



NSW GOVERNMENT
Department of Planning

**MAJOR PROJECT ASSESSMENT:
ILLAWARRA RIDGE GOLF RESORT
LOTS 2, 3 & 4 DP240566, PORTION 74 &
160 DP752054 AND PORTION 76 DP
104884761, PRINCES HIGHWAY, DARKES
FOREST
Proposed by LINKS ILLAWARRA
DEVELOPMENTS PTY LTD**



Director-General's
Environmental Assessment Report
Section 75I of the
Environmental Planning and Assessment Act 1979

January 2009

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1 EXECUTIVE SUMMARY

This is a report on a project seeking approval for a Concept Plan ("the application") submitted by Links Illawarra Developments (the proponent) to carry out development for a golf resort at the Illawarra Country Golf Club which is located between the Southern Freeway and the Princes Highway at Darkes Forest about 20km north of Wollongong.

The application involves redevelopment of the existing 18 hole golf course to create a 9 hole golf course with a new clubhouse, restaurant, shop, gymnasium and health spa facilities, conference facility, serviced apartments, hotel rooms and short stay tourist accommodation villas.

The estimated cost of the development is \$107.9 million. The proposal is expected to create 426 construction jobs and 80 full-time operational jobs.

The Minister for Planning declared the proposal a Major Project under Part 3A of the Act on 19 July 2007, being a tourist related facility that has a capital investment value (CIV) more than \$100 million (Schedule 1 Clause 17 Tourist, convention and entertainment facilities).

During the exhibition period, the Department received a total of 12 submissions from government agencies and 13 submissions from the public.

The dominant concern raised is the development's intensity and scale and its potential impacts on the environment, in particular, Maddens Creek and its wider catchment including the adjoining Dharawal Nature Reserve.

In a letter, dated 28 July 2008, the Department identified concerns with the scale and density of the proposal and the potential environmental and visual impacts on the locality.

The proponent submitted a Preferred Project Report (PPR) on 29 September 2008, addressing some of the key concerns by deleting 20 tourist villas and removing the Crown land portion from the development site and relocating the vehicular access to the existing access point.

As part of the assessment, the Department considered the following key issues:

- Water Quality and Stormwater;
- Flooding and Climate Change;
- On-site Effluent Disposal;
- Integrity of Tourist Use;
- Characterisation of the Use;
- Design/Built Form;
- Visual Impact;
- Riparian Corridor;
- Flora and Fauna;
- Aboriginal and European Heritage;
- Traffic, Access and Parking;
- Economic and Social Impacts;
- Contamination;
- Geo-technical Impacts and Extent of Fill;
- Bushfire Risk;
- Infrastructure Provision;
- Impacts to Adjoining properties;
- External Noise; and
- Density of Development

The Department is of a view that the changes made in the PPR result in a significant improvement but did not go far enough to address all the issues. Therefore, support for the proposal is contingent on the Concept Plan being further modified as follows:

- the number of individual tourist villas should be reduced by 53 from 180 to a maximum total of 127 (representing a reduction of 30%);
- there should be a corresponding increase in setback (min. 200m) between the southern edge of the central villa precinct and Maddens Creek and a reduction in the length of the internal road;
- the width of the riparian corridor buffer zone should be increased by a further 20m to a minimum of 50m both sides of Maddens Creek; and
- the southernmost golf fairways/greens should be relocated outside the 50m buffer zone and further away from Maddens Creek.

The Department's recommended changes to the Concept Plan will minimise the impact of the proposal on Maddens Creek and its wider catchment and the adjoining Dharawal Nature Reserve and reduce the intensity and visual impact of the development.

The Department has assessed the merits of the application and is satisfied that the potential impacts of the proposed development have been addressed via the proponent's Statement of Commitments and PPR and the Department's recommended changes to the Concept Plan and conditions of approval, and can be suitably mitigated and/or managed to ensure a satisfactory level of environmental performance.

On these grounds, the Department is satisfied that the site is suitable for the proposed development and that the project will provide economic benefits to the local economy and the region.

All statutory requirements have been met.

The Department recommends that the Concept Plan application be approved, subject to conditions.

The Department also recommends that future applications be dealt with as project applications under Part 3A of the Act due to the complex nature of the proposal and the wide ranging environmental issues that affect the site.

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2 BACKGROUND

2.1 THE SITE

2.1.1 Site location

The site is an existing golf course known as the Illawarra Country Golf Club and is located at No. 87 Princes Highway, Darkes Forest, Wollongong. The subject site is approximately 65km by road from the Sydney CBD and 20km north of Wollongong. The nearest town is Helensburgh which is located about 8 km north via the Princes Highway (refer to **Figure 1**).

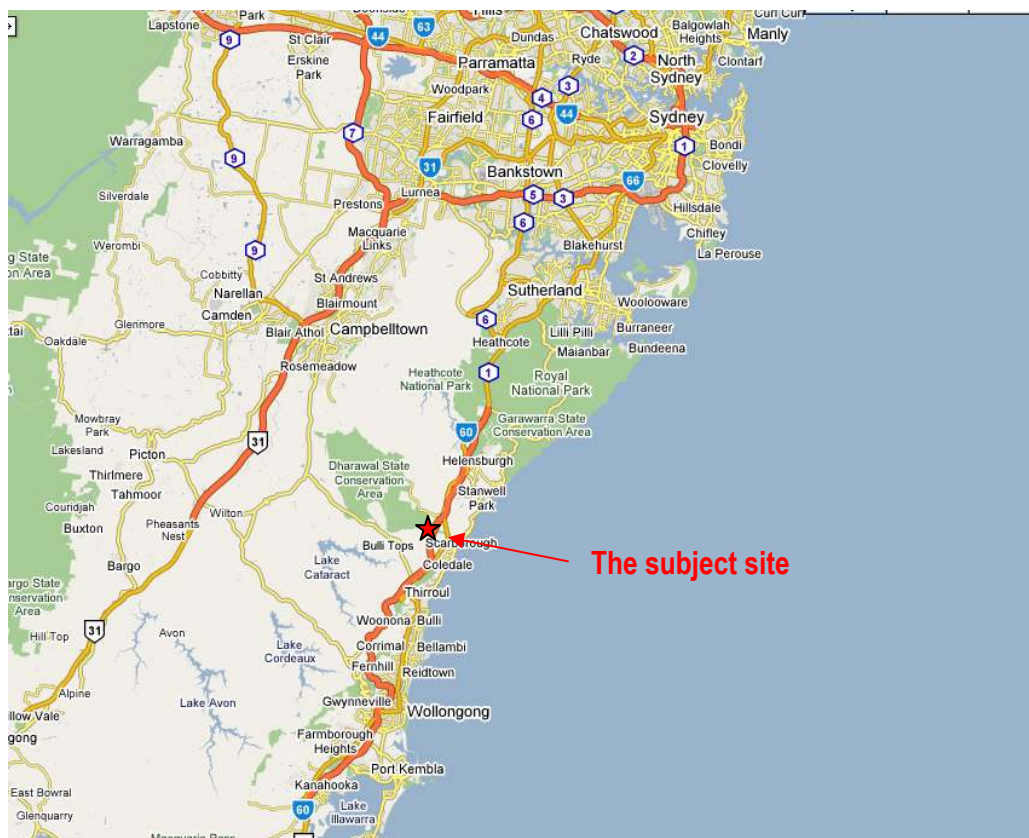
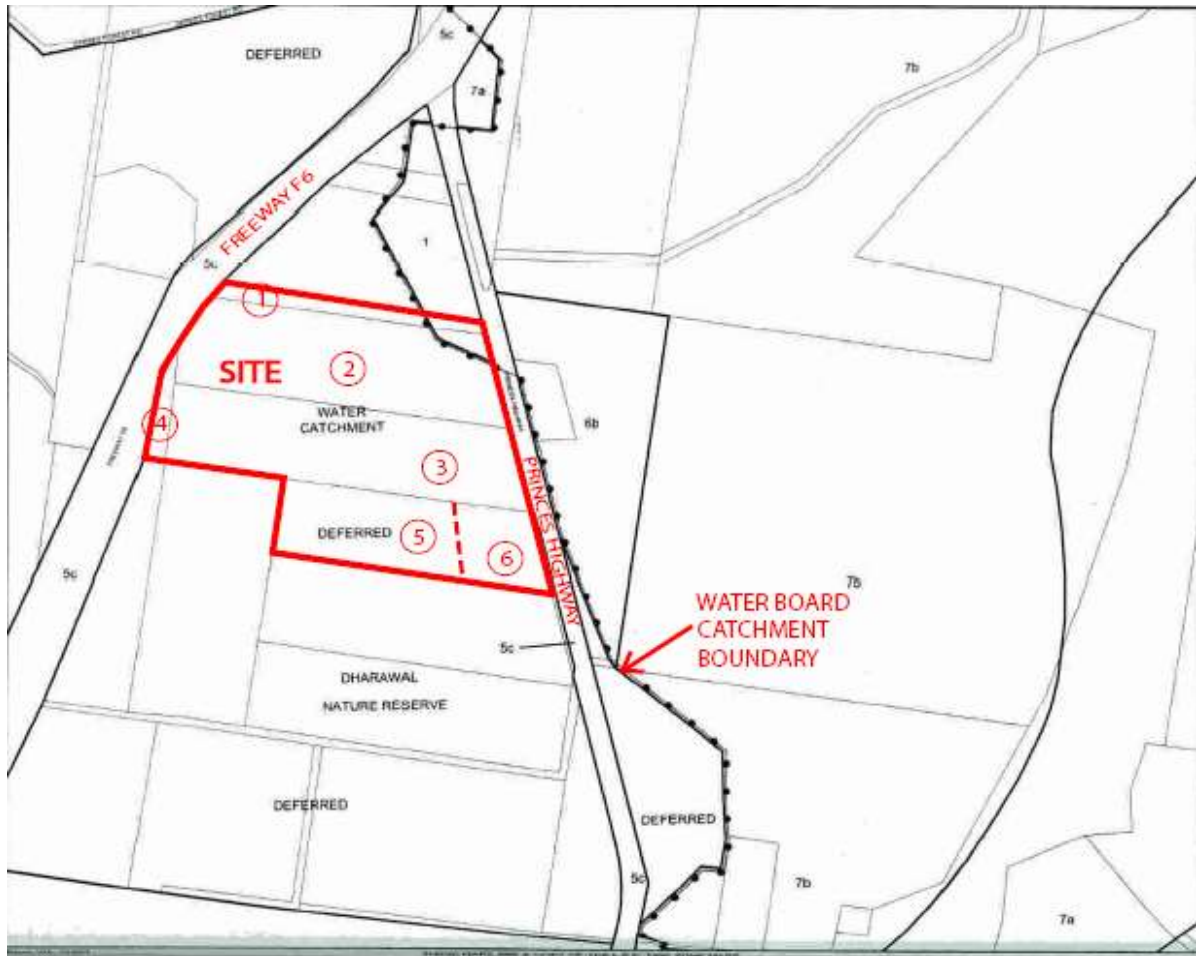


Figure 1 – Site location (Regional Context)

The site is located within the local government area of Wollongong. The golf course is held in private ownership by Mr C Birch and Ms S Tarrant. The two southernmost lots adjoining the existing golf course are Crown Land. The owners of the golf course have a licence to pump water from Maddens Creek which traverses the adjoining Crown land. The legal description of the land is provided below

Reference (see Figure 2 below)	Lot	Deposited Plan	Ownership
1	2	240566	Tarrant & Birch
2	3	240566	Tarrant & Birch
3	1 (por 76)	10488471	Tarrant & Birch
4	4	240566	Tarrant & Birch
5	74	752054	Crown land
6	160	752054	Crown Land



Source: Wollongong LEP 1990 (Map F16)

Figure 2 – Existing Lot Layout

2.1.2 Existing site features

The site has an area of approximately 55ha (including the Crown land lots) and is currently an 18 hole golf course known as the Illawarra Country Club Golf Course (refer to **Figure 3**). It is located west of the Illawarra Escarpment and slopes gently down from the Princes Highway to the Southern Freeway.



Figure 3 – Aerial Context

The golf course consists mainly of open grassed areas (golf fairways, greens and tees) and linear stands of native bushland that define the golf playing areas (refer to **Figures 3 - 6**).

A linear stand of bushland has been retained along the eastern (Princes Highway) and the western (Southern Freeway) boundaries. The southern Crown land portion of the site extends beyond the existing fairways and supports extensive areas of relatively undisturbed bushland (native Sedgeland Heath and Ironstone Woodland) and is not used as part of the existing golf course. Maddens Creek runs along the southern boundary and through the Crown land portion of the site (refer to **Figures 3, 5 and 7**). The current owners of the golf course have a licence arrangement with the Department of Lands to pump water from Maddens Creek.

The existing structures and buildings on the site include 2 weatherboard cottages, iron clad sheds and amenities building. There are 12 dams on the golf course some of which are sited in natural drainage lines.

An internal road accessed from the Princes Highway provides the only means of access and loops through the middle of the site.

The topography of the site generally slopes from the Princes Highway toward the south-west. The east of the site lies at an elevation of approximately 400m above AHD. The site falls to the south-west to approximately 370m above AHD.



Figure 4 – Typical golf course vista



Figure 5 – Golf course interface with riparian corridor along Maddens Creek



Figure 6 – Typical golf course vista



Figure 7 – Maddens Creek (man-made dam) in the southern Crown land portion of the site

2.1.3 Surrounding development

Adjoining land to the north is privately owned and is used for residential purposes and equestrian activities with associated farm sheds (refer to **Figure 3** and **8**).

The eastern boundary of the site is formed by the Princes Highway and beyond is the Boomerang Golf Course comprising 18 holes (refer to **Figures 3** and **9**). Adjoining to the southwest is the Dharawal Nature Reserve (refer to **Figure 10**).

Land adjoining to the southeast (next to the Princes Highway) is Crown land leased the Department of Lands by a model aeroplane club from. The southern freeway forms the western boundary of the site (refer to **Figure 11**).



Figure 8 – The northernmost fairway and boundary of the site



Figure 9 – Existing vehicular access and the view north along Princes Highway. The Boomerang Golf course is located opposite on the eastern side of the Princes Highway.



Figure 10 – View across the Crown land portion of the site showing Sedgeland Heath in the foreground and the Dharawal Nature Reserve beyond



Figure 11 – The Southern Freeway from the western boundary of the site

2.2 APPLICATION HISTORY

A development application (DA) for a golf resort development with permanent residential accommodation was lodged with Wollongong City Council (the Council) in October 2005. The Council raised concerns with the proposal and also advised the proponent that the application should be lodged with the Department as a Major Project in accordance with Part 3A. The proponent subsequently lodged a request for the proposal to be considered as a Major Project with the Department on 27 April 2006. The proposal did not meet the required criteria to be a Major Project and the Department advised the proponent in 22 May 2006 permanent residential accommodation was not supported and questioned its permissibility under the current zoning.

The proponent lodged an appeal in the Land and Environment Court against Council's deemed refusal of the application. The Court proceedings were later withdrawn by the proponent as a result of changes to the proposal. The proposal was amended by converting the permanent residential accommodation with short stay tourist accommodation.

The Minister for Planning declared the revised proposal a Major Project under Part 3A of the Act on 19 July 2007, being a tourist related facility that has a capital investment value (CIV) more than \$100 million. The Minister also authorised the submission of a Concept Plan application for the proposal. In making the decision to authorise a Concept Plan, the former Minister for Planning required information to be satisfied that the proposal was a bona-fide tourist use and would operate and be managed for tourist purposes (not residential). This was to be provided by means of a restrictive covenant on the title for tourist uses only.

3 THE PROPOSED DEVELOPMENT

3.1 PROJECT DESCRIPTION

3.1.2 Original Concept Plan

This is an application for a Concept Plan which originally sought approval for the following:

- a 9 hole golf course and driving range/practice nets;
- clubhouse including a pro-shop, restaurant, bar and other facilities;
- 100 serviced apartments;
- 100 room hotel;
- conference facility comprising 200 seats;
- 200 short stay tourist accommodation villas;
- maintenance shed;
- internal roadway and parking area;
- sewerage treatment plant and water supply infrastructure;
- stormwater/drainage works;
- earthworks and landscaping; and
- community title subdivision.

The original proposal involved expansion of the existing golf course footprint and clearing of native vegetation, namely Sedgeland Heath on the southern Crown land part of the site (refer to **Figure 12**). However, in response to environmental concerns raised by the Department the southern Crown land portion was removed from the development site (refer to **Section 3.1.3** below).

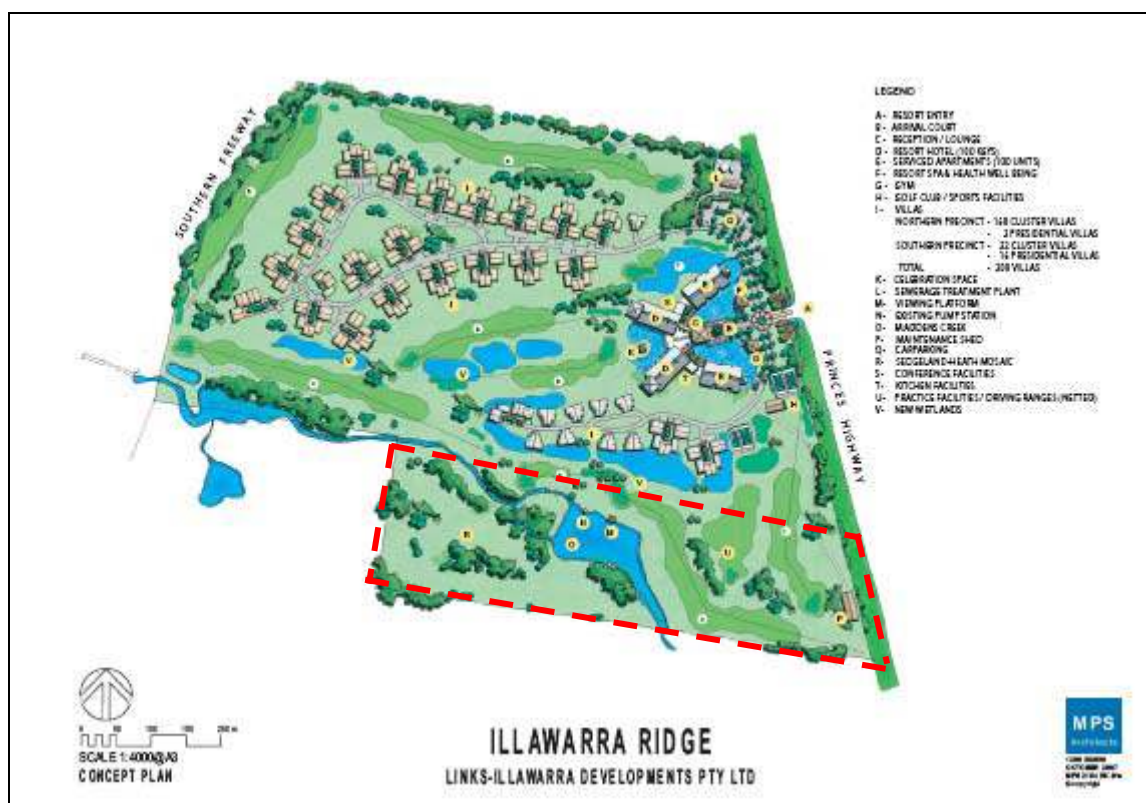


Figure 12: Originally proposed concept development layout (Crown land portion shown as a dashed red line)

3.1.3 Projects Amendments

A Preferred Project Report (PPR), submitted on 29 September 2008, incorporated the following amendments to the original Concept Plan (refer to **Figure 13**):

- The southern two lots (Crown land) were removed from the development area. The proposal is now contained entirely within the existing golf course footprint;
- The southern villa precinct comprising 38 villas was removed;
- The density of the central villa precinct increased but there was an overall net reduction of 20 villas from 200 to 180; and
- The proposed access opposite the Boomerang Golf Course has been deleted and the existing entry/exit in the southern portion of the site will be retained.

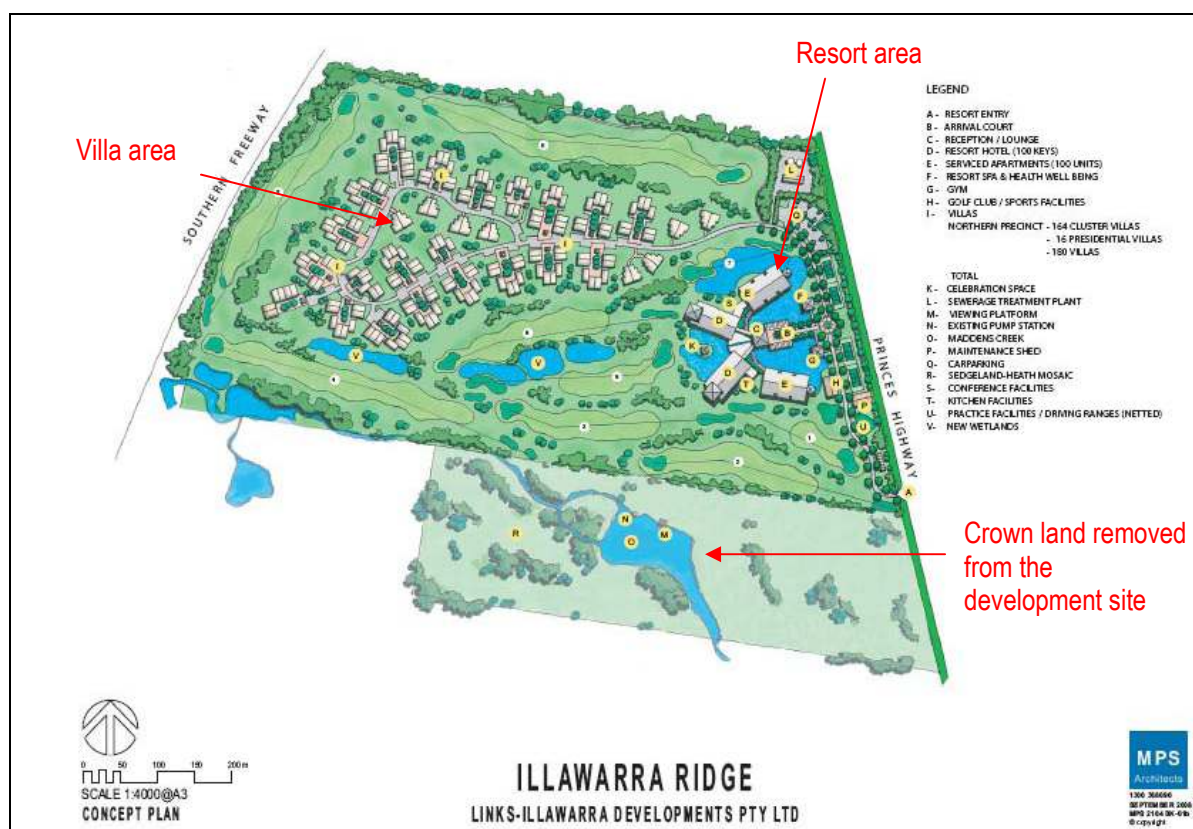


Figure 13 - Preferred Project Report (amended concept development layout)

Whilst the PPR was not advertised, it was referred to all relevant government agencies for comment. In addition, the local community groups/residents who provided a submission during the notification period were advised by email/phone or letter that the PPR was available for viewing on the Department's website from 9 October 2008.

Concept approval is sought for building envelopes showing an indicative height and footprint for each of the building types covering four precincts (refer to **Figure 14** below), as follows:

Precinct	Building Type	Overall Height (m)
A	hotel, serviced apartment, reception/lounge and resort spa/gymnasium	12
B	Clubhouse, tennis courts and driving range/practice nets	8.5
C	Central villas	9.2 6.5
D	Maintenance shed and sewerage treatment plant (STP)	8.5 - maintenance shed 5.6 - STP

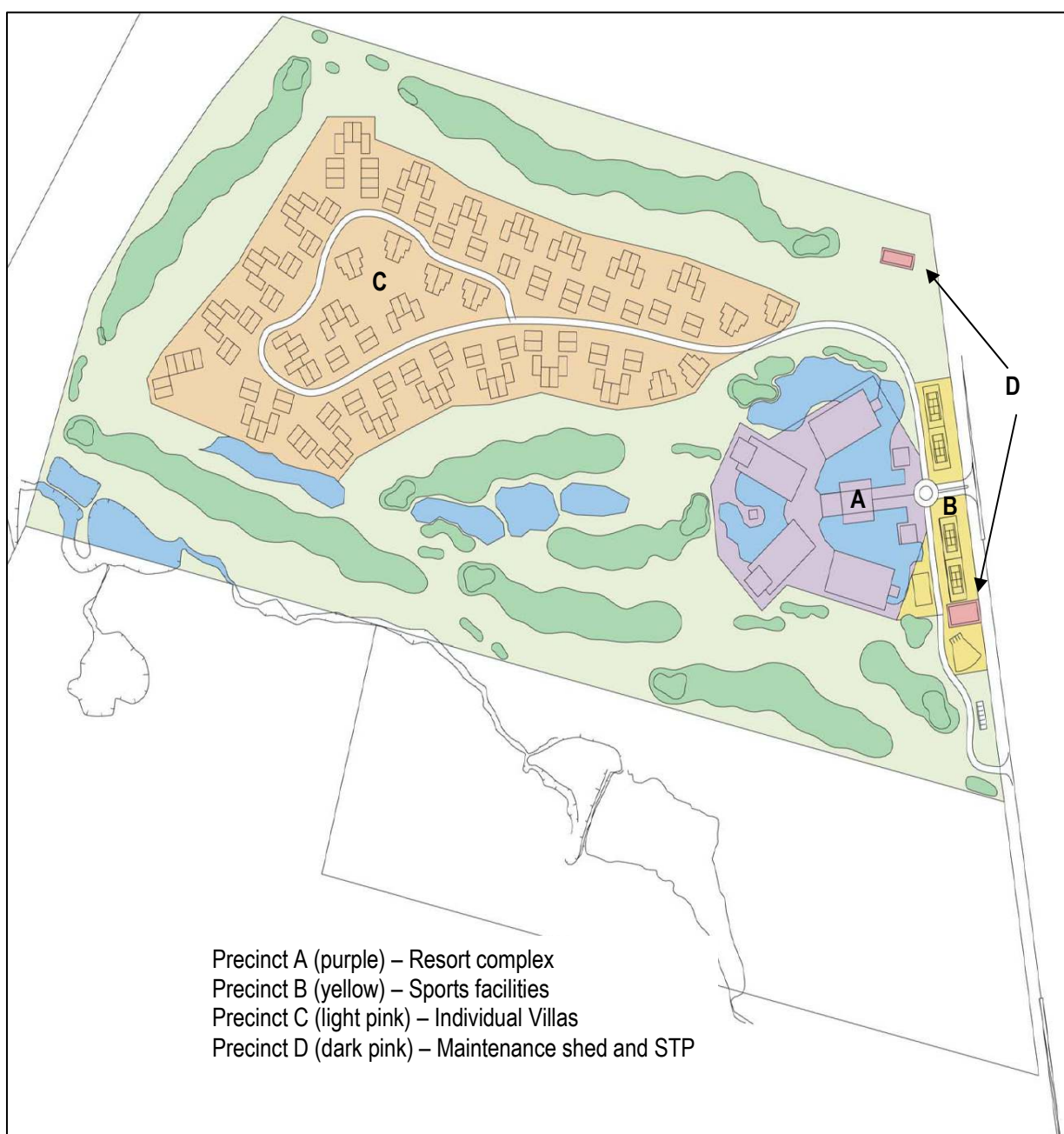


Figure 14: Plan showing the different development precincts

The amended Concept Plan (refer to **Figure 13**) contains tourist accommodation and associated buildings in two precincts:

1. Resort Precinct

The resort area will be divided into a cluster of buildings arranged around the entry arrival/reception area and an artificial lake (refer to Precinct A in **Figure 14**). The various buildings and facilities will comprise:

- resort reception/lounge;
- golf clubhouse containing;
 - administration;
 - golf shop;
 - change rooms;
 - members lounge;
 - restaurant;
- sports facilities (golf practice nets, tennis courts);
- gymnasium;
- sauna, spa and swimming pool complex;
- 100 serviced apartments in two detached buildings;
- 100 hotel rooms in two detached buildings; and
- 200 seat conference facility with café.

2. Villa Precinct

The villa area will comprise of 180 short stay accommodation villas comprising two types of villas (refer to Precinct C in **Figure 14**).

(a) Presidential villa

It is proposed to have 16 single storey presidential villas (8 pairs of two villas) attached by one common wall. Each presidential villa will have an area of approximately 120m² and contain 2 bedrooms with a kitchen, lounge, dining area, bathroom/laundry, garage and outdoor terrace.

(b) Cluster villa

It is proposed to have 164 cluster villas which are generally based on a typical cluster of 8 villas (4 attached and 2 sets of 2 attached villas), each containing 2 bedrooms, lounge, dining, kitchen, bathroom/laundry and balcony/terrace. The single storey villas will have a floor area of approximately 90m² or 120m² and the two storey villas will have a floor area of approximately 130m².

Parking is available along the access road in front of the villas.

Additional building works

The following building/works will also be undertaken:

- bulk earthworks and reshaping of the existing 18 hole golf course into a 9 hole golf course;
- drainage and irrigation systems;
- an internal vehicular access road utilising the existing access point;
- sewerage treatment plant (northeast corner of the site);
- water storage reservoir (northeast corner of the site);
- maintenance and storage shed close to the eastern boundary and north of the existing vehicular access point;
- car park (northeast corner of the site); and
- landscaping.

Staging

The proposal will be developed in 5 stages. The proponent has advised that a separate project application will be lodged for each individual stage.

Stage	Works
1	<ul style="list-style-type: none"> resort entry landscaping water mains from Helensburgh sewerage treatment plant electrical substation car park building site works including construction access road and associated sheds (to be used later as permanent maintenance shed) bulk earthworks, reshaping of golf course, irrigation dams and drainage system changes to the existing golf course layout
2	<ul style="list-style-type: none"> golf clubhouse construction of tennis courts, gymnasium, health spa centre and swimming pool construction of villas on southern side of access road and Community Title Subdivision Asset Protection Zones
3	<ul style="list-style-type: none"> resort reception/lounge serviced apartments and Community Title subdivision Asset Protection Zones
4	<ul style="list-style-type: none"> construction of remaining villas on northern side of the access road and Community Title subdivision Asset Protection Zones
5	<ul style="list-style-type: none"> hotel and conference facility Community Title subdivision Asset Protection Zones

Operational structure

The operational structure is broadly explained as follows:

- The Illawarra Ridge Owners Corporation (IROC) will be set up under a Community Title Structure and be responsible for:
 - employing a professional manager (eg. PGA Links Management P/L);
 - establishing rules and by-laws, collection of 'owners fees'; and
 - lease/licence the operation of communal property
- The IROC will own all the golf course land, road infrastructure, maintenance shed, golf club and will have secured rights for its members to use the clubhouse and other facilities.
- Membership of the resort comprise owners of the individual villas who will pay annual levies and have full playing rights and use all facilities; club golfers members who pay an annual fee; green fee and public access members who pay a daily fee; and recreation members who pay a fee to use the golf and other facilities.
- PGA Links Management P/L will prepare annual budgets with main annual expense being maintenance of the 'common landscaped areas' (golf course, nature strips, water bodies).
- The on-going maintenance of the golf resort facilities will be funded as follows:
 - Owners of the individual villas will contribute annually to the IROC;
 - Revenue from golf rounds from accommodation guests, local residents and day visitors; and
 - The owner of the central hotel and serviced apartment complex will contribute annually to the IROC.

4 STATUTORY CONTEXT

4.1 MAJOR PROJECT DECLARATION

The project is a Major Project under *State Environmental Planning Policy (Major Projects) 2005* being a tourist facility with a CIV of more than \$100m. The Minister for Planning declared the proposal a Major Project under Part 3A of the Act on 19 July 2007. The Minister also authorised the submission of a Concept Plan application for the proposal.

4.2 PERMISSIBILITY

The majority of the site is zoned 7(c) Environmental Protection (Water Catchment) under **Wollongong Local Environment Plan 38** (refer to **Figure 15**). The area was originally deferred for water catchment but never used for that purpose.

Clause 10A provides for the following uses with development consent in the 7(c) Environmental Protection (Water Catchment) zone:

Any purpose associated with the protection and provision of stored water supplies; any purpose ordinarily incidental to or subsidiary to such purposes; agriculture; drainage; dwelling-houses; extractive industries; forestry; home-employment; mines; open space; roads; stables; utility installations (other than gas holders or generating works).

Clause 11 provides for additional uses on certain land as set out in schedule 8 which includes a **'golf resort'** on the subject land. However, there is a typographical error in Schedule 8 that incorrectly refers to Lots 2 and 3 DP240566 as Lots 2 and 3 in DP250566. The latter lots are located in Blacktown LGA and clearly were not intended to be the subject of LEP 38.

In addition Lot 4 DP 240566 (south-western corner of the site) is not included in Schedule 8 (refer to **Figure 2** showing existing lot layout).

The development is therefore technically prohibited by virtue of the typographical zoning error and also small portion is not zoned to allow a golf resort.

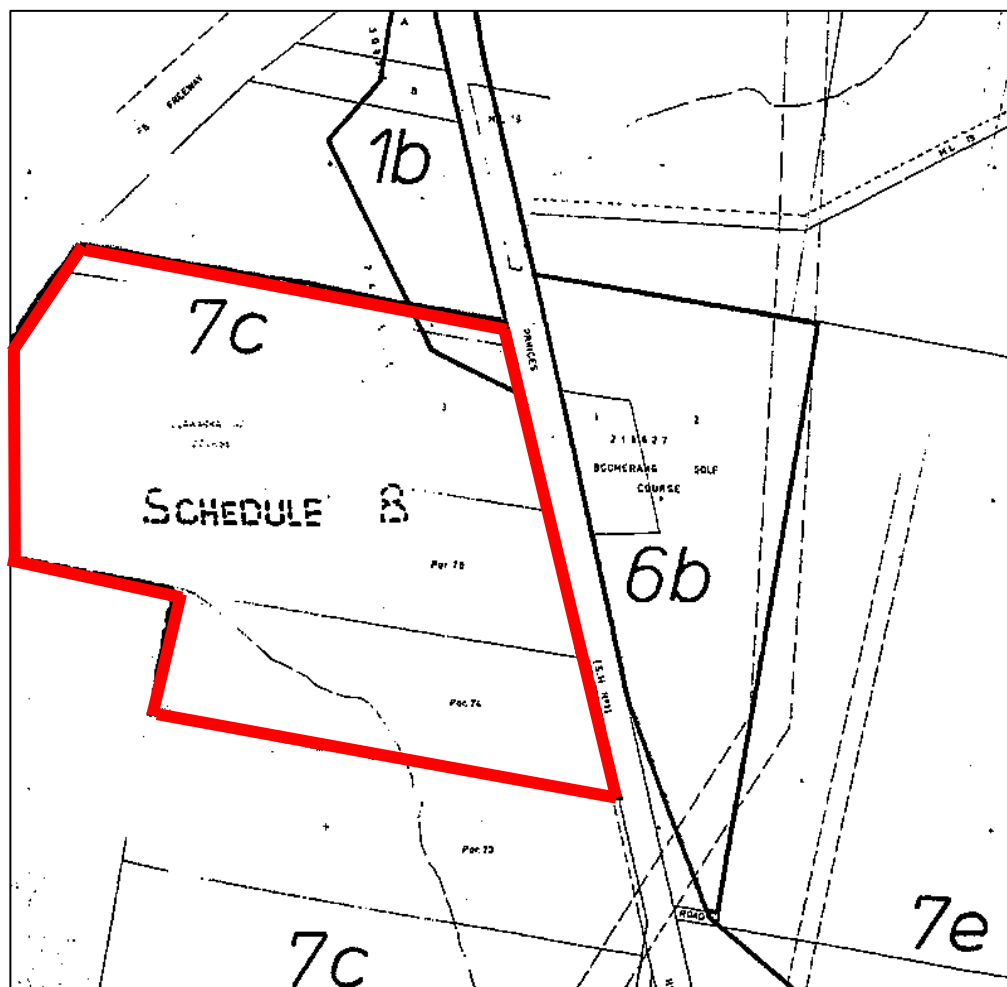


Figure 15 – Wollongong Local Environmental Plan No. 38

Wollongong Local Environmental Plan 1990 (LEP 1990) repealed LEP 38 but only in relation to the land to which LEP 1990 applies.

LEP 1990 applies to a small portion of land in the north-east corner which is zoned (1) Non-urban (refer to **Figure 16**). This part of the proposed development appears to be prohibited in the 1 Non-urban zone.

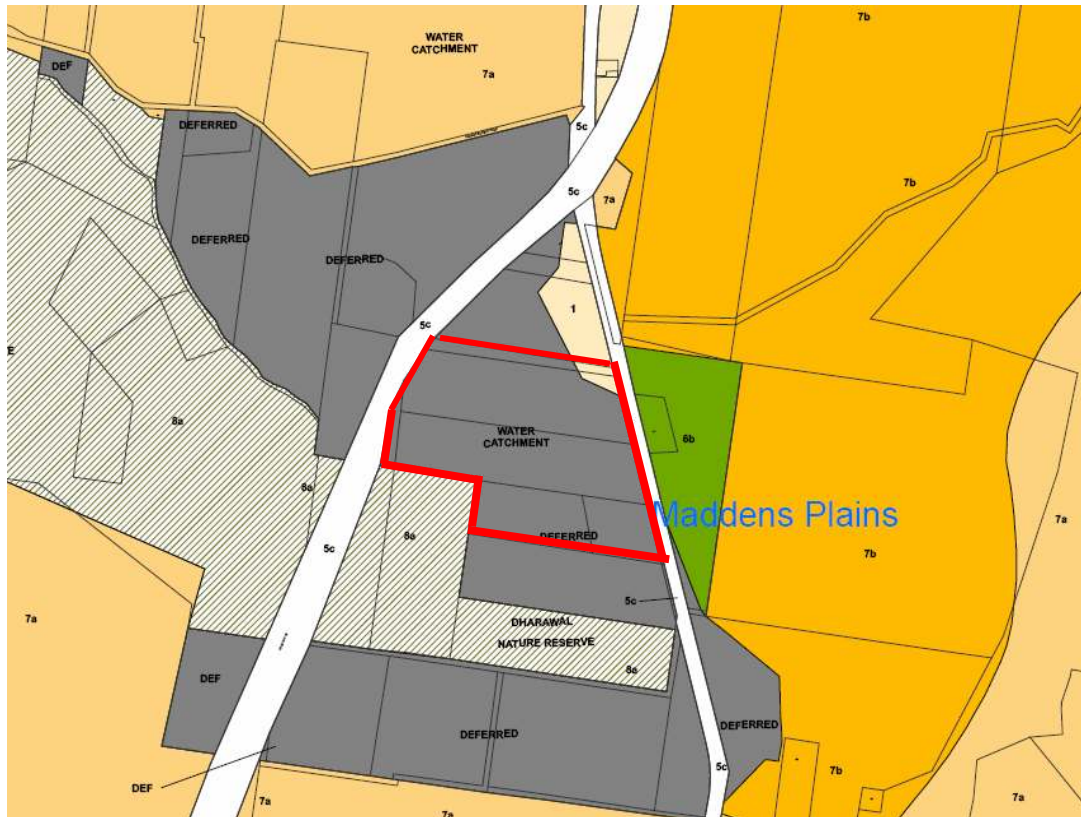


Figure 16 – Wollongong Local Environmental Plan 1990

The affected portion of the site will contain water supply infrastructure and a sewerage treatment plant.

Notwithstanding the above, under section 750(3) of the Act and clause 80(1) of the Regulation, the Minister is able to approve development that would otherwise be prohibited as long as a concept plan has been authorised. Therefore the Minister is able to approve this application.

It is recommended that for administrative completeness, the zoning typographical error and the small additional area to be zoned 'golf resort' (LEP 38) and the zoning of that part of the site currently zoned (1) 'Non-urban' be corrected through the Council's principal draft LEP 2009.

4.3 EXHIBITION AND NOTIFICATION

The Department has exhibited the Environmental Assessment (EA) in accordance with section 75H(3) of the Act. The EA was placed on public exhibition from 16 April to 16 May 2008 and submissions were invited in accordance with section 75(H) of the Act.

4.4 MINISTER'S POWER TO APPROVE

The purpose of this submission is for the Director General to provide a report on the project to the Minister for the purposes of deciding whether or not to grant approval to the project pursuant to Section 750 of the Act.

Section 751(2) sets out the scope of the Director General's report to the Minister. Each of the criteria set out therein have been addressed below, as follows:

(a) a copy of the proponent's environmental assessment and any preferred project report; and

The proponent's EA is included at Appendix F whilst the PPR is set out for the Ministers consideration at **Appendix G**.

(b) any advice provided by public authorities on the project; and

All advice provided by public authorities on the project for the Minister's consideration is set out in **Section 5.3** below.

(c) a copy of any report of a panel constituted under Section 75G in respect of the project; and

No independent hearing and assessment panel was undertaken in respect of this project.

(d) a copy of or reference to the provisions of any State Environmental Planning Policy (SEPP) that substantially govern the carrying out of the project; and

An assessment of each relevant State Environmental Planning Policies that substantially govern the carrying out of the project is set in **Appendix B**.

(e) except in the case of a critical infrastructure project – a copy of or reference to the provisions of any environmental planning instrument that would (but for this Part) substantially govern the carrying out of the project and that have been taken into consideration in the environmental assessment of the project under this Division; and

An assessment of the development relative to the prevailing EPI's is provided in **Appendix B**.

(f) any environmental assessment undertaken by the Director General or other matter the Director General considers appropriate.

The environmental assessment of the project is this report in its entirety.

(g) a statement relating to compliance with the environmental assessment requirements under this Division with respect to the project.

The Director-General's Environmental Assessment Requirements (DGRs) were issued on 2 August 2007 and are at **Appendix A**.

The EA lodged by the proponent on 26 March 2008 was accepted as adequate.

4.5 ENVIRONMENTAL PLANNING INSTRUMENTS (EPIs)

4.5.1 Application of EPIs to Part 3A of the Act

To satisfy the requirements of section 75(2)(d) and (e) of the Act, this report includes references to the provisions of the environmental planning instruments that govern the carrying out of the project and have been taken into consideration in the environmental assessment of the project. A summary of compliance with the relevant EPIs is in **Appendix B**.

The provisions, including development standards of local environmental plans, and development control plans are not required to be strictly applied in the assessment and determination of major projects under Part 3A of the Act. Notwithstanding, these standards and provisions are relevant considerations as the DGRs require the proponent to address such standards and provisions. Accordingly, the objectives of a number of EPIs and the development standards therein and other plans and policies that substantially govern the carrying out of the project are appropriate for consideration in this assessment as follows:

4.5.2 State Environmental Planning Policy (Major Projects) 2005

The MP SEPP applies to the project as discussed in **Section 3.1.3** above.

4.5.3 State Environmental Planning Policy No. 11 – Traffic Generating Developments

SEPP 11 has been repealed by the Infrastructure SEPP however the proposal was not been determined before that new policy came into effect on 1 January 2008.

The proposal is listed as a Schedule 1 development in SEPP 11 and is required to be referred to the Roads and Traffic Authority. The application was referred to the RTA for comment (refer to discussion later in **Section 6.12**).

4.5.4 State Environmental Planning Policy No.55 – Remediation of Land

SEPP 55 requires a consent authority to consider the potential for a development site to be contaminated and whether the proposed development is suitable for the use which is proposed. A “golf course” and “agricultural activities” are identified as uses that may potentially contaminate and a Preliminary Site Investigation was prepared and submitted with the EA by the proponents consultant. The investigation found that no further detailed investigation was required and that the site was suitable to be used for the proposed development. Contamination is further considered in **Section 6.12**.

4.5.5 State Environmental Planning Policy No. 44 – Koala Habitat Protection

SEPP 44 seeks to protect potential koala habitat however, no direct evidence was found during the field survey undertaken by Lesryk Environmental Consultants. Due to the limited number of suitable feed trees and the isolated nature of the site koala's are not considered to occur and the requirements under SEPP 44 do not apply.

4.5.6 Drinking Water Catchments Regional Environmental Plan No. 1

The site is not within the Sydney Metropolitan Drinking Water catchment and therefore the requirements under the Drinking Water REP No. 1 do not apply. However, the site is located immediately adjacent to the Woronora Special Area which is part Sydney's drinking water supply system and therefore water quality issues have been considered in detail in **Sections 6.1** and **6.3**.

4.5.7 Illawarra Regional Environmental Plan No. 1

The Illawarra Regional Environmental Plan No. 1 (REP) provides a framework for policy preparation for the Illawarra Region. The proposal is generally consistent with the REP. An assessment of the compliance of the proposal with the provisions of the REP is provided at **Appendix B**.

4.5.8 Wollongong Local Environmental Plan 1990

LEP 1990 sets the broad planning framework for development in the Wollongong local government area and establishes permissible forms of development and land use. The relevant zoning is discussed in 4.2 above.

Other relevant provisions are Clause 13 of WLEP 1990, which sets out development standards for the subdivision of land zoned 1 Non-urban. A minimum 40 Ha lot size applies to land in 1 Non-urban zone. However, Subclause (3) permits lots less than 40ha so long as there is no existing dwelling house and it is intended to be used for a purpose (other than agriculture of a dwelling house) permissible under the LEP. The proposal will involve Community Title subdivision into lots less than 40Ha however, as stated previously the proposed 'sewerage treatment plant' and 'water supply reservoir' on 1 Non-urban land are not permissible. Notwithstanding, S75R(3) of the EP&A Act provides that LEPs do not apply to Part 3A projects.

The balance of the site is covered by LEP 38 (see discussion below).

4.5.9 Wollongong Local Environmental Plan No. 38

The site is zoned 7(c) Environment Protection (water catchment) under WLEP 38. As discussed in Section 4.2 above, pursuant to Clause 11 and Schedule 8 a 'golf resort' is permissible with consent. Some concern has been raised by Council as to whether the proposed golf resort is consistent with their intention for a golf resort in accordance with schedule 8. This aspect is discussed in **Section 6.5**.

Clause 13 sets out development standards for the subdivision of land in the 7(c) zone. Pursuant to subclause (3) Council may grant consent to subdivision of land in the 7(c) zone to create an allotment less than 40Ha if the

Council is satisfied that it is intended to be used for a purpose (other than agriculture of a dwelling house) that does not require consent or is permissible with consent. Therefore subclause 3 permits lots less than the minimum so long as the use is permissible under the LEP. The non-compliance is acceptable given that the site has been specifically zoned to allow a 'golf resort' and the typical model of such resorts is individual tourist units being subdivided to enable them being sold to individual investors. It could be reasonably assumed that Council would expect lots less than 40ha when they inserted a 'golf resort' as an additional use on the subject site.

An assessment of the compliance of the proposal with the provisions of WLEP 38 is provided at **Appendix B**.

Pursuant to clause 11 and 20 of LEP 38 the concurrence of Metropolitan Water Sewerage and Drainage Board (MWSDB) is required prior to granting of consent. The MWSDB no longer exists and the responsibilities of this body are now undertaken by Sydney Catchment Authority and Sydney Water Corporation (SWC). The SCA and SWC were notified during the exhibition period and raised no objection to the proposal.

4.5.10 Draft Wollongong Local Environmental Plan 2009

The draft Wollongong Local Environmental Plan 2009 was certified for exhibition by the Department on 28 November 2008. The draft LEP is on public exhibition until 13 March 2009.

The subject site is proposed to be RE2 Private Recreation (Lots 2, 3 7 4 DP 240566 and Lot 1 DP 1048847) and E2 Environmental Conservation (Lots 74 and 160 DP 752054).

Under draft LEP 2009 a 'recreation facility (outdoor)' means

...a building or place (other than a recreation area) used predominantly for outdoor recreation, whether or not operated for the purposes of gain, including a golf course, golf driving range, mini-golf centre, tennis court, paint-ball centre, lawn bowling green, outdoor swimming pool, equestrian centre, skate board ramp, go-kart track, rifle range, water-ski centre or any other building or place of a like character used for outdoor recreation (including any ancillary buildings), but does not include an entertainment facility or a recreation facility (major).

The proposed golf course and ancillary facilities is consistent with the definition of a 'recreational facility (outdoor)' and therefore permissible with consent in the proposed RE2 zone.

Prior to the public exhibition of draft LEP 2009, Council advised that an additional use of "golf resort" will be permitted on the RE2 zoned land for a period of 1 year after gazettal of the plan and upon the expiration of this period tourist and visitor accommodation will be prohibited.

In the interest of consistency with the approved concept plan, the Department considers that the time period in which a 'golf resort' is permissible in the new LEP should match the concept plan approval. It is recommended that the Concept Plan will be valid for **three years** (as long as a project application for Stage 1 has been commenced). It is therefore recommended that a provision in the principal draft Wollongong LEP that allows a 'golf resort' for a period of **three- years** after gazettal. It is recommended that if the Minister approves this application, that the Minister under Section 70 of the Act insert the additional use to permit the 'golf resort' when making the new Wollongong plan.

The southern Crown land portion of the site is proposed to be zoned E2 Environmental Conservation which prohibits a golf course development. However, the prohibition is no longer an issue because the amended layout (refer to the PPR) will be contained entirely within the existing golf course footprint and outside the E2 zone which will remain undeveloped.

4.6 OTHER PLANS AND POLICIES

The Proposal has been considered against the following non-statutory documents:

- Illawarra Regional Strategy;
- Illawarra Escarpment Strategic Management Plan; and

- Darkes Forest Local Environmental Study.

The proposed development has been assessed against these requirements in **Appendix B** to this report.

4.7 ECOLOGICALLY SUSTAINABLE DEVELOPMENT (ESD) PRINCIPLES

There are five accepted ESD principles:

- (a) decision-making processes should effectively integrate both long-term and short-term economic, environmental, social and equitable considerations (the integration principle);
- (b) if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation (the precautionary principle);
- (c) the principle of inter-generational equity - that the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations (the inter-generational principle);
- (d) the conservation of biological diversity and ecological integrity should be a fundamental consideration in decision-making (the biodiversity principle); and
- (e) improved valuation, pricing and incentive mechanisms should be promoted (the valuation principle).

4.7.1 Integration

In making its recommendation on the proposed development, the Department has taken into consideration environmental, social and economic matters. The proposed development will have a positive impact on the local economy in the short term by creating jobs for the local population and generating expenditure for local retailers and other relevant businesses. In the long term it will benefit tourism in the Illawarra Region.

The provision of riparian buffer zone along Maddens Creek will protect water quality and the adjoining Dharawal Nature Reserve during construction in the short term. A suite of environmental conditions are recommended to ensure future development is sustainable in the long-term.

4.7.2 Precautionary Principle

The EA submitted has identified and assessed the range of potential environmental impacts. The following aspects of the development have been addressed by the Department and incorporated as modifications/conditions on the approval:

- reduction in the number of villas on the site;
- retention and regeneration of the riparian corridor along Maddens Creek and the southern Crown land portion of the site;
- imposition of 50m riparian buffer zone on both sides of Maddens Creek;
- existing vegetation on the southern side of Maddens Creek to remain insitu;
- a restriction on activities within 100m of Maddens Creek;
- prohibition of any building or other works within the 50m buffer zone (except for environmental works);
- provision of connectivity and protection of the Dharawal Nature Reserve to the south;
- installation of a tertiary waste water treatment plant; and
- provision of stormwater management system that incorporates water quality management ponds, pollutant traps, swales and detention basins to maintain water quality and quantity leaving the site.

The recommended conditions of approval and modifications to the Concept Plan will manage the potential environmental impacts of the development.

4.7.3 Intergenerational Equity

The proposed development will provide tourist accommodation opportunities now and into the future for the Illawarra Region. The proposed 9 hole golf course and associated facilities will satisfy the demand for recreational opportunities for future generations interested in golf as a sport or hobby.

The project will seek to minimise its ecological footprint, and provide a relative degree of local and regional self-reliance and capacity for future adaptability, through:

- provision of an on-site Sewerage Treatment Plant and re-use and irrigation of treated effluent;
- retention of native vegetation in the southern Crown land portion of the site; and
- retention and regeneration of a 50m riparian corridor along Maddens Creek.

4.7.4 Protecting Biodiversity

The proponent has provided an assessment of the impacts on existing flora and fauna on and adjacent to the site. Mitigation measures and management strategies will be implemented to minimise any potential environmental impacts, such as:

- implementation of a Vegetation Management Plan (VMP) and measures to regenerate vegetation in a 50m riparian corridor;
- implementation of a weed control program;
- on-going monitoring of water quality in Maddens Creek
- provision of a recognised Environmental Management System;
- retention of Sedgeland Heath on the Crown land portion of the site;
- provision of a vegetated buffer along Maddens Creek with restriction on irrigation of treated effluent and use of fertilisers/pesticides; and
- stormwater management and run-off measures to minimise impacts on water quality in Maddens Creek and the wider catchment.

4.7.5 Improved Valuation

The proposed development has been designed in accordance with the principles of Water Sensitive Urban Design by promoting an environmentally sustainable outcome through management of the stormwater runoff and sewerage. These measures will help future applications to satisfy principles of ESD and meet the needs of existing users without compromising the needs of future generations.

4.8 OBJECTS OF THE ENVIRONMENTAL PLANNING AND ASSESSMENT ACT 1979

The objects of any statute provide an overarching framework that informs the purpose and intent of the legislation and gives guidance to its operation. The Minister's consideration and determination of an application under Part 3A must be informed by the relevant provisions of the Act, consistent with the backdrops of the objects of the Act.

The objects of the Act in section 5 are as follows:

- (a) to encourage:
 - (i) the proper management, development and conservation of natural and artificial resources, including agricultural land, natural areas, forests, minerals, water, cities, towns and villages for the purpose of promoting the social and economic welfare of the community and a better environment,
 - (ii) the promotion and co-ordination of the orderly and economic use and development of land,
 - (iii) the protection, provision and co-ordination of communication and utility services,
 - (iv) the provision of land for public purposes,
 - (v) the provision and co-ordination of community services and facilities, and
 - (vi) the protection of the environment, including the protection and conservation of native animals and plants, including threatened species, populations and ecological communities, and their habitats, and
 - (vii) ecologically sustainable development, and
 - (viii) the provision and maintenance of affordable housing, and
- (b) to promote the sharing of the responsibility for environmental planning between the different levels of government in the State, and

- (c) to provide increased opportunity for public involvement and participation in environmental planning and assessment.

Of particular relevance to the assessment of the subject application is consideration of the Objects under section 5(a). Relevantly, the Objects stipulated under section 5(a) (i), (ii), (iii), (iv), (vi) and (vii) are significant factors informing the determination of the application. The project does not raise significant issues with regards to (v) and (viii).

With respect to ESD, the Act adopts the definition in the *Protection of the Environment Administration Act 1991* including the precautionary principle, the principle of inter-generational equity, the principle of conservation of biological diversity and ecological integrity, and the principle of improved valuation, pricing and incentive mechanisms.

The Department has considered the Objects of the Act, including the encouragement of ESD in the assessment of the application.

4.9 FUTURE APPLICATIONS

The proponent has advised that each of the five stages of the development (refer to **Section 3.1.3**) will be subject to a separate application. The Department considers that future applications be dealt with as project applications under Part 3A of the Act due to the complex nature of the proposal and the wide ranging environmental issues that affect the site.

5 CONSULTATION AND ISSUES RAISED

5.1 PUBLIC EXHIBITION DETAILS

The Environmental Assessment (EA) was placed on public exhibition from 16 April 2008 to 16 May 2008 and submissions were invited in accordance with section 75H of the Act. Notification of the exhibition was advertised in:

- The Wollongong Illawarra Mercury on 15 April 2008; and
- The Wollongong Advertiser on 16 April 2008.

Exhibition locations were at:

- Department of Planning Head Office, Bridge Street Sydney;
- Department of Planning South Coast Regional Office, 84 Crown St Wollongong;
- Wollongong City Council, 41 Burelli St, Wollongong; and
- Nature Conservation Council, Level 2, 301 Kent Street, Sydney.

The EA was also provided for download on the Department's website. The Department has exhibited the EA in accordance with section 75H (3) of the Act.

Letters were sent to adjoining and nearby landowners notifying of the exhibition and inviting a submission.

The following government agencies were sent a copy of the EA during the exhibition period:

- Wollongong City Council
- Department of Environment and Climate Change
- Department of Primary Industries
- NSW Rural Fire Service
- NSW Roads and Traffic Authority
- Department of Lands
- Department of Water and Energy
- Department of Planning (Southern Region)
- Sydney Water Corporation
- Southern Rivers Catchment Management Authority
- Sydney Catchment Authority
- Integral Energy

A total of 25 submissions were received, comprising 13 submissions from the public and 12 submissions government agencies.

In response to the issues raised during the exhibition period the proponent amended the proposal and lodged a PPR on 26 September, 2008. The PPR was not advertised due to a net reduction in the number of villas and a corresponding decrease in the development site area resulting in a lesser impact. Notwithstanding, the PPR was sent to relevant agencies for comment and placed on the Department's web site. In addition, the local community groups/residents who provided a submission were advised by telephone and/or email/letter that the PPR was available for viewing on the Department's website.

A hard copy of the PPR was referred to the following government agencies/environmental organisations for comment:

- Rural Fire Service;
- Department of Water and Energy;
- Department of Lands;
- Department of Planning (Southern Region);

- Department of Environment and Climate Change;
- Southern Rivers Catchment Management Authority;
- Sydney Water;
- Wollongong City Council;
- Roads and Traffic Authority;
- National Parks Association; and
- Total Environment Centre.

5.2 SUBMISSIONS FROM THE PUBLIC

5.2.1 Summary of issues raised in public submissions

The 13 submissions from the public all objected to the proposal. The public submissions were from:

- 4 x local community/environment groups;
- National Parks Association;
- Total Environment Centre; and
- 7 x letters/emails from residents either adjoining the site or from the local area.

The following is a summary of the key issues raised in the public submissions:

- The proposal is a de-facto residential development and not a tourist development;
- Traffic, access and safety impacts;
- Construction Impacts such as dust and noise;
- Adverse environmental impacts on water quality and the catchment; loss of native vegetation; and fauna;
- Non-compliance with planning controls/strategies for the area and region;
- Adverse climate change impacts;
- Adverse climatic conditions;
- Adverse visual Impacts on scenic quality;
- Inconsistent with rural character;
- Isolated site with a lack of adequate services;
- Overdevelopment and excessive density;
- Infrastructure Impacts;
- Bushfire risk;
- Amenity impacts to adjoining properties.

Discussion on the key issues from the above is in **Section 6** of this report.

A summary of all public submissions received can be found at **Appendix D**. The proponent responded to these submissions within their PPR lodged with the Department on 26 September 2008. The PPR is at **Appendix G**.

5.3 SUBMISSIONS FROM GOVERNMENT AGENCIES

The following agencies registered concern with the proposal:

- Wollongong City Council;
- Department of Environment and Climate Change;
- NSW Roads and Traffic Authority;
- NSW Rural Fire Service;
- Department of Lands; and
- Southern Rivers Catchment Management Authority.

The following agencies did not raise objection to the proposal subject to certain matters being addressed or suitable conditions being imposed on any approval.

- Department of Primary Industries;
- Department of Water and Energy;

- Department of Planning (Southern Region);
- Sydney Water;
- Sydney Catchment Authority; and
- Integral Energy.

A summary of the comments received from government agencies is described below.

5.3.1 Wollongong City Council

Wollongong City Council provided a detailed submission, prepared by Council officers, raising a number of concerns with the proposal. The key issues in their submission included:

- Permissibility in accordance with WLEP 38 and WLEP 1990 in terms of whether the proposal was consistent with a "golf resort" and due to its incorrect property description;
- Non-compliance with subdivision standards in 7(c) zone of WLEP 38 and WLEP 1990;
- Bushfire impacts;
- Social impacts;
- Inappropriate location for a development of this nature and scale;
- Potential environmental impacts associated with disposal of waste water on the site and loss of vegetation
- Potential flooding impacts;
- Concerns with disposal of on-site waste water and potential impacts on the environment;
- Lack of detail in concept landscape plan;
- Inadequacies with the Aboriginal and European Heritage assessment;
- Isolated nature of the site and impact on infrastructure and services;

A second submission, ratified by Council (the Administrators) at its meeting on 23 July reaffirmed the officer's position and resolved unanimously not to support the proposal for the following reasons:

- The site is isolated from infrastructure and services;
- The proposal is not properly characterised as a golf resort as the dominant use is for the provision and servicing of accommodation;
- Proposal inconsistent with planning controls in LEP 38, SEPP 1, draft LEP 2009 and Illawarra Regional Strategy;
- Environmental impacts; and
- Contrary to public interest.

Council were sent a copy of the PPR on 13 October 2008. A response was provided to the Department by letter received on 12 December 2008. Council considered the removal of the southern portion of the site as a significant improvement but expressed concerns with the characterisation of the use and its physical isolation and potential impacts on water quality and vegetation communities.

Council also advised that the draft LEP 2009 no longer provides "golf resort" as an additional permitted use on the site. It is recommended that the Minister through the Regional office insert "golf resort" in accordance with the approved Concept Plan as a permitted use for a period of three years from gazettal which is consistent with the approval.

5.3.2 Department of Environment and Climate Change

The Department of Environment and Climate Change (DECC) raised the following concerns:

- Adverse impact on flora and fauna and clearing of upland swamp vegetation;
- Conflict with their intention to add the southern portion of land to the Dharawal Nature Reserve;
- Survey period for fauna and flora not representative of all seasons and some survey techniques inadequate;
- An inadequate buffer zone is provided to Maddens Creek;
- Water quality impacts; and
- Lack of detail provided in the Aboriginal assessment.

DECC commended the removal of the two southern Crown land portions from the development site in the PPR. However, a number of other concerns remain regarding the vegetation buffer, Dharawal Nature Reserve, fauna surveys, loss of hollow bearing trees, viewing platform, water quality and stormwater management, bushfire and aboriginal heritage. Further discussions were held with DECC officers and it is considered that with the imposition of appropriate conditions their concerns can be dealt with prior to any future project application for the site. In that regard DECC officers have provided the Department with a set of preliminary conditions to be imposed on the approval.

The issues raised by DECC have been dealt with in **Section 6**.

5.3.3 Southern Rivers Catchment Management Authority

The Southern Rivers Catchment Management Authority (SRCMA) raised concerns with:

- the loss of habitat across a range of vegetation types;
- loss of coastal upland swamp heath which could impact on two threatened species: the Ground Parrot and Green and Golden Bell Frog and possibly additional threatened species; and
- the offset strategy is well below the clearing to offset strategy of 1:20

These issues are discussed further in **Section 6.8**.

The SRCMA verbally advised the Department their main concern arising from the loss of native vegetation on the Crown land portion of the site and the offset strategy had been addressed in the PPR due to the removal of the affected area from the development site.

5.3.4 NSW Rural Fire Service

The New South Wales Rural Fire Service (RFS) initially raised concern with the conflicting information submitted in the Bushfire Assessment and the Flora and Fauna report in terms of vegetation type and how this would impact on the provision of APZs and compliance with *Planning for Bushfire Protection 2006*.

The RFS raised no objection to the amended proposal subject to the imposition of conditions.

Bushfire is further discussed in **Section 6.14**.

5.3.5 NSW Roads and Traffic Authority

The Roads and Traffic Authority (RTA) raised safety and traffic concerns with the location of the proposed vehicular access directly opposite the existing vehicular access to the existing Boomerang Golf Course on the eastern side of the Princes Highway.

This issue is discussed further in **Section 6.10**.

Subject to imposition of conditions the RTA raised no objection to the amended proposal.

5.3.6 Department of Lands

The Department of Lands (DoL) raised concern with the expansion of the existing golf course footprint over the southern Crown land portion of the site and the potential conflict with an application by DECC to add this area to the adjoining Dharawal Nature Reserve. However, DoL no longer objects to the proposal which removes the southern crown land portion from the development site.

Concern was also raised due to an Aboriginal Land Claim which affects part of the southern Crown land portion of the site. However, the DoL has verbally advised that there is no longer an issue with the Native Title claim given that the affected area has been removed from the development site.

5.3.7 Department of Water and Energy

The Department of Water and Energy (DWE) originally raised concern with the extent of riparian corridor and recommended that it be a minimum of 30m. It was also advised that all wastewater be treated to a tertiary level and that no irrigation or use of pesticides or fertilisers occur within 100m to Maddens Creek. A number of other issues were raised with respect to the use of the buffer zones and the on-going protection of the riparian zone and groundwater.

Recommended conditions were provided in the event that the application was approved.

The DWE verbally advised that their original advice requiring a minimum 30m riparian buffer to Maddens Creek was incorrect and should have been a 50m riparian buffer. In their response to the PPR they chose to acknowledge DECC's request for a 50m buffer instead of changing their original advice. They also raised concern with impacts on water quality arising from irrigation of recycled effluent and use of fertilisers and pesticides within 100m of Maddens Creek. These issues have been addressed in **Section 6.1** and **6.3**.

5.3.8 Department of Planning (Southern Region)

The Southern Regional office is of the view that the accommodation should not be for permanent residential use. On that basis no objection to the proposal has been raised. In response to the changes under the PPR the following comments were made:

- the reduction in number of villas may result in minor improvement in terms of visual impact;
- the proposal should be restricted to short stay tourism accommodation and restriction put in place to ensure there is no permanent residential accommodation; and
- the investment and employment would be beneficial to the local area.

5.3.9 Sydney Water Corporation

Sydney Water raised no concerns with the proposal.

5.3.10 Department of Primary Industries

DPI raised no objection to the proposal subject to imposition of conditions.

5.3.11 Sydney Catchment Authority

SCA advised that the proposal is not likely to impact on SCA land, infrastructure or the water supply catchment.

5.3.12 Integral Energy

Integral Energy raised no concerns with the proposal.

6 ASSESSMENT OF ENVIRONMENTAL IMPACTS

Key issues considered in the Department's assessment of the EA and the PPR and consideration of the proponent's draft Statement of Commitments include the following:

- Water Quality and Stormwater;
- Flooding and Climate Change;
- On-site Effluent Disposal;
- Integrity of Tourist Use;
- Characterisation of the Use;
- Design/Built Form;
- Visual Impact;
- Riparian Corridor;
- Flora and Fauna;
- Aboriginal and European Heritage;
- Traffic, Access and Parking;
- Economic and Social Impacts;
- Contamination;
- Geo-technical Impacts and Extent of Fill;
- Bushfire Risk;
- Infrastructure Provision;
- Impacts to Adjoining properties;
- External Noise; and
- Density of Development

6.1 WATER QUALITY AND STORMWATER

The proposed development will result in a considerable increase in impervious areas on the site and therefore, without management, the stormwater run-off following development will increase compared to the existing situation. The Department sought specialist advice from Cardno Lawson Treloar (CLT) regarding the stormwater management.

Surface drainage on the site consists of two drainage lines being Maddens Creek and an unnamed artificial channel flowing in a south-southwest direction approximately 150m from and parallel to the site's western boundary. All of the land across the site drains into Maddens Creek except for a small (less than 2Ha) portion in the northeast corner of the site.

The Conceptual Water Quality Management Plan (CWQMP), prepared by SEEC Morse McVey, dated 18 September 2008, generally provides a comprehensive outline of measures to be used for management of the water cycle. The stormwater management incorporates drainage swales/rain gardens, piped drainage, semi permeable paving, stormwater harvesting and water quality management ponds.

Essentially all run-off from hard surfaces will be directed to water quality control ponds. The key issue for the site relates to the high permeability of the soils and the high potential for groundwater interactions (and subsequent interactions with Maddens Creek) with respect to both run-off quality and quantity.

SEEC Morse McVey, provided a letter with the PPR, stating that the changes were unlikely to impact on the CWQMP. However, CLT are of a view the removal of some WQCP may alter the Model for Urban Stormwater Improvement Conceptualisation (MUSIC) modelling which is used to assess the impacts of development and effectiveness of the WSUD measures.

The MUSIC model is widely used in assessing the impacts of urban development and the mitigating effects of Water Sensitive Urban Design (WSUD) on development. The MUSIC modelling undertaken by SEEC Morse McVey was reviewed by CLT.

CLT provided the following comment: *"The MUSIC models provided to Cardno Lawson Treloar would suggest that the proposed development will generally meet requirements for neutral or beneficial impact with respect to stormwater"*.

The MUSIC model developed by SEEC Morse McVey suggests that the proposed development with management measures will result in a reduction in all pollutant loads, with the exception of total nitrogen. The model shows a slight increase in the average annual load of total nitrogen (3.4%). CLT considers that this increase could be managed through minor design modifications. The CWQMP will need to be modified slightly to ensure that there is no increase in total nitrogen loads from the site but it considered acceptable to undertake this as part of any future project application.

CLT has advised that the following assumptions made in the MUSIC model may need to be reviewed and modified as part of any future project application for the site:

- *The pre-development model assumes that the hard surfaces on the site (e.g. buildings, sheds, roads and carpark areas) have an effective impervious fraction of 5 percent. Even though it is noted that these areas are not directly connected to the receiving waterway, the adopted percent impervious seems too low. However, due to the small area of these surfaces, it is unlikely to have a significant impact on the average annual loads generated for the site.*
- *Although the CWQMP assumes a 100% reduction in gross pollutants as a result of the gross pollutant traps, the reduction is set at only 10% in the MUSIC model.*
- *In the post-development model, it is assumed that the urban areas (excluding roofs and carpark areas) are only 10% impervious to reflect the general use of rain gardens and permeable surface treatments which are undefined in their quantity. It is not considered appropriate to represent features such as rain gardens in this manner. To determine as to whether this is a significant issue, CLT undertook some testing of the sensitivity of the MUSIC model to the percent imperviousness adopted for these areas. It was found that if these areas are set to 60 percent impervious, then the average annual pollutant loads from the site increase significantly. Therefore, as part of any future project application for the next stage of design, the MUSIC model should be updated to reflect the actual percent imperviousness and the proposed water quality treatment measures. If necessary, area will need to be allocated in the site design to accommodate these treatment measures.*
- *In the post-development model, the golf course area has been scaled up by 25% to reflect the proposed application of recycled water and irrigation from the CWQCP. This approach will generate additional runoff during rainfall events and in reality any irrigation should not generate runoff (assuming 25mm per week). The revision of this assumption is likely to result in a reduction in the post-development pollutant loads.*

CLT concludes:

"The key findings arising out of Cardno's review of the water cycle management components of the concept application and the subsequent revised concept plan discussed in this letter indicate the proposal in concept form appears to be workable from a water management perspective. However, to resolve some unknowns, it is recommended that if a favourable determination is issued for the concept plan, then the following conditions be attached to the determination with these matters to be resolved prior to any further approvals."

The main conditions recommended by CLT include the provision of a detailed water balance of the entire site and full details of the proposed stormwater management system and other water management measures. On that basis the proposed stormwater measures and impacts on water quality are acceptable for the Concept Plan subject to a more detailed assessment prior to any future project applications.

Erosion and Sedimentation Control

A *Concept Soil and Water Management Plan: Illawarra Ridge Golf resort*, prepared by SEEC Morse McVey, dated 18 September 2008, covers the following aspects:

- erosion control measures;
- sediment control measures;
- site preparation and construction phase;
- site monitoring and maintenance; and
- conceptual sediment basin and earth bank calculations.

The plan makes reference to *Managing Urban Stormwater: Soils and Construction (the Blue Book)* and is fairly comprehensive. The plan seeks to capture and/or treat runoff from all parts of the site prior to entering Maddens Creek utilising diversion drains and sediment basins. However, runoff of sediment from the northeast corner of the site (about 2ha) that drains to the north has not been properly addressed. A recommended condition on the approval should refer to additional treatment of run-off from the north-east corner of the site.

6.2 FLOODING AND CLIMATE CHANGE

A Preliminary Flood Study (PFS), prepared by ARUP (2007) and submitted with the EA provides a preliminary analysis of the major overland flows and impact on the proposal. The Department sought specialist advice from CLT regarding the flood assessment.

The PFS does not include a hydraulic assessment or consideration of the Probable Maximum Flood (PMF), catchment topography or the impacts of the proposed development on flood behaviour (e.g. building footprints or cut and fill) and, therefore, does not strictly constitute a flood impact assessment in accordance with the NSW Government's *Floodplain Development Manual* (2005).

The PFS concluded that the 100 year ARI flood level can be approximated at 377m AHD contour (equal to the road level above the culverts at the downstream end of the site). CLT recommends a more detailed Preliminary Flood Study should be undertaken such that the likely impacts of the proposed development on flood behaviour both within the site, and on surrounding properties, may be more fully appreciated.

At the request of the Department, CLT prepared a simplified model for the site to estimate the flooding behaviour within the proposed development. The results of this assessment were then compared against the results presented in the PFS.

The hydrology for the Maddens Creek catchment was calculated by CLT using the 'rational method' (method which measures relationship between rainfall and runoff). The rainfall intensities and catchment runoff coefficients were sourced from *Australian Rainfall and Runoff* (Engineers Australia, 1999). Flows were then calculated for the 20 and 100 Year ARI flood events. The total catchment calculated by Cardno is 2.05 km², which is slightly smaller than the PFS catchment.

The flood behaviour for the site was modelled using HEC-RAS Version 4.0, a 1D modelling package and cross section data for the model was obtained from 1:25,000 topographic maps for the area.

The heavily vegetated sections of the riparian corridor around Maddens Creek were assigned a Manning's n value of 0.15 and the wider extent of the cross section was assigned a Manning's n value of 0.05 (roughness coefficient indicating resistance to flood flows in channels).

In accordance with Wollongong Council's Drainage Design Code, the culverts under the F6 Freeway were assumed as 100% blocked for the 100 year ARI design event and therefore the Southern Freeway forms a hydraulic control at the downstream end of the site. To be conservative, CLT assumed a 100% blockage for the 20 year ARI event.

The flood assessment undertaken by CLT shows the 100 Year ARI flood levels within the site as slightly higher than 377m AHD. However, this does not make a significant difference to the majority of the preliminary flood extent. The only significant difference is the upstream reaches of Maddens Creek which no longer form part of the development site.

Whilst there is not a significant difference in the flood extents there is a difference of approximately 0.3m in the estimation of the 100 Year ARI flood level affecting the tourist villas in the south-western portion of the site. Therefore the proposed floor levels (100 Year ARI + 0.5m) of these tourist villas in the PFS.



Figure 16 – Flood extent 100 year ARI according to specialist flood advice obtained by the Department from CLT

The 100 year ARI flood extent indicated in the PFS (prepared by ARUP) shows a smaller area of the site being inundated in the 100 year ARI compared to assessment undertaken by the Department's consultant, CLT (refer to **Figure 16**). It is recommended that the extent of the 377.3m AHD flood contour be confirmed using detailed site survey as part of any future project application to ensure no villa or road access is located in the 100 year ARI extent.

The Department's consultant CLT, identified the 20 year ARI flood extent at 377.15m AHD which will inundate the southernmost proposed water quality ponds in the 20 year ARI event (assuming culvert blockage). The treatment functions associated with these ponds will be lost in a 20 year ARI flood and the ponds will most likely require extensive works after a flood to restore them to provide proper water quality functions. It may therefore be prudent to consider locating these ponds above the 20 year ARI flood level to reduce the frequency of inundation.

Climate Change

The *Floodplain Risk management Guideline – Practical Consideration of Climate Change DECC 25 October 2005* deals with the threat of climate change on both sea level rise and rainfall. The guide has set a sea level rise range between 0.18m to 0.91m by between 2090 and 2100. The subject site is located on the Illawarra Escarpment at a level of about 370-400m AHD. The site is therefore above the expected sea level rise.

The guide also identifies the increased incidence of flood producing rainfall events which are expected to increase by 2030 and 2070. A 30% increased in rainfall intensity could bring a 100 year average recurrence interval event every 50 years result in an increased impact on the subject property. A Preliminary Flood Study, prepared by ARUP, was provided with the EA. It concluded that the maximum flood event would be created when the culverts under the Southern freeway and to the west were blocked. The freeway creates a spillway which is overtopped when the water reaches a level RL 377m (refer to discussion above). However, the Departments consultant assessment of the flood extent shows the southern villas as being flood affected by the 1 in 100 year flood (refer to discussion above). On that basis it is considered that the villas in the south-western part of the site subject to potential flood impacts should be deleted from the Concept Plan.

6.3 ON-SITE EFFLUENT DISPOSAL

The existing golf course is currently unsewered and relies on septic tanks for disposal of effluent. It is proposed to provide an on-site Sewerage Treatment Plant (STP) in the north-eastern corner of the site. The treatment options generally require a building footprint of between 50-200m². The internal site sewer system will discharge the untreated sewerage to the unit (or an overflow tank if capacity is exceeded) where it will be treated prior to being stored for reticulation or reuse.

The treatment will generally involve a combination of aerobic biological treatment, ultrafiltration through a membrane, reverse osmosis and UV filtration. The system will be gravity fed to a pump station in the southwest corner of the site and connected to a rising main to transfer sewerage to the treatment plant in the north-eastern part of the site.

The Department sought specialist advice from Whitehead & Associates Environmental Consultants (W&A) regarding the proposed on-site effluent disposal system.

The CWQMP does not provide sufficient detail to adequately assess the likely environmental impacts from the proposed on-site wastewater treatment system. However, the proposal seeks Concept approval and the detailed modelling and design can be considered as part of a future project application.

The CWQMP identifies soil conditions based on site and laboratory testing for various parameters. The results are not disputed by W&A and are useful in the assessment of the wastewater system. The following site constraints were identified in the CWQMP:

- the site is a groundwater recharge area for aquifers and contributes to subsurface flows into creeks;
- soils are permeable with large pore spaces and low water holding potential leading to a high through flow of water;
- potential groundwater pollution hazard;
- Soils are prone to waterlogging and seasonally high water tables;
- low fertility soil;
- natural soil conditions are unsuitable for exotic plant species;
- shallow sandy loam soil depth (450mm to depth of sandstone rock);
- soils are strongly acidic, non saline with low phosphorous sorption;
- site drains to Maddens Creek which forms part of the Georges River catchment; and
- there are localised springs where groundwater is elevated.

Based on the soil assessment the following recommendations for the management of wastewater have been provided in the CWQMP:

- installation of a tertiary treatment plant for wastewater treatment capable of providing treated effluent with less than 3mg/L of phosphorous and 6mg/L of nitrogen;
- potential daily load of 132,050L/day at 100% occupancy which requires an irrigation area of 4.38Ha (ARUP in a separate report identified a potential daily load of 356,250L/day which requires an irrigation area of 11.82Ha);
- the proposed golf course will occupy approximately 15Ha including the rough areas;
- reuse of treated effluent for irrigation will be by surface spray or drip irrigation of the golf course;
- provision of wet weather storage so that irrigation does not occur when soils are already wet;
- use of low application rates for the distribution of treated effluent
- importation of sandy clay loam fill over shallow soil areas to a minimum depth of 450mm
- no irrigation of recycled water within the following buffer distances;
 - 40m from top of the bank of Maddens Creek;
 - 5m from any building;
 - 3m (if downslope) or 6m (if upslope) of a property boundary, road or other hard surface; and
- possible re-use of treated effluent for toilet flushing in addition to the golf course irrigation.

W&A identified the following issues based on the assumptions made in the WQMP:

- daily effluent loads have not been justified as they are based on numbers provided in the ARUP report;
- subsurface irrigation is preferred to surface spray irrigation which is proposed;
- consideration needs to be given to environmental impacts associated with Importation of fill and being able to obtain a consistent quality across a large area; and
- the southern fairways/greens are within a 40m buffer distance of Maddens Creek.

W&A identified additional issues in the proponent's EA:

- the EA suggest a 100m buffer to Maddens Creek which contradicts the CWQMP;
- the forecast population demand in the EA of 1660 does not clarify whether it includes staff and day visitors;
- the EA states that site soils have been tested to establish the soils ability to absorb nutrients however, no nutrient balance modelling has been provided;
- the sewer generation is greater than the potable supply – the difference could be due to use of rainwater or recycled wastewater for toilet flushing however, this has not been stated; and
- The ARUP water balance states "*it has been assumed that the soil and creek are able to accept the volumes of treated effluent including nutrient content of effluent*". However, no proper water or nutrient balance modelling has been provided to support this assumption.

In order to determine the systems suitability, the site and soil details have been used by the Department's consultants, W&A, to model the effluent irrigation area and wet weather storage. W&A identified the daily wastewater loads based on predicted daily loads utilising *AS1547:2000 Onsite Domestic Wastewater Management*. W&A consider the predicted population of 1,600 is reasonably accurate. The total daily load from the resort at full occupancy will be 180,680L. *AS1547:2000* provides conservative estimations of daily loadings for various activities and is widely accepted as an appropriate tool for the design of on-site wastewater system loads in Australia.

The water balance accompanying the Servicing Strategy (SS), prepared by ARUP, has been designed on an indicative irrigation demand for the greens, fairways and tees. W&A do not concur with this design method. In order to ensure treated effluent will not compromise the environment it is essential to design the daily irrigation rate based on climatic, site and soil characteristics to ensure the carrying capacity of the soil is not exceeded by the application of treated wastewater. W&A were of a view that no suitable balance model had been used to determine irrigation area sizes. Therefore the water balance modelling should be undertaken in accordance with *AS 1547:2000* recommendations or another acceptable method for wastewater modelling. W&A undertook some preliminary water and nutrient balance modelling to determine the sustainable irrigation rates and to estimate the necessary size of irrigation areas to manage proposed hydraulic and nutrient loads.

A design irrigation rate of 35mm/week or 5mm/day could be adopted in accordance with *AS1547:2000*. This was not recommended or discussed in the CWQMP or the SS submitted with the EA. Due to the site constraints which

include high groundwater, proximity to Maddens Creek and shallow soil depth, W&A recommend a lower irrigation rate of 2.1mm/day to ensure the risk of off-site discharge is minimised. The water and nutrient balances were both modelled using the estimated average daily load of 180,680L/day at maximum occupancy. The water balance proved to be the limiting factor. An irrigation area of not less than 158,095m² is recommended to satisfy the water balance so that wet weather storage is not required. Both the phosphorous and nitrogen balances require smaller areas and nutrients should be readily assimilated by the soils and vegetation within a 158,095m² area.

The available area determined in the CWQMP is approximately 15Ha or 150,000m² which is less than the required area for zero wet weather storage. The available area of 15Ha could be utilised in conjunction with wet weather storage of 277,543L (1.5 days). Wet weather storage will be required as there is insufficient area available for irrigation during excessive rainfall. The proposed storage of 700,000L will result in an average storage of 3.8 days with no requirement for effluent to be irrigated during rainfall. Due to the sensitive nature of the site it may be more appropriate to store all effluent during wet periods for pump out and tanker disposal or reuse during dry periods, when additional water is required for the course. W&A concluded that:

- the soils are generally unsuitable for effluent irrigation during wet weather;
- the southern fairways are close to the Maddens Creek which is the lowest point of the site and not suited for effluent irrigation following small amounts of rain;
- extensive soil and drainage improvements are required for sustainable effluent irrigation; and
- wet weather storage of effluent is necessary to ensure surface and subsurface drainage does not occur to Maddens Creek during rainfall.

The treated effluent should provide enough nutrients for the effective growth of plants on the site. W&A have undertaken a preliminary nutrient balance on the existing soils. A detailed nutrient balance should be undertaken to determine the maximum loading of treated wastewater to the soils based on the nitrogen and phosphorous remaining in the treated effluent and the soil type. With this balance a determination can be made as to how much additional fertiliser would be required, if any, to ensure optimal plant growth on the golf course. The preliminary nutrient balance undertaken by W&A indicates the 15Ha area can accommodate the nutrient loads from the proposed system providing the application rate does not exceed 2.1mm/day and on that basis the likelihood of discharge of nutrients into the groundwater is low.

W&A agrees the volume of 700m³ for wet weather storage which provides for 3.8 days of storage at maximum occupancy during rainfall. If storage reaches the tanks capacity a high water alarm will notify the operator to arrange a pump-out.

Restriction on the use of recycled effluent

The use of subsurface irrigation ensures that the risk of effluent being transported off-site is negligible and is an increasingly favoured method of irrigating treated effluent. W&A have recommended the following buffer distances for tertiary treated effluent from various site features for subsurface irrigation:

- No irrigation of treated effluent within 40m of Maddens Creek except with rainwater or potable water in accordance with water restrictions and water quality requirements for treatment of stormwater and rainwater;
- No irrigation within 3m (if downslope) or 6m (if upslope) of any building, swimming pool, property boundary, road or other hard surface;
- No irrigation within 40m of the man made ponds across the site; and
- No irrigation within 40m of the natural drainage line which runs from north to south in the south-western part of the site.

The DWE and DECC have both recommended that there be a minimum buffer distance of 100m to Maddens Creek for the use of fertilisers or herbicides and irrigation of treated effluent. W&A suggest that modelling of the nutrient plumes from the treated effluent could be undertaken to determine that a 40m buffer distance is sufficient. They have also advised that water quality monitoring should be undertaken on a monthly basis to ensure there are no changes in water quality and if the water quality becomes compromised then the buffer distance can be increased. This is not considered an adequate response because once the golf course layout and buffers have

been built it is difficult to modify them in the event that a greater buffer is required. Therefore no irrigation of recycled effluent will be allowed within 100m of Maddens Creek to protect the watercourse from potential excess nutrients. It is also recommended that a minimum 100m buffer to Maddens Creek be required to restrict the use of fertilisers, pesticides and herbicides (refer to additional discussion in **Section 6.7**).

These restrictions will impact on the current golf course layout which contains fairways greens proximate to Maddens Creek. However, for other planning reasons it has been recommended that the footprint of the central villa precinct be reduced to allow the reconfiguration of the fairways further north away from Maddens Creek (refer to **Section 6.19**).

There are also a number of water quality control ponds in the southern part of the site which will need to be relocated/reconfigured because they are within 40m of the fairways and greens and no irrigation of recycled effluent will be allowed within 40m of any WQCP.

Wastewater Treatment Plant

A specific wastewater treatment plant for the site has not been nominated. The DWE Guidelines (2008) outline standards which must be achieved for a wastewater treatment plant prior to being issued with a validation certificate.

With regular monitoring and maintenance of the plant the long term viability of the STP is considered high. Maintenance would be required in accordance with the manufacturers specifications and is usually carried out every 3 months.

A suitable means of disposing of swimming pool backwash water is also required. The chlorine concentrations in backwash water can have detrimental effects on the operation of the STP and irrigation area if careful design is not undertaken. It is estimated that approximately 5% of the total pool volume per month would be discharged to the STP as backwash water. This could place a considerable additional load on the system depending on the size of the pool(s). It is therefore recommended that an alternative filter which does not require backwashing, be used for any pools on the site. Carbon cartridge filters are available which eliminate the need for backwashing.

The suitability of the wastewater treatment system and impact on the environment is summarised by W&A as follows:

"Providing a detailed system design is undertaken for both the treatment plant and effluent irrigation area the proposed system should have minimal impacts on the environment. The shallow groundwater and poor existing soils provide major limitations for the disposal of treated effluent on the site, however, with careful design and the various mitigation measures recommended in this report effluent can be applied to the site in a sustainable manner."

A number of conditions have been recommended by W&A for the Concept approval and must be adhered to as part of any future project application.

W&A state that *"providing the recommendations are adhered to the proposed on-site wastewater treatment system should be sustainable."*

6.4 INTEGRITY OF THE TOURIST USE

Concern has been raised as to whether the proposal will operate as a bona fide tourist facility and not a permanent residential development disguised as a golf resort. As detailed in **Section 2.2** the original application lodged at Wollongong Council was for permanent residential accommodation.

The Department has previously expressed concerns with regard to permissibility of permanent residential accommodation and the subsequent planning impacts in an isolated and under serviced location.

The proposal was subsequently amended to a tourist facility for short stay accommodation in the form of hotel, serviced apartments and private villas. The Department has also expressed concern with respect to the future tourist use and requested that the proponent carefully consider this issue as part of the EA.

The following four mechanisms are proposed by Links Illawarra Developments Pty Ltd to maintain the integrity of the tourist use:

1. Development Consent

Imposition of a condition on the approval which provides that accommodation must only be used for tourism purposes and cannot be occupied by any person for more than 42 consecutive days or in an aggregate no more than 150 days in any 12 month period.

There are mechanisms in place and penalties will apply if there is a breach of the conditions imposed on the consent. Under Section 123 of the Act any person may bring proceedings in the Court for an Order whether or not that person has been infringed by or as a consequence of that breach. Under Section 124 of the Act the Court may make an Order to restrain the use if there is a breach.

2. Community Management Statement

The proposed Community Title subdivision will involve the formation of a Community Association (CA) comprising the owners of all strata lots. The CA would be established upon registration of the Community Plan which is accompanied by a Community Management Statement (CMS). The Department sought specialist advice from Graham Cochrane Solicitors (CGS) regarding the draft Community Management Statement.

CGS recommends some changes/additions to the draft CMS and by-laws to tighten up the restrictions and ensure it is robust to minimise the risk of permanent residential use. Central to the operation of the CMS is that occupation of a lot may not be for more than 42 consecutive days and 150 days in aggregate over a 12 month period. Theoretically the period of 150 days in a 12 month period would facilitate use as a weekender (i.e 104 days) with remaining days available for holiday or recreational use. However, it is proposed to incorporate a condition requiring the owners to place their villa with a holiday letting pool for a minimum period each year to ensure it is available for tourist purposes and not residential use.

The Department's consultant, GCS advised that under Section 13(1) of the Community Land Management Act 1989 a CMS is binding on the CA; each subsidiary body within the scheme; and each person who is a proprietor, lessee, occupier or the mortgagee of a strata lot within the scheme. A CA may serve a notice on the proprietor or occupier of a lot requiring the proprietor or occupier to comply with the specified provision of the by-laws if the CA is satisfied that the proprietor or occupier has contravened the provision. There are subsequent mechanisms available to a CA to enforce the by-laws and if an order is not complied with penalties may apply.

3. By-laws

Provisions in the CMS will be imposed as by-laws stating that a strata lot may only be occupied by a person for a period of 42 consecutive days or in an aggregate no more than 150 days in any 12 month period. By-laws cannot be amended or revoked without the consent of Council. Other requirements that will be contained within the by-laws are:

- *An owner must make available all documents relating to the use and occupation of a lot including lease and agency agreements;*
- *CA must maintain a record about the use of all strata lots and make a copy available to Wollongong Council upon request;*
- *The proprietor or occupier of a lot must comply with terms of any restriction on use or public positive covenant burdening the lot;*
- *The proprietor of a lot maintains at all times an agreement with a letting agent which is bound by contract; and*

- *The CA maintains an agreement with a qualified and suitable person or corporation upon terms and conditions determined by the CA to enable proprietors of lots to offer though that person or corporation their lots for rental by members of the public as holiday accommodation.*

4. Title Restrictions

A restrictive covenant will be imposed on the title under Section 88E of the Conveyancing Act 1919 restricting the use of the accommodation lots to tourism accommodation purposes. The restriction or covenant will not be able to be amended without the consent of Wollongong Council. The covenant will assist in notifying potential purchasers of the restrictions on use for tourism accommodation and not permanent residential purposes.

Specialist Advice received by the Department

The Department sought specialist advice on the draft CMS from Graham Cochrane Solicitors (GCS) a company experienced in Community Title issues. The following advice was provided with respect to the above mechanisms:

"The package of Development Consent, Restrictive Covenant, Community Management Statement and Strata By-laws amounts to an adequate armoury to deal with compliance."

There are no known specific requirements in either local or state legislation which identify an appropriate restriction on the number of days to ensure tourist facilities are used for short stay purposes only. The Department has previously imposed a condition on the Becton Tourist development in Byron Bay restricting the use of each unit by an owner or resort guest to no more than 90 days in each calendar year.

The genesis of the 42 days maximum and 150 day aggregate is not clear other than 42 days or 6 weeks equates to the total number of standard school/christmas holidays available each calendar year.

There are golf course developments in the Hunter Valley where similar issues may exist. The definition of "tourist accommodation" under Cessnock Local Environmental Plan 1989 means *"premises used for the temporary accommodation of up to 4 tourists in a maximum 2 bedrooms for up to 42 consecutive days or, in aggregate, 150 days in any 12 month period, but does not include bed and breakfast accommodation."*

The proposed restrictions are generally acceptable and it is recommended that they be incorporated as conditions on the Concept Plan approval and any future project applications.

6.5 CHARACTERISATION OF THE TOURIST USE

Some concern has been raised by Wollongong Council and in some of the public submissions as to the proportion of accommodation relative to the golf facilities and other non-golf specific facilities which indicates the dominant use on the site will be the provision of accommodation. A 'golf resort' is not defined in Council's LEP or under the Environmental Planning and Assessment Act, 1979. However, it is generally accepted that a golf resort not only includes accommodation but other non-golf uses which supplement the resort such as gyms, health spas and conference facilities.

The two main development precincts are the resort complex and associated facilities which occupy about 4ha and the central villa precinct which has a footprint of about 10.25ha. Combined the built form development area represents a total of 14.25ha or about 35% of the site (excluding the southern Crown land portions). The remainder of the site will be predominantly used as golf course and in terms of site coverage the golf course is the dominant use on the site.

However, the character of the resort could be perceived as being more a general resort and less of a golf resort due to the amount of accommodation on the site. In that regard it is recommended that the density of the central villa precinct is reduced to provide more area for golf course and open space (refer to **Section 6.19**).

The design/layout of the individual tourist villas should be modified to reflect a tourist use and not permanent residential purpose. In that regard a condition on the approval will prohibit vehicular garages and allow a maximum of two toilets for each individual villa.

6.6 DESIGN/BUILT FORM

The Concept Plan proposes two separate development areas being (1) the golf resort comprising the hotel complex and serviced apartments and (2) short stay tourist villas.

Golf Resort Precinct

The resort hotel and serviced apartments are located in a cluster around the arrival court/reception and artificial lake. Also contained in this precinct are stand alone gym/swimming pool and beauty spa buildings. The accommodation will comprise hotel suites and one and two bedroom serviced apartments. The Design Statement prepared by MPS Architects and submitted with the EA describes the built form as “..domestic scale with 2 and 3 storey height limits” and “cluster of pavilions arranged around artificial lakes and a subtropical style with dramatic masonry frame structures with steep pitched roofs and wide eaves.”

The footprint of the 2 x hotel buildings is about 60m x 30m each and the 2 x serviced apartment buildings are about 40m x 50m each. Conceptual drawings show these buildings comprising two storeys with an envelope height of up to 12m which could accommodate a 3 storey building dominate the landscape. It is therefore recommended that a condition of approval be imposed restricting the height of all the hotel and serviced apartment buildings to 2 levels and associated buildings to 1 level.

There is also some concern regarding the detailed design of the resort buildings and the choice of materials and finishes. For example, the conceptual design plans submitted with the EA show the resort buildings as having a high pitched roof and heavy masonry features emphasise their bulk and scale. Ideally the resort buildings should be lightweight appearance and blend in with the landscape. It is recommended that a detailed urban design analysis be considered as part of any future project application. The objective of the analysis should be to ensure the future resort buildings are designed in a sympathetic manner consistent with the low density and rural character of the landscape.

Central Villa Precinct

The central villa precinct will have a generous distance separation to the boundaries of the site. The villas are generally grouped as either cluster villas containing 8 accommodation units or presidential villas containing 2 accommodation units. The villas are predominantly single storey except for the cluster villas which contains two accommodation units of two storey. It is considered the two storey component adds to the bulk of the building and is at odds with the low density landscape character. The number of two storey villas should be restricted to a maximum of 22% of the total (based on the proposed layout). The conceptual design of the villas is also of some concern due to the bulky and high pitched roof forms. The urban design assessment should include the villas to determine the most appropriate form and height of building suitable for the landscape. The principles should inform the design so it:

- Is compatible with its topography and setting;
- reinforces and enhances the character and/or natural environment of the locality;
- provides a high level of amenity to its intended occupants;
- reinforces that the development is a tourist use;
- is ecologically sustainable;
- provides adequate landscaping and open space;
- provides adequate utility services and drainage facilities;
- satisfies the need for the provision and management of on-site parking;
- is designed to protect, enhance and restore significant natural or man made elements on site or in the vicinity;
- enhances public safety through its design and management; and
- is of high architectural quality.

Other buildings outside the resort and villa precinct such as the sewerage treatment plant and the maintenance shed should be included in the urban design analysis.

6.7 VISUAL IMPACT

The site is located west of the Illawarra Escarpment on gently undulating land and generally slopes down to the Southern Freeway and Maddens Creek. The site is surrounded by the Boomerang Golf course to the east, the Southern Freeway and rural residential land to the west, rural residential land to the north and Dharawal Nature reserve to the south.

Currently the site is an 18 hole golf course with a clubhouse and associated buildings and stands of trees lining the fairways. The existing buildings are not readily visible from adjoining properties and roadways due to distance separation, topography and vegetation.

Due to the topography the views of the site are mainly confined to adjoining properties and roadways and not a wider catchment. The main viewing points of the site are from the south when travelling north along the Princes Highway and to the east across the western boundary when travelling south along the Southern Freeway.

The views of the site from the north when travelling south along the Princes Highway are obstructed by topography and vegetation. Views are intermittent directly opposite from the Princes Highway due to existing vegetation which varies in density.

The existing golf course can be viewed from the Southern Freeway from the middle part of the site which has less dense boundary vegetation however, due to high travel speeds these views are fleeting.

The site will be visible from the Dharawal Nature Reserve to the south however, there are no known nearby public walking tracks or easily accessible public areas within the reserve from which the site can be readily viewed.

With the exception of a stand trees in the southeast and northwest parts of the existing golf course and the boundaries the remaining vegetation within the existing golf course footprint will be removed to make way for the proposed development.

The resort complex will be dominated by a cluster of 4 x double storey buildings of which 2 are setback about 75m from the Princes Highway. Any potential views from the Princes Highway will be dependent on the density of existing vegetation and new planting along the boundary. It is recommended that a minimum 15m landscape buffer be provided along the entire length of the western boundary adjoining the Princes Highway. In that regard the tennis courts and maintenance shed appear to encroach the 15m buffer and should be relocated further west.

The existing open views of the golf course from the private rural residential property adjoining to the north will be lost mainly due to the central villa precinct which is separated by fairway No. 6 resulting in a minimum distance separation of 60m to the boundary. To reduce visual impacts from this property it is recommended that a 15m landscaped buffer be provided along the northern boundary and that no villa is sited within 100m of the northern boundary of the site.

In that regard it is important to ensure there will be sufficient planting along the boundaries to minimise visual impacts. The proponent has submitted a Landscape Concept Plan which shows additional vegetation around the perimeter of the site. As stated previously a 15m strip along the Princes Highway boundary will allow the opportunity to retain existing trees and supplement with additional trees and other plantings to screen the resort complex.

The recommended 15m wide buffer along the eastern and northern boundaries will assist in screening the car park, STP and a water reservoir in the north-eastern corner of the site when viewed from the Princes Highway and the adjoining property to the north.

The car park itself should be appropriately landscaped to soften the extent of hard paved surface and this should be shown in a detailed Landscape Plan as part of any future project application.

6.8 RIPARIAN CORRIDOR AND BUFFER ZONES

The southern part of the site is traversed by Maddens Creek which is identified as an environmentally sensitive area in terms of water quality and ecology. The southern part of the site adjoins the Dharawal Nature Reserve at the head of the O'Hares Creek water catchment which is part of the Sydney water drinking supply system. The downstream environment has high ecological value and the O'Hares catchment has been included on the register of the National Estate and National Trust of Australia Register as a landscape area.

A Concept Riparian Corridor Management Plan, prepared by WODEC, has been provided with the EA. The primary aim of the plan is to identify the planning and management strategies to ensure protection, rehabilitation/restoration, and on-going management of the riparian vegetation along Maddens Creek.

The Department of Water and Energy (DWE) raised a number of issues with respect to Maddens Creek. The stream classification adopted by the DWE requires a minimum corridor width for a category 2 watercourse no less than 30m (measured from the top of the bank) along both sides of Maddens Creek on the subject site, consisting of a 20m wide CRZ plus a 10m wide vegetated buffer. The original application submitted by the proponent included a 20m buffer to Maddens Creek.

DWE verbally advised the Department that their original response was incorrect and that Maddens Creek should be considered a category 1 watercourse with a 50m riparian buffer. DWE were of a view they could not change their original advice instead they support DECCs request for a 50m buffer to Maddens Creek. DECC main reason for requesting a 50m buffer is due to some threatened species which have been recorded in the area such as the Giant Burrawang Frog and Red Crowned Toadlet which forage beyond 30m from a watercourse and some of the Ironstone Woodland and aquatic environment which are located outside the 30m buffer zone.

The PPR shows a riparian buffer of 30m on both sides of Maddens Creek. Based on advice from DWE the Department considers that the 30m buffer is not sufficient to ensure the protection of the riparian corridor and that a 50m vegetated buffer should be provided either side of Maddens Creek (refer to **Figure 19**). The riparian corridor along Maddens Creek is well buffered by extensive stands of Ironstone Woodland and Sedgeland Heath to the east. No part of the proposal will extend into the area south of Maddens Creek. The riparian corridor will be established for the protection and enhancement of riparian vegetation and vegetated with local native tree, shrub and groundcover species at a density that would occur naturally.

The vegetation in the riparian zone on the northern side of the creek is characterised by a strip of Ironstone Woodland between the existing southern fairways and the Creek. The width of the woodland strip on the northern side of the Creek varies but on average is 20m. This vegetated buffer will remain in-situ and where there are gaps and existing cleared golf course fairways the bushland should be restored to a width of 50m through a process of Assisted Natural Regeneration which supplements the existing vegetation with locally indigenous species. The total area of riparian corridor to be restored to achieve the 50m buffer on the northern side of Maddens Creek is estimated at 1.5Ha.

All buildings and works including water quality control ponds, golf fairways and Asset Protection Zones will be prohibited in the 50m buffer protecting the riparian corridor. Therefore the golf course layout will need to be modified because fairway No. 4 is located within 50m of the northern bank of Maddens Creek. Only environmental protection works will be allowed in the riparian corridor zone.

The DWE have recommended a permanent physical barrier along the outside northern edge of the riparian corridor such as fencing logs or bollards to prevent any accidental slashing or mowing of the riparian corridor due to maintenance of the golf fairways. A condition to that effect will be imposed on the approval.

The Department considers that the buffer should be a 50m minimum for the following reasons:

1. Maddens Creek is considered highly significant due to its proximity and potential impacts on protected water catchment areas.
2. The southern part of the site adjoins the Dharawal Nature Reserve at the head of the O'Hares Creek water catchment which is part of the Sydney water drinking supply system. A 50m buffer will reduce the risk of pollution due to increased nutrient loads from the golf course on Maddens Creek and its wider catchment.
3. DECC has advised that some threatened species which have been recorded in the area such as Giant Burrawang Frog and Red Crowned Toadlet forage beyond 30m from a watercourse.
4. Some important Ironstone Woodland and aquatic environments are outside the 30m buffer zone (refer to Figure 3.2 in the proponent's Concept Riparian Corridor Management Plan, dated September 2008).
5. A 50m buffer will provide greater protection to the Dharawal Nature Reserve from weed invasion.
6. It will allow the opportunity for connectivity to the existing bushland along the western boundary of the site.

Use of Fertilisers/Pesticides and Recycled Effluent

DWE has raised concern with the proximity of the golf fairway to Maddens Creek with respect to use of recycled wastewater and fertilisers. The removal of the two southern Crown portion lots from the development site results in better separation between Maddens Creek and the golf fairways in the eastern part of the site. However, given the shallow soil depths it is considered the use of fertilisers/pesticides should be no closer than 100m of the northern bank of Maddens Creek.

DWE have raised concern with pollution of groundwater if effluent and stormwater is not adequately treated. The WQCP, prepared by the proponents consultant, SEEC Morse McVey recommends no irrigation of recycled water within 100m of Maddens Creek or 40m for tertiary treated effluent. All wastewater is to be treated to a tertiary level in the Sewerage Treatment Plant. The DWE supports a minimum 100m setback for use of recycled effluent or use of fertilisers from Maddens Creek. It is considered all on-site sewerage must be treated to a tertiary level and applied using subsurface irrigation. The irrigation of effluent on the golf course should be prohibited within 100m of the northern bank of Maddens Creek (i.e. riparian buffer zone).

It is understood that most golf courses only apply fertilisers to the greens and tees otherwise if a fairway is over fertilised and grows too quickly there is significant expense involved in regular mowing and maintenance. The quantity of fertiliser used by a golf course is less than required for cereal production however, most course superintendants seek to maintain a suitable appearance and run for the amenity of golfers. There are alternative fertilisers such as organic fertiliser (fish or seaweed) which could be considered. The Australian Golf Course Superintendents Association (AGCSA) is a leading organisation in best practice environmental management of golf courses across Australia and has been working with EPAR, an organisation that implements Environmental Management Systems for the golf courses. The adoption of an EMS should be considered as part of any future project application for development on the site to ensure sustainable golf course management.

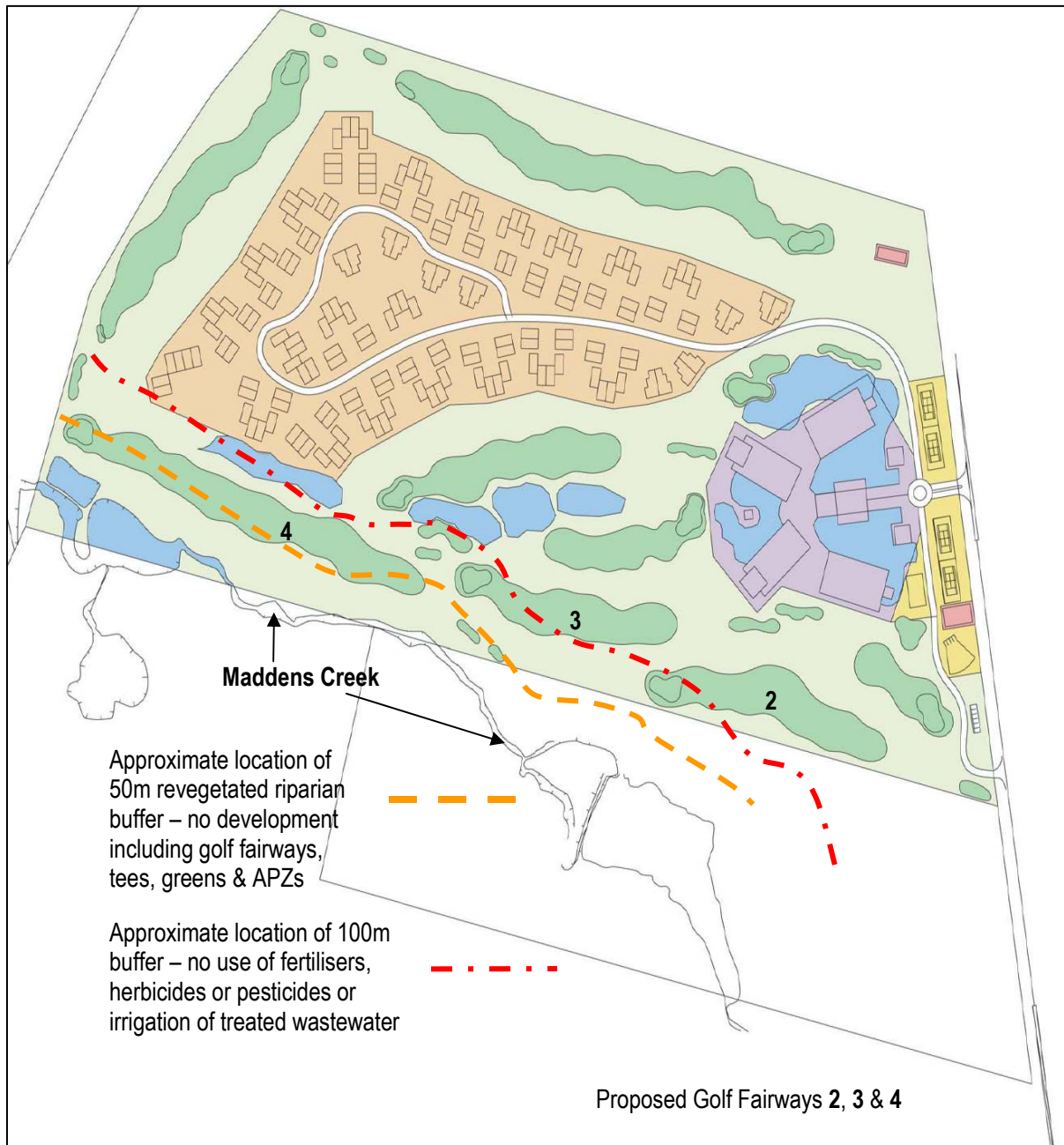


Figure 17 – Development Layout Showing Restriction Buffers

Weed control

The core bushland within the riparian corridor and adjoining bushland are almost free of significant weeds and therefore a management strategy should be put in place to control the spread of weeds from the golf course and eradicate those weeds that do occur followed by a regular maintenance program to ensure weeds do not re-establish.

The existing keystone weeds which pose a threat to the vegetation community present on the site are generally herbaceous species such as introduced turf and pasture grasses and a small number of woody weeds. Weed control is important to achieve the broader goals of conserving and managing the native bushland. The removal of weeds to encourage the regeneration of indigenous native species is the basis of the bush regeneration approach to the management of native plant communities.

The protocols for weed control require the removal of all declared noxious plants and keystone weeds from all parts of the property prior to commencement of works (earthworks and construction). The restoration of native vegetation in selected sites will require preliminary weed control, site preparation, revegetation (planting), and regular site maintenance.

The requirement to "continuously suppress and destroy" all declared noxious weeds should be a legal obligation for the landowner and must be carried out for the entire property. Weed control is to be identified in a detailed Landscape Management Plan. Permanent grounds staff will be responsible for the day to day maintenance of the golf course but weed control and maintenance of the riparian corridor and bushland areas should be undertaken by a suitably qualified bush regeneration contractor. A condition to that effect can be imposed on the approval.

A monitoring program will be required to ensure the success of the bushland restoration program. The program is required to review the efficacy of the weed control methods and establishment of locally indigenous vegetation (via natural regeneration and/or planting) will be required. The Project Manager appointed by the Golf Resort management to oversee implementation of the vegetation and management program will be responsible for providing Wollongong City Council, Department of Water and Energy and Department of Environment and Climate Change with periodic reports with details of the monitoring and review program.

6.9 FLORA AND FAUNA

Threatened and Vulnerable Species

A Flora and Fauna Survey, undertaken by the proponents consultants Lesryk, involved a series of field surveys which recorded a number of native mammals, birds, reptiles and frogs on the site.

The field investigation identified four habitat types available for native species as:

- modified environment (golf course);
- Eucalypt Woodland;
- Sedgeland Heath; and
- Aquatic environment (Maddens Creek, dams and artificially created drainage lines).

The proponents consultants have stated that "...none of the vegetation communities recorded is or forms a component of an Endangered Ecological Community..."

The field surveys identified 10 native mammals, 46 native birds, 8 reptiles and 6 frogs within the Study Area. Of those animals recorded the Gang-gang Cockatoo is listed as vulnerable under the Threatened Species Conservation Act. The Southern Emu Wren and Haswell's frog and Jervis Bay Tree frog identified are of regional conservation concern. Based on a review of known databases and previous ecological reports prepared in the vicinity of the study area an additional 29 native mammals, 85 native birds and 30 reptiles and 16 frogs were recorded. Some of these species are identified as Threatened Species such as the koala and eastern pygmy possum. The presence of these species was considered and targeted during the survey however, no individuals or populations of any of the animals were recorded. No nationally listed threatened plants or animals were recorded in the Study Area.

The Department of Environment and Climate Change (DECC) raised concerns with the survey period for flora and fauna not being representative of all seasons and did not include targeted Elliot trapping and hairtube trapping for arboreal mammals or a targeted survey for nocturnal animals and birds. Notwithstanding, DECC officers have advised that any outstanding flora and fauna surveys (including the hollow bearing tree surveys) can be undertaken as part of the future project application and the findings incorporated into the future detailed design of the development.

DECC supported a 50m vegetated buffer to ensure the protection of Maddens Creek. A condition to that effect has been recommended on the approval.

A Seven Part Test was undertaken by Lesryk Consultants in accordance with Section 5A of the Environmental Planning and Assessment Act to ascertain the impact on the Gang-gang cockatoo (It is noted that Part 3A does

not require this test specifically, but the Threatened Species Guidelines require the equivalent) . As this species is only considered to forage occasionally within the site due to lack of suitable breeding hollows the proposed development is not considered to have any impact on its population or habitat despite the loss of some hollow bearing trees.

Given the detection of the hollow associated with the Large Forest bat and the Greater Broad-nosed bat on the site there is the potential for other threatened hollow dependant microchiropterans (bat species) may be present. The proposal may result in the loss of some hollow bearing trees which is listed as a Key Threatening Process in Schedule 3 of the Threatened Species Conservation Act. A Seven Part Test conducted in relation to hollow dependant bats identified the removal of a small portion of available foraging and potential roosting habitat but when considered to the extent of similar resources in the surrounding region it was not considered to be significant.

An Aquatic Ecology Assessment, prepared by the proponents consultant, The Ecology Lab, dated November 2007, identifies the environmental constraints associated with the proposal and recommends measures to minimise or eliminate impacts. This involved an assessment of habitats and fish surveys.

The proponents consultant generally considered the site to be in good condition due to the health of the riparian corridor vegetation and general stream structure although some disturbance was recorded associated with presence of non-native weeds/grasses and surrounding land use, which was cleared for the existing golf course. The potential for fish habitat was considered moderate by the proponent's consultant. The stream bed consists of mainly bedrock with some sand/silt in the deeper areas of small pools. There is a man made dam in the upper section of Maddens Creek (on the Crown land portion) which is used for irrigating the existing golf course. No threatened species were found, or thought to occur in the vicinity of the study area, although a number of key threatening processes (as listed under the Fisheries Management Act 1994) were identified. DECC provided no specific comment in relation to the aquatic ecology other than in broad terms relating to water quality. The Department considers the assessment undertaken by the proponents consultant to be reasonable and subject to conditions such as the imposition of a 50m buffer and restriction on use of fertilisers and recycled effluent the proposal should not have any adverse impact on the aquatic environment of Maddens Creek.

The main impacts are likely to be from works associated with the loss or damage to riparian vegetation/macrophyte beds, temporary increases in turbidity and fish passage. As stated previously, a 50m riparian buffer zone along Maddens Creek will be incorporated into the proposal and the two southern Crown land portions will no longer form part of the development site. In that regard the proposal will minimise impacts to Maddens Creek and any aquatic species during construction and post development.

An Erosion and Sedimentation Control Plan, prepared by SEEC Morse McVey, sets out a number of measures to be put in place during the construction period to minimise disturbance and water quality in Maddens Creek during the construction phase.

Native Vegetation Clearing

The flora survey identified Casuarina, Privet Leaved Stringybark and Gynea Lily which are regionally significant plants and Ironstone Woodland, Ti Tree Thicket and Sedgeland Heath ecological communities. The dominant location of the regionally significant ecological communities is to the south of the existing golf course, either side of Maddens Creek. Ironstone Woodland can also be found in the eastern and western boundaries and spread across the existing golf course. Due to the limited and restricted distribution in the locality the Ironstone Woodland and Sedgeland Heath are considered to be highly significant communities. The value of these areas is greater given there are regionally significant flora and fauna species within these environments.

DECC raised concern with the removal of native vegetation (Sedgeland Heath) about 4Ha on the two southern Crown land portions of the site. DECC have initiated a formal process with the Department of Lands to include these portions with the Dharawal Nature Reserve and Dharawal State Conservation Area. The expansion of the golf course into the southern Crown land portions has been deleted under the amended proposal which is now contained entirely within the existing golf course footprint.

There were no flora or fauna species listed under the schedules of the EPBC Act recorded or in the vicinity of the areas affected by the proposal. No nationally listed Endangered Ecological Communities had been recorded on the site.

A number of recommendations have been made by Lesryk to ensure the proposal does not have an adverse impact on vegetation communities beyond the limits of the proposed development area. The Ironstone Woodland and Sedgeland Heath on both sides of Maddens Creek have high conservation significance and the proposal is not to have any indirect or direct impact on this area.

The condition and significance of Ironstone Woodland varies on the site. The areas that are in good condition integral to bushland connectivity are considered to be of high ecological significance due to their regional significance. Lesryk Consultants have estimated that there are about 6.58ha of the higher quality Ironstone Woodland across the site. The healthiest stand is found in the vicinity of Maddens Creek. The stand along the Southern freeway is also considered to be of high ecological significance because it is in good condition and linked to woodland in the south.

The stands of Ironstone Woodland that are present within the existing golf course footprint have some ecological significance as they contain a number of native tree, shrub and groundcover species. However, the majority of existing trees across the golf course will be removed to make way for the proposed development. It is considered that where possible they should be retained and incorporated into the development layout. A detailed Landscape Plan which identifies all existing and removed trees across the site should be undertaken as part of any future project application and where possible significant trees should be retained within the existing golf course footprint. This will be recommended as a condition on the Concept Plan approval.

The proposal has the potential to result in the loss of hollow bearing trees which is listed as a Key Threatening Process under the Threatened Species Conservation Act 1995 (NSW) and has the potential to impact a number of threatened species which are likely to be present at or use the site, such as microbats, diurnal and nocturnal bird species and the eastern Pygmy Possum. It is recommended a condition be imposed on the approval requiring a survey of all hollow-bearing trees on the site as part of any future project application.

Impacts on Dharawal Nature Reserve

The Dharawal Nature Reserve adjoins the south west boundary of the site. Concern has been raised with the potential impacts on native flora and fauna and the potential for the spread of exotic weeds. The provision of a fully vegetated 50m buffer on the northern side of the creek will assist in protecting Maddens Creek and adjoining reserve. The southern part of the property (golf course) adjoining the nature reserve is proposed as community property that will be managed under a Community Title. The CMS should incorporate provisions for the 50m riparian buffer and a maintenance regime that protects the vegetated buffer and water quality in Maddens Creek.

In order to address concerns with exotic plant introductions or weeds spreading from the golf course to the nature reserve a targeted weed control program will be implemented prior to the commencement of works. An on-going weed control program should be addressed in future project applications on the site.

The implementation of an integrated Water Quality Management Plan will minimise impacts to water quality in Maddens Creek (refer to **Sections 6.1** and **6.3**).

6.10 ABORIGINAL AND EUROPEAN HERITAGE

An Aboriginal and European Archaeological Assessment, prepared by ARC Heritage Consulting was submitted with the EA. As part of the requirements under Part 3A the *Guidelines for Assessment of Impacts on Aboriginal Heritage 2005* the assessment was advertised in Public Notices on Wednesday 26th and Saturday 29 September and Wednesday 3 October and Saturday 6th October 2007 in the Illawarra Mercury and the Advertiser. A representative of the Proponent contacted the Illawarra Local Aboriginal Land Council and a meeting was subsequently held on 25 October 2007. On 31 October 2007 a survey was undertaken across the site by a team comprising representatives from various local aboriginal groups.

The field investigations also found a scarred tree on the north-western side of the property and an ochre and gypsum quarry and artefact scatter with a Potential Archaeological Deposit in Maddens Creek. Ochre quarry sites are rarely reported and therefore it has added significance for the local Aboriginal community. The traditional owners expressed an interest in this site and noted that the bright yellow ochre colour was perhaps the same as was used in rock shelter art in the region. The assessment concluded there was a need to undertake further research of the ochre site to determine the nature of any links with other sites in the local or regional landscape to enable a fuller understanding of its rarity.

According to the proponents' aboriginal assessment, the Wodi Wodi Elders were happy the survey had been done and that the quarry site had been located.

The assessment also noted visibility was poor due to thick undergrowth and therefore the full extent of the quarry site could not be determined beyond the clay seam and therefore other sites are likely along Maddens Creek and that further investigation is warranted upstream and downstream from the quarry site.

DECC have advised that if the Concept Plan is approved, the further survey work of the ochre quarry and artefact site should be undertaken prior to lodgement of future project applications and the findings of the survey used to inform the development footprint. A full Aboriginal Heritage Assessment should be undertaken as part of any future project application on the site.

The NSW Aboriginal Land Council lodged a Native Title Claim (15598) over the southern Crown land portions of the site. This part of the site is no longer included in the development area and will be retained in-situ. The Department of Lands has received a request from DECC to incorporate this part of the site into the adjoining Dharawal Nature Reserve. Any potential conflict associated with these processes no longer applies due to their removal from the development site.

The buildings associated with the golf course are of weatherboard and iron construction and date back to the late 20th century. The assessment concluded that the features of the European landscape in the study area have a limited significance from a historical perspective.

6.11 TRAFFIC, ACCESS AND PARKING

The proposed development will generate additional traffic that will impact on the existing road network. The *RTA Guide to Traffic Generation Developments* (RTA Guide) does not contain traffic generation rates for hotel suites, serviced apartments or villas. However, there is a rate for casual accommodation motels of 0.4 trips per unit in peak hour.

A Traffic Assessment, prepared by the proponents' consultant, ARUP, applies a higher traffic generation rate under the RTA Guide by using the rate for dwelling houses and medium density development which equates to 0.85 and 0.65 vehicle trips per dwelling in the peak hour, respectively. The proposal is not a residential development however, for the purpose of calculating traffic impacts the residential rate is acceptable because it represents higher traffic volume than that generated by tourist traffic.

The existing golf course generates 20 vehicular trips in the am peak hour and 5 trips in the pm peak hour. The Traffic Assessment prepared by ARUP states that the total traffic generation for the proposed development is 303 vehicular trips in the am peak hour and 288 in the pm peak hour. In both peak hours, the intersection to the golf course will operate at an acceptable level of service. The intersection still has significant additional capacity to accommodate additional traffic.

In conclusion the report states: *"...the vehicular traffic generated by the development can be accommodated by the surrounding road network with minimal impact."*

The original application proposed vehicular access from the Princes Highway directly opposite the existing vehicular access to the Boomerang Golf Course. The RTA raised concerns with potential traffic hazards and lack of sight distance at this location and therefore did not support the proposal. The proposal has been amended and the access relocated to the existing vehicular access point in the south of the site.

The RTA reviewed the changes to the access and no longer objects to the proposal subject to the imposition of conditions on the approval including the provision of a sealed channelised right turn lane and left turn deceleration lane from the Princes Highway in accordance with the RTA Guide.

In terms of parking the ARUP assessment applied the rate of 1 car space per tourist villa which equates to 127 spaces. The peak parking demand for all other uses such as hotel, conference, golf course and golf club is based on previous studies undertaken by ARUP for golf resorts and equates to 286 spaces. Therefore the total combined is 413 spaces which is less than the total of 425 car spaces that will be provided on the site. The number of car spaces is likely to satisfy future demand and will be split between an open car park in the north-eastern part of the site and individual car spaces adjacent to the villas along the internal road. The changes sought to the density of the proposal outlined in **Section 6.19** will result in lower demand for parking and the number of car spaces can be reduced accordingly as part of future project application for the site. The proposed car parking arrangements are acceptable and the detailed future design and location of the car park areas should be identified as part of any future project applications on the site.

6.12 ECONOMIC AND SOCIAL IMPACTS

Economic Impacts

An Economic Impact Assessment, prepared by Macroplan Australia, concludes the proposal will have positive benefits through increased employment due to the creation of short term and on-going operational jobs in construction, hospitality and tourism and revenue from tourism expenditure.

Based on the application of industry standard employment ratios the proposal is expected to generate an on-going worker population of 160 provided in the hotel, golf course and associated facilities. The total employment generated from expenditure during the construction phase is estimated at 851 jobs and 431 jobs created indirectly post construction for a period of twenty years. The Macroplan report estimates that the likely proportion of employment retained in Wollongong will be at a rate of 49%.

The *Wollongong Economic Redevelopment Roadmap*, prepared by Buchan on behalf of Wollongong Council, dated November 2003, recognises that Wollongong has a strong tourism business market but that it faces strong competition from metropolitan Sydney, Southern Highlands, Hunter and the Blue Mountains. It also indicates that there has been a lack of proper accommodation which has meant some large conferences have been turned away in the past. The proposed development will offer a conference facility which could increase the amount of business tourism to the Wollongong LGA and have a positive impact on the local economy by generating local expenditure from tourists/visitors.

The completion of the 'Grand Pacific Drive' is likely to result in continued tourist traffic into the region over the next 5 to 10 years. According to analysis undertaken by Macroplan, tourism expenditure in NSW has increased 8.3% over the past 3 years to March 2007 and increased by 42.5% in the Illawarra Region which represents a rise of \$275m. Based on visitor surveys more than half the increase was from domestic overnight visitors. Macroplan are of a view this is a key market source of income for the proposed development. The number of visitor nights to the Illawarra Region for domestic and international visitors has also increased by 10.2% over the last 3 years.

Based on ABS data used by Macroplan golfing activities retains a consistently high participation rate after 45 years of age. It is considered that as the population ages the demand for golf courses will increase as a result of an increased number of golfers. There are numerous golf courses in the Illawarra Region and most are 18 holes and open to the public.

However, Macroplan are of a view that golf tourism represents a growth opportunity due to its current limited contribution to the golfing industry in the Illawarra Region, the increase in the number of visitor nights, ageing population and policy support at a Federal and State government level for tourism.

The economic analysis provided by Macroplan appears to be based on sound data and therefore it can be reasonably expected that the conclusions are robust. It is considered the proposal will have a positive economic impact in the Illawarra Region with regard to the creation of jobs in the building industry over the short term and on-going jobs in tourism/hospitality and more spending for local retail and tourism operators.

The proponent is of a view that that 9 hole golf format is typical because people generally have less time to play 18 holes. A recent article in the Australian Newspaper, dated 18 October 2008, reported that the 9 hole format had been around for a while with mixed success in many clubs. However, Golf Australia has the Johnnie Walker 9-Hole Challenge which is a national tournament open to both members and social golfers. One format that has been successful is "sevens" which involves seven member teams playing against each other over 9 holes. The 9 hole golf format will enable the Club to develop new markets, particularly younger population and offer a choice for people in the region. It is considered that there is probably a market for a 9 hole golf format and that it is also reasonable to assume there will be some synergy with the existing 18 hole Boomerang Golf Course directly opposite the site.

Social Impacts

The Economic Impact Assessment, prepared by Macroplan Australia, also included some comment regarding the social impact of the proposal. It concluded that the provision of recreational activities will deliver a wide range of benefits to the community from personal satisfaction and a sense of well being to reductions in the cost of health care and improved economic wellbeing. It is generally agreed that the golf course and associated facilities will provide such benefits but only if it is accessible to all socio-economic groups in the community. It is understood the proposal will continue to cater for casual visitors and members and will not be exclusively used by occupants/owners of the tourist accommodation. The proponents Statement of Commitments should be modified by adding a commitment to ensure the golf course will allow casual visitors.

One of the concerns raised is the social cost of providing an urban development in an isolated location away from social facilities such as health care and emergency services. The proposal is for temporary short stay accommodation and there would not be an over reliance on such facilities compared to permanent residential development.

6.13 CONTAMINATION

A Preliminary Contamination Assessment, prepared by the proponents consultant, Johnstone Environmental Pty Ltd, involved a desk top study and site inspection to determine the history of landuses and any potentially contaminating activities. This investigation showed that the site had been occupied by the Illawarra Golf Club since the early 1950s and prior to that it was used for low intensity rural purposes including grazing and minor horticultural production.

The potential for ground contamination from the golf course use usually results from chemical use such as fertilisers and herbicides/pesticides, fuel storage and possible waste dumping and filling. The preliminary Contamination Assessment states:

"the pesticides and herbicides currently in use at the Illawarra Golf Club include synthetic products and organo-phosphates, which break down relatively easily and are therefore not likely to lead to residual contamination."

In the past it is likely that organo-chlorine chemicals were used and although these were more likely to break down slowly and remain in the soil for longer periods, it is considered that residual contamination remaining today is negligible.

Any use of such chemicals for horticultural or orchard activities prior to the golf course establishment in 1953 would also not be expected to result in residual contamination today.

There was no evidence of ground contamination on the site including the works depot area and sheds where chemicals and fuel are stored and mixed in a bunded area on concrete floor. The assessment concluded that the subject property is suitable for the proposed redevelopment and that no further contamination investigations were

required at this stage. However, no analysis of soil or groundwater was undertaken. The Department considers that a detailed Preliminary Contamination Assessment is required as part of the future project application for stage 1 of the development. The findings of the soil and groundwater testing will determine whether a Remedial Action Plan is required for subsequent project applications. This should be included in the proponents Statement of Commitments.

6.14 GEO-TECHNICAL IMPACTS AND EXTENT OF FILL

A Geo-technical Investigation, prepared by ARUP, dated November 2007, was submitted with the EA. A series of field investigations were carried out which indicated the site is generally characterised by topsoil which is dark grey loose silty sand. Residual soil was encountered at between 0.2m and 0.5m below ground level and is characterised as stiff sandy clay. Sandstone was then encountered at all trial pits except for one between 0.9m and 2.4m below ground level. No major impediment to development was raised in the geo-technical report and earthworks, pavement design and building foundations can occur subject to meeting relevant Australian Standards.

The subject soils are identified as having low fertility and there may be some difficulty in establishing a suitable grass cover on tees and greens without fertiliser application. The field testing of soils also showed that there is a high risk of fertiliser leaching because soils have a low ability to retain fertiliser nutrients and seasonally elevated groundwater. In that regard it is proposed to import fill up to 1m for the tees and greens (not fairways) comprising well structured, certified clean sandy clay loam fill. It is also proposed to import fill to augment soil depth less than 0.5m thick however, the SEEC report, dated November 2007, suggests this is only likely to occur in the far north-east of the site. The exact amount of fill is not known at this stage however, it is imperative that any imported fill is of suitable quality for the desired effluent loading rates as poor draining fill will result in surface ponding of effluent and free draining fill will result in subsurface flows along the sandstone bedrock into the creek or groundwater reserves on the site.

In that regard condition should be imposed on the approval to ensure that any future application considers that prior to importation of any fill it must be checked by a qualified soil expert to ensure it is of suitable standard.

6.15 BUSHFIRE RISK

The subject site is identified as bushfire prone land in accordance with Wollongong Council bushfire mapping. The main fire source is from vegetation along Maddens Creek and along the western boundary. A Bushfire Report, prepared by Travers Environmental was submitted with the EA. The proposal will incorporate peripheral Asset Protection Zones that will vary between 50-60m in width which will include the golf fairways in some locations.

The Rural Fire Service raised no objection subject to the peripheral APZ being a minimum of 60 to the north, south and west of the development. Further requirements with respect to provision of water, access design and construction and landscaping are also recommended and can be imposed as conditions on future project application approvals.

6.16 PROVISION OF INFRASTRUCTURE

Water

The site and surrounding area known as Darkes Forest is not connected to a potable water mains supply and generally relies on rainwater storage tanks. The reliance on rainwater for the proposed development is not viable and a connection to a mains supply is required. The proponent has advised that they will source water externally from the site by upgrading the rising main to Helensburgh at the developer's expense. Sydney Water have raised no objection to the proposal and advise that the following infrastructure will be required to service the development with water:

- surface reservoir in the north-eastern corner of the development site;

- water pumping station located on the grounds of the Helensburgh reservoir site to pump water from the Helensburgh reservoir to the developments new reservoir via a new rising main;
- rising main laid generally along the route of the Princes Highway from the new water pumping station at Helensburgh to the new reservoir; and
- suitable sized outlet main to deliver water from the reservoir to the development.

It has also advised that an Integrated Servicing Strategy should be undertaken to include:

- recycling of sewage and stormwater for toilet flushing and external uses;
- water efficient appliances;
- grey water reuse;
- rainwater tanks; and
- water efficient landscape planting.

An Integrated Servicing Strategy can be addressed as part of any future project application on the site.

Telecommunications

The existing golf club relies on a Telstra copper cable connection for its telephony and a satellite dish to access services such as pay TV. An upgrade of the existing telecommunications will be required to service the proposed development.

Gas

The Darkes Forest Area is not currently serviced by natural gas and the nearest connection point is Agility's Natural Gas Network at Bulli which is about 8km away. The proponent has advised that connection is not viable.

The use of alternate sources such as solar energy should be examined as part of any future application for development on the site.

Electricity

Integral Energy have advised that the additional load required by the proposed development would require connection to their network at two points to ensure that a back up supply is available in the event of the loss of the primary supply. The new distribution network required may have to be overhead or underground or a combination of both and would require a number of distribution substations to supply the development. Integral Energy raised no objection to the proposed development.

6.17 IMPACTS TO ADJOINING PROPERTIES

The proposed development will result in additional noise due to increased traffic along the Princes Highway, traffic circulation within the site and people noise from occupants using the golf course and other sporting facilities on the site. Appropriate management procedures such as limiting speed within the development and locating parking areas away from sensitive receivers should be identified as part of the detailed design in future project application on the site. The use of appropriate barriers and screening to minimise noise emanating from the site can be addressed as part of any future project application on the site.

In addition, the use of plant and machinery will need to be controlled to ensure no noise impacts to surrounding properties. This can be addressed at future project application stage.

Concern has been raised due to potential odour impacts arising from the Sewerage Treatment Plant in the north-east corner of the site. The detailed design of the STP and effluent irrigation measures will be outlined in the detailed design stage and potential odour impacts can be addressed as part of future project application stage.

There is a potential for noise and dust migration to adjoining properties during the site preparation and construction phase. These aspects can be dealt with in a detailed Construction Management Plan as part of any future project application for the site.

6.18 EXTERNAL NOISE IMPACTS

The dominant external noise source to the future occupants of the development will be from traffic along the Southern Freeway to the west and the Princes Highway to the east. A Noise Assessment, prepared by Arup Acoustics, recommends that additional sound insulation should be incorporated into the building facades and glazing to mitigate noise impacts. This can be addressed in future project applications for the construction of accommodation buildings.

6.19 DENSITY OF DEVELOPMENT

The villa precinct has an area of 10.25 ha and will contain 180 villas (2 bedrooms each). This equates to a density of about 1 villa per 570m² which is not dissimilar to a suburban residential area in Sydney. There are no known controls to assist in determining an appropriate density for a golf resort at this site. The central villa precinct has an area of 10.25Ha and based on 180 two bedroom villas the proposal will have a density of about 35 bedrooms per hectare.

The Becton tourist development in Byron Bay comprises two development precincts with density restrictions imposed via Byron Council's Development Control Plan No. 18. A maximum of 14 bedrooms per hectare are allowed in the low density perimeter precinct and 28 bedrooms per hectare in the central precinct.

There is no doubt the development will result in an urbanised development and will change the low density rural/open space character of the locality. To minimise the extent of this change, there should be a reduction in the number of villas and a corresponding decrease in the development footprint to provide a better opportunity for spacing and landscaping between buildings to minimise visual impact. A total of 7 of the southernmost clusters should be removed (equating to 53 villas or a 30% reduction) resulting in a total of 127 villas in the central villa precinct (refer to **Figure 18**). This represents a density of about 24 bedrooms per hectare which is less than the maximum density permitted in the Becton central precinct.

The reduction in the density of the central villa precinct is recommended not only for reasons relating to the character but also for environmental reasons as discussed earlier in this report. These reasons are summarised as follows:

- The flooding assessment undertaken by Departments consultant shows the flood extent for 1 in 100 yr being higher than depicted in the assessment undertaken by ARUP and no tourist villas will be allowed in a flood prone area.
- It will allow a reduction in the development footprint and provide additional area for golf fairways which should be relocated outside the 50m vegetated riparian buffer zone.
- It will increase the golf course component compared to accommodation to ensure the development is a bona fide tourist "golf resort".
- It will allow for greater spacing and landscaping between the clusters to reduce its visual impact.
- It will create a 200m buffer between Maddens Creek and the development footprint similar to the distance separating the resort complex from Maddens Creek.
- There will be lower wastewater loads and the risk of pollution of Maddens Creek.
- It will allow reconfiguration of the golf fairways to ensure there is no irrigation of treated wastewater within 40m of a Water Quality Control Pond or the north-south drainage line in the south-western part of the site.
- It will result in less hard paved area (eg. roadway) and more permeable area (soft landscaping) and increase rainwater infiltration.
- There is the potential to retain more existing trees in this part of the site.

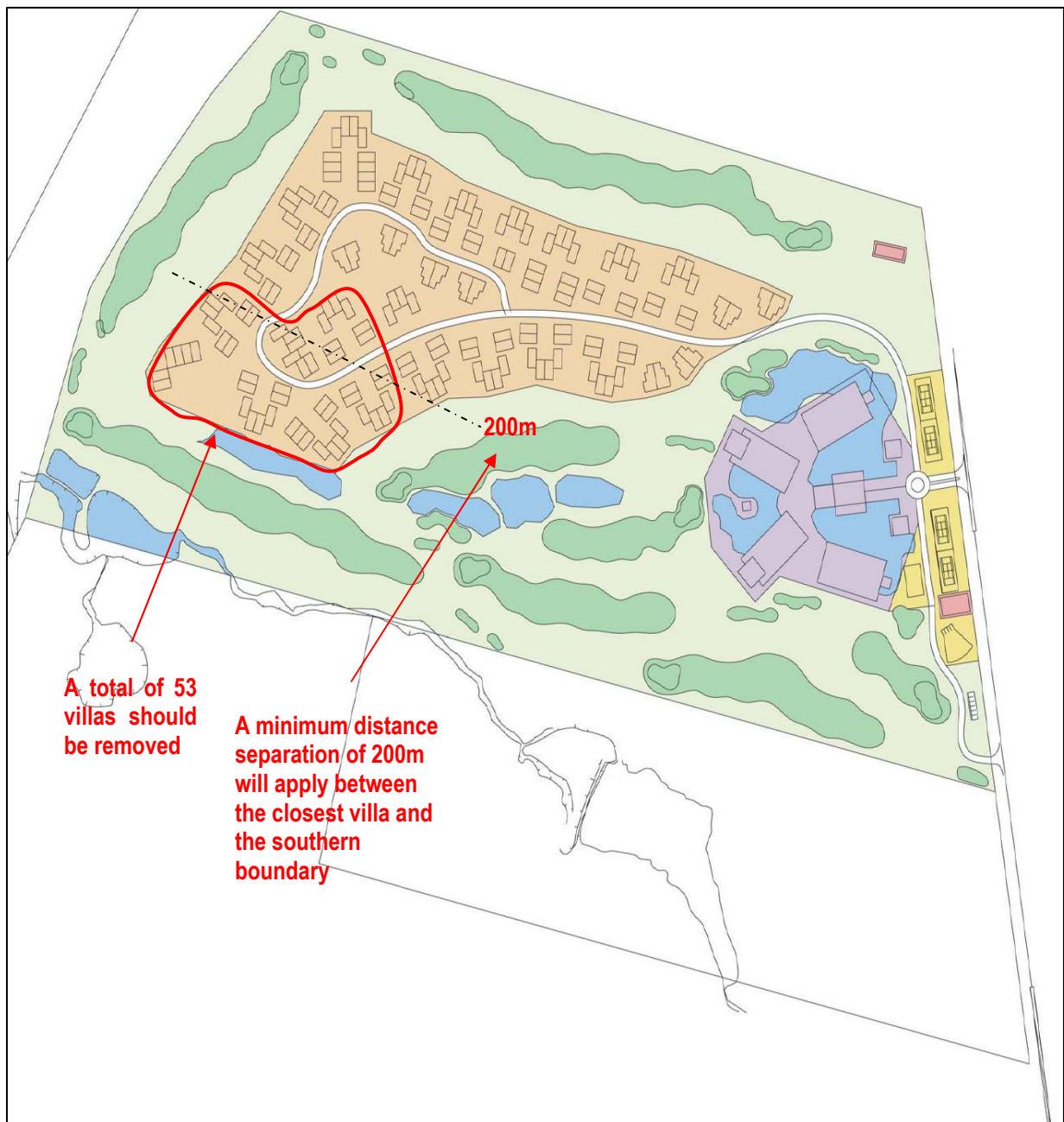


Figure 18 – Modified development layout showing the removal of 53 villas

In order to achieve a satisfactory density of tourist villas the following restrictions are recommended to apply to the central villa tourist precinct:

- A maximum of 127 villas are allowed on the site;
- No villa is to have more than 2 bedrooms;
- No single storey villa is to have a floorspace which exceeds of 120m² ;
- No two storey villa is to have a floorspace which exceeds 130m²;
- A maximum of 28 villas or 22% of the total villas can be two storey;
- No villa is to be sited closer than 200m to the southern freehold boundary of the existing golf course (measured perpendicular);
- No villa is to be sited closer than 100m to the western boundary (measured perpendicular); and
- No villa is to be sited closer than 100m to the northern boundary (measured perpendicular).

The development parameters are included as conditions on the approval and will apply to any future project application on the site.

7 CONCLUSION

The Department has assessed the EA and considered the submissions in response to the proposal. The key concern relates to the scale and intensity of the proposal and the potential adverse environmental impacts on Maddens Creek, its wider catchment, and the Dharawal Nature Reserve.

The Department has considered all the issues in detail and support for the proposal is contingent on the following changes to the Concept Plan:

- the number of individual tourist villas should be reduced by 53 from 180 to a maximum total of 127 (representing a reduction of 30%);
- there should be a corresponding increase in setback (min. 200m) between the southern edge of the central villa precinct and Maddens Creek and a reduction in the length of the internal road;
- the width of the riparian corridor buffer zone should be increased by a further 20m to a minimum of 50m both sides of Maddens Creek; and
- the southernmost golf fairways/greens should be relocated outside the 50m buffer zone and further away from Maddens Creek.

In addition to the above changes, a suite of conditions are recommended on the approval to minimise any potential adverse impact on the environment and ensure that relevant matters are appropriately dealt with prior to future project applications for development on the site.

It is also recommended that the number of days any person can occupy the tourist accommodation is capped to maintain the development's integrity as a bona fide tourist development and not permanent residential accommodation. This can be achieved by including conditions on the development approval and a restrictive covenant on the title together with restrictions in the CMS and associated By-laws.

The proposal will generate expenditure in the local economy and benefit tourism in the Illawarra Region.

Subject to modifications to the Concept Plan the Department recommends that the application be approved, subject to conditions of approval.