

DRAFT CONDITIONS OF DEVELOPMENT CONSENT
Development Application No. DA 11/0665

GENERAL CONDITIONS - MASTERPLAN

These general conditions are applicable to all stages of the proposed development and are imposed to ensure that the development is carried out in accordance with the development consent having regard to the environmental circumstances of the site.

1. **Approved Plans and Documents**

The development shall be implemented substantially in accordance with the details and specifications set out on the Job Number G887EG, Drawing No. P6-1 Issue B, P6-2 Issue H, P6-3 Issue A, P6-4 Issue G, P6-5 Issue J, P6-6 Issue E, P6-7 Issue C, P6-8 Issue C, P6-9 Issue B, P6-10 Issue C, P6-11 Issue D, P6-12 Issue D, P6-13 Issue E, P6-14 Issue C, P6-15, Issue E, P6-16 Issue C, P6-17 Issue B, P6-18 Issue E all dated 7/7/2011 prepared by Insites, Masterplan Landscape Concept Plans L01/04, L02/04, L03/04 and L04/04 all Issue D and all dated 14/04/2011 prepared by JMD design/Insites, Proposed Plan of Subdivision Stages 1B, 2 and 3 Issue 2 dated 11/7/2011 prepared by Cooper and Richards Surveyors, any details on the application form and on any supporting information received with the application except as amended by the conditions specified and imposed hereunder.

Note 1:

Nothing in this development consent whatsoever approves or authorises the commencement, erection or construction of any building, construction or subdivision works.

Note 2:

Prior to the commencement of any building, construction, or subdivision work being carried out a 'Construction Certificate' shall be obtained from Council or an Accredited Certifier.

Note 3:

Should the development, the subject of this consent, involve the subdivision of land and the issue of a subdivision certificate as defined under section 109c(1)(9) of the Environmental Planning and Assessment Act 1979, please note that Sutherland Shire Council must be appointed as the Principal Certifying Authority for all subdivision works.

Note 4:

Prior to any work being carried out relating to the development the subject of the consent, the person implementing the consent shall provide Council with:

- a) Notification of the appointment of a Principal Certifying Authority and a letter of acceptance from the PCA.
- b) Notification of the commencement of building and/or subdivision works with a minimum of 2 days notice of such commencement.

Note 5:

Should the development have a BASIX Certificate, your attention is drawn to the commitments made in the BASIX Certificate which forms part of the development consent and the necessity to comply with these as required under the Environmental Planning and Assessment Act 1979.

2. Staged Development

Due to the scale and complexity of the proposed development, Development Consent is granted for that part of the proposal comprised of the Masterplan and proposed Stage 1A including the subdivision of the existing allotments and the creation of Public Roads. The following specified parts or aspects of the development shall be the subject of a further application for development consent:

- a) Stage 1b.
 - b) Stage 2.
 - c) Stage 3.
- and any subsequent sub-stages of a), b) and c) above.

Nothing shall prevent the staging of any individual stage of the Masterplan proposal.

3. Requirements of IDA Approval Authorities

The development shall be conducted in accordance with all conditions of approval of the following Approval Authorities under Section 91A of the Environmental Planning and Assessment Act 1979:

- NSW National Parks and Wildlife Service (Office of Environment and Heritage)

Note: The Office of Environment and Heritage (OEH) granted an Aboriginal Heritage Impact Permit for the site (AHIP # 1131103) on 18 October 2011. As the results of this testing programme are not known at the time of granting this consent, the applicant shall comply with the following condition imposed by OEH:

"If Aboriginal object will be harmed as a result of the proposed works, an AHIP must be obtained prior to harm taking place. Applications for AHIPs must be made in accordance with OEH requirements, details of which can be found at: <http://www.environment.nsw.gov.au/licences/ahips.htm>".

4. Approvals Required under Roads Act or Local Government Act

The following works or activities shall not be carried out on public land (including a road) adjacent to the development site without approval under the Roads Act 1993 and/or the Local Government Act 1993:

- a) Placing or storing materials or equipment;
- b) Placing waste containers or skip bins;
- c) Pumping concrete from a public road;
- d) Standing a mobile crane;
- e) Pumping stormwater from the site into Council's stormwater drains;
- f) Erecting a hoarding;
- g) Establishing a construction zone;

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- h) Opening the road reserve for the purpose of connections including telecommunications, water, sewer, gas, electricity and stormwater; or
 - i) Constructing a vehicular crossing or footpath.

An application, together with the necessary fee, shall be submitted and approval granted by Council prior to any of the above works or activities commencing.

Note - Approval under the Roads Act or Local Government Act cannot be granted by a Principal Certifying Authority or by a Private Certifier. Failure to obtain approval may result in fines or prosecution.

5. Acid Sulfate Soil Management

Acid Sulfate Soil Management Plan shall be prepared and adhered to for the duration of works. All works must be carried out in accordance with the aforementioned document, under the supervision of a suitably qualified environmental scientist.

6. Re-use of Stripped Vegetation

Any vegetation stripped from the site that is not suitable for mulching and reuse shall be disposed of off-site or buried within the general landscape areas beyond the playing fields, roads and amenities. Buried vegetation shall not exceed 200mm in thickness in any one area.

7. Amenities Buildings

The design of the amenities buildings shall comply with the requirements of Australian Standard AS1428.1 and 1428.2.

8. Public Liability Insurance

Prior to the commencement of work or the issue of a Construction Certificate, the owner or contractor shall take out a Public Liability Insurance Policy with a minimum cover of \$10 million in relation to the occupation of and works within Council's road reserve, for the full duration of the proposed works. Evidence of this policy shall be submitted to Council prior to commencement of work or the issue of a Construction Certificate.

9. Lighting

Lighting is to be provided to all access roads, car parking areas, amenity buildings and their associated general areas together with all sections of the proposed Multi-Purpose Pathway remote from those areas to Australian Standard AS1158.

10. Drainage Design - General

The drainage for this development proposal shall be designed in accordance with the Institution of Engineers' publication "Australian Rainfall and Runoff" (1987), Council's "Urban Drainage Design" Manual together with Council's "Stormwater Management Policy and Guidelines" and "On-Site Stormwater Detention Policy and Technical Specification".

The design shall also take into account the specific requirements of any

Development Control Plan, Catchment Management Plan or Stormwater Management Plan relevant to the site together with sea level rise to 2100 and predicted increases in rainfall intensity.

A Compliance Certificate issued by an appropriately accredited person to the effect that these design requirements have been met shall accompany the Construction Certificate.

11. Drainage Design - Detailed Requirements

A detailed drainage design shall be prepared in accordance with Sutherland Development Control Plan 2006 (Chapter 8 - Ecologically 'Sustainable Development'; Section 6 - 'Stormwater Management'), "Australian Rainfall and Runoff (1987)", Council's Drainage Design Manual and Council's "On-site Stormwater Detention Policy and Technical Specification".

The design shall include:

- a) A detailed drainage design supported by a catchment area plan and drainage calculations (including a Hydraulic Grade Line Analysis where applicable). The drainage design shall take into account future sea level rise to 2100 together with the associated projected increase in rainfall intensity.
- b) A layout of the drainage system including the infiltration basins and grass and bioretention swales, showing existing and proposed pipe sizes, type, class, grades, lengths, invert levels, finished surface levels and location of all pipes with levels reduced to Australian Height Datum. Impacts on existing trees must be indicated on the plan.
- c) A longitudinal section of any pipeline constructed within the road reserve including existing natural surface levels, design surface levels, design invert levels of the proposed pipeline and the location, size and reduced level of all services to AHD where those services cross the proposed drainage line.
- d) The design floor level of the amenities building shall be set at a level of 500mm above the 1 in 100 year storm event and estimated Sea Level Rise due to climate change when combined with a high tide in Quibray Bay.

A Compliance Certificate issued by an appropriately accredited person to the effect that these design requirements have been met shall accompany the Construction Certificate.

12. Drainage Design (Stormwater Disposal)

To ensure the efficient disposal of stormwater and that no problem is caused to surrounding premises, the stormwater from the development shall be discharged to:

- a) The Infiltration Basins. The design of the Infiltration Basins shall take into account predicted sea level rise, increased rainfall intensity and they shall be designed to cater for and contain the 1% AEP event.

13. Stormwater Treatment

An appropriate stormwater treatment measure, ie Infiltration Basin grassed swales and bioswales, selected from the Environment Protection Authority's document "Managing Urban Stormwater - Treatment Techniques, November 1997", shall be provided as part of the permanent site stormwater (water quality) management system. Full details of this system including any proposed basin plantings and access for maintenance shall form part of the Construction Certificate.

14. Parking Areas and Access

All vehicular access, parking and manoeuvrability including any loading or off-road set-down or pick-up areas for the proposed development shall be designed and constructed to comply with AS2890.1 - 2004, (B85 vehicle), and AS2890.2-2002, (Large Rigid Vehicle - approximates to Tourist Coaches).

The following specific requirements shall be incorporated into the constructed works:

- a) All "one way" traffic aisles in the car parking area shall be clearly identified by signposting and pavement marking.
- b) All ingress and egress points shall be clearly signposted as such.
- c) All Handicapped persons spaces and Emergency Vehicle Spaces and emergency vehicle access to the playing fields shall be sign posted and linemarked in accordance with the applicable Standards.

15. Garbage, Recycling and Green-waste Storage Area

To ensure proper storage of waste from the Amenities Buildings, enclosed garbage and recycling storage areas shall be provided next to amenities buildings. These facilities shall be comprised of a bin cage 4m x 4m on a concrete slab with a dated 1.8 m high chain wire fence

The works included above shall be completed prior to the issue of an Occupation Certificate or Subdivision Certificate for the relevant stage, (whichever is the earlier).

16. Designated Waste Storage and Recycling Bins

Designated waste and recycling bins shall be provided adjacent to the playing fields.

The number, design and location of these facilities shall be determined in consultation with Council's Parks and Waterways Section and details of these facilities shall be submitted with the Construction Certificate.

17. External Lighting - (Amenity)

Any lighting on the site shall be designed and operated so as not to cause a nuisance nor adverse impact on the surrounding area, to motorists on nearby roads. All external lights shall be designed in accordance with Australian Standard AS4282 - Control of the Obtrusive Effects of Outdoor Lighting.

18. Provision of signs

Signposting shall be provided to detail the location, name and any relevant Regulations and/or Restrictions applicable to the playing fields, associated Amenities Buildings, carparking areas, walking tracks and overflow parking/warm-up/training fields within each stage of the Masterplan development.

DESIGN CHANGES – MASTERPLAN

Design Conditions

These design conditions are imposed to ensure the development, when constructed, meets appropriate standards for public safety and convenience.

19. Design Changes Required

To reduce the environmental and/or ecological impact of the development proposal, the following design changes shall be implemented to the Masterplan for the development:

- a) No exotic species shall be utilised for the re-vegetation and/or landscaping of the area of the Masterplan with the exception of turf for the playing fields and overflow parking/warm-up facilities, and landmark species shown on the approved landscaped plans, Issue D, prepared by JMD Design/Insights dated 5 July 2011.
- b) The proposed Landscape Planting Schedule for the playing fields Masterplan development should include consideration of *Melaleuca ericifolia* and *Imperata cylindrica*. *Angophora costata* should be deleted along the Captain Cook Drive frontage and be replaced with *Banksia integrifolia*, *Casuarina glauca* and to a lesser extent, *Cupaniopsis anacardioides*. *Araucaria heterophylla* should be deleted from the proposed species list. The following proposed species shall be deleted and replaced with the species detailed in bold in brackets, *Banksia aemula*, (***Banksia serrata***), *Eucalyptus haemastoma*, (***Eucalyptus robusta***), *Hakea dactyloides*, (***Allocasuarina littoralis***), *Poa labillardiera*, (***Danthonia tenuior***).
- c) Provision shall be made as part of the design of the carpark areas within the various stages of the development for the parking of additional tourist coaches on hardstand pavement due to the remote nature of the facilities together with the limited public transport available with total provision as follows:-
 - i) Stage 1A - Two Coaches
 - i) Stage 1B - Two Coaches
 - ii) Stage2 - Two Coaches,
 - iii Stage 3 - Three Coaches.
- d) The proposed multi purpose pathway within Stage 1B shall be extended such that it provides access to all playing fields within the Stage 2 development.
- e) The proposed multipurpose pathway in the vicinity of the disabled car parking spaces, amenities, and playing fields for each shall form an Accessible Path of Travel compliant with AS1428.1 and 2. Due to the level differences across the site, the path is not required to connect each separate main stage of the development.
- f) Provision shall be made within all stages for access by service and maintenance vehicles, minimum Medium Rigid Vehicle as defined by Australian Standard AS2890.2, to all playing fields, infiltration basins and the like. This may be combined with the multipurpose pathway where applicable.

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- g) All Handicapped Persons parking spaces in all Stages shall be located immediately adjacent the pedestrian access facilities for the amenities buildings and shall comply with the requirements of Australian Standard AS2890.6. At grade or Accessible Path of Travel suitable kerb crossing ramps shall be provided where required.
- h) Prior to the handover of any stage of the development to Council all future stages shall have legal vehicular access via direct connection to Captain Cook Drive or via a Right/s of Carriageway.
- i) All proposed "Frog Ponds" are to be fenced to prevent access by pedestrians. This fencing shall be recessive in colour and shall also form part of a vegetative barrier to provide a softer edge to the pond/s.
- j) The eastern carpark for the Stage 3 development shall provide for two-way movement of vehicles and shall incorporate a turning area at its northern extremity to permit vehicles to return to the south of the parking bays without blocking vehicles entering the carpark from the Road. The minimum queueing distance provided shall comply with the requirements of Australian Standard AS2890.1.
- k) All grassed, non mass-landscaped cut or fill batters shall be restricted to a maximum gradient of 25% or 1 in 4, to permit mowing.
- l) All intersection designs within the development and where applicable, the internal carparking areas shall be designed to accommodate the swept vehicle manoeuvring area of a Heavy Rigid Vehicle as defined by Australian Standard AS2890.2 as this vehicle forms the basis of the design dimensions of a tourist coach.
- m) The large Infiltration Basins shall have a maximum side slope gradient of 1 in 8, (12.5%), to enhance safety when the basins are full after storm events.

Details of these design changes shall accompany the Construction Certificate.

ENVIRONMENTAL MANAGEMENT AND MONITORING – MASTERPLAN

These environmental management conditions are applicable to all stages of the proposed development and are imposed to ensure that the development is carried out in accordance with the development consent having regard to the environmental circumstances of the site.

20. Groundwater Monitoring Program

Prior to the issue of any Construction Certificate for any stage of the Masterplan development, the Environmental Management Plan shall be amended to include a Groundwater Monitoring Program. This program (which may be based on current Ground Water Monitoring Programs being undertaken in the vicinity of the subject works) shall be developed by a suitably qualified consultant and shall include the location of all groundwater monitoring points such that the groundwater monitoring can be undertaken in perpetuity. The content of the plan must be agreed with Council's Principal Environmental Scientist before it is produced.

21. Landscape and Rehabilitation Management Plan

In order to ensure the retention, restoration and revegetation of the subject site, a Landscape and Rehabilitation Management Plan (LRMP) shall be prepared and submitted to Sutherland Shire Council for approval prior to the issue of a Construction Certificate.

The LRMP shall address the management of vegetation within the site covered by the Masterplan and shall address the management and rehabilitation of vegetation to be carried out within each stage of the development. A detailed LRMP shall be submitted for each subsequent development application relating to the area of land covered by that stage.

The LRMP must include (but not necessarily be limited to) the following two phases relating to vegetation management:

Establishment Phase:

- A figure/ plan showing the different management zones on the site;
- The exact location of vegetation to be removed and retained on the site as part of the development proposal;
- Details of any revegetation works, including a list of species to be utilised during replanting on site (including species appropriate for the different management zones);
- Planting densities and species mix for replanting;
- Specific landscaping treatments in each zone (e.g. fuel management, mulching, soil and stormwater management);
- Clearly defined vegetation protection areas (including exact location of trees and vegetation to be retained and removed), provided on a plan;
- Vegetation and tree protection measures to be employed in vegetation protection areas, as well as activities that are permitted to take place in these areas;
- Species identification and location of all weeds on site, and management techniques for the control of each.

Maintenance Phase:

- Specific management timeframes, performance monitoring and maintenance, and links to performance measures as well as expected outcomes and responses;
- Specific management responsibilities;
- Any other habitat management or improvement measures deemed suitable for the site.

The LRMP shall be prepared by an appropriately qualified horticulturist / bush regenerator / ecologist.

22. Bell Frogs

A Green and Golden Bell Frog Management Plan shall be prepared for all stages of the proposed Masterplan. This Management Plan shall be prepared by a suitably qualified and experienced Independent Expert in the field and shall provide detail including but not limited to:

- the design, level and form of the habitat ponds including the lands above the permanent water level, depth of the ponded waters,
- the methods to be employed to maintain the permanent water body levels and depth, the plantings required and their density to ensure the maintenance of the water quality of the ponds,
- the types of vegetation to be employed surrounding the ponds,
- the landform surrounding the ponds,
- the methods to be employed to prevent gross pollutants entering the pond system, the methods to be employed to ensure that fertilisers, chemicals and the like used to maintain the surrounding playing fields or as pollutants contained within stormwater run-off from access roads and paths cannot enter the pond system/s, the methods to be employed to prevent access to the pond areas by other than maintenance personnel ensuring sympathetic treatment with the overall Landscape Plan, and
- the means of continuous monitoring of the habitat area in perpetuity.

Certification shall be provided by the Independent Green and Golden Bell Frog Expert that all of the matters detailed in the Green and Golden Bell Frog Management Plan have been incorporated in the design of the ponds within each Stage prior to the issue of any Construction Certificate for each Stage.

Prior to the issue of any Construction Certificate, the Environmental Management Plan for the site shall be amended to include the report and recommendations of the Green and Golden Bell Frog Management Plan including its habitat areas.

23. General Construction Certificate Condition

To minimise the risk of importing adverse pathogens including but not limited to the chytrid fungus to the site of all proposed works, testing of composts and all other imported materials prior to their use on the sites shall be carried out in a manner approved by the Independent green and Golden Bell Frog Expert.

SUBDIVISION CONDITIONS – MASTERPLAN

Subdivision Conditions

These subdivision conditions are imposed to ensure that adequate engineering works are provided to minimise the impact of the development on the environment and the locality.

24. Engineering Work

All engineering work in relation to the proposed development including roadworks shall be designed and constructed in accordance with the requirements of Council's adopted "Specification for Civil Works Associated with Subdivisions and Developments".

25. Section 73 Compliance Certificate

A Compliance Certificate under s73 of the Sydney Water Act, 1994, shall be submitted to Council by the PCA prior to the issue of any Occupation Certificate or before the issue of any Subdivision Certificate for each Stage of the Masterplan development. Sydney Water may require the construction of works and/or the payment of developer charges.

Advice from Sydney Water:

An application must be made through an authorised Water Servicing Coordinator. For details see the Sydney Water web site at www.sydneywater.com.au/customer/urban/index or by telephone 13 20 92.

Following application a "Notice of Requirements" will be forwarded detailing water and sewer extensions to be built and charges to be paid. Please make early contact with the Coordinator, since building of water / sewer extensions can be time consuming and may impact on other services as well as building, driveway or landscaping design.

Public Utility Authorities Requirements

These conditions are imposed to avoid problems in servicing the development and reduce adverse impacts on the lot layout or the design of buildings or associated facilities.

26. Public Utilities - Subdivision

Arrangements shall be made with Ausgrid, Telstra, cable television network providers, and other telecommunication providers, (as applicable), and other public utilities in relation to:

- a) The provision of underground low voltage electricity conduits and services, cable television conduits and services and telecommunication conduits and services within the site to service the Amenities Building and/or other facilities within the site.
- b) The method of connection of the property to the Ausgrid supply, ie either underground connection or by overhead supply.
- c) The need for the provision of a kiosk-type substation.

27. Sydney Water - Notice of Requirements

Prior to the issue of a Subdivision Certificate the applicant shall obtain a Notice of Requirements under the Sydney Water Act 1994, Part 6 Division 9 from Sydney Water and submit the Notice to the Council.

28. Public Utility Authorities

Arrangements shall be made to the satisfaction of all Utility Authorities including cable television and telecommunication network providers in respect to the services supplied to the development by those authorities. The necessity to provide or adjust conduits/ services within the road and footway areas shall be at full cost to the applicant.

Subdivision Plan Requirements

The following conditions have been imposed in relation to the preparation and release of the Linen Plan/s of Subdivision.

29. Linen Plan of Subdivision to conform with Development Consent

The Linen Plan of Subdivision shall conform to the approved plans detailed as part of Council's Development Consent DA11/0665, any modifications required by the design of the intersections at the Captain Cook Drive/Lindum Road intersection, at the other proposed intersections on Captain Cook Drive and all relevant conditions of consent.

30. Endorsement of Linen Plans of Subdivision by Council

To facilitate the issue of the Plan of Subdivision, following completion of the requirements detailed in the conditions of this Development Consent and the issue of the Subdivision Certificate by Council, an Original and eight (8) paper copies of the Plan of Subdivision shall be submitted to Council together with the Instrument (in duplicate) under Section 88B of the Conveyancing Act, where required for ultimate lodgement at the Land Titles Office.

31. Lot Consolidation

Following the completion of the Stage 1B works, all lots comprising that stage shall be consolidated and a new lot shall be created over the area of Fields 2, 3 and their associated amenities building.

GENERAL CONDITIONS - STAGE 1A

These general conditions are imposed to ensure that the development is carried out in accordance with the development consent, having regard to the environmental circumstances of the site.

32. Approved Plans and Documents

Job Number G887EG Drawing No.P7-1 Issue C dated 28/9/2011-2 Issue H dated 29/9/2011, P7-3 Issue G dated 29/9/2011, P7-4 Issue D dated 29/9/2011, P7-5 Issue D dated 29/9/2011, P7-6 Issue C dated 16/6/2011, P7-7 Issue D dated 29/9/2011, P7-8 Issue B dated 29/9/2011, P7-9 Issue B dated 29/9/2011, P7-10 Issue B dated 29/9/2011 prepared by Insites - (P7, 8, 9 and 10 being Sutherland Shire Consulting Services Drawing No.106239), Surveyor's Reference 809140/3 Proposed Plan of Subdivision Stage 1A Issue 2 dated 11/7/2011 prepared by Cooper and Richards Surveyors, Surveyor's Reference 809140/3

Note 1:

Nothing in this development consent whatsoever approves or authorises the commencement, erection or construction of any building, construction or subdivision works.

Note 2:

Prior to the commencement of any building, construction, or subdivision work being carried out a 'Construction Certificate' shall be obtained from Council or an Accredited Certifier.

Note 3:

Should the development, the subject of this consent, involve the subdivision of land and the issue of a subdivision certificate as defined under section 109c(1)(9) of the Environmental Planning and Assessment Act 1979, please note that Sutherland Shire Council must be appointed as the Principal Certifying Authority for all subdivision works.

Note 4:

Prior to any work being carried out relating to the development the subject of the consent, the person implementing the consent shall provide Council with:

- a) Notification of the appointment of a Principal Certifying Authority and a letter of acceptance from the PCA.
- b) Notification of the commencement of building and/or subdivision works with a minimum of 2 days notice of such commencement.

Note 5:

Should the development have a BASIX Certificate, your attention is drawn to the commitments made in the BASIX Certificate which forms part of the development consent and the necessity to comply with these as required under the Environmental Planning and Assessment Act 1979.

33. Fencing

The Stage 1A development shall be protected by a 1.8m high man proof fence in accordance with any requirements in the approved landscaped plan and the Voluntary Planning Agreement applicable to the site.

Landscaping Requirements

These conditions are imposed to ensure the retention and enhancement of the existing landscaping.

34. Street Planting

Street tree planting shall be provided abutting the road carriageways within Stage 1A and within the proposed car parking area fronting the subject site utilising canopy type species endemic to the area and as specified in the approved landscape plan. These trees shall be planted with staking and tying in a mulched and edged landscape area, in accordance with Figure 11 of Council's Landscape Development Control Plan, within three (3) months of completion of work on the site. The tree(s) shall be maintained until they reach a diameter of 100mm measured at 500mm above ground level.

PRE-COMMENCEMENT CONDITIONS - STAGE 1A

The following conditions are imposed to ensure that all pre-commencement matters are attended to before work is commenced.

35. Detailed Landscape Plan

A Detailed Landscape Plan for Stage 1A of the development shall be prepared by an experienced Landscape Designer (a person eligible for membership of the Australian Institute of Landscape Designers and Managers) or Landscape Architect (a person eligible for membership of the Australian Institute of Landscape Architects as a Registered Landscape Architect).

The plan shall accord with Section 6.7 of Councils Landscape Development Control Plan, which sets out the requirements for a Detailed Landscape Plan, and the relevant conditions of this consent.

The Detailed Landscape Plan shall be based on the Stage 1A Concept Landscape Plan Drawing Nos. L03/04 and L04/04 both Issue "D" prepared by JMD Design/Insites dated 5/07/2011 and shall address the following:

- a) The playing fields shall be provided with a water efficient irrigation system in accordance with Sydney Water requirements and relevant Australian Standards. The irrigation system shall also employ recycled water infrastructure and the location of all pipelines and sprinkler heads shall be detailed on the Works as Executed plans.
- b) All plantings with the exception of the turf for the playing fields and warm-up areas plus the overflow parking shall be endemic to the area and compliant with any other requirements of this Consent with exception of landmark planting detailed on Landscape Plan L03/04 Issue D dated 5/7/2011.

The Landscape Designer or Landscape Architect shall provide written certification to the Accredited Certifier that the Detailed Landscape Plan has been prepared having regard to the requirements of this consent. This certification and the Detailed Landscape Plan shall be submitted to the Accredited Certifier for approval prior to the issue of the Construction Certificate.

36. Site Management Plan

An Environmental Site Management Plan shall accompany the Construction Certificate. This plan shall satisfy the Objectives and Controls in Part 4 of Chapter 8 of Sutherland Shire Development Control Plan 2006 and shall address the following:

- a) What actions and works are to be employed to ensure safe access to and from the site and what protection will be provided to the road and footpath area from building activities, crossings by heavy equipment, plant and materials delivery, and the like.
- b) The proposed method of loading and unloading excavation machines, building materials.
- c) Areas within the site to be used for the storage of excavated material, construction materials and waste containers during demolition / construction.

- d) How it is proposed to ensure that material is not transported on wheels or tracks of vehicles or plant and deposited on surrounding roadways.
- e) The proposed method of support to any excavation adjacent to adjoining properties, or the road reserve. The proposed method of support is to be certified by a Certifier accredited in civil engineering.
- f) The provision of temporary fencing to secure the work site (fencing, hoarding or awnings over public land require Council approval under the Roads Act).
- g) The control of surface water flows within and through the construction site to minimise erosion and movement of sediment off site.
- h) The type and location of erosion and sediment control measures, strategies to minimise the amount of soil uncovered at any time, the conservation of topsoil for re-use on site, the location and protection of stockpiles.
- i) Identify all trees that are to be retained and the measures proposed to protect them (including fencing, mulching, watering, erection of signs excluding access to the protection zone, etc), and identify areas for revegetation.

Note: The footpath and road reserve shall not be used for construction purposes (including storage of skips or building materials, standing cranes or concrete pumps, erecting hoardings, or as a construction zone) unless prior approval has been granted by Council under the Roads Act 1993.

37. Soil and Water Management

Prior to the commencement of works or the issue of a Construction Certificate, the applicant shall submit to and obtain Council approval of a Soil and Water Management Plan and Statement which clearly identifies site features, constraints and soil types together with the nature of proposed land disturbing activities and also specifies the type and location of erosion and sediment control measures and also rehabilitation techniques necessary to deal with such activities.

The Plan shall take into account the objectives of Council's Environmental Site Management Development Control Plan and shall be compatible with any Construction Management Plan thus ensuring the following objectives are achieved, namely:

- a) All possible sediment controls are installed before commencing work.
- b) To minimise the area of soils exposed at any one time.
- c) To conserve topsoil for re-use on site.
- d) To identify and protect proposed stockpile locations.
- e) Provide an indication of all existing trees present on the site or which are affected by the works on the site including trees on adjoining properties together with the location of the full extent of protective fencing and other tree protection barriers and root protection bridging structures and the like to be utilised in locations agreed with the project arborist. The trees are to be indicated as "tree to be retained" and or "tree to be removed".
- f) To preserve existing vegetation and identify revegetation techniques and materials.
- g) To control surface water flows through the development construction site in a manner that:
 - i) Diverts clean run-off around disturbed areas.
 - ii) Minimises slope gradient and flow distance within disturbed areas.

- iii) Ensures surface run-off occurs at non-erodable velocities.
- iv) Ensures disturbed areas are promptly rehabilitated.

h) Trap sediment on site to prevent off site damage. Hay bales are not to be used as sediment control devices. To ensure regular monitoring and maintenance of erosion and sediment control measures and rehabilitation works until the site is stabilised (includes landscaping).

38. General Pre-Commencement Condition 1

Any Construction certificate issued in relation to this Consent relative to Stage 1A works shall incorporate and address the design of those works required by this consent and any ancillary works necessary to make the construction effective

39. Pre-Commencement - Notification Requirements

No works in connection with this development consent shall be commenced until:

- a) A Construction Certificate has been issued and detailed plans and specifications have been endorsed and lodged with Council;
- b) A Principal Certifying Authority has been appointed. Council shall be notified of this appointment along with details of the Principal Certifying Authority, and their written acceptance of the appointment, NB Council shall be appointed as Principal certifying Authority for any works that shall relate to any future subdivision; and
- c) Notice of commencement has been provided to Council 48 hours prior to commencement of construction work on the approved development.

40. Pre-commencement Inspection

The pre-commencement meeting is to be convened by the Applicant on-site a minimum 5 days prior to any construction activity other than the installation of silt and erosion control barriers and between the hours of 8.00 am and 4.30 pm Monday to Friday. Prior to this meeting the relevant sections of the Environmental Site Management Plan (ESMP) must be implemented. The meeting must be attended by a representative of Council's Civil Assets Branch, the PCA, the builder/site manager of the building/civil construction company and where necessary the supervising engineer. The attendance of the owner is required when it is intended to use more than one builder/principal contractor throughout the course of construction.

The purpose of the meeting is to:

- i) Inspect the implementation of relevant sections of the ESMP such as safe passage for pedestrians, the installation of sediment and erosion controls, hoardings, Work and Hoarded Zones;
- ii) Check the installation and adequacy of all traffic management devices;
- iii) Discuss/explain any sections of the development consent that may require clarification or elaboration;
- iv) Confirm that a Construction Certificate has been issued where necessary and all Council fees paid;
- v) Vet the compliance of any special/specific conditions of consent;

- vi) Confirm that the supervising engineer has a copy of Council's Specification for Civil Works Associated with Subdivisions and Developments – January 1996; and,
- vii) Confirm that the builder/site manager/principal contractor has a copy of the Sutherland Shire Development Control Plan 2006 and Environmental Specification 2007.

41. Signs to be Erected on Development Sites

A rigid and durable sign shall be erected prior to the commencement of work and maintained in a prominent position on any work site on which building work, subdivision work or demolition work is being carried out. The responsibility for this to occur is that of the principal contractor.

The signage, which must be able to be easily read by anyone in any public road or other public place adjacent to the site, must:

- a) show the name, address and telephone number of the Principal Certifying Authority/ies for the works, (including any subdivision works), and
- b) show the name of the principal contractor (if any) for any building work and a telephone number on which that person may be contacted outside working hours, and
- c) state that unauthorised entry to the work site is prohibited.

Any such sign is to be maintained while the building work, subdivision work or demolition work is being carried out, but must be removed when the work has been completed.

42. Nomination of Engineering Works Supervisor

Prior to the issue of a Construction Certificate the applicant shall nominate an appropriately accredited certifier to supervise all public area civil and drainage works to ensure that they are constructed in compliance with Council's current "Specification for Civil Works Associated with Subdivisions and Developments".

The engineer shall:

- a) Provide an acceptance in writing to supervise sufficient of the works to ensure compliance with:
 - i) all relevant statutory requirements;
 - ii) all relevant conditions of development consent;
 - iii) construction requirements detailed in the above Specification; and
 - iv) the requirements of all legislation relating to environmental protection;
- b) On completion of the works certify that the works have been constructed in compliance with the approved plans, specifications and conditions of approval; and
- c) Certify that the Works As Executed plans are a true and correct record of what has been built.

43. Submission of Fire Safety Schedule

If any of the buildings proposed meet the relevant criteria, a Fire Safety Schedule

shall be issued by an appropriately qualified person and provided to Council as part of the Construction Certificate in accordance with the *Environmental Planning and Assessment Regulation 2000*. This schedule shall distinguish between current, proposed and required fire safety measures, with the minimum standard of performance being indicated for each fire safety measure. The Fire Safety Schedule shall identify each fire safety measure that is a Critical Fire Safety Measures and the intervals at which supplementary fire safety statements shall be given to the Council in respect of each such measure.

44. IDA Requirements – Construction Certificate

The Construction Certificate shall be accompanied by certification by a suitably qualified person confirming that the Construction Certificate plans meet with the requirement of the IDA approval authority(s).

45. Volumes of Fill Material

Volumes of any fill material to be brought onto the site shall be calculated and incorporated into the Environmental Management Plan for the Stage 1A works prior to the issue of any Construction Certificate.

46. Stormwater and Groundwater Management

Any required approval shall be obtained from the NSW Office of Water for the proposed stormwater and groundwater management works prior to the issue of a Construction Certificate.

CONSTRUCTION CONDITIONS – STAGE 1A

These conditions are imposed to ensure the development does not unreasonably impact on the amenity of the locality during the construction or demolition phase.

47. Design and Construction of Works in current and future Public Areas

Council has determined that the proposed development generates a need for the following works to be undertaken by the Applicant in the Road Reserve:

- (a) A temporary concrete footpath crossing for construction vehicle access if required.
- (b) Road pavement construction is to be as set out in schedule 4 of the Voluntary Planning Agreement between the Sutherland Shire Council, Australand Kurnell Pty Ltd and Breen Holdings Pty Ltd Dated 3 June 2010.
- (c) Stormwater drainage works.
- (d) The full construction of traffic facilities, including intersections within Captain Cook Drive providing access to the playing fields and at Captain Cook Drive at the Lindum Road intersection together with any associated traffic management devices, line marking and signposting. The design of these intersections shall incorporate the swept manoeuvring area of a 25.0m B-Double vehicle.
- (e) Construction of kerb and gutter and/or an edge beam across that part of the frontage of the site where required to support the new road pavement (e.g. adjacent to acceleration lanes).
- (f) Construction of a grass swale across the frontage of the site adjacent to the new acceleration lanes and
- (g) Regrading, topsoiling and turfing of the footpath area to final design levels across the frontage of the site and across adjacent properties where existing levels are altered, to all disturbed areas with the regrading and turfing to match the level and location of the proposed grassed drainage swale.
- (h) Erosion and sediment controls including a shaker pad and wheel wash-down facilities with these facilities to remain in place for the entire construction period.
- (i) Adjustment to, provision of additional conduits and services for or amplification of public utility services, cable television, security camera and telecommunications infrastructure to the amenities buildings.
- (j) Turfing of the verge areas that have been disturbed by construction within the road areas in association with the landscaping of the development site in accordance with the approved plans.
- (k) Construction of traffic facilities including those required to provide access during the course of construction.
- (l) Provision of linemarking and signposting other than at the proposed intersections as detailed on the design plan. (Peter Anderson)

An application under the Roads Act, together with the necessary fee, shall be submitted and alignment levels shall be issued by Council prior to the issue of a Construction Certificate. Approval under the Roads Act cannot be granted by a Principal Certifying Authority or by a Private Certifier. Failure to obtain approval may result in enforcement action by Council.

Survey and design plans for the above works must be approved by Council's Engineering Division and Council's Civil Assets Manager.

48. Permitted Hours for Building and Construction Work

Due to the remote location of the site, construction work is permitted 24 hours, 7 days per week with the following limitations:

- a) provided reasonable measures are taken to protect the amenity of properties within the vicinity of the site.
- b) any restriction that Council advises the applicant of in writing with 7 days notice, that, in Council's opinion, is necessary to manage the impacts of construction on competitors and spectators of sporting events on the site or in the vicinity.

49. Toilet Facilities

Toilet facilities shall to be provided, at or in the vicinity of the work site on which work involved in the erection or demolition of a building is being carried out, at the rate of one toilet for every 20 persons or part of 20 persons employed at the site.

Each toilet provided:

- a) shall be a standard flushing toilet, and
- b) shall be connected:
 - i) to a public sewer, or
 - ii) if connection to a public sewer is not practicable, to an accredited sewage management facility approved by the Council, or
 - iii) if connection to a public sewer or an accredited sewage management facility is not practicable, to some other sewage management facility approved by the Council.

The provision of toilet facilities in accordance with this clause shall be completed before any other work is commenced.

50. Excavations and Backfilling

- a) All earthworks including excavations and backfilling associated with the development shall be executed safely and in accordance with appropriate professional standards.
- b) All excavations associated with the development must be properly guarded and protected to prevent them from being dangerous to life or property.
- c) All canopy, trunk and root system of any trees to be retained on site and neighbouring properties shall be protected from damage during excavation.

51. Imported 'Waste Derived' Fill Material

In order to ensure that imported fill is of an acceptable standard for environmental protection purposes:

- a) The only waste derived fill material that may be received at the development site shall be:

- i) Virgin excavated natural material (within the meaning of the Protection of the Environment Operations Act 1997).
- ii) Any other waste-derived material the subject of a resource recovery exemption under cl.51A of the Protection of the Environment Operations (Waste) Regulation 2005 that is permitted to be used as fill material.
- b) Any waste-derived material the subject of a resource recovery exemption received at the development site shall be accompanied by documentation as to the material's compliance with the exemption conditions and shall be provided to the Principal Certifying Authority on request.

52. Retaining Walls and Drainage

If the soil conditions associated with the development proposal require it, retaining walls or other approved methods of preventing movement of the soil shall be provided with adequate provision made for drainage.

53. Protection of Public Places

To protect public safety and convenience during the course of constructing the works covered by this consent, the following matters shall be complied with:

- a) If the work involved:
 - i) is likely to cause pedestrian or vehicular traffic in a public place to be obstructed, inconvenienced, or rendered unsafe; or
 - ii) construction involves the enclosure of a public place.
 A hoarding or fence shall be erected between the work site and the public place.
- b) The work site must be kept lit between sunset and sunrise if it is likely to be hazardous to persons in the public place.

Any such hoarding, fence or awning shall be removed and any damage to any public place reinstated to Council's satisfaction when the work has been completed.

54. Noise Control during Construction and Demolition

To minimise the impact on the surrounding environment:

- a) For construction and demolition periods of four (4) weeks or less, the LAeq sound pressure level measured over a period of 15 minutes when the construction or demolition site is in operation, shall not exceed the ambient background level (LA90 15min) by more than 20dB(A) when measured at the nearest affected premises.
- b) For construction and demolition periods greater than four (4) weeks, the LAeq sound pressure level measured over a period of 15 minutes when the construction or demolition site is in operation, shall not exceed the ambient background level (LA90 15min) by more than 10dB(A) when measured at the nearest affected premises.

55. Environment Protection and Management

The environment protection and management measures described in the required Environmental Site Management Plan (including sediment controls and tree protection) shall be installed or implemented prior to commencement of any site

works and continuously maintained during the period of construction or demolition. These measures shall generally be in accordance with the requirements of Part 3 of Chapter 8 of Sutherland Shire Development Control Plan 2006 and the Sutherland Shire Environmental Specification 2007 - Environmental Site Management.

56. Run-off and Erosion Controls

Run-off and erosion controls shall be installed prior to commencement of any site works and shall be continuously maintained during the period of construction or demolition. These control measures shall generally be in accordance with the requirements of Part 3 of Chapter 8 of Sutherland Shire Development Control Plan 2006 and the Sutherland Shire Environmental Specification 2007 - Environmental Site Management and shall specifically address the following matters:

- a) diversion of uncontaminated runoff around cleared or disturbed areas;
- b) a silt fence or other device to prevent sediment and other debris escaping from the cleared or disturbed areas into drainage systems or waterways;
- c) controls to prevent tracking of sediment by vehicles onto adjoining roadways and public areas, a shaker pad and wheel wash facility shall be installed for this purpose; and
- d) disturbed areas shall be stabilised either temporarily or permanently by the use of turf, mulch, paving or other methods approved by the Council.

57. Construction of Public Frontage Works

The following road frontage works shall be constructed in accordance with the requirements of Council's adopted "Specification for Civil Works Associated with Subdivisions and Developments":

- (a) A temporary concrete footpath crossing for construction vehicle access if required.
- (b) Road pavement construction as detailed on Council's design plan.
- (c) Stormwater drainage works.
- (d) The full construction of traffic facilities, including intersections within Captain Cook Drive providing access to the playing fields and at Captain Cook Drive at the Lindum Road intersection together with any associated traffic management devices, line marking and signposting. The design of these intersections shall incorporate the swept manoeuvring area of a 25.0m B-Double vehicle.
- (e) Construction of kerb and gutter and/or an edge beam across the frontage of the site where required to support the road pavement (e.g. adjacent to acceleration lanes).
- (f) Construction of a grass swale across the full frontage of the site
- (g) Regrading, topsoiling and turfing of the footpath area to final design levels across the full frontage of the site and across adjacent properties where existing levels are altered, to all disturbed areas with the regrading and turfing to match the level and location of the proposed grassed drainage swale.
- (h) Erosion and sediment controls including a shaker pad and wheel wash-down facilities with these facilities to remain in place for the entire construction period.
- (i) Adjustment to, provision of additional conduits and services for or amplification of public utility services, cable television, security camera and

telecommunications infrastructure where required both external and internal to the site and to also provide for such services to the amenities buildings.

- (j) Landscaping of the public domain in association with the landscaping of the development site in accordance with the approved plans.
- (k) Construction of traffic facilities including those required to provide access during the course of construction.
- (l) Provision of linemarking and signposting other than at the proposed intersections as detailed on the design plan.

Permission shall be obtained for the carrying out of the proposed works, under the Roads Act, 1993 prior to the commencement of works or the issue of a Construction Certificate.

58. Stockpiling of materials during construction

Topsoil, excavated material, construction and landscaping supplies and on site debris shall be stockpiled within the erosion containment boundary and shall not encroach beyond the boundaries of the property or the drip-line of any tree marked for retention. For further information, refer to Part 3 of Chapter 8 of Sutherland Shire Development Control Plan 2006 and the Sutherland Shire Environmental Specification 2007 - Environmental Site Management.

59. Spoil deposited on public way (roads or reserves)

Any spoil deposited on public roads during cartage of materials from or to the site shall be removed immediately to the satisfaction of Council. If Council determines that excessive depositing of spoil onto the public way is taking place then the cartage of materials to and/or from the site shall cease if so directed by Council.

60. Certification Requirement - Prior to pouring of concrete

Certificate shall be provided from a registered surveyor prior to the pouring of the initial / lowest floor slab of the amenities building, verifying the location and level of the steel / formwork is such to ensure that the concrete when poured will comply with the approved floor level.

61. Disposal of Site Soils

Any soils excavated from the subject site are to be classified under the NSW DECC Waste Classification Guidelines (2009). Testing is required prior to off site disposal. All waste materials shall be removed to appropriately licensed waste facilities by a suitably qualified contractor in accordance with NSW DECC Waste Classification Guidelines (2009).

Note: Attention is drawn to Part 4 of the NSW DECC Waste Classification Guidelines (2009) which makes particular reference to the management and disposal of Acid & Potential Acid Sulfate Soils.

62. Planting of site boundaries

Tree and shrub screen planting shall be provided along the site boundaries in accordance with the landscape plan to enhance the development prior to the issue of any Occupation Certificate. This planting shall be of a native type that will achieve a minimum height of 4m at maturity together with understorey species. The plants

selected shall be in accordance with the detailed landscape plan. The site boundary landscaping shall not apply to those areas where passive site surveillance is desirable, including in the vicinity of the Skate Park.

63. Irrigation system

The playing fields, the athlete warm-up areas and overflow car park areas shall be provided with a water efficient irrigation system to enable effective landscape maintenance. Details of this system shall be provided in the landscape plan which shall accompany the Construction Certificate.

64. Landscape treatment of Infiltration Basin and Bioswales

The stormwater infiltration basin and bioretention swales shall be densely planted with suitable species as per Sutherland Shire Council Environmental Specification Landscape (2007), Part 2, and appropriately mulched to augment the landscape character of the site and the approved landscape plan. The mulch shall be stabilised with a biodegradable material. The planting shall not materially reduce the volume of the stormwater infiltration basin and bioswales as required by this development.

65. New Statutory Fire Safety Measures

Where required, Statutory Fire Safety Measures are required and shall be provided and fully maintained in accordance with the nominated standard and inspected annually with the issue of Annual Fire Safety Statements.

66. Amenities Buildings Recycled Water

Pipes that may be in contact with recycled water for extended period are to comply with AS/NZS4020. Underground pipework delivering recycled water (for reuse in toilets) shall comply with AS/NZS4020. Polyethylene pipes used for such pressure applications shall comply with AS/NZS4130.

The installation of pipework infrastructure shall comply with the following standards:

- a) AS/NZS3500 – National Plumbing and Drainage Code.
- b) AS/NZS4130 – Polyethylene (PE) pipes for pressure applications.

POST-CONSTRUCTION CONDITIONS – STAGE 1A

These conditions are imposed to ensure all works are completed in accordance with the Development Consent prior to either the issue of an Occupation Certificate, a Subdivision Certificate or habitation / occupation of the development.

67. Works As Executed Information

Certification shall be provided from a registered surveyor for each Stage of the Masterplan development to the effect that:

- a) All civil engineering works required by this development consent have been carried out in accordance with the terms of the development consent and the approved engineering drawings with regard to location and level.
- b) All pipes, pits and detention facilities lay within their relevant existing or proposed easements as required.

68. Works As Executed Drawings

Certification shall be provided from the Supervising Engineer acting as an Accredited Certifier for each Stage of the Masterplan development, to the effect that:

- a) All civil engineering, landscape watering and stormwater works associated with development have been carried out in accordance with the terms of the development consent, the approved engineering drawings and in the case of public works, Council's "Specifications for Civil Works associated with Subdivisions and Developments".
- b) The construction of the drainage and watering systems for the proposed development has been carried out generally in accordance with the requirements of the approved stormwater drainage and landscape plans, Council's stormwater management policy and guidelines and that all assumptions made during the design remain valid. Works-as-Executed drawings certified in the above manner and containing all relevant information, including the location of the watering system pipelines and sprinklers, and other information as required by Council's "Specification for Civil Works Associated with Subdivisions and Developments" shall accompany the Subdivision Certificate application or Occupation Certificate.

69. Completion of Work on Public Land

All work on public land required or proposed as part of this consent shall be completed in accordance with the requirements and time frames specified in the approvals granted by Council for each Stage of the Masterplan development for the work under the Local Government Act 1993 or the Roads Act 1993.

No work shall be undertaken within the road reserve or on public land without approval from Council.

Need for Certification

To ensure that all works are completed in accordance with the Development Consent, certification from an Accredited Certifier shall accompany the Occupation Certificate, to the effect that the following works have been completed.

70. **Set out of Building**

Certificate from a Registered Surveyor certifying that the Amenities Building has been set-out in relation to location and levels, in accordance with the requirements of the development consent.

71. **General Compliance**

Certification shall be submitted from the Principal Certifying Authority certifying that all works have been completed and comply with the approved plans, conditions and specifications.

72. **Works in Roadway**

A Compliance Certificate from an Accredited Certifier certifying that all works undertaken in the road reserves of Captain Cook Drive and Lindum Road have been completed in accordance with the conditions of the Road Opening Approval, the approved drawings and any applicable conditions of consent.

73. **Green and Golden Bell Frog Pond Certification**

Certification shall be provided by the Independent Green and Golden Bell Frog Expert that all matters referred to in the Green and Golden Bell Frog Management Plan and the approved Construction Certificate plans have been undertaken to his/her satisfaction.

74. **Completion of Landscaping**

Certification shall be provided from a suitably qualified and experienced Landscape Designer or Landscape Architect within three months after the issue of the Final Occupation Certificate for the development or the Subdivision certificate, (whichever is the earlier). This Certification shall verify that the landscape works have been completed to the stage of practical completion in accordance with the approved detailed landscape plan and relevant conditions of this consent.

Note: A Landscape Designer is a person eligible for membership of the Australian Institute of Landscape Designers and Managers and a Landscape Architect is a person eligible for membership of the Australian Institute of Landscape Architects as a Registered Landscape Architect.

75. **Completion of Vegetation Management**

Certification shall be provided from a suitably qualified and experienced Bush Regenerator / Horticulturalist within three months after the issue of the Final Occupation Certificate for the development or the Subdivision certificate, (whichever is the earlier). This Certification shall verify that the establishment phase of the vegetation management works have been completed in accordance with the approved Vegetation Management Plan (VMP) and relevant conditions of this consent.

Note. A Bush Regenerator is a person eligible for membership of the Australian Association of Bush Regenerators and a Horticulturalist is a person eligible for membership of the Australian Institute of Horticulture.

76. Stormwater Treatment

Certification shall be provided from an Accredited Certifier prior to the issue of an occupation certificate for the development or the issue of a Subdivision certificate, (whichever is the earlier), verifying that the stormwater treatment measures, (Bioswale/Infiltration Basin/Grassed Swale), has been implemented in accordance with the requirements of this condition and the approved plans.

77. Verification of IDA Requirements

Verification shall be provided by a suitably qualified person pursuant to s.91 of the EP&A Act 1979, stating that all IDA requirements of the Approval Authority(s) have been maintained throughout the construction of the development. This shall be provided prior to the issue of the final Occupation Certificate for the Amenities Building.

78. Certification – Acid Sulfate Soils

A suitably qualified environmental scientist shall certify in writing to Council that the management of any acid sulfate soil was undertaken in accordance with the conditions of this development consent.

79. Final site Inspection

Prior to the issue of the Subdivision or any Occupation Certificate, a final site inspection shall be arranged by the applicant, and shall be undertaken by the applicant's Supervising Engineer and Council's Civil Assets Engineer and Principal Certifying Authority. The purpose of the inspection is to ensure that notwithstanding the submission of any certificates required by the development consent, all impacts within the public area caused by the development have been satisfactorily addressed.

Note: An inspection fee shall be paid to Council. Please refer to Sutherland Shire Council's Adopted Schedule of Fees and Charges.

Conditions Relating to Works in the Road Reserve

These conditions are imposed to ensure that adequate road works are provided to minimise the adverse effect of traffic generated by the development.

80. Road Opening Approval Required

No work whatsoever shall be carried out within the Public Road Reserve unless a "Road Opening Permit" under the Roads Act, 1993 (NSW) has been issued by either Council or the Roads and Traffic Authority for every opening of the public road reserve.

Note: An application fee is payable for this application.

OPERATIONAL CONDITIONS – STAGE 1A

These conditions are imposed to ensure that the use or operation of the development does not adversely impact on the amenity of the neighbourhood and the environment.

81. External Lighting

All external lights shall be operated and maintained in accordance with the Australian Standard AS4282 - Control of the Obtrusive Effects of Outdoor Lighting so as not to cause a nuisance or adverse impact on the amenity of residents of the surrounding area, to motorists on nearby roads and to any aircraft flight path.

82. Green and Golden Bell Frogs

Continuous monitoring of the Green and Golden Bell Frog habitat ponds shall be undertaken for a period of two years in accordance with the requirements of the Green and Golden Bell Frog Management Plan and any recommendations emanating from this monitoring programme shall be implemented immediately.



PARKING & TRAFFIC
CONSULTANTS

Driving success through stable advice

Client

Australand Pty Ltd

Project

Green Hills, Kurnell
Assessment of Proposed Intersections, Captain Cook Drive

(Ref. No. T2-580)

Date

January 2012

Contact

Andrew Morse

02-99681844

0414-618002

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1. Introduction

Parking and Traffic Consultants (PTC) have been engaged by Australand Pty Ltd to assess the traffic and safety considerations relating to a proposed intersection and the upgrade of two existing intersections on Captain Cook Drive in Kurnell. The assessment has been undertaken in response to the letter issued by Sutherland Shire Council, dated 14 November 2011, which contains the following request:

The submission by the applicant of an independent report in relation to the capacity of the proposed intersections of the roads within the development and Captain Cook Drive and the existing intersection of Lindum Road and Captain Cook Drive in terms of traffic and pedestrian safety and efficiency of operation.

The report shall provide advice as to the adequacy of the proposed "T" intersection design or whether a higher order form of intersection control is required, bearing in mind the proposed use of the subject land and existing and likely future surrounding land uses.

In order to complete the assessment we have been provided with the following documents:

-  The letter from Council dated 14 November 2011.
-  Report On The Traffic Implications Of Proposed Recreation Area- Prepared by Colston Budd Hunt and Kafes (CBHK)
-  The detailed design drawings prepared by Whelans Insites Pty Ltd.



We have undertaken traffic modelling and a safety assessment based on the requirements of the Accident Reduction Guide typically referred to when preparing a Road Safety Audit.

2. Background Traffic Analysis

A Traffic Assessment Report was prepared by Colston, Budd, Hunt and Kafes (CBHK) during July 2011, which accompanied the Development Application to Council for the construction of recreational facilities within the site, which involves the construction of a new access intersection and the upgrade of two existing intersections within the site frontage.

The traffic report presents existing and projected traffic volumes and the findings of intersection analysis using the Sidra modelling software. We have undertaken a similar analysis using Sidra but also use Commuter which is a micro-simulation software providing an animated graphical output which is beneficial for visualising a traffic situation.

According to the CBHK report the Sidra modelling indicated that:

-  *the intersection of the Lindum Road and Captain Cook Drive would operate with average delays per vehicle of less than 35 seconds in the Saturday peak period for the movement with the highest delay (right turn onto Captain Cook Drive). This represents level of service C, a satisfactory level of service;*
-  *the intersection of Road 1 and Captain Cook Drive would operate with average delays per vehicle of less than 25 seconds in the Saturday peak period for the movement with the highest delay (right turn onto Captain Cook Drive). This represents level of service B, a satisfactory level of service; and*

the intersection of Road 2 and Captain Cook Drive would operate with average delays per vehicle of less than 15 seconds in the Saturday peak period for the movement with the highest delay (right turn from Captain Cook Drive). This represents level of service A/B, a good level of service.

3. PTC Traffic Analysis

In order to comment fully on the results, we have prepared a Sidra analysis of the intersections using the traffic volumes presented in the CBHK report. It is noted that the proposed land use will likely involve relatively short peak arrival and departure periods which will occur within the modelled 1 hour period. In this regard, the Peak Flow Rate for the development traffic volumes has been adjusted to 70%, which creates a more intense peak period around the midpoint of the 1 hour modelling period. This has the effect of increasing the demand flows on each intersection rather than averaging the volumes over the entire 1 hour period.

The results of the analysis are summarised in the following table, while the complete results table are presented as attachment 1. For consistency with the CBHK report, we have presented the results of the worst-case movement for each Intersection.

Table 3.1 – Existing Background Volumes with Development Volumes

Intersection	Movement*	Level of Service	Average Delay (sec)	95% Queue (veh)
Road 1	Right from Road 1	C	29.3	2.3
Road 2	Right from CCD#	A	10.2	1.2
Lindum Road	Right from Lindum Rd	B	25.8	0.2

* The worst-case movement is shown for the purposes of presenting a robust assessment

CCD = Captain Cook Drive

The results indicate that the proposed and upgraded intersections will operated well within capacity in the form proposed at each intersection. While Sidra analysis doesn't necessarily conclude that a particular intersection will operate safely, the lack of extensive delay or queue does confirm that there are no capacity related design or safety issues associated with each Intersection.

The Sidra analysis indicates results which are similar to the results published by CBHK and this is not surprising given that the input data was fairly consistent. In this regard we have undertaken a further analysis using the Commuter micro-simulation software which provides a tabulated reporting output similar to that of Sidra, but also presents an animated representation of any given situation. The following screenshots provide an indication of this method, while videos of the simulation are contained at the following URL:

www.parkingconsultants.com/commuter/CaptainCookDriveAllRoads.avi

The tabulated results indicate that there is no capacity related constraint at either the proposed or upgraded intersections and this is confirmed by viewing the videos of the simulation.

Photo 1 – Aerial View of the Model

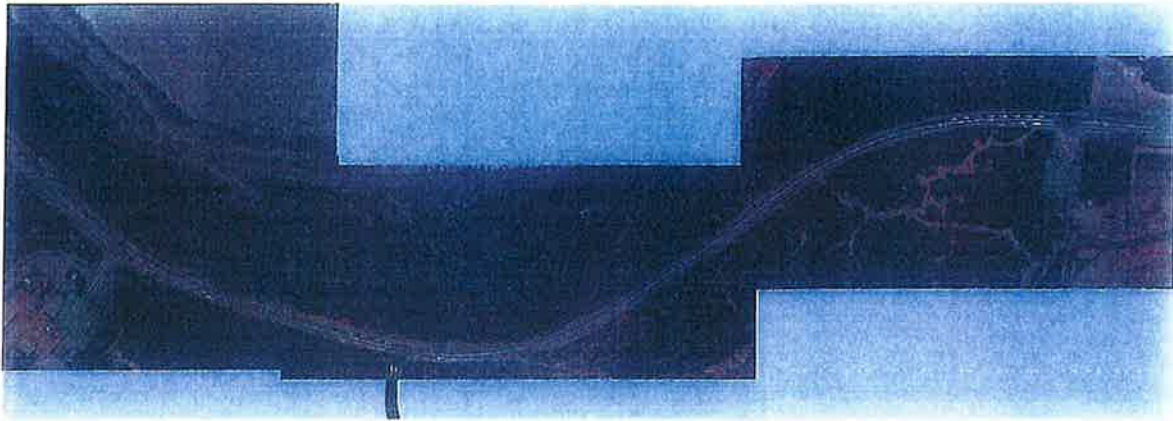
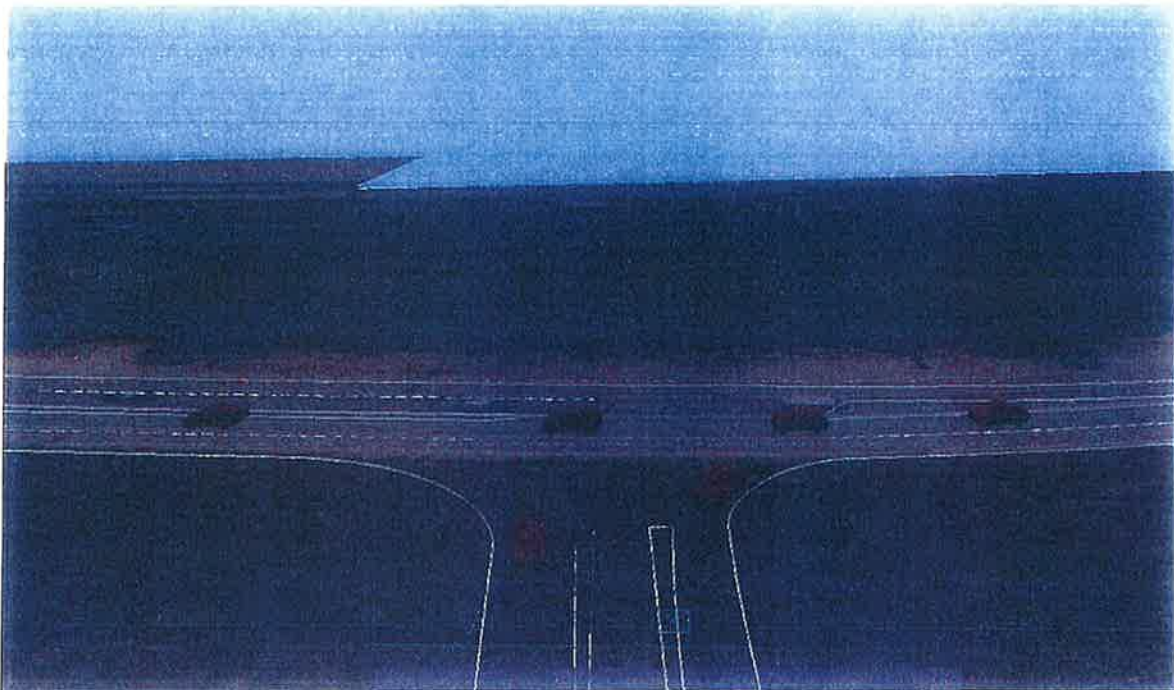


Photo 2 – Road 1 Screen Shot



The red (3D) vehicles are produced by Commuter while other (flat) vehicles are on the aerial photo.

Photo 3 - Road 2 Screen Shot



Photo 4 - Lindum Road Screen Shot



4. Sensitivity Test

Each of the models described above rely on the traffic volumes recorded and calculated by CBHK according to the Report On The Traffic Implications Of Proposed Recreation Area. In order to present a robust assessment of the proposed and upgraded intersections, we have also run the modelling to include for the following scenarios:

- ☞ Background growth of 10% along Captain Cook Drive and projected development volumes.
- ☞ Background growth of 10% along Captain Cook Drive and 10% increase in the projected development volumes.
- ☞ Background growth of 10% along Captain Cook Drive and 50% increase in the projected development volumes.

These scenarios were run in both Sidra and Commuter and adopted the 70% Peak Flow Factor applied in the CBHK analysis.

The Sidra results are summarised in the tables below, while the Commuter video of the final scenario is available at the following URL:

www.parkingconsultants.com/commuter/CCD_110_and_150_with_70_PFF.avi

Table 4.1 – 110% Background Volumes with 110% Development Volumes

From Road	Direction	Level of Service	Peak Hour Volume (V _P)	Peak Hour Flow (V _P /PHF)
Road 1	Right from Road 1	C	37.5	3.1
Road 2	Right from CCD [#]	A	10.6	1.4
Lindum Road	Right from Lindum Rd	B	29.9	0.3

* The worst-case movement is shown for the purposes of presenting a robust assessment

CCD = Captain Cook Drive

Table 4.2 – 110% Background Volumes with 150% Development Volumes

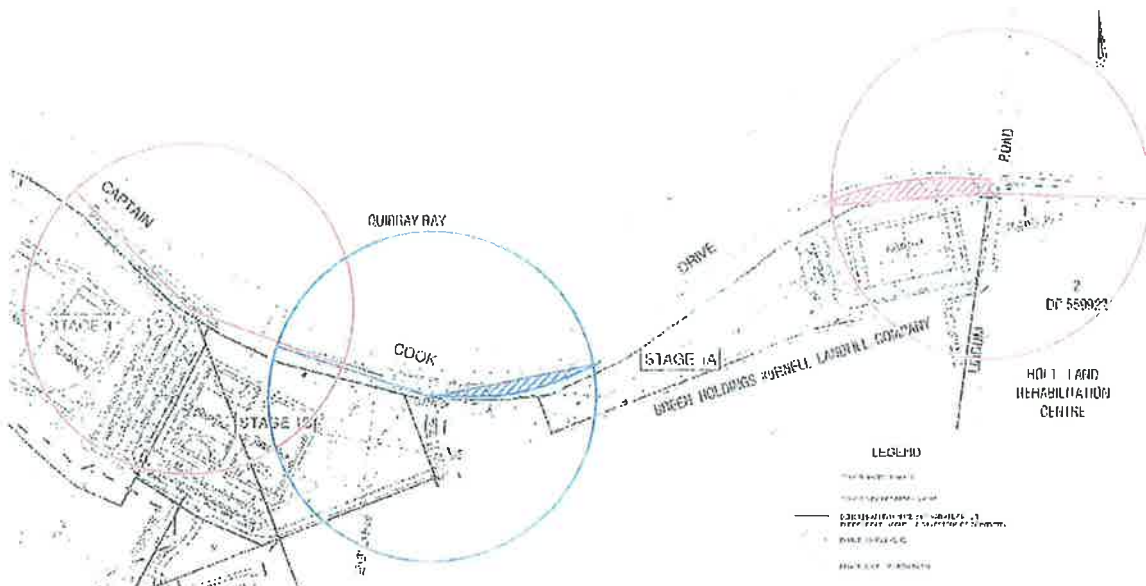
From Road	Direction	Level of Service	Peak Hour Volume (V _P)	Peak Hour Flow (V _P /PHF)
Road 1	Right from Road 1	E	64.0	7.1
Road 2	Right from CCD [#]	A	11.4	2.6
Lindum Road	Right from Lindum Rd	C	34.7	3.5

5. Safety Assessment

The capacity analysis describe in Section 3 and 4 clearly indicates that the proposed intersection design will adequately accommodate the existing and projected traffic volumes including for background growth and a sensitivity test scenario.

In relation to the physical designs it is noted that each intersection will be located on a road having a relatively level vertical alignment and that sight distances will be available in accordance with the Austroads Guide to Road Design.

We have undertaken an assessment of the sight distance and conclude that the required Safe Intersection Sight Distance (SSID) of 181 metres, based on the speed limit of 80Kph, is available at each of the intersections as illustrated on the following image.



6. Conclusion

We have assessed the proposed intersection arrangements in the context of the projected traffic activity associated with the proposed recreational facility and have concluded that (based on the traffic projections prepared by CBHK) the proposed intersection arrangements on Captain Cook Drive will operate satisfactorily in relation to safety and capacity.