush Regeneration
- Tree Surgery
- Tree Lopping
- Plant Propagation
- Wetland Design and Construction
- Geotechnical Assessments
- Landscape Architecture

GIS Environmental Consultants specialise in the environments of the greater Sydney region, although we have also undertaken projects in other parts of NSW. As a result of our previous contracts we have a detailed knowledge of the natural environment and relevant regulations and policies in the northern Sydney region, particularly in the Manly, Warringah, Pittwater, Ku-ring-gai, Hornsby and Mosman Local Government areas.

1.1 Fauna Survey

GIS Environmental Consultants are equipped and licensed to survey and trap all animal groups. See the Licences and Accreditations Section for licensing details.

Fauna survey techniques and equipment include:

- Identification of tracks, nests, scratches and diggings
- Targeted searches for Threatened Species and habitat suitability
- Scat Analysis
- Hair tube trapping and Hair Analysis
- Spotlighting
- Frog, mammal and owl call playback and triangulation
- Ultrasonic bat detection (Anabat)
- Bird watching
- Elliot trapping, Cage trapping, Pitfall trapping
- Stag watching and camera investigation of hollows
- Habitat mapping

1.2 Flora Survey

GIS Environmental Consultants are equipped, licensed and have the necessary widespread knowledge and skills for all types of flora survey and vegetation community classification.

Flora investigation surveys and techniques include:

- Comprehensive plant species lists
- Vegetation mapping
- Vegetation community classification
- Threatened species distribution
- Tree surveys
- Quadrat and transect surveys
- Biometric Surveys
- Weed surveys/mapping
- Targeted searches for threatened species and habitat suitability

1.3 Impact Assessment and Reports

We can provide the following Impact Assessments and reports:

- Assessment of Significance (7-part test)
- Biobanking and Biometric Offsets
- Environmental Impact Assessment (EIA)
- Environmental Impacts Statements (EIS)
- Review of Environmental Factors (REF)
- Species Impact Statements (SIS)
- Quadrat, transect, GPS and photographic inventories
- Weed density and resilience assessment

1.4 Management and Monitoring

We provide the following monitoring services:

- Supervision of construction works
- Certification for DA conditions
- Bushfire Protection Planning and Mapping
- Bushland management planning and monitoring
- Monitoring strategies
- Environmental Management Plans and Bushland Management Plans
- Construction Vegetation Management Plans and supervision
- Weed Control
- Bush Regeneration

1.5 GIS Services (Geographical Information Systems)

We have a fully functional GIS systems compatible with the software packages: ArcView, MapInfo, AutoCAD, ArcInfo, and ArcGIS. We can convert between any coordinate systems or GIS formats.

- GIS data capture, manipulation and analysis.
- GPS surveys including +/- 1m accuracy.
- Perform spatial and database analysis, statistical testing, and GIS modelling.
- Set up new GIS systems and training.
- Download field GPS points into the GIS system.
- We can produce full colour maps in A1, A2, A3 and A4 size.
- Maps can be produced as .PDF Adobe Acrobat files or for intranet and internet use.
- We can provide fly through 3D views.
- We can provide data to overlay on Google Earth

1.6 Other Consultancy Services

We provide the following services and reports through our partner consultancies.

- Aboriginal Heritage Assessment
- Bush Regeneration
- Tree Surgery
- Tree Lopping
- Plant Propagation
- Wetland Design and Construction
- Geotechnical Assessments
- Landscape Architecture

Typical Projects

GIS Environmental Consultants have the capacity to undertake a wide range of projects and have successfully completed over 520 projects in the last 5 years alone. Some examples of previous projects are given below. A more comprehensive list of projects completed by the company is available on request.

1.1 Flora and Fauna Inventory Studies

Location	Client
Manly Council's Bushland Reserves (Award winning)	Manly Council
North Head Sydney Harbour National Park	SHFT
Dobroyd Head Sydney Harbour National Park	NPWS
Beecroft Peninsula	Defence

1.2 Flora and Fauna Impact Assessments (Assessment of Significance; 7-Part Tests)

GIS Environmental Consultants have completed over 800 examples of Impact Assessment reports including subdivisions, retirement villages, private and commercial development, Council proposals and Defence projects.

1.3 Species Impact Statements

Development Type	Location	Client
Commercial development	Austlink Park, Belrose	Austequity Properties Pty Ltd
House Extension	Addison Road, Manly	Private
Residential Development	Oyama Road, Manly	Private
Seaforth Oval Road Upgrade	Seaforth Oval/Duffy's Forest	RTA/Manly Council

1.4 Bushland Management Plans

Development Type	Location	Client
Residential Development	Bilgola Beach	Walter Barda Architects Pty Ltd
Stormwater Detention	Narrabeen	Montego Cay Pty Ltd
Senior's Living Village	War Veterans Village, Narrabeen	RSL Retirement Villages

1.5 Bushfire Planning

Project	Location	Client
North Head Prescribed Burn Planning	Manly	National Parks and Wildlife
Ku-ring-gai National Park, West Head Fire Plan	Ku-ring-gai	National Parks and Wildlife

1.6 Data Capture, GIS and Mapping

Project	Location	Client
Manly Scenic Walkway	Manly	Manly Council
Weeds at Manly Lagoon	Manly	Manly Council
Green Corridors Management Strategy	Upper Parramatta Catchment	Pittwater Council
Ingleside Land Release	Ingleside	Pittwater Council
Pittwater Vegetation Mapping	Pittwater LGA	Pittwater Council
Manly Burn Reduction Piles	Seaforth	Manly Council

1.7 Land and Environment Court

Testimony and Statements of Evidence for Council, applicant or as:

- South West Helicopters Pty. Ltd., ats. Parkes Shire Council
- RSL Veterans' Retirement Village, ats. Warringah Council
- Formston & ors ats. Pittwater Council
- Catholic Church ats. Warringah Council
- Mutch & ORS ats. Valuer General
- Kozman ats. Valuer General
- Anderson ats. Pittwater Council
- Fowler ats. Pittwater Council
- Oosthuizen ats. Sutherland Shire Council
- Harris ats. Willoughby Council
- Bamfield ats. Baulkham Hills Council
- Carstans ats. Pittwater Council
- K & V Weston ats. Pittwater Council
- LSR Developments Pty. Ltd. ats. Sutherland Shire Council
- Warringah Council and Duffys Forest Residents Association ats. Maxwell and Corbett
- Gretch and Payten Holdings ats. Manly Council
- Mutch & ORS ats. Valuer General
- Jambin Pty Ltd ats Pittwater Council
- Monavale Corporation Pty Ltd ats Pittwater Council
- Lang ats. Pittwater Council
- Marcolongo ats. Pittwater Council
- Buchanan ats. Sutherland Shire Council
- Moyle ats. Sutherland Shire Council
- Kapanke ats. Sutherland Shire Council
- Lang & Lang ats. Pittwater Council
- Bradley ats. Manly Council and Department of Planning
- Wollongong City Council ats. Ensil Pty Ltd
- Wollongong City Council ats. Hogarth
- Bendent Pty Ltd ats. Blue Mountains Council ats. Department of Planning

Clients

Our clients range across both the public and private sectors, and include national, state and local government authorities, as well as community groups, commercial enterprises, and private landholders. The projects we have completed range in size from advice on Threatened Species to comprehensive flora and fauna surveys of large National Parks and groups of Local Government Areas.

Examples of previous and current clients:

- **Local Councils and Trusts**
 - Blacktown Council
 - Hornsby Council
 - Fairfield Council
 - Manly Council
 - Penrith Council
 - Pittwater Council
 - Sutherland Shire Council
 - Warringah Council
 - Willoughby Council
 - Wyong Council
 - Hawkesbury-Nepean Catchment Management Trust
 - Upper Parramatta River Management Trust
- **Commercial Enterprises**
 - Australian Museum
 - Bayview Golf Course
 - Bonne Bell
 - Kellogg, Brown and Root
 - Emerald Logic
 - Hassell Pty Ltd
 - Kimbriki Waste
 - Pacific Power
 - Pacific Waste Management
 - SMEC
 - The Salvation Army
 - Tree Wise Men
 - War Veterans Retirement Village, Collaroy
- **State Government**
 - Department of Public Works
 - Landcom
 - NSW National Parks and Wildlife Service
 - State Forests of NSW
 - The University of Sydney
- **Federal Government Authorities**
 - Australian Defence Force
 - Australian Federal Police
 - Environment Australia
 - Sydney Harbour Federation Trust
 - Department of Lands
 - Department of Environment and Conservation
- **Private Landholders**
 - Names withheld for privacy

Quality Assurance

GIS Environmental Consultants maintains ongoing quality assurance procedures as part of our Quality System. We have a strong commitment to quality assurance and recognise that it is an essential part of successful project completion. Adherence to the company's Quality System ensures that we efficiently fulfil our contractual obligations to our clients, and ensure that all products prepared in-house are thoroughly edited and reviewed prior to release. It is a requirement of the Quality System that all products prepared in-house are reviewed by both peers and the company's Principal prior to final release.

All staff and regular sub-contractors are familiar with the company quality assurance procedures and the procedures are routinely implemented. Compliance with procedures is monitored as part of an ongoing process through internal auditing of staff of their knowledge of, and compliance with company procedures. Through continuous auditing, the quality assurance system is refined to better suit the requirements of both the company and our clients.

Work Health and Safety

At GIS Environmental Consultants we are familiar with the requirements of the *Work Health and Safety Act 2011* and associated Regulations. GIS Environmental Consultants have specific WH&S policies, plans and procedures in accordance with the Act that are adopted by all staff and sub-contractors. Our Work Health and Safety Policy Statement and Fieldwork Safety Guidelines are available on request.

Insurance Cover

GIS Environmental Consultants are fully insured for Public Liability and Professional Indemnity.

Company insurance details are as follows:

- Public Liability: Ten million dollars (\$10,000,000), Vero Insurance Limited
- Professional Indemnity: Ten million dollars (\$10,000,000), Lloyd's Underwriters
- Car insurance: Fully comprehensive

Licences and Accreditations

- NSW Department of Primary Industries, Animal Care and Ethics Committee: 12/4838
- NSW Department of Primary Industries, Animal Research Authority: 12/4838
- Office of Environment and Heritage, Section 132C Scientific Licence: SL101070
- Office of Environment and Heritage, BioBanking Assessor under the Threatened Species Conservation Act 1995: 0119
- Office of Environment and Heritage, Data Licence Agreement: CON97043

Professional Memberships

Professional Committees

- Warringah Pittwater Bush Fire Management Committee
- Ingleside/Warriewood Escarpment Management Committee, Pittwater LGA
- Executive committee ECA of NSW

Independent Public Hearing Panel (IHAP)

- IHAP for the assessment of Developments for Warringah LGA since it's start in 2003
- IHAP for the assessment of Developments for Southerland Shire LGA since it's start in 2009
- IHAP for the assessment of Developments for Manly LGA since it's start in 2008
- IHAP for the assessment of Developments for Liverpool LGA since it's start in 2011
- IHAP for the assessment of Developments for Wollongong LGA since it's start in 2009
- IHAP for the assessment of Category Three Developments since it's start in 2002

Professional Association Memberships

- Ecological Society of Australia
- Environmental Consultants Association of NSW
- Environmental Institute of Australia Inc No. 960099
- AURISA (Australian Urban and Regional Information Systems Association) No. SM2151
- Coast and Wetlands Society
- Royal Zoological Society
- Royal Botanical Gardens of Sydney
- Greening Australia NSW No. 1940
- Frog and Tadpole Study Group
- Birds Australia No. 38840

Professional Affiliations

- Ron Coffey – Bushfire Hazard Reduction Planning
- Roger Fenwick – Bushfire Planning and Investigation
- Growing My Way – Tree Services and Arborist Assessments

Company Structure

GIS Environmental Consultants is an established team of environmental scientists and support staff. Our offices are based in North Curl Curl, on Sydney's northern beaches.


The team consists of:

- Nicholas Skelton - Principal - B.Sc. (Hons), M.App.Sc. (Vegetation Management & GIS)
- Kelly Askew – Project Officer/Field Ecologist – B.Sc. (Biology)
- Jennifer Morgan – Project Officer/Field Ecologist – B.Sc. (Adv. Bio.)
- Ariane Weiss – Project Officer/Field Ecologist/Bush Regeneration - B.Sc., Dip. CLM
- Jacque Bell - Project Officer/Field Ecologist – B.Mar.Sc. (Ecology)
- Ric Nassar– Accounts Manager
- Allison Thorne – IT support and administration – B. Com. (IT)

All members of the team have a minimum qualification of a 3-year Bachelors Degree in a relevant discipline, and most have a second degree or higher degree. Our consultants work in both field and office to ensure consistency and quality within projects.

Director Profile

Director / Project Manager – Nicholas Skelton (B.Sc. (Hons); M. App. Sc.)

	<p>Nicholas Skelton is a Senior Environmental Scientist and the Director of GIS Environmental Consultants. He is a field biologist with 20 years experience in flora and fauna survey in the northern Sydney area, whilst working as a consultant, and as a research scientist for the University of Sydney and the University of NSW and also government agencies that manage and research the environment, including NPWS, State Forests, and the Royal Botanic Gardens.</p> <p>Nicholas's own areas of expertise include: flora and fauna survey, field survey design, threatened species conservation, management planning, GIS data capture and analysis and digital mapping.</p> <p>He has been involved in more than 520 flora and fauna surveys and management plans, over 70 environmental assessment projects, and is the author of 2 theses and 8 scientific papers. His formal qualifications include a Bachelor of Science with Honours from Sydney University and a Masters in Applied Science from UNSW. Nick was born on North head and has a close attachment to the site and is keen to drive the appropriate management of the site based on scientific facts.</p>
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