

Appendix F

Visual assessments

Appendix F1

Richard Lamb & Associates, Addendum Visual Impact Review, April 2015

Georges Cove Marina
146 Newbridge Road, Moorebank



Addendum Visual Impact Review

Report prepared for Benedict Industries

by Dr. Richard Lamb

Date: 15 April 2015



1.0 Introduction

1.1 Purpose of this report

This report was commissioned by Benedict Industries, the applicant, to review the potential visual impacts that would ensue as a result of development on part of the site known as 146 Newbridge Road (Lot 7 DP 1065574), Moorebank for the purposes of a marina and dry berth building.

Richard Lamb and Associates (RLA) prepared a Visual Impact Assessment dated 22 September, 2010 (RLA 2010 report). This report is a review of the assumptions made in and the findings of that report. This addendum report is based on fieldwork carried out on 9 April, 2015.

This report should be read in conjunction with the RLA 2010 report, to which it is cross referenced. As will become clear in this addendum report, with the exception of the foreground of views in the continuing residential development in Georges to the west of the Benedict site, there have been minimal changes to the existing character, quality and appearance of the site as seen from the public domain. As a result, there would also be minimal changes to the potential future appearance of and visual impacts of the proposed Georges Cove Marina development.

1.2 Current visual environment

The components to the proposed development, being a dry berth building for a private marina, club building, a wet berth marina, and external car parking facilities will remain as assessed in the RLA 2010 report.

In the RLA 2010 report, Figure 1 shows the character of the surrounding visual environment. Figure 1 below shows the current visual environment in 2015. Leaving aside minor changes inside the subject site as a result of continuing activity there, the only significant change in the current visual environment is the continuing development of the Georges Fair site to the west, the residential component of which is nearing completion.

2.0 Summary 2015 assessment

2.1 Visual Exposure

A review has been undertaken of the viewpoint analysis conducted in the RLA 2010 report to assess the visual impacts that may be experienced by viewers. This consisted of re-visiting the subject site and the locality and assessing the potential for change in impact on views from the selected locations.

MOOREBANK – NEWBRIDGE ROAD, MOOREBANK NSW

Source: Nearmap.com

Current as at: 8 January 2015



Figure 1: Site and Locality Identification



Approximate Location of the Proposed Marina Site



Not to Scale



2.1.1 Topography, vegetation and proposed marina

The existing subject site of the marina has minimal external visibility to places outside the site as in 2010. The same potential exists for the proposed dry berth building and marina building to be of some visibility in external views, above the existing tree canopy. The dry berth building will be partly visible over the trees on the boundary between the Georges Fair site and the location of the proposed marina. However, the overall visibility from this area will be lower than had been assessed in 2010 as a result of predominantly 2-storey residential development across the site, which minimises potential views and confines them to the fringe along a short section of Brickmakers Drive.

A comparative analysis of views in 2010 and 2015 from the same locations (below) confirms this analysis. There would be no change to the potential future views from the Benedict Industries' land outlined in Parts 2.1.2 and 2.1.3 of the RLA 2010 report.

The dry berth maritime building will have a maximum height of 24.4m from a finished floor level (FFL) 4.6m above height datum (AHD) and the private Marina Clubhouse will have a maximum height of 1.31m from a FFL of 6.1 AHD. There will be about 267 external car parking spaces. These dimensions are in keeping with the RLA 2010 report.

2.1.2 Existing residential areas

Views towards the subject site from the public domain in elevated locations developed before 2010 are now significantly reduced or eliminated by residential development in Georges Fair. Former views from Malinya Crescent, Attunga Avenue, Kalimna Street, Ikara Crescent and Elouera Crescent to the northwest of the subject land are now blocked by foreground development.

The same principle applies to most streets in Georges Fair, some of which were assessed as having potential views of part of the dry berth building in 2010. Potential views toward part of the dry berth building would be confined to a short section of Brickmakers Drive and a small number of residences facing the street in the general vicinity of a stormwater detention basin east of the road.

2.1.4 Public reserves and parks

There would be no change to existing visual exposure to parks and reserves adjacent to the Georges River. Parks in the Georges Fair area are not exposed to the proposed development as a result of foregrounds comprised of residential buildings (see comparative analysis examples below).

2.1.5 Georges River

There would be no change to the exposure of views to or from the Georges River as identified in the RLA 2010 report.

2.2 Visual effects analysis

The RLA 2010 report findings with regard to visual effects in Section 2.2 remain current. There would be no substantive changes to the baseline factors analysed. There would be minor changes to view compositions (Variable factors, Section 2.2.2 of the RLA 2010 report) as a result of the



effective completion of residential development in Georges Fair, which would restrict views to a small section of Brickmakers Drive and its vicinity. The effect would be to reduce the visual exposure of the proposed development, compared to findings of the RLA 2010 report.

2.3 Visual impacts assessment

2.3.1 Physical absorption capacity (PAC)

The PAC for the proposed marina (Section 2.3.1 of the RLA 2010 report) is unchanged from Moderate in 2015 in views from the north, south west and east but is higher in views from the north west and west in Georges Fair (Moderate-High). The higher absorption capacity results from the reduced visual catchment and the change of foreground views to built form caused by development of Georges Fair, in the context of which the buildings in the proposal are of higher compatibility and cause lesser contrasts than as assessed in 2010.

2.3.2 Visual compatibility

Visual compatibility assessed in Section 2.3.2 of the RLA 2010 report would be fundamentally the same in 2015 (ie. Moderate). However there would be an increase in compatibility of the proposal in views from the now almost completed Georges Fair locality as a result of the conversion of the former open foregrounds to exclusively urban development.

2.3.3 Overall visual effects

The overall visual effects of the subject development on its visual catchment were considered to be Moderate in Section 2.3.3 of the RLA 2010 report. This review finds that this situation will not change.

2.4 Significance of residual visual impacts

This review finds that the same weighting factors on visual impacts are relevant to the proposal as in 2010 (Section 2.4 of the RLA 2010 report). No change has occurred other than an increase VAC and in compatibility of the proposal with the adjacent urban development of Georges Fair. The importance of the impact remain as Low-Moderate.



3.0 Residual impacts and mitigation measures

The residual visual impacts of the proposal on the surrounding areas were rated as limited in Section 3.0 of the RLA 2010 report. No changes have occurred in the intervening period to change this assessment.

4.0 Conclusion

This review assessment has considered the range of potential visual impacts that could ensue as a result of the construction of the proposal as well as the range of potential public and private domain locations from which it may potentially be visible.

The underlying principles of the visual impact assessment previously undertaken in the RLA 2010 report remain the same, as do the reasons for assessment of the visual impacts. The baseline visual exposure of the proposed development would be lower than as assessed in the RLA 2010 report and the visual absorption capacity would be somewhat higher, as would the compatibility of the residual visibility of the dry storage building, as a result of the near completion of the residential component of development of Georges Fair. Overall that would lead to somewhat lower visual impacts.

In conclusion, it is my opinion that the visual impacts of the proposed marina would at the most be Low-moderate overall and the application can be supported on visual grounds.



Plate 8: Viewing Location A Image from RLA 2010 report
View south east from the southern end of Ikara Crescent into the former brick works site.



Plate 8: Viewing Location A in 2015
View south east from the southern end of Ikara Crescent in 2015



Plate 9: Viewing Location B, Image from RLA 2010 report
View north east from near the intersection of Attunga Avenue and Malinya Crescent.



Plate 9: Viewing Location B, in 2015
The middle ground view is now composed of housing in Georges Fair



Plate 10: Viewing Location C, Image from RLA 2010 report
View east from the eastern section of Maddecks Avenue.



Plate 10: Viewing Location C, in 2015
Buildings and public and private domain landscape now block views toward the proposal site.



Plate 11: Viewing Location D, Image from RLA 2010 report
View east from near the intersection of Bradbury and Biddle Streets.



Plate 11: Viewing Location D in 2015
View east from near the intersection of Bradbury and Biddle Streets. The middle ground is composed of residential buildings and public and private domain landscape is becoming established.



Plate 12: Viewing Location E, Image from RLA 2010 report
View east from Bradbury Street.



Plate 12: Viewing Location E in 2015
View east from Bradbury Street. The front row of houses, not present in 2010, blocks views to the landscape beyond.



Plate 13: Viewing Location F, Image from RLA 2010 report

View east from near the intersection of Christiansen Boulevard and Sims Street. It was concluded that there would be no view from this location.



Plate 13: Viewing Location F in 2015

View east from near the intersection of Christiansen Boulevard and Sims Street in 2015. The assessment in 2010 was correct. Subsequent development blocks views toward the proposal site



Plate 14: Viewing Location G, Image from RLA 2010 report
View north east from Malinya Park.



Plate 14: Viewing Location G in 2015
View north east from Malinya Park. The view toward the proposal is blocked in the foreground by buildings in Georges Fair.



Plate 15: Viewing Location H, Image from RLA 2010 report
View north east from the public reserve which separates Bradbury Street and Attunga Avenue.



Plate 15: Viewing Location H in 2015
View north east from the public reserve which separates Bradbury Street and Attunga Avenue.
Buildings and landscape block the view toward the proposal site.



Plate 16: Viewing Location I, Image from RLA 2010 report
View south east from public reserve located at the intersection of Maddecks Avenue and Travers Street.



Plate 16: Viewing Location I in 2015
View south east from public reserve located at the intersection of Maddecks Avenue and Travers Street. Buildings now block the view toward the proposal site.



Plate 17: Viewing Location J, Image from RLA 2010 report
View south east from Paine Park at the eastern most end of Elouera Crescent.



Plate 17: Viewing Location J in 2015
View south east from Paine Park at the eastern most end of Elouera Crescent.
Buildings now block the view toward the proposal site.



Plate 18: Viewing Location K, Image from RLA 2010 report
View south along the river channel from adjacent to the public boat ramp accessed from Davy Robinson Drive.



Plate 18: Viewing Location K in 2015
View south along the river channel from the floating pontoon adjacent to the boat ramp accessed from Davy Robinson Drive. No change has occurred to the composition of the view or the likely effects of the proposal



Plate 19: Viewing Location L, Image from RLA 2010 report

View west toward the site and the location of the proposed inlet connecting the marina with the river channel. Residences in the background are south west of the Georges Fair site.



Plate 19: Viewing Location L in 2015

Although the image was taken in very difficult light conditions and not from precisely the same location as in 2010, it is evident that the view composition has not changed. An apartment building and roofs of 4-5 dwellings in Brickmakers Drive are now visible, blocking views of more distant residences formerly visible in the background.

Appendix F2

Richard Lamb & Associates, Visual Impact Assessment, September 2010

Georges Cove Marina
146 Newbridge Road, Moorebank



Visual Impact Assessment

Report prepared for Bendict Industries

by Dr. Richard Lamb

Date: 22 September 2010



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1.0 Introduction

1.1 Purpose of this report

This report was commissioned by Benedict Industries, the applicant, to consider the potential visual impacts that would ensue as a result of development on part of the site known as 146 Newbridge Road (Lot 7 DP 1065574), Moorebank for the purposes of a marina and dry berth building (refer to Figure 1). The report is based on fieldwork carried out on 28 July and 3 August 2010.

Richard Lamb and Associates have extensive experience in scenic resource management and heritage conservation over the last 15 years. The company specialises in landscape assessment, landscape heritage conservation, assessment of visual impacts and strategic planning for the visual protection and conservation of scenic and culturally significant landscapes. Richard Lamb and Associates is also very familiar with the landscapes and planning issues relating specifically to this section of the Georges River as we have previously conducted visual assessments for the Riverlands Golf Course on the eastern side of the river and the Concrete Recyclers site immediately adjacent to the southern boundary of the marina site.

1.2 Documents consulted

The following documents have been consulted during the preparation of this report:

- Site Plan (Drawing No SK-003 Issue B) prepared by Michael Fountain Architects Pty Ltd, dated 14 April 2010.
- Liverpool Local Environmental Plan 2008 (LEP)
- Liverpool Local Environmental Plan 1997 (Amendment No 76)
- Boral Moorebank Land Development Control Plan No 50
- Liverpool Development Control Plan 2008, Part 2.10, Development in Moorebank East

1.3 Assessment methodology

There are many possible methods for the assessment of visual impacts and as yet no universal agreement on the best one. The potential visual and landscape impact assessment methodology I use is outlined below. This is a method that I have developed and refined over many years conducting both academic research and consultation on visual impact matters supported by field work and observations.

The method I use attempts to answer the two important questions of impact assessment, ie. what is the nature and extent of the environmental effect of the activity and what is its importance.

The assessment of visual impacts is a field that requires a degree of subjective judgement and cannot be made fully objective. It is therefore necessary to limit the subjectivity of the work by



adopting a systematic, explicit and comprehensive approach. This has the aim of separating aspects that can be more objective, for example the physical setting, visual character, visibility and visual qualities of a proposal, from more subjective elements, such as visual absorption capacity and compatibility of the proposal with the setting.

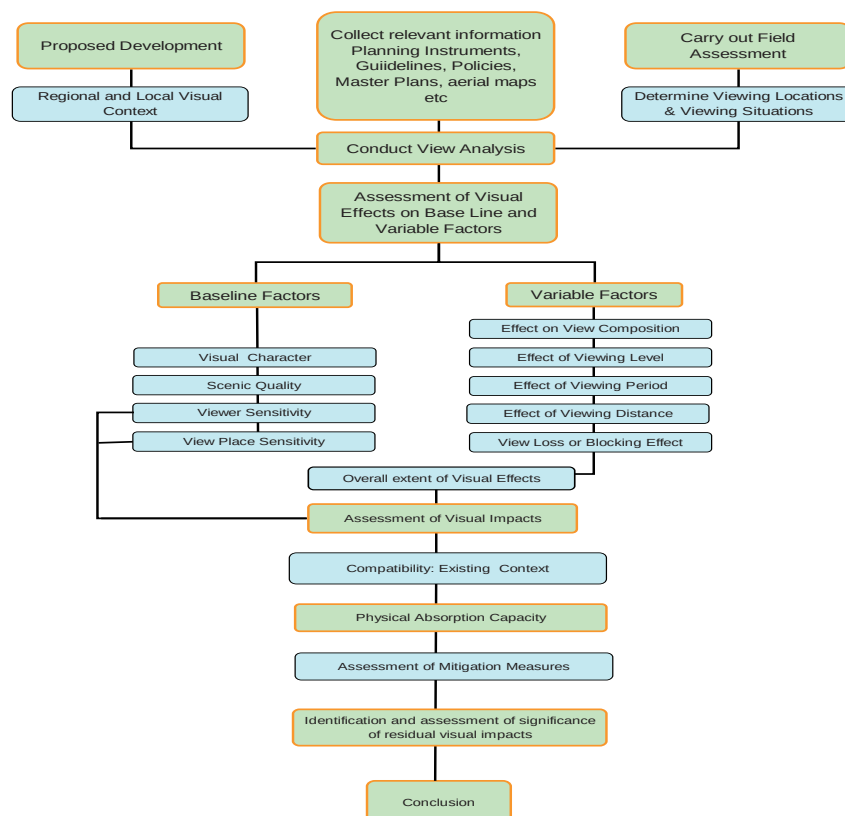
The methodology used in the present assessment is one developed by myself. It is partly related to the methods developed in the US described as the Visual Management System (VMS) and still current in landscape assessment practice in the US\$ (USD\$ Forest Service, 1995; Visual Resource Management Manual USD\$ (1991)) and in \$ustralia (eg. Scenic Spectrums Pty Ltd (Victoria), Visual Evaluation Model). We, at Richard Lamb and \$ssociates have employed the method developed by me in recent Visual Impact \$ssessments such as those for the EIS for the Proposed Rose Bay and Point Piper Marinas, Statement of Environmental Effects for Careel Bay Marina, Development \$pplication for Double Bay Marina and in the Master Plan and Stage 1 D\$ for Trinity Point tourism and recreation State Significant Project, Lake Macquarie. We have developed specific modifications of this methodology for telecommunications and similar infrastructure, recently used to assess telco towers for Integral Energy. The modifications made by me to the VMS methods are based on my personal knowledge and experience of visual impact assessment, professional consultancy

practice and teaching in the area over 28 years and on empirical research with which I am familiar and have carried out personally, concerning environmental perception and cognition.

The main components of the visual impact assessment are describing the development and its context, identifying relevant information, and carrying out a view analysis, visual effects analysis, visual impact evaluation and assessment of the significance of whether there are significant residual visual impacts.

The flow chart which describes the components of the method used in this assessment and the logic of connection between them can be seen at Figure 1. The method is an adapted one specifically for the purpose of assessing impacts of infrastructure items in landscapes.

Figure 2 : Flow chart of the visual impact assessment methodology





1.4 The Proposal

The subject site was rezoned in 2008 from Rural 1(a) to a combination of Medium Density Residential (R3), Public Recreation (RE1), Private Recreation (RE2) and Business Enterprise (B6). The location for the proposed marina development is within the land now zoned RE2 and is a permissible use within this zoning.

There will be four main components to the proposed development, being a dry berth building for a private marina, club building, a wet berth marina, and car parking facilities. The dry berth building would be located within the western part of the subject site. It will be located on a raised platform to RL 4.6m \$HD and will be up to 21 metres high incorporating elevator and stacking facilities, all of which are fully enclosed. The dry berth building will also be the location for a workshop and maintenance facilities. In addition, the dry berth building will contain a clubhouse for small craft owners, kiosks, function centre, chandlery, sales office and other recreational facilities. Adjacent to the dry berth building is the proposed private marina club. The building will be two storeys in height with a maximum ridge height of RL 13.100 \$HD. The RL of the ground level on which the private marina club would be constructed is RL 6.1 \$HD. The building will be of a complimentary architectural style to that of the dry berth building.

The proposed wet berth marina will be located within the eastern section of the subject site adjacent to the Georges River. The marina will occupy an existing dredged area of the site which is presently established as an artificial water body. An opening to the Georges River is proposed for the eastern boundary of the site. This opening would be approximately 40m wide. The strip of land separating the remainder of the marina from the Georges River is zoned RE1 and would be landscaped and revegetated to reflect the character of existing riparian vegetation. Pedestrian access to the River foreshore will be facilitated by pathways and a pedestrian bridge over the opening to the river to future detail.

The proposed wet berth marina will accommodate a total of 186 craft. The majority of the small craft will range between 8 and 12 metres in length. However, there will be 20 small craft ranging between 12 and 15 metres, 2 craft ranging between 15 and 18 metres, and 2 craft ranging between 18 and 20 metres. The berths will be located on marina arms attached to the shore on the western side of the marina inlet. There will be seven marina arms in total.

Car parking for the marina facility will be in four locations. There are 216 car spaces allocated under cover in the dry berth building. The remainder of the 489 total car spaces are located within three external car parks. Car parks A and B are located on the southern side of the marina, and car park C is located in the northwest corner of the site.

Much of the land surrounding the marina site is to be developed in the future and as a result the setting of the proposed marina will be very different to what it is at present. In particular the northern section of the Benedict Industries' land and the former Boral site to the west are both to be redeveloped, primarily for residential development. This will be a large departure from the industrial character that these lands presently display with major changes to the existing levels.

The northern section of the Benedict Industries' land has been rezoned facilitating several land uses. Adjacent to Newbridge Road the land has been zoned Business Enterprise (B6). Adjacent to that to the south is an area of Medium Density Residential (R3). The remainder of the site is a combination of public and private recreational lands with the public recreational land being located adjacent to the river. As such the northern section of the Benedict Industries' land will in the future have a visual character typical of many areas of redeveloped industrial or rural lands in the area. It



will also follow the typical pattern for this part of the river of having development on more elevated locations and the areas immediately adjacent the river being retained as recreational areas.

Land to the west of the site (the former Boral site) is undergoing transformation from a brick pit and industrial landscape to the partly constructed residential development known as Georges Fair. The land has been rezoned Medium Density Residential (R3) and has approval for the construction of 960 residential dwellings and associated infrastructure. This land slopes generally downward from west to east, with a cross fall from the north western corner. The highest part of the land is adjacent to Nuwarra Road. The land generally has an aspect to the east.

As part of the rezoning of the Boral site a large area of bushland was rezoned for Environmental Protection. This land is located within the south eastern section of the Boral site and to the south west of the proposed marina site. It is proposed that the bushland will eventually be publically accessible and it will be owned and managed by Liverpool City Council.

To the immediate south of the site is located land owned by Concrete Recyclers. This site has recently been rezoned from 1(a) Rural to Zone E2 Environmental Conservation. This zoning of the land does permit with development consent a recycling yard pursuant to the additional permitted uses identified in the LEP. As far as we are aware, no application has been made to take forward the development of the site in accordance with the above rezoning.



Plate 1: View west from the western bank of the Georges River to the proposed dry store building location.



Plate 2: View north west from the western bank of the Georges River to the approximate location of the small craft club.



Plate 3: View north from the western bank of the Georges River toward the Benedicts land that has been rezoned for medium density residential development.



Plate 4: View south from the western bank of the Georges River to typical riverine vegetation in the immediate vicinity of the site.



Plate 5: View north from the western bank of the Georges River to typical riverine vegetation in the immediate vicinity of the site.



Plate 6: View south west to vegetation that separates the proposed marina site from the Concrete Recyclers site adjacent to the south.



Plate 7: View south toward the proposed marina site from the Benedicts land to the north which has been rezoned for medium density residential development.



2.0 The Assessment

2.1 Visual Exposure

A viewpoint analysis was conducted to assess the visual impacts that may be experienced by viewers. This consisted of visiting the subject site and locality and assessing the likely impact on views from selected locations. The locations were selected to represent all of the kinds of viewers' experience of the development that would exist in the immediate area. The main kinds of viewing locations and areas were visited and photographed.

The photographs were taken with a digital 35mm format camera set to simulate a focal length of 55mm, to approximate the correct proportions of the elements of views as experienced by the human eye. At each viewing place a series of observations and assessments were made. A variety of locations were also visited to ascertain the extent of the visual catchment and the characteristics of the views. Refer to Figure 3 for the viewing locations assessed.

2.1.1 Topography, vegetation and proposed dry berth building

The existing subject site has minimal external visibility to places outside the site. This is due to the relatively level landscape in which it is located as well as a result of the screening effects of existing bands of vegetation located along property boundaries and the River. There is however potential for the proposed dry berth building and marina building to be visible in external views above the existing tree canopy. The proposed building will be up to 21m in height and located upon a landscape platform of 4.6m AHD, giving a total height of 25.6m above the existing ground line. For example, Montage 1 (Appendix A) illustrates that the dry berth building will be partly visible over the trees on the boundary between the Georges Fair site and the location of the proposed marina when viewed from Maddecks Avenue.

Visibility would not only depend on the height of screening vegetation but also the viewing angle. The newly developing Georges Fair residential development and the proposed residential development within the rezoned Benedict Industries' land immediately to the north of the site provide the only close viewing places elevated above the subject land. Views from Georges Fair will remain restricted by the dense vegetation on the western boundary of the site which is an extensive area of reserve land. In the future, houses newly constructed in the foreground will significantly restrict any potential visibility of the proposed marina when seen from locations within the Georges Fair land.

There would be views of the proposed marina from the elevated location of the future medium density residential development within the northern section of the Benedict Industries' land. The marina and the new residential development will be closely associated and it will be recognised by residents that they both belong to the same overall development of the Benedict Industries' land. As such, future residents will have a sense of ownership of the marina and the facilities it provides to the broader community. For this reason, visibility of the marina from these future residences is seen as a positive and attractive outcome, particularly in relation to the extractive and industrial history of the site.



2.1.2 Existing residential areas

Distant views towards the subject site are available from existing elevated residential areas to the northwest and southwest of the site. A number of viewpoints were located and analysed which represented locations from which views may be possible from the public domain in these existing residential areas. These included Malinya Crescent and Ettunga Avenue to the southwest of the subject site adjacent to the Georges Fair residential development. Other locations assessed were sections of Kalimna Street, Ikara Crescent and Elouera Crescent to the northwest of the subject land. Presently it would be possible to view the upper parts of the dry berth building from small sections of these streetscapes. These views however are very restricted as a result of foreground



Plate 8: Viewing Location \$
View south east from the southern end of Ikara Crescent.



Plate 9: Viewing Location B
View north east from near the intersection of \$ttunga \$venue and Malinya Crescent.



Plate 10: Viewing Location C
View east from the eastern section of Maddecks \$venue.



Plate 11: Viewing Location D
View east from near the intersection
of Bradbury and Biddle Streets.



Plate 12: Viewing Location E
View east from Bradbury Street.



Plate 13: Viewing Location F
View east from near the intersection
of Christiansen Boulevard and Sims
Street. There would be no view from
this location.



vegetation and buildings as well as more distant vegetation separating the marina site from the Georges Fair land. In addition, all of these views are over the presently undeveloped land in Georges Fair. This land will be developed in future staging of the development. New dwellings on this land will further restrict the visibility from these existing residential areas to the proposed dry berth building.

While views toward the upper most part of the dry berth building are possible from these locations, views into the subject site itself are not available as the site is below the visual horizon of trees. These trees include those within the extensive buffer area of reserve land which was part of the former Boral site and the intervening newly constructed residential development in Georges Fair in the foreground and middle ground of the view.

2.1.3 Developing residential areas

The Georges Fair residential development on the former Boral quarry site is planned to be developed and released in three stages over a four year period. The construction of houses between Nuwarra Road and Christiansen Road is almost fully completed and extends from Travers Street in the north to Malinya Crescent in the south. The residences are predominantly one to two storeys high and significantly block any views in the direction of the subject site from the residential streetscapes.

The display homes are located within the northwest corner, the highest part of the residential development, on the northern side of Travers Street. The display homes are two storeys in design and have a generally south southeast view orientation. The display homes will eventually be occupied. The upper parts of the dry berth building would be visible from sections of Travers Street, however this visibility will be reduced and eventually eliminated once the Georges Fair development is completed.

The public open space on the south side of Travers Street contains some mature trees, avenue plantings of large trees on Travers Street and Maddecks \$venue, as well as embankments planted with younger specimens. The combination of the public domain landscape and presence of newly constructed residences in the foreground provide substantial screening of the views towards the proposed marina site from this location.

The existing alignment of Maddecks \$venue is generally towards the proposed marina site. There will be some views down the axis of the road for motorists and residents in Maddecks \$venue to the upper part of the dry berth building. This view will be eliminated however once the foreground is occupied by housing and landscaping which will be at a different orientation than the existing street. Further screening of views into the subject site occurs due to the thick vegetation between the residential development and the subject site.

The future Maddecks \$venue is at a lower relative level compared to the subject land and in common with most of the Georges Fair development area, will have no view toward the subject site because of the effect of buildings, public domain landscape and ultimately screening by vegetation between the development area and marina site.

Future development on the western side of Bradbury Street will have their main view orientation towards the southern half of the subject site and it will be possible to view parts of the upper section of the proposed dry berth building. However, there are currently no views into the subject site from this location due to the screening effect of vegetation between the residential development and the subject site. With the recent construction of residences on both sides of Bradbury Street as well



as on other lots in Georges Fair, combined with avenue street tree plantings along Christiansen Boulevard and future streets, the likelihood of there being future views into the site from these locations is minimal.

Views from the future development along the eastern side of Christiansen Boulevard, including views down future east-west orientated streets, will be limited by the vegetation reserve to the east and will provide no views of the proposed marina development. There are currently no views into the subject site from this part of Georges Fair.

Biddle, Hoy, Sims and Schultern Streets are all secondary streets oriented in a generally southeast to northwest direction. The orientation of these streets directs views more towards the south beyond the subject site than towards the proposed marina location. There are no views into the subject site from any of the above mentioned streets due to the screening effect of thick vegetation between the residential development and the subject site and due to the view blocking effect of the newly constructed residences and landscaping of residential allotments and the public domain. Residences at the eastern ends of these streets, whilst closer to the subject site, will not experience views into the site due to the eastward and downward sloping nature of the Georges Fair land. When viewed from these locations the height of the reserve land vegetation has a greater screening effect than when it is viewed from the western ends of the streets.

2.1.4 Public reserves and parks

Davy Robinson Reserve is located to the north-north-east of the subject site, off Newbridge Road. The reserve is of little scenic value, but provides the public with a boat ramp for access to the Georges River. The south western corner of the reserve provides views down the river toward the eastern section of the subject site. There are no views or very restricted views into the site from Davy Robinson Reserve due to the screening effects of vegetation on the banks of the river on the proposed marina site.

Vale of \$h Reserve is located to the northeast of the site on the eastern bank of the Georges River accessed from \$uld Road. Locked gates limit vehicle entry however the reserve is easily accessible to the public on foot. The Reserve is a dedicated off-leash area for dogs and home to the Bankstown Touch Football \$ssociation. There are no views into the subject site from the reserve due to the screening effects of riparian vegetation.

There is informal access to the river on the private land, owned by interests associated with the Riverlands Golf Course, adjacent to the Vale of \$h Reserve to its south. \$ series of tracks provides access to a point on the river approximately opposite the proposed marina site. \$side from the river itself, this is the closest accessible public view point to the subject site. Proposed tree planting and landscaping of the river bank adjacent to the site will block most of the views into the marina site from this location. \$ view to part of the proposed marina buildings and wet berths will be possible through the proposed marina inlet.

There is no formal public access to the river's edge from the Riverlands Golf Course to the southeast of the site, on the eastern side of the river. There is substantial riparian vegetation which screens the views of the site from any part of the golf course or from land to the west of the golf course along the foreshore. In addition the dense vegetation within the eastern part of the Concrete Recyclers site provides substantial screening to the proposed marina facilities.

Malinya Park has restricted views across the Georges Fair site towards the subject site however



Plate 14: Viewing Location G
View north east from Malinya Park.



Plate 15: Viewing Location H
View north east from the public reserve which separates Bradbury Street and \$ttunga \$venue.



Plate 16: Viewing Location I
View south east from public reserve located at the intersection of Maddecks \$venue and Travers Street.



Plate 17: Viewing Location J
View south east from Paine Park
at the eastern most end of Elouera
Crescent.



Plate 18: Viewing Location K
View south along the river channel
from the public boat ramp accessed
from Davy Robinson Drive.



Plate 19: Viewing Location L
View west toward the site and
the location of the proposed inlet
connecting the marina with the river
channel.



it is likely that the upper section of the dry berth building would be visible. The development of subsequent stages of the Georges Fair site will eliminate these views from Malinya Park.

There would be restricted views from Paine Park located on Elouera Crescent to the upper section of the northern elevation of the dry berth building. Future development of housing on the Georges Fair site will eliminate views toward the proposed marina facilities from this location.

2.1.5 Georges River

The Georges River forms the eastern boundary of the subject site. As mentioned in section 2.1.4 above, it is proposed to provide dense landscape plantings along the river's edge of the site as part of amenity and riparian corridor rehabilitation. This vegetation, as it matures will provide significant screening and filtering of views to the interior of the site. In addition to the landscape screening, views from the waterway are at an upward viewing angle, which lessens the visibility of any structures that may be glimpsed through the vegetation, especially as the highest components of the proposal are to be located toward the western boundary and well away from the river.

Restricted views would be available to the proposed marina buildings from the river through the opening connecting the wet berth areas to the main river channel.

2.2 Visual effects analysis

2.2.1 Base Line Factors

2.2.1.1 Visual Character

The existing Benedict Industries' land is located on a broad low-lying flood plain of the Georges River. The northern most part of the Benedict Industries' land is the location for most of the processing and recycling activities. Within this part of the site are located stockpiles of raw and processed materials, a processing plant, and the plant offices and administration centre.

The southern part of the Benedict Industries' land is the location for the proposed marina. It is presently used for sand extraction which is then processed at the northern end. The landform of the site is extensively modified as a result of the extractive activities and is characterised by an expanse of water at approximately its centre. The land surrounding the large pond is relatively flat and is low lying compared to the northern section of the Benedict Industries' land.

The boundaries of the site also contain vegetation which varies in size, density and character. For example, the southern and western boundaries of the site are vegetated with tall, mostly native tree plantings that form a relatively dense screen to surrounding land uses. The height of the tree canopy of these trees varies on average between 15 and 20m with some emergent specimens to 30m. The vegetation on the eastern boundary comprises primarily riparian vegetation and is located within the proposed public reserve adjacent to the River. This vegetation varies between areas of dense bush which blocks views into the site from the River to areas of a more open grassy character.



2.2.1.2 Scenic Quality

The extensive literature derived from empirical research into scenic quality, preference and attractiveness shows close correlations exist between a series of physical and cultural landscape features and expressions of scenic beauty and attractiveness by respondents. These have been researched over a range of respondent populations in various countries over many years. The scenic character of the immediate locality is a mixture of natural elements, industrial lands and recreational facilities such as golf courses. Whilst the River and more natural parts of the shoreline is a positive feature within the setting of the proposed marina, other elements such as the existing recycling and sand extraction plants detract from the overall scenic quality of the area. As such, the scenic quality of the visual catchment of the proposed marina as it currently exists would be predicted to be rated of Low-moderate quality on a scale from high to low (ie, the lower end of the range), when judged within a range of landscapes. Each of the proposed changes to the landscape, from different points of view, ie. rehabilitation of the foreshore, revegetation, construction of the marina and associated buildings and conversion of the Benedict Industries' site to residential uses adjacent to the boat harbour, would be expected to cause an increase in the scenic quality.

2.2.1.3 View Place Sensitivity

Sensitivity relates to the number of viewers who would be likely to see the site and their likely expectations for visual quality. It is conventionally considered that a visual impact on a sensitive location in the public domain is more important than one of similar quality on a less sensitive site or seen from a private viewing place only.

In the case of the proposed marina, there are isolated sensitive public domain viewing places within the vicinity of the site. These locations include Davy Robinson Reserve to the north of the site, the Vale of Shute Reserve to the north east, and Paine Park to the north and accessed from Eloura Crescent. Other locations include a small section of the river channel and some of the streetscapes in the completed section of the Georges Fair development to the west of the site.

The overall visual sensitivity of the site in relation to the public domain was judged in summary to be Low-moderate on a scale from low to high (ie. the lower end of the range). The reasons for the assessment, matters that both increase and decrease sensitivity, are summarised below:

- The proposed marina would be visible at close range from the river which has a higher sensitivity rating for these views.
- There are a few public locations at either middle or distant distances from which the proposed marina would be visible. In most of these views it would only be the uppermost section of the dry berth building that would be visible.
- Most views of the proposed marina would be from public roads at medium and distant locations from the site and hence there is a lower sensitivity rating for these viewing locations.
- The existing visual sensitivity of the site, considering its low visual accessibility and low scenic attractiveness is low.



2.2.1.4 Viewer Sensitivity

There are no high sensitivity private viewing places within the immediate locality of the site. This sensitivity rating is determined because of the existing lack of residential development in close proximity to the subject site. However, this will change in the future as the northern section of the Benedict Industries' land and the eastern section of the Georges Fair land is developed for medium density residential.

The overall viewer sensitivity of the site in relation to the private domain was judged in summary to be Low-moderate (ie. the lower end of the range). The reasons for the assessment, matters that both increase and decrease sensitivity, are summarised below:

- The proposed marina facility will not be visible from existing dwellings at close range within the visual catchment.
- Most views from existing dwellings in the visual catchment of the site are at middle or distant distance ranges. In these views it is unlikely that the proposed marina would be prominent and it would be difficult to identify within its broader context. This reduces the level of view sensitivity.
- Some of the future dwellings within the Georges Fair and the northern section of the Benedict Industries' site will potentially have close views of the proposed marina, or a part thereof. These will be higher viewer sensitivity locations.
- The sensitivity of the future views from the southern part of the residential section of the Benedict Industries' land is reduced as a result of the two developments having a close physical and visual association between them and the likelihood of people choosing the location on the basis of their attraction to the setting.
- The viewer sensitivity from locations within the eastern section of the Georges Fair site is reduced as a result of the screening effects of existing vegetation on the western boundary of the site and the future transformation of the majority of what can be seen of the remainder of the Benedict Industries' site to medium density residential development.

2.2.2 Variable Factors

2.2.2.1 View Composition Types

The proposed site is not prominent in terms of its topography, form or character, especially when seen from land based viewing locations. In addition in most views the proposed marina location is not part of focal views or within primary view corridors when seen from roads and public viewing locations. The one exception is the view from the lowest section of Maddecks \$venue, however this view will be obscured following construction of subsequent staging of the Georges Fair development.

2.2.2.2 Relative Viewing Level

Close views to the proposed marina site will be available from the river. These views will generally be at levels equal to or below the level of the marina development. Most of these views however will be obscured by proposed foreground vegetation on the river banks and the constructed and



retained foreshore itself. In this regard, we have been advised that the public recreation RE1 zone will be eventually dedicated to Liverpool Council in accordance with a Voluntary Planning Agreement (VPA). We are also advised that this VPA includes a requirement to embellish the RE1 zone in accordance with a vegetation management plan (VMP). The VMP will include requirements to restore the riverine vegetation on the foreshore which will provide further screening to the proposed marina development when viewed from the river and its eastern bank.

There will be some viewing locations that will have level views towards the proposed marina. These locations include the most easterly dwellings within the Georges Fair development as well as from the Riverlands Golf Course site on the eastern side of the river. Most of the level land within the Georges Fair site will have any potential views towards the site screened by intervening dwellings within the Georges Fair site itself as well as by the vegetation on the western boundary of the site. Most of the potential views from the Riverlands Golf Course will be screened by proposed vegetation on the river banks of the site. It will be possible to view into the wet berth area and to a section of the proposed marina buildings through the inlet between the marina and the river. In this view the proposed dry berth building will be as the tallest element in the view.

There are locations that are elevated above the height of the proposed marina. These locations include the future medium density development within the southern part of the residential section of the Benedict Industries' land, and some existing residential development to the north west of the site (ie. in the vicinity of Ikara and Eloura Crescent), and to the south west of the site (ie. in the vicinity of Malinya Crescent). In particular, the views from the southern most dwellings within the Benedict Industries' land would have views down and over the marina site. The views from the existing residential areas to the north west and south west of the site would also be at downward angles however the view to the proposed marina is highly restricted as a result of the screening effects of tall canopy vegetation on the western boundary of the site and within the nature reserve.

Overall, it is considered that the proposed marina would not be prominent in its catchment relative to the typical viewer's location because of the small catchment, the relative level landscape and the resulting screening effects of intervening vegetation and existing and future residential dwellings.

2.2.2.3 Viewing Period

There are some views towards the proposed marina from public places in the immediate vicinity of the subject site that could be sustained over a short period. These locations include from the river and from a small section of the Riverlands Golf Course site. Views from these locations would be generally very short as in someone motoring along the river or walking along the river banks.

More distant public viewing locations include the boat ramp at the end of Davy Robinson Drive, the park adjacent to Malinya Crescent, and from Paine Park accessed from Elouera Crescent. They also include the relatively new park within the Georges Fair development accessed from Maddeck's Avenue. It is possible that people could spend up to half a day given the inclusion of childrens' play equipment etc. All of these locations are relatively distant from the site and the proposed marina would not be prominent in these views.

Private view places such as residences provide potential locations from which sustained views are possible. Our observations are that there are few residences with potential exposure to the site at close range. Other residences are all in the medium or low sensitivity zone. We consider that viewing period overall does not increase the sensitivity to views of the subject pole.



2.2.2.4 Viewing Distance

The predominant public viewing distance to the subject site is either in the middle or distant view classes. This factor is relevant to assessing the overall ability of viewers to perceive detail, the features of the development and the extent to which mitigation measures or alternative structures would influence the visual effects or impacts. In both viewing distance classes viewing opportunities are restricted in various ways, especially as a result of intervening vegetation and existing or future buildings. The most significant issues of viewing distance therefore relate not to detail factors but general abstract features such as the form and colour of the facility.

2.2.2.5 View Loss or Blocking Effects

There is no significant view loss or blocking effects caused by the proposed marina facility.

2.3 Visual impacts assessment

2.3.1 Physical absorption capacity (PAC)

The PSC for the proposed marina is considered to be Moderate. This is because of the screening effects of the tall vegetation on the southern and western boundaries of the site which screen a majority of the proposed marina facility in views from existing and future residential areas. Proposed planting on the river banks would effectively screen views from the river and its eastern bank. The exception is the view into the proposed marina facility along the alignment of the opening between the wet berths and the river channel.

2.3.2 Visual compatibility

Visual compatibility of the proposed marina facility is an assessment considered over its total visual catchment. Compatibility is different from change. While change is objective, the measure of visual compatibility is intended to evaluate the extent to which the change conforms with or acceptably fits into the existing and likely future visual context of the site and its surroundings.

The capacity of the site and the surroundings to absorb the proposed marina and for it to be visually compatible with existing and future landscape elements was judged to be Moderate (middle of the rating scale) on a six point scale from negligible to high.

The reasons for this assessment are summarised below:

- The proposed marina facility is a land use associated with its riverfront location and would not be an unexpected addition to the visual catchment.
- From most locations to the north west, west and south west views of the proposed marina are restricted to the uppermost section of the dry berth building. In these views it would not be possible for the viewer to identify the building as a being associated with a marina facility.
- Other large buildings that have a similar appearance as the dry berth building, are visible in middle and distant views from public and private locations to the north west, west and south west.



- The proposed marina facility would be visible from residential areas. The upper sections of large warehouse buildings are visible in these existing views increasing the compatibility of the dry berth building.
- The proposed marina would be visible from the high sensitivity location of the river channel from which the viewer may expect a higher quality of scenic quality in future development compared to the existing recycling and sand extraction uses of the site.
- The proposed marina replaces the existing extractive industry operations and recycling activities with a more attractive location and appropriate landscape. The rehabilitation of the river bank and the replacement of the concrete and stabilising materials with a rock revetment wall, will result in a much more aesthetically pleasing river frontage and will improve the visual character of the area generally.

2.3.3 Overall visual effects

The overall visual effects of the subject development on its visual catchment were considered to be Moderate on the basis of the ratings given to the above factors at 3.3.1 and 3.3.2. There are low level effects on the visual catchment generally and moderate effects only on a restricted section of the river channel.

2.4 Significance of residual visual impacts

In finally determining the significance of residual impacts, I consider that there are two critical weighting factors to consider, based on the assessment above. These are the significance of the effects on the setting, and whether the proposed marina facility would have unacceptable impact on views from the Georges River. The reason for giving this weighting is to acknowledge that in some circumstances a low level of visual effect may not be acceptable. At the same time, a high level in other circumstances may be acceptable (eg. a desired outcome of planning policy or where the public interest in the project outweighs the effect). My thinking on the relative weight to be given to each is explained below.

2.4.1 Impacts on the wider setting

The overall effects of the proposed marina facility was assessed as being Moderate, or the middle of the rating scale. However, being visible is not unacceptable unless it causes unreasonable visual effects on the view composition, scenic quality and character of the wider landscape.

There is minimal visibility of the proposed marina from locations outside the site. The two exceptions are from the future residential areas to the immediate north of the site within the Benedict Industries' land itself and from a restricted section of the river channel. The potential impacts on these views are reduced as the residential area is part of the broader Benedict Industries' site and the visual connection between the two sites is intentional and advantageous. It is also reduced as a result of the compatibility of the marina being visible from a riverine location.

Overall, this weighting factor is considered to reduce the significance of the effects, ie it should subtract importance from the effects assessed and the impacts would be Low-Moderate.



A low-moderate level of impact on this criterion is considered not to pass the threshold of significance and the visual impact is not considered significant. In our methodology and judgment, low-moderate impacts are typical when locating a new element into an existing landscape. This level of impact does not require that wholesale changes to the proposal be made or necessitate that alternative or further environmental assessments be conducted.

2.4.2 Impacts on views from the Georges River

Overall, it is considered that the proposed marina does not have a significant effect on views to and from the Georges River and will not adversely affect the scenic qualities of it. This is because there are few places from the River in which the marina development would be visible. Views from the river are predominantly restricted to a small section of the river which can view through the inlet between the river and the wet berth location. Due to the topography and the screening effects of surrounding tree stands there are no views to the river from the north west, west and south west.

As a result, this weighting factor is also considered to be neutral, ie it neither adds nor subtracts from the importance of the impact and the impacts remain as Low-Moderate.



3.0 Residual impacts and mitigation measures

The residual visual impacts of the proposal on the surrounding areas are limited. The general lack of visibility of the proposal from most viewpoints outside of the Benedict Industries' land means that there are few issues requiring any mitigation measures. Providing that the overall height of the dry berth building is maintained as proposed and vegetation on the site boundaries is retained, there are no residual visual impacts of concern.

Buffer plantings of appropriate indigenous native trees of various sizes appropriate to the screening effect, selected from the riparian and forest vegetation typical of the area and planted along the eastern boundary of the marina site would in the fullness of time reduce or eliminate the residual visibility of the development.

In regard to the above, we understand that this is the intent of the vegetation management plan which is already mandated in the VP\$ for the site as executed with Liverpool Council.



4.0 Conclusion

This assessment has considered the range of potential visual impacts that could ensue as a result of the construction of the proposal as well as the range of potential public and private domain locations from which it may potentially be visible.

It is concluded that the overall visibility of the structures and activities on the subject site would be minimal based on the proposed height of the buildings. The minimal impacts lead to few residual impacts which can be ameliorated via mitigation measures. Mitigation of visibility is only required on the eastern boundary of the marina site, where there is a potential for view from the river channel to the east of the subject site. Mitigation will firstly be achieved via screen planting using appropriate tree species on the eastern boundary of the site adjacent to the river. It is recommended that this be addressed in the Vegetation Management Plan required for this section of the site. Secondly, the use of the proposed appropriate colours and materials for the dry berth building will assist in mitigating its impacts.

It is also concluded that the proposed marina development would result in an improvement to the overall land when viewed from the river. In this regard, it is considered that the development would have a positive effect on the visual qualities of the site when compared with the existing character of the river banks.

In conclusion, it is my opinion that the visual impacts of the proposed marina would be Low-moderate overall and the application can be supported on visual grounds.

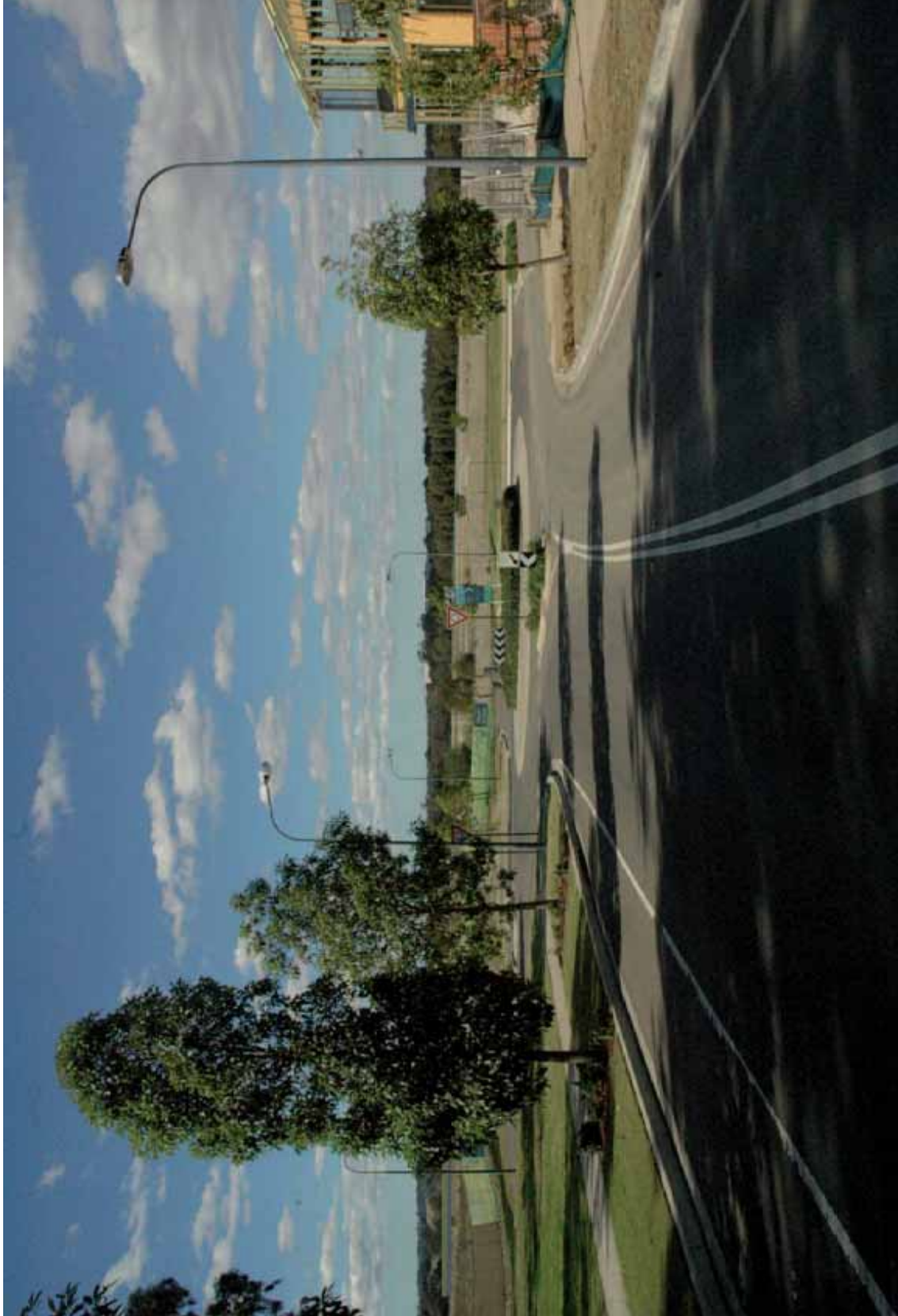
Appendix A: Photomontages

Prepared by Digital Line Pty Ltd

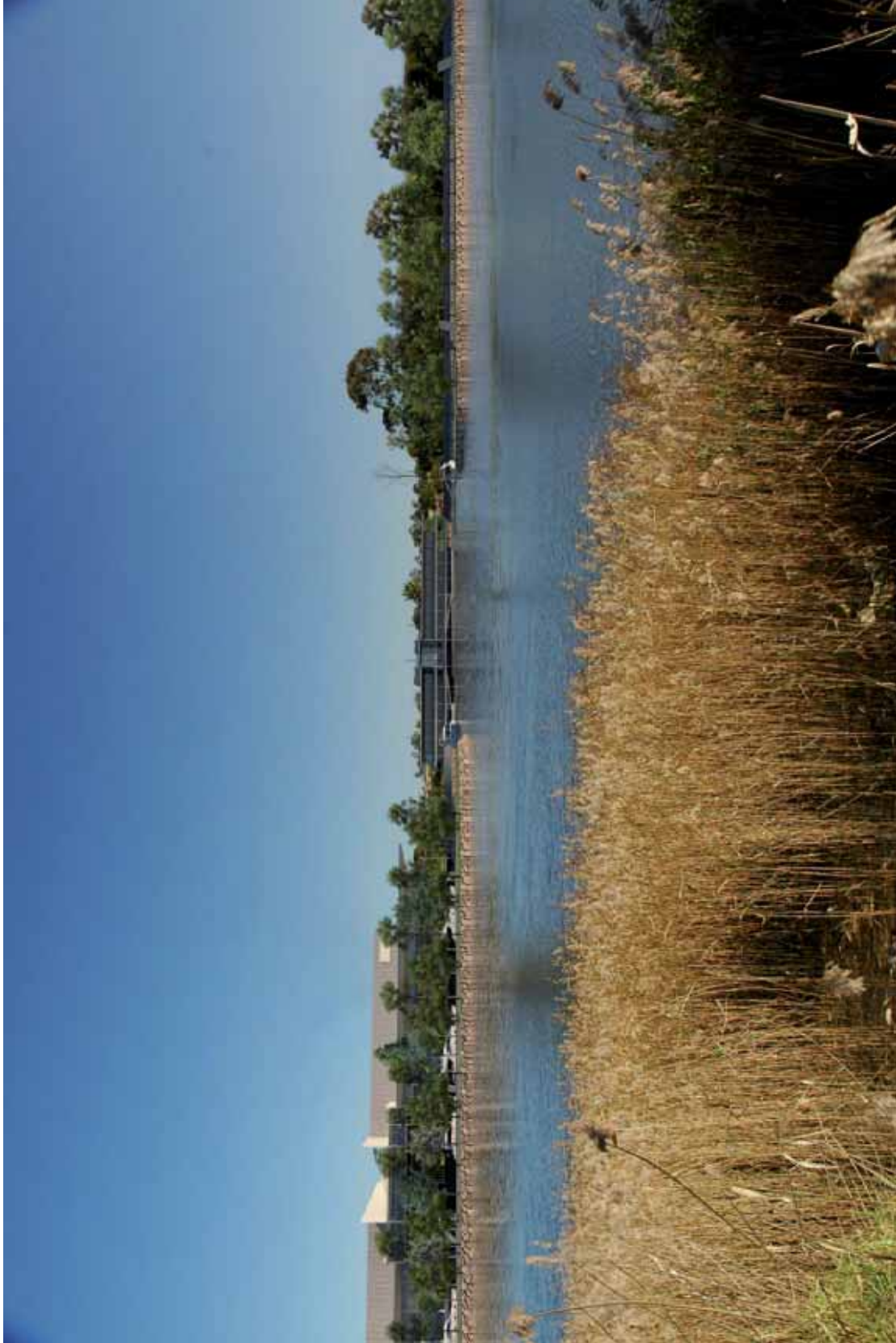


Photomontage Locations

-  Approximate Site Location
- 1** Eastern end of Maddecks Ave
Georges Fair Estate
- 2** View from the eastern side of the
river bank within the Riverlands
Golf Course land



Montage 1: View from Maddecks Avenue, Georges Fair



Montage 2: View from Riverlands Golf Course



Appendix B: Curriculum Vitae

Summary

I am a professional consultant specialising in visual impacts assessment and the principal of Richard Lamb and Associates (RLA). I am an honorary senior lecturer in Architecture and Heritage Conservation in the Faculty of Architecture, Design and Planning at the University of Sydney. I have taught and specialised in resource management, environmental impact assessment and visual perception studies for 30 years.

RLA is a firm that provides professional services, expert advice and landscape and aesthetic assessments in many different contexts. We carry out strategic planning studies to protect and enhance scenic quality and landscape heritage values, conduct scenic and aesthetic assessments in all contexts, from rural to urban, provide advice on view loss and view sharing and conduct landscape heritage studies. We act for various client groups on an independent basis, including local councils, government departments and private clients to whom we provide impartial advice. I provide expert advice, testimony and evidence to the Land and Environment Court of NSW in various classes of litigation. I have appeared in over 120 cases and made submissions to several Commissions of Inquiry. I have been the principal consultant for over 350 consultancies concerning the visual impacts and landscape heritage area of expertise during the last ten years.

At the University of Sydney I have the responsibility for teaching and research in my areas of expertise, which are visual perception and cognition, aesthetic assessment, landscape assessment, interpretation of heritage items and places and cultural transformations of environments. I teach both undergraduate and postgraduate students in these areas, giving specialised elective courses in visual and aesthetic assessment. I supervise postgraduate research students undertaking PhD and Masters degree academic research in the area of heritage conservation and Environment Behaviour Studies (EBS). I am a member of the EBS disciplinary group. The latter field is based around empirical research into human aspects of the built environment, in particular, in my area of expertise, aspects of visual perception, landscape preference and environmental cognition. I carry out empirical and scholarly research in these fields on a continuing basis.

I have a number of academic research publications in local and international journals that publish research in EBS and heritage conservation and I am the co-editor of the academic Journal of the Australian and New Zealand Association for Person-Environment Studies, called by the acronym PaPER (People and Physical Environment Research), which publishes papers in EBS, environmental psychology, cultural heritage management and in heritage conservation. The association has affiliations with a number of international EBS research organisations. I have had a number of research papers published in the last five years on landscape perception and preference, landscape aesthetics and heritage conservation.

I have developed my own methods for landscape assessment, based on my education, knowledge from research and practical experience. They are related to seminal research carried out in the 1970s, sometimes described as the Visual Management System approach, but are highly modified by myself in the light of contemporary knowledge of aesthetic preference and cognition and my experience in visual impacts assessment in urban environments. These methods have also been the subject of a number of professional seminars and of guest lecture courses I have conducted at the University of New South Wales.



Qualifications

Bachelor of Science - First Class Honours from the University of New England.

Doctor of Philosophy from the University of New England in 1975.

Honorary Senior lecturer in the Faculty of Architecture, Design and Planning and in Heritage Conservation, University of Sydney.

Visiting lecturer, University of New South Wales, School of The Built Environment

Principal of Richard Lamb and Associates and Director of Lambcon Associates Pty Ltd.

Since 1980 I have pursued research related to my teaching responsibilities and professional practice. My major research works are in:

Landscape heritage assessment

Visual perception

Landscape assessment and heritage impact assessment

Social and aesthetic values of the natural and built environment

Publications and presentations relevant to visual perception and assessment of landscapes are listed below.

Affiliations

Professional

Chartered Biologist, Institute of Biology (UK)

Editor, Journal of the Australian and New Zealand Journal for Person Environment Studies, titled "People and Physical Environment Research"

Community Organisations

Member National Trust of Australia

Chairman Landscape Conservation Committee (1995-2001)

Member Bush Management Advisory Committee (1989-2003)

Member Landscape Conservation Committee (1985-2008)

Chairman Landscape Assessment Committee (1985-1991)

Government Committees

Member, Cultural Heritage Research Advisory Committee, Department of Environment and Conservation NSW National Parks and Wildlife Service

Member, Australian Heritage Commission, NSW Natural Environment Evaluation Panel (1998-2000)

Member, South East Queensland Regional Organisation of Councils Scenic Amenity Study Program Advisory Committee (2003-2005)



International Journals for which Papers are refereed

Landscape & Urban Planning

Journal of Architectural & Planning Research

Architectural Science Review

People and Physical Environment Research (Journal of the Australian and New Zealand Association for Person Environment Studies)

Journal of Environmental Psychology

Australasian Journal of Environmental Management

Ecological Management & Restoration

Assessing Maritime Development Proposals

Assessment and Advice

- A Snaith & F Kyle
Advice concerning potential visual impacts of proposed jetty, ramp, pontoon and berthing facility, Reiby Road, Hunters Hill.
- Addenbrooke Pty Ltd
Visual impact assessment to accompany Statement of Environmental Effects for Development Application and Environment Impact Statement, extensions to Rose Bay and Point Piper Marinas.
- Ajani Boat Company Pty Ltd
Aesthetic assessment, pre-design and pre-DA evaluation of proposed marina, Sailors Bay.
Visual impact assessment to accompany development application for refurbishment of existing boatshed and conservation of heritage fabric.
- Boating Industry Association
Advice on visual resource management issues relating to boat accommodation, Sydney Region.
- Cruising Yacht Club of Australia
Visual impact assessment and advices for proposed alterations and additions to existing CYCA premises and marina.
- d'Albora Marina
Visual impact assessment of the proposed additions to the existing marina, Rushcutters Bay.
- Dolans Bay Marina
Visual impact assessment and advice of the proposed additions to the existing marina, Dolans Bay
- Hamptons Development Group Pty Ltd
Visual impact assessment for proposed redevelopment of d'Albora Marinas, The Spit, Mosman.
- Hunter, D
Advice on application and submission to NSW Maritime in support of reduced jetty and ramp, removal of pontoon and parallel mooring pen, Julian Street, Mosman.
- McWilliam, B
Visual impact assessment for proposed private landing steps, Wolseley Crescent, Point Piper.
- Numbaa Marine Facility
Assessment of visual issues relating to existing vessel on mooring pen and NSW Waterways Authority's notification of size of vessel able to be moored, Toocooya Road, Hunters Hill



- Patterson Britton and Partners and Austral Monsoon Pty Ltd
Pre-design and DA advice, visual impact assessment and statement of environmental effects, proposed redevelopment, Careel Bay Marina, Pittwater.
- PlanningNSW
Independent visual assessment: Commission of Inquiry into proposed pearl oyster industry operation, Port Stephens.
- Rosecorp Management Services Pty Ltd
Visual impact assessment and advices for proposed marina, Kendal Bay Marina ,
- Ryan, P
Visual impact assessment for development application for construction of slipway for launching, retrieval and dry storage of motor cruiser, Wolseley Road, Point Piper.
- Sunland Group Ltd
Visual impact assessment, proposed two vessel private marina, Louisa Road, Birchgrove.
Visual impact assessment, proposed slipway and dingy storage, Cammeray Road, Cammeray.
- Sydney Slipways
Scenic assessment and statement of environmental effects, proposed heavy maritime maintenance facility and wharf, Blackwattle Bay, Glebe Island.
- Taylor Lauder Bersten
Assessment of proposed alterations to existing mooring pen to accommodate larger vessel, Hunters Hill.
Statement of environmental effects to accompany application for accommodation of new vessel, The Crescent, Hunters Hill.
Statement of environmental effects to accompany application for Landowners Consent, Manly Boat Shed.
- Westport Marina Pty Ltd
Scenic assessment and statement of environmental effects, Westport Marina, Cabarita Point, Parramatta River.
- White, D and anor
Advice on scenic and visual impacts, proposed berthing facilities, Parramatta River.
- Worley Parsons
Visual impact assessment for proposed boardwalk, Manly Golf Course redevelopment.

Land and Environment Court Proceedings

Addenbrook v Woollahra Council

Proposed extensions of Rose Bay and Point Piper Marinas.

Bishop R v the Minister administering the Ports Corporation and Waterways Management Act

Proposed mooring pen, Lodge Road, Cremorne.

Captain Cook Cruises v North Sydney Council

Proposed refurbishment, rebuilding and construction of new boat shed, Kurraba Road, Neutral Bay.

Double Bay Marina Pty Ltd v Woollahra Municipal Council

Proposed refurbishment and extension of Double Bay Marina

Drummoyne Foreshore Committee v Drummoyne Council

Appeal against legality of approval for extension and alterations, Gladesville Marina.



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Appendix F3

EcoHort, Projection estimates of plant heights of potential native vegetation reconstruction plantings at Benedict Industries Georges Cove Marina site, August 2010



40 Bannerman Road
Glenhaven NSW 2156
PO Box 6504
Rouse Hill Town Centre NSW 2155
Phone; (02) 9894-2418
Fax: (02) 9894 2477
Email: info@ecohort.com

ABN: 40 107 405 934

30 August 2010

David White
Benedict Industries P/L
Email: davidw@benedict.com.au

Re: Projection estimates of plant heights of potential native vegetation reconstruction plantings at Benedict Industries Georges Cove Marina site.

Dear David,

As requested, please find enclosed a preliminary planting list. We have estimated likely plant heights over the following 3-periods after installation: 12 months; 3 years; 8 years; and at maturity.

I understand that information will be used to create computer generated photo montages of the installed native vegetation at these time intervals. I have also included information on the shrub layer (in Table 1) and groundcover heights (in Table 2) although these may not be of any relevance at this stage. As discussed I have not provided any heights for any of the wetland plants that may be required at site as they will be of little relevance to the visual impact assessment.

Do not hesitate to call me if additional information is required.

Yours sincerely,

Edgar Freimanis (B.App.Sci. HORT)
Director, Ecohort Pty Ltd.

Table 1 –Tree and shrub height estimates at 12 months, 3 years, 8 years and at maturity. All heights are in metres

Canopy & Mid-Stratum Layer Trees	Plant Features	Height @ 12 months	Height @ 3 years	Height @ 8 years	Height @ maturity
<i>Acacia binervia</i>	Medium bushy mid-stratum tree	2	6	8	8
<i>Acacia parramattensis</i>	Medium mid-stratum tree	2	6	10	10
<i>Alphitonia excelsa</i>	Medium-tall rainforest canopy tree	1	4	10	15-20
<i>Angophora floribunda</i>	Tall canopy tree	1.5	6	12	30
<i>Callistemon salignus</i>	Medium mid-stratum tree, cream flowers, papery bark	1.5	4	10	10
<i>Casuarina glauca</i>	Medium to tall canopy tree.	1.5	4	10	15-20
<i>Eucalyptus amplifolia</i>	Tall canopy tree	1.5	6	12	30
<i>Eucalyptus baueriana</i>	Tall canopy tree			12	30
<i>Eucalyptus deanei</i>	Tall canopy tree	1.5	6	12	30
<i>Eucalyptus robusta</i>	Tall canopy tree	1.5	6	12	30
<i>Eucalyptus saligna</i> x <i>botryoides</i>	Tall canopy tree	1.5	6	12	30
<i>Eucalyptus tereticornis</i>	Tall canopy tree	1.5	6	12	30
<i>Ficus coronata</i>	Medium mid-stratum rainforest sub-canopy tree,	1	4	10	10
<i>Ficus rubiginosa</i>	Tall and spreading rainforest canopy tree	1	4	12	10-15
<i>Glochidion ferdnandii</i>	Medium-tall rainforest mid stratum tree	1	4	10	10
<i>Melaleuca linariifolia</i>	Medium mid-stratum tree, cream flowers, papery bark	1	4	10	10
<i>Melaleuca styphelioides</i>	Medium mid-stratum tree, prickly leaves, papery bark	1.5	4	10	10
<i>Melia azedarach</i>	Semi deciduous medium-tall rainforest canopy tree.	1	4	10	10
Shrub-Layer Understorey					
<i>Acacia floribunda</i>	Medium shrub, flowers early Spring.	2	3	3-4	3-4
<i>Acacia implexa</i>	Medium -tall shrub.	2	4	6	6
<i>Backhousia myrtifolia</i>	Medium -tall shrub, rainforesty shrub.	1	4	8	8-15
<i>Bursaria spinosa</i>	Medium shrub, , spiky stems	1	3	3	3
<i>Clerodendrum tomentosum</i>	Low-medium rainforesty shrub.	1	3	3	3
<i>Duboisia myoporoides</i>	Medium –tall rainforest shrub	1	3	4	4
<i>Goodenia ovata</i>	Low shrub, with yellow flowers	0.5	1	1	1
<i>Hakea sericea</i>	Medium shrub, spiky stems, plant >3m from cabin walking trail edges & in areas where access needs to be deterred	1	2	2	2
<i>Hibiscus heterophyllus</i>	Medium shrub, quick growing native Hibiscus	1.5	3	3-5	3-5
<i>Hymenanthera dentata</i>	Medium shrub, spiky stems.	1	3	3	3
<i>Indigophora australis</i>	Low shrub, with purple pea flowers.	0.5	1	1	1

<i>Leptospermum polygalifolium</i>	Medium shrub, lemon scented tea –tree	1	2	2	2
<i>Ozothamnus diosmifolium</i>	Low-medium shrub plant	1	1.5	2	2
<i>Pittosporum revolutum</i>	Low rainforest shrub with large yellow fruits	0.5	1	1	1
<i>Trema aspera</i>	Low-medium rainforestry shrub.	0.5	2	3	3

Table 2 – Terrestrial & Aquatic Groundlayer Herbs, Ferns, Grasses

Terrestrial Groundlayer Herbs, Ferns, Grasses	Plant Features	Height @ 12 months	Height @ 3 years	Height @ 8 years
<i>Adiantum aethiopicatum</i>	Fern, propagate by division from local area	0.3	0.3	0.3
<i>Capillipedium spicegirium</i>	Warm season active perennial clumping grass,	0.4	0.4	0.4
<i>Carex appressa</i>	Sedge plant	0.4	0.5	0.5
<i>Centella asiatica</i>	Broadleaf perennial groundcover	0.1	0.1	0.1
<i>Commelina cyanea</i>	Annual groundcover, propagate by cuttings	0.2	0.2	0.2
<i>Dichelachne micrantha</i>	Year long green perennial grass	0.4	0.4	0.4
<i>Echinopogon spp.</i>	Year long green perennial grass	0.3	0.3	0.3
<i>Entolasia marginata</i>	Year long green perennial grass	0.4	0.4	0.4
<i>Hemarthria uncinata</i>	Year long green perennial grass	0.3	0.3	0.3
<i>Hypolepsis muelleri</i>	Fern, propagate by division from local area	0.3	0.5	0.5
<i>Imperata cylindrica</i>	Warm season active perennial stoloniferous grass	0.3	0.4	0.4
<i>Lomandra longifolia</i>	Mat rush clumping	0.3	0.8	0.8
<i>Micolaena stipoides</i>	Year long green perennial grass.	0.3	0.3	0.3
<i>Opercularia aspera</i>	Broadleaf perennial groundcover	0.4	1	1
<i>Oplismenus aemulus</i>	Warm season active perennial stoloniferous grass	0.2	0.3	0.3
<i>Poa labillardieri</i>	Winter active clumping perennial grass	0.3	0.4	0.4
<i>Paspalum distichum</i>	Warm season active perennial stoloniferous grass	0.2	0.2	0.2
<i>Phragmites australis</i>	Warm season active aquatic & semi-aquatic reed	1	2	2
<i>Pteridium esculentum</i>	Fern, Fern, propagate by division from local area	0.3	0.6	0.6
<i>Stipa ramosissima</i>	Tall warm season perennial clumping grass	0.3	0.8	0.8
<i>Stipa verticillata</i>	Tall warm season perennial clumping grass	0.3	0.8	0.8
<i>Themeda triandra</i>	Warm season perennial clumping grass	0.4	0.4	0.4
<i>Viola hederacea</i>	Broadleaf perennial groundcover, propagate by division	0.1	0.1	0.1
Terrestrial Groundlayer climbers				
<i>Clematis aristata</i>	Climbing plant	1	4	4
<i>Convolvulus erubescens</i>	Low climbing & scrambling plant	1	3	3
<i>Pandorea pandorana</i>	Aggressive climber	1	5	5
<i>Parsonsia straminea</i>	Aggressive climber	1	8	8

