8 November 2011

General Manager
Wollongong City Council
Locked Bag 8821
Wollongong DC NSW 2500

Attention: David Farmer

Dear Mr Farmer

Tallawarra Lands
Part 3A Project Concept Application MP 09-0131
Response to Council submission

Thank you for your recent letter to the Department of Planning & Infrastructure in relation to the above Major Project application. We appreciate Council considering the exhibited Concept Plan, and its long standing involvement in the Tallawarra Lands project.

We address each of the matters raised in your letter.

		Issue/consideration	Comments
Land use strategy	1	The Tallawarra site contains regionally significant industrial/employment lands. The Illawarra Regional Strategy recognises this importance and calls for protection of such land from other uses such as residential. Neither a school nor a retirement complex/housing are considered to be consistent with the intent and objectives of the B7 zone.	• A key objective of the Concept Plan is to maximise the employment potential of the site. • The proportion of employment lands in the land use mix is extraordinarily high for a development of this type. That said, the Concept Plan aims to prioritise employment land outcomes over employment land area. For instance, it strives to ensure that employment land is supported by viable overall development, and is located in areas where it is technically feasible. This is fundamental to attracting investment. • In accordance with the provisions of State Environmental Planning Policy Infrastructure and State Environmental Planning Policy Seniors, both retirement villages and schools are permissible with consent in the B7 zone. • Furthermore, they both add to the potential employment diversity of the site. • The Concept Plan is entirely consistent with the Regional Strategy.
Traffic - impacts on the local road network	2	The current proposal represents one part of a wider developable site. Future development is expected to come forward between Duck Creek and Yallah Bay Road, and on the Power Station site which is likely to result in further significant traffic generation during construction and operation. The proponent should consider the impact of this additional traffic (a staged development including the	• Yes, this area has been marked for future development. It will be subject to its own traffic assessment(s). • Development of the power station site has been included in the analysis. • The issue of the north facing ramps was specifically raised by the RTA and was incorporated into the analysis at their request. The results are reported in Section 6.3 of the Traffic Impact Assessment. • Modelling work showed that an access point to Haywards Bay would place an unreasonable amount of traffic on the local roads as explained in Section 5.3 of the Traffic Impact Assessment. No vehicular access is now proposed. If this comment relates to Tallawarra traffic attempting to access the Hayward's Bay roundabout from the

future full development scenario) on the local road network. Wollongong City Council's Future Network Analysis modelled dedicated freeway ramps to serve future development in Tallawarra. However it is noted that these ramps do not form part of the current proposal. As a result, the limited access arrangements will result in circuitous travel patterns, increased Vehicle Kilometres Travelled and impacts on local residential streets between the development site and the Fowlers Road Freeway access.

Further it does not appear that the impact of the above development-generated traffic on the safety and efficiency of the Haywards Bay roundabout has been considered by the proponent.

The Traffic Impact Assessment states that the volume of the additional traffic is not enough to justify the provision of dedicated freeway ramps to serve the development, based on an increase of 100 vehicles per hour in Cormack Avenue in the morning and evening peaks. As a 'rule of thumb' peak hour traffic represents around 10% of the daily traffic which equates to around 1000 additional vehicles per day which the Traffic Section considers to be significant. This additional through-traffic will impact on the safety, convenience and amenity of local residents living in Cormack Avenue, Compton Street and Emerson Road; a route already well known as a "rat-run".

The Traffic Section notes that the new Tallawarra on/off ramps are listed in the Illawarra Special Infrastructure Contributions (SIC) Plan: State and Regional Road Projects (Item 8) to provide a direct connection between the Tallawarra Land Release Area and the F6 Southern Freeway, eliminating the need for long distance trips to either congest the Princes Highway through Dapto or travel north in order to go north on the F6, then the following applies. Tallawarra north bound traffic will turn right onto the Princes Highway from either access roundabout, and then either stays on the Princes Highway or moves onto the F6 at the Fowlers Road on ramp. The modelling indicates that virtually no traffic will go south before going north which is why no mention was made of this in the Traffic Impact Assessment.

- The additional traffic on Cormack Ave is not attributable to Tallawarra.
- Any potential need for ramps is a function of development of other release areas, not Tallawarra.
- The Illawarra Special Infrastructure Contributions ("SIC") Plan remains in Draft form. The State Government is currently in the process of reviewing its position in relation to SIC Plans.
- The Traffic Impact Assessment undertaken by Gabites Porter on behalf of TRUenergy indicates that future development at Tallawarra Lands does not generate a demand for these ramps and that it could operate satisfactorily without them. This demonstrates that the ramps are either not required or that they are required to cater for the demands of other development in the region. Accordingly, Tallawarra Lands should not be expected to contribute towards these works.

		through local streets of Dapto and Koonawarra. The SIC document states that the timing of works are yet to be determined. Until now potential 'indicative' staging of infrastructure upgrades have been heavily based on assumptions made with regard to land release take up, however now that the land release is imminent, the provision of infrastructure upgrades is critical.	
Traffic - traffic noise	3	The proponent should provide details of how the development will be designed to limit the impacts of traffic noise. The proponent should refer to Development near Rail Corridors and Busy Roads – Interim Guideline (2008).	• The assessment made is in accordance with the *Development near Rail Corridors and Busy Roads – Interim Guideline (2008)*. • Where criteria is exceeded generic measures to manage noise impacts are discussed. We suggest that to go beyond this at Concept stage is premature.
Traffic - cycling network	4	More details of the proposed cycling network should be provided which show the location and hierarchy (i.e. shared path or on-road facility) of the proposed cycle routes within the development. It should also provide details of connections to existing infrastructure, crossing points, refuges and so on. It is noted that the proponent refers to "shareways" which is not a term appearing in any infrastructure building document and is not covered under road rules. The proponent should clarify if this is a new specification or whether they are in fact referring to 'shared paths'. It is also noted that on-road cycle lanes are proposed. In some cases on-road cycle lanes may result in injury to cyclists through conflict including that from opening car doors and it is Council's preference that separate paths are provided. The Landscape Plan indicates 2.5 metre wide shared cycle paths. Austroads Part 6A: Pedestrian and Cyclist Paths (2009) states that 2.5 metre wide shared paths are acceptable for 'local access' with speeds of up to 20kmph. A width of 3 metres is recommended for frequent and concurrent	• More details relating to the proposed cycling network can be provided in an amended Landscape Report if requested by the Department of Planning & Infrastructure. For example Figure 29 of the Landscape Report can be revised to include the location and hierarchy of all proposed cycle routes within the development. • It is our view that "connections to existing infrastructure, crossing points, refuges and so on form a level of detail that is beyond that of the Landscape Plan within the Part 3A Application. • If this is considered material, "shareways" can be renamed "Shared Use Paths" in a supplement to the Environmental Assessment. • If requested by the Department of Planning & Infrastructure, on-road cycle lanes can be revised to create a space for car door opening of parked cars to avoid the potential for conflict between cyclists, vehicular traffic, and parked cars. • The shared use paths have been designed for "local access" only. The on-road cycle lanes will allow for cyclists to travel in excess of the shared use path design speed of 20kph. • It is our view that the on-road cycle lanes and 2.5m shared use paths, together with Lake Illawarra Authority's foreshore pathway, will provide a substantial and flexible pedestrian/cycle network.

		use in both directions with speeds greater than 30kmph.	
Traffic - outstanding items from Council's letter of response dated 14 October 2009 to draft Director-General Environmental Assessment Requirements	5	- Details on impact on road safety and impact of existing and proposed traffic noise. - Location of pedestrian and cycling facilities within the proposal and linkages to existing facilities such as refuges and blister kerbs. - Peak period traffic volumes and congestion levels at key intersections externally, within the proposal and also at the main entry points to the area. - Impact of generated traffic on key adjacent intersections, streets in the neighbourhood of the development, the environment and other major traffic generating development sites in close proximity. - Safety and efficiency of the proposed access between the subject area and the adjacent road network. - Safety and efficiency of internal road layout, including service and parking areas. - The proposed internal provision of public transport facilities such as bus bays etc.	• See responses to issue 3 above. • See responses to issue 5 above. • Among other matters, peak traffic volumes, congestion levels and main entry points are dealt with throughout the exhibited traffic impact assessment and the exhibited Northrop designs. • Dealt with in the traffic impact assessment in section 7.3 • Dealt with in the traffic impact assessment in section 7.4 • This is an appropriate consideration for the detailed design stage. • This is an appropriate consideration for the detailed design stage.
Flooding & drainage - flood study	6	A comprehensive flood report should be provided that identifies the flooding behaviour through the site and surrounding area for the post developed state (i.e. ultimate development). The report should incorporate 1 or 2-dimensional hydraulic modelling that analyses the post developed state (i.e. including the proposed site levels, road and bridge structures and proposed riparian corridor planting) for all storm events up to and including the Probable Maximum Flood (PMF) event. All data used, assumptions made and results obtained from the modelling should be clearly documented within the report. All aspects of the report should be in accordance with Chapters E13 and E14 of the Wollongong City Council	• Project flood modelling undertaken by Bewsher Consulting has already seen the use of 'best practice' 2 dimensional hydraulic modelling software to examine the existing conditions 100 year flood regime. Since that modelling showed that the development precinct footprints almost exclusively occupied areas which were outside the 100 year floodplain there was seen to be no present requirement to model the "post developed (i.e. ultimate development) state". The accompanying report has also laid down principles for floodtime access including associated road levels and bridge structure levels in accordance with best practice. • As part of the detailed design stage of the project, the flood model would be utilized to test all facets of the project including engineering design features of floodplain crossings and riparian corridor plantings, etc. This will include running the model for the 100 year (with and without climate change) and PMF regimes. All aspects of the report would be in accordance with the requirements of Council's DCP 2009 and also the 2005 State Government Floodplain Development Manual. Any specific requirements of other agencies such as the NSW Office of Environment and Heritage would also be addressed. As such the report (prepared as part of the detailed design phase of the project) will demonstrate that the project has no net impact on flood behaviour, has no net impact from flooding and no impact on evacuation or emergency services access. It will also demonstrate that reliable access is available from all access points of the development site.

		Development Control Plan 2009, and the NSW State Government Floodplain Development Manual (2005). Other specific requirements from the NSW Office of Environment and Heritage relating to Climate Change and State Emergency Services (SES) relating to evacuation should also be adhered to. The flood report should clearly demonstrate that the proposed development has no net impact on flooding behaviour, no net impact from flooding and no impact on evacuation or emergency services access. The report should also demonstrate that reliable access is available from all access points of the development site for all relevant storm events.	
Flooding & drainage - interallotment drainage	7	A minimum 150mm diameter, PVC Class SH inter-allotment drainage system should be provided to drain proposed lots where roofwater and surface water from future development cannot be discharged directly into the street drainage system.	This is an appropriate consideration for the detailed design stage.
Flooding & drainage - no adverse run-off impacts on adjoining properties	8	The design of the development should ensure there are no adverse effects to adjoining properties or upon the land as a result of flood or stormwater run-off. Attention should be paid to ensure adequate protection for buildings against the ingress of surface run-off.	• The development has no downstream/adjacent properties that would be adversely effected by the development. • Stormwater within the development would be controlled through designated overland flowpaths along road ways and natural drainage paths. • Prevention of ingress of runoff into buildings would be addressed at the building stage.
Flooding & drainage - re-direction or treatment of stormwater run-off	9	Allowance should be made for surface run-off from adjoining properties. Any redirection or treatment of that run-off should not adversely affect any other property.	• Allowance has been made in the hydrologic assessment for catchment areas draining through Tallawarra Lands from adjoining properties. • The development does not include any proposal to re-direct run off from adjoining properties.
Flooding & drainage - overflow paths	10	Overflow paths should be provided to allow for flows of water in excess of the capacity of the pipe/drainage system draining the land. Blocked pipe situations with 1 in 100 year ARI events should be incorporated in the design. Overflow paths should also be provided in	• Major overland flowpaths would be provided to manage flows in excess of the minor drainage system capacity up to the 100yr ARI flow. • Overland flowpaths would coincide with roads and natural drainage corridors. • The development would be designed to ensure that no trapped low points would be formed within the development.

		low points and depressions.	
Flooding & drainage - service location to be shown	11	The depth and location of all services (i.e. gas, water supply, stormwater, sewer, electricity, telephone, traffic lights, etc) should be ascertained and reflected on the plans issued for Construction.	The concept plan does not seek detailed design or construction approval. The detailed design of the future works will be the subject of future, separate applications. Considerations relating to construction can be dealt with as conditions to the subdivision development consent.
Flooding & drainage - civil design	12	Civil design plans should be provided for all proposed site regrading, road and bridge infrastructure on the development site and also all necessary upgrades to existing roads and bridges. The design should be in accordance with Wollongong City Council Subdivision Code, Austroads manual and the relevant Australian Standards.	See response to issue 11.
Flooding & drainage - stormwater design	13	A detailed stormwater management design should be provided for the proposed development in accordance with Chapter E14 of the Wollongong City Council's Development Control Plan 2009.	A detailed stormwater management design would be prepared at detailed development application stage for Tallawarra Lands.
Flooding & drainage - bridge design - flooding	14	The design of all bridge structures and approach embankments should be undertaken by a suitably qualified certified practicing engineer with proven extensive experience in design of bridge structures of comparable magnitude. Each bridge structure is to be designed with a minimum of 500mm freeboard above the estimated 100 year flood level to the underside of the bridge deck, taking into account the effects of climate change and Council's blockage criteria. The design of the structure and approach embankments should be undertaken in accordance with, but not limited to, the requirements of AS 5100.1-2004 Bridge Design and Austroads "Waterway Design – A Guide to the Hydraulic Design of Bridges".	See response to issue 11.

Flooding & drainage - bridge design - structural	15	The design of all road bridges should be in accordance with the current version of AS5100 – Bridge Design. All bridges should be designed to cater for an SM1600 loading. Prior to work commencing, a Certificate of Compliance from a qualified engineer experienced in bridge design should be submitted to the consent authority.	See response to issue 11.
Flooding & drainage - scour protection	16	All stormwater outlets and overland flow paths should incorporate appropriate scour/erosion protection measures.	See response to issue 11.
Retaining wall design criteria	17	All retaining walls should be designed by a suitably qualified civil and/or structural engineer and should be detailed on engineering plans which include, but is not limited to the following: a) A plan of the wall showing location and proximity to property boundaries. b) An elevation of the wall showing ground levels, maximum height of the wall, materials to be used and details of the footing design and longitudinal steps that may be required along the length of the wall. c) Details of fencing or handrails to be erected on top of the wall. d) Sections of the wall showing wall and footing design, property boundaries and backfill material. Sections should be provided at sufficient intervals to determine the impact of the wall on existing ground levels. The designer should note that the retaining wall and footing structure should be contained wholly within the subject property. e) The proposed method of subsurface and surface drainage, including water disposal. f) Reinforcing and joining details of the bends in the wall at the passing bay of the accessway.	See response to issue 11.

		g) The assumed traffic loading used by the engineer for the wall design.	
Street lighting	18	An electricity provider approved street lighting plan should be submitted to the Certifying Authority for approval prior to the commencement of Construction. All costs associated with the installation of street lighting should be borne by the developer.	This is an appropriate consideration for the detailed design stage.
Supervision of engineering works	19	All engineering works associated with the development are to be carried out under the supervision of a practicing engineer.	See response to issue 11.
Dilapidation report	20	The developer should provide Council's Manager Design and Technical Services with a dilapidation report, identifying the condition of Council assets and all land in the vicinity of the proposed works prior to the commencement.	See response to issue 11.
Protection of Council infrastructure	21	The developer should provide adequate protection to all Council assets prior to work commencing and during construction. Council's Manager Design and Technical Services should be notified immediately in the event of any damage to Council's assets. Any damage to Council's assets should be made good to the satisfaction of Council, with all associated costs borne by the developer.	See response to issue 11.
Forty eight hours notice prior to works commencing in any road reserve	22	The applicant should consult with Wollongong City Council's Regulation and Enforcement Division, giving 48 hours notice to arrange an on-site meeting, prior to any works commencing in any road reserve (footpath/carriageway). The purpose of the meeting will be to discuss any relevant issues such as a schedule of inspections, the need for a road occupation or opening permit and the provision of a traffic control plan as part of the works.	See response to issue 11.

Construction of civil infrastructure works	23	The construction of all civil road and drainage infrastructure works within the road reserve should be undertaken by a Council approved contractor, with all associated costs borne by the developer.	See response to issue 11.
Drainage within Road Reserve – Works as Executed	24	The developer should obtain written verification from a suitably qualified civil engineer, stating that the construction of the drainage infrastructure works within the road reserve has been undertaken in accordance with the approved plans. In addition, full works-as-executed plan, prepared and signed by a Registered Surveyor should be submitted. This plan should include the location and levels of the drainage lines, structures and finished surface levels. This information should be submitted to Wollongong City Council's Manager Design and Technical Services prior to commencement of use of the development.	See response to issue 11.
Works-as –executed plans	25	The submission of two sets (minimum) of Works-As-Executed (WAE) plans to the Principal Certifying Authority, prior to the use of the development. The Works-As-Executed plans should be certified by a registered surveyor indicating that the survey is a true and accurate record of the works that have been constructed. The Works-As-Executed dimensions and levels should also be shown in red on a copy of the approved Construction plans. The Works-As-Executed (WAE) plans should include: a) Final locations and levels for all works associated with the development; b) a separate conduit plan showing the location of all conduits laid beneath the constructed road system; c) a separate fill plan showing extent and depth of filling; d) a separate plan which indicates the extent	See response to issue 11.

		of flood inundation for 1% AEP and PMF storm event; and e) the plan(s) should include but not be limited to the stormwater requirements stated in Chapter E14 of the Wollongong City Council's Development Control Plan 2009.	
Existing easements	26	All existing easements should be acknowledged on the final subdivision plan.	Existing easements will be acknowledged on the subdivision plan. The Registrar General requires notation of all existing easements on new plans of subdivision as stated in the Registrar General Direction on "Existing Easements": "the site, nature and origin of all existing easements, including cross easements in respect of party wall(s), affecting a lot and the relationship to the boundaries of the lot must be shown in the new plan." (http://rgdirections.lands.nsw.gov.au/deposited_plans/easements_restrictions/definition_on_plan/existing_easements)
Existing restriction as to use	27	All existing restriction on the use of land should be acknowledged on the final subdivision plan.	See response to issue 26 above.
Encroaching pipes	28	A minimum one (1) metre wide easement to drain water should be created over any encroaching drainage pipes.	See response to issue 26 above.
Encroaching services	29	A minimum one (1) metre wide easement for services should be created over any encroaching utility service.	See response to issue 26 above.
Section 88B instrument	30	The submission of a Final Section 88B Instrument to the Consent Authority, which incorporates (but is not necessarily limited to) the following restrictions, easements and covenants, where applicable: a) Easement for services; b) easement to drain water; c) drainage easement over overflow paths; d) restricted building zone over the 100 year flood inundation area of the natural watercourse(s) which prohibits the erection of structures, fences, pools, ancillary buildings, the placement of fill and the planting of trees; l) restriction as to user defining minimum floor levels for any lots which have any part of the site below the 1% AEP flood level	The concept plan does not seek approval for the subdivision of the land. The detailed design of the future works will be the subject of future, separate applications. The subdivision of the land will be subject to Part 4 development consents. Any easements or restrictions required for the subdivision can therefore be dealt with as conditions to the subdivision development consent.

		taking into account climate change criteria for the year 2100. This should be accompanied by the 100 year flood profile of the natural watercourse with superimposed lot boundary location.	
88B instrument easements/restrictions	31	Any easements or restrictions required by this consent should nominate Wollongong City Council as the authority to vary, modify or release/extinguish the easements or restrictions. The form of the easement(s) or restriction(s) created as a result of this consent should be in accordance with the standard format for easements and restrictions as accepted by the Land and Property Information Office.	See response to issue 30 above.
Certification – stormwater drainage	32	The submission of written certification from a suitably qualified civil engineer stating that all stormwater drainage and related works have been constructed in accordance with the approved Construction plans, Chapter E14 of the Wollongong City Council's Development Control Plan 2009 and Wollongong City Council's Subdivision Code.	See response to issue 11.
Certification - retaining wall	33	The submission of a Certificate of Structural Sufficiency from a suitably qualified Civil and/or Structural Engineer for all retaining walls constructed.	See response to issue 11.
Certification - bridges	34	The submission of a Certificate of Structural Sufficiency from a suitably qualified Civil and/or Structural Engineer for all bridges constructed. Full works as executed drawings should also be submitted. Any variations to the certified design should be noted by the designer.	See response to issue 11.
Certification - flood affectation	35	The submission of a report from a suitably qualified and experienced civil (hydrology) engineer to the Certifying Authority is required, prior to the use of the development. This report is required to certify that the 'as-constructed' development	See response to issue 11.

		will not have any detrimental effects to adjoining properties or upon the subject land with respect to the loss of flood storage, changes in flood levels and alteration of flood conveyance, as a result of flooding or stormwater run-off.	
Environment - vegetation management plan	36	As the Voluntary Planning Agreement (VPA) has not yet been submitted, many of the proposals outlined in the Vegetation Management Plan (VMP) are uncertain. An agreed set of performance criteria (describing percentage cover (FPC) of native species and exotic species at canopy, midstorey and groundcover) for all vegetated patches within each zone should be included in the VPA. The VMP has not considered the potential for some work sites to contain pollutants. Areas where asbestos has been buried and soils which are affected by pollutants should be clearly identified in the VMP work plans The suggestions made within the VMP (Section 9; Monitoring and Reporting) for monitoring and reporting are supported and it is considered that a Wollongong City Council presence at site inspections be required. Furthermore, it is requested that all reports generated under this section be provided to Wollongong City Council, as well as the client.	• The Voluntary Planning Agreement (VPA) is the proposed mechanism for the provision of the works suggested in the Vegetation Management Plan (VMP). It is anticipated that this matter will be further developed following Concept Plan approval by the NSW Department of Planning. • The VMP provides a set of performance criteria in Section 9.4 for the retained lands subject to vegetation management works. • Works outlined in the VMP will need to be completed according to requirements specified in any relevant construction environmental management plan with regards to managing pollutant issues. • Progress reports can be sent to Wollongong City Council.
Environment - riparian assessment	37	The Riparian Assessment has been prepared without reference to any of the associated pollution studies. It is apparent that some waterways may be affected by arsenates and high ammonia loads. Impacts of pollutants on the riparian systems should be considered and remedial actions should be proposed.	• Pollutants and their potential impact across the Tallawarra Lands site, have been considered specifically by a risk assessment covering all Groundwater Dependant Ecosystems (GDE) (ELA 2010). This GDE Risk Assessment found that “while the risk to GDEs from contamination is difficult to quantify, it is considered that the development is unlikely to exacerbate contamination issues provided that appropriate mitigation and management measures are implemented (i.e. through a CEMP). On this basis, any impacts to the GDEs (from contamination or direct development impacts) are not expected to be significant”. • Coffey Environments Australia specifies a suite of mitigation measures for this issue in a Hydrogeological Assessment (2010). • A key management measure specified in the GDE Risk Assessment (ELA 2010) to mitigate this issue is the “preparation of a Construction Environmental Management Plan (CEMP) incorporating a Soil and Water Management Plan (SWMP)”.

Environment - ecological assessment	38	The study estimates that 4.37 ha of Endangered Ecological Communities will be cleared. The largest proportion of clearing relates to 3.08 ha of Illawarra Lowlands Grassy Woodland. This EEC is endemic to the Illawarra and has been severely depleted by development over recent years. The observation is made that "The proposal is considered to meet the "maintain and improve' test under Part 3A of the EP&A Act…". This statement is difficult to reconcile with the proposed removal of Illawarra Lowlands Grassy Woodland. The VMP does not provide sufficient detail to demonstrate that the loss of this EEC will be adequately supplemented. It is noted that some vegetation patches where Casuarina glauca occur are not included as EEC by EcoLogical, because "…Given this area was previously used as an ash dam for the Power Station and therefore has undergone extensive soil modification, vegetation clearing and other disturbances, this area is not considered to comprise the Swamp Oak Floodplain Forest ….and has been mapped as Planted Swamp Oak". There is nothing in the definitions of "species" or elsewhere within the TSC Act which suggests that human caused establishments of plants and animals (including translocations) cannot be threatened species. Indeed there are a number of provisions in the NPW Act that suggest that human caused establishment of a threatened species can be a threatened species within the meaning of the TSC Act. As such, it is considered that within the meaning of the TSC Act, a threatened species exists on specific land even if it was planted there and	• Section 5 of the Ecological Assessment (ELA 2011) details the evaluation of impacts for the Tallawarra Concept Plan. It documents avoidance measures (Section 5.1) as well as an extensive list of mitigation measures and recommendations (Section 5.2). Section 5.3 onwards quantifies the impacts of the concept plan including all impacts known to the authors (such as Asset Protection Zones, utilities and open space requirements). Significant steps were taken to avoid impacts to EECs with the final Concept Plan and it is noted that 96% of the EEC area onsite (89% of ILGW) will be retained and protected. This equates to the retention and protection of 117ha from a total of 122ha. This represents a protection ratio of 27:1 and is considered this to be a good environmental outcome for the site and underpins the concept plan, clearly demonstrating that the planning process was sensitive to the ecological values of the site. • Of the small impact to EECs, the majority is vegetation that is in small fragmented patches, often heavily disturbed by weed invasion or previous landuse related disturbances (clearing, grazing, and soil disturbances). Further much of this vegetation is likely to be regrowth with lower ecological value and was also assessed as having a low (or poor) resilience. • Section 6 of the Ecological Assessment details how the concept plan meets the 'maintain and improve' test particularly given the suite of avoidance, mitigation and conservation measures proposed, along with demonstrating consistency with the LEP 2009 zoning. • *Casuarina glauca* is not listed as a threatened species on the TSC Act 1995. Nor is it considered that the presence of planted individuals of one flora species (*Casuarina glauca*) conform to the definition of Swamp Oak Floodplain Forest (SOFF) EEC at the site. According to the Final Determination under the TSC Act for SOFF, the vegetation community is characterised by an assemblage of species typically comprised by a number of the 45 species listed in the determination. • In addition, given that the areas in question do not support a natural soil profile (as described in Section 4.3 of the EA (ELA 2011)) these areas are not considered to meet the particular area (Preston and Adam 2004[1]) described in the Final Determination.

[1] Preston, B. J. and **Adam, P.** (2004). Describing and listing threatened ecological communities under the Threatened Species Conservation Act 1995 (NSW): Part 1 - the assemblage of species and the particular area. *Environmental and Planning Law Journal* 21, 250-263.

		it therefore follows that a section 5A assessment should also consider landscape plantings of threatened species. Table 1 which lists 32.12 ha of Coastal Swamp Oak Forest, of which 0.54 ha is to be cleared should therefore be adjusted in order to present a more realistic assessment of the occurrence and proposed disturbance of this EEC on the site.	
Environment - contamination due to ash ponds issue	39	The number of samples taken from the most contaminated area, being that surrounding the ash dams and the ash dam toe drains, are below the recommended number under the EPA guidelines for contaminated site assessment. Noting the above, it is still considered that the entire Zone 4(A) and Zone 4(C) is a contaminated site with the potential to harm Duck Creek and Lake Illawarra (as the ultimate receiving system). The results of 14 samples investigated from these zones show elevated concentrations of ammonia, arsenic, zinc and nickel exceeding ANZECC/ARMCANZ (2000) guidelines. As Lake Illawarra is a nitrogen limited system, flow of nitrogen rich ground water from these zone toward the Lake can seriously impact Lake nitrogen balance and cause excessive filamentous algae growth. As such, further groundwater and soil assessment on a tighter grid is recommended prior to commencement of any development on these two zones.	• We assume that the comments here mainly relate to groundwater, and that the reference to Zone 4(C) should be Zone 2(A). • We refer you relevant draft Statement of Commitment.
Environment - acoustic / noise	40	Appropriate acoustic treatment in accordance with the report prepared by PKA Acoustic Consulting should be implemented as part of the overall development.	This is already a proposed commitment.
Environment - water sensitive urban design	41	The proposed development should consider Wollongong City Council Development Control Plan 2009 Chapter E15 Water Sensitive Urban Design.	Chapter E15 has been considered and addressed within the drainage assessment report. Further discussions were also held with Council to confirm requirements.

Landscape - visual buffer	42	In relation to the interface of the industrial employment area and the residential area in the central precinct, minimal screening is provided between the two areas. A more extensive vegetative buffers/screening should be provided to minimise the visual link from residential to industrial.	• The area that is referred to here is the easement for high voltage power lines and the underground gas line, which does not form part of the open space, and as such was not included within the Landscape Plan. • Additional vegetative screening could be established within the Industrial Road reserve, but again this forms a level of detail that is beyond that of the Landscape Plan.
Landscape - vegetation management plan	43	All species suggested for the site, including tree species for roadside planting should be in keeping with the Vegetation Management Plan. It is noted that *Cupaniopsis anacardiodes* is a suggested street tree – these are not suitable for this site as they tend to invade adjacent bushland areas.	Noted and *Cupaniopsis anacardiodes* will be deleted from the suggested street tree lists.
Landscape - rain gardens	44	Street tree planting in the form of "Rain Gardens" where groundcovers or low level shrub planting are installed significantly increase the maintenance regime for Council. It is the preference of Council to utilise verge planting.	• It is assumed that Council is referring to the biofiltration swales provided in the Northern Precinct concept plan. Biofiltration systems have been included in the concept plan as they would provide a high level of runoff quality treatment to protect Lake Illawarra from the impacts of stormwater runoff. • Final design of the measures would be completed in consultation with the relevant authority to ensure that efficient maintenance is a priority. • Rain-gardens and bio-swales can be deleted if they are seen as unviable. However the form an important element of water sensitive urban design that is consistent with the principles of sustainable development.
Infrastructure - integration	45	The construction of any new infrastructure works and utility services should integrate with existing infrastructure and other services both within the road reserve and within other Council owned or controlled land.	Noted, as a consideration for the detailed design and works stage.
Infrastructure - public road reserve - utility structures	46	Construction of any utility related structures should take place outside of Council's road reserve. More suitable locations such as public reserves or private property with easements are recommended.	We look forward to discussing this matter with you further at the detailed design stage.
Infrastructure - avoiding movement conflicts	47	The proposed staging of the new infrastructure construction works should address how continued development construction work will continue and be compatible with either existing or newly completed and occupied infrastructure works to avoid vehicular / vehicular and pedestrian / vehicular conflicts.	See response to issue 11.

Infrastructure - public road reserve - consent	48	Any construction works located in, on, over or to and from a public road reserve will require Council consent under section 138 of the Roads Act 1993.	Noted.
Infrastructure - public road reserve - details	49	Details should be provided for the following matters: a. any future dedicated road reserves indicating a hierarchy of classifications – either as classified roads or local roads; b. future road reserve areas and other land that is proposed to be dedicated to Council ownership; c. intersections of all access roads to the development with the existing Princes Highway road reserve and connection to existing infrastructure; d. proposed upgrading of Yallah Bay Road or any other existing Council assets as required to service the development; e. proposed new infrastructure to be located within Council's road reserve or other Council owned or controlled land. This should also include proposed pedestrian and cycleway facilities. f. upgrading of, or installation of new utility services mains within Council's road reserve such as, but not limited to, power, water, sewer, gas and telecommunications as required to service the development.	• A conceptual hierarchy is provided in documents exhibited. • Details of future dedications, installations and upgrades are a matter for the detailed subdivision stage for the relevant precincts.
Recreational facilities	50	The current proposal is significantly different from an outcome agreed to by the proponent and Council in response to initial concerns raised in Council's letter of 14 October 2009. There is currently insufficient information within the documentation indicating any supporting infrastructure or specification on the field construction to make an informed decision.	• We acknowledge that the design of the recreational areas has undergone tuning since the last version discussed. • We look forward to discussing these further at the detailed design stage.

Geotechnical assessment	51	The concept master plan is considered feasible from a geotechnical perspective subject to further geotechnical investigations being required to support the transition of the concept plan into engineering designs. Staging the development would be desirable in order to optimise the geotechnical solutions to the identified geotechnical constraints as identified to date in the summary below. - Whilst development of the areas subject to shallow fill, whether general fill or some parts of Ash Pond No3, are technically feasible from a geotechnical perspective, development of these areas should be supported with further geotechnical input to address the remediation of this fill. - The development of the upper hillside land is technically feasible also but should undergo further geotechnical investigation to delineate any areas of high risk of slope instability which should subsequently be excluded from development. - The development of areas of deep soft soils including underlying estuarine clays and the majority of the ash ponds are currently unsuitable for development and require further significant geotechnical investigation to assess the susceptibility of these areas to consolidation settlement, collapse settlement and liquefaction. This investigation will assist in determining what remedial works are necessary to prepare these areas for the specific components of the concept master plan which encroach into them.	• We consider the geotechnical investigations carried out and presented in the Environmental Assessment are satisfactory for concept master planning. • We agree with the comments for detailed design stages.
Social planning - social impact assessment	52	It is noted that a comprehensive social impact assessment has not been completed. It is considered that a comprehensive study would address the likely demand, or lack thereof, for community infrastructure such as community centres, child care centres and	• The Tallawarra Lands site has been the subject of a comprehensive planning process to date including preparation of a Local Environmental Study (LES) which ultimately led to the land being rezoned. • Social impact assessment is strategic planning process that is most appropriately undertaken prior to land being rezoned rather than at the Concept Plan assessment stage.

		schools, and in doing so provide certainty in relation to the requirement for land for these facilities.	• Throughout the LES process and during preparation of the EA, Elton Consulting has carried out extensive and ongoing community consultation. The feedback provided in relation to social infrastructure needs has been incorporated into the Concept Plan proposal. • The community infrastructure likely to be required for the proposed population at Tallawarra Lands has been determined having regard for the forecast population and employment yields identified in the EA and the approach and service provision standards applied to infrastructure provision in the West Dapto Release Area, which is set out primarily in the Draft West Dapto Urban Release Area Section 94 Development Contributions Plan. This is considered to be an appropriate base as it is a recently prepared document for a similar urban release area in close proximity to the site. • On this basis, a social impact assessment is not considered to be necessary at this stage of the planning process.
Social planning - demand for school	53	Further investigations are required to support the proponent's assertion that the projected number of children would not give rise to the development of the school over a 5 to 30 year period. Demand for a school should be considered in association with the forward capacity of surrounding schools, noting the likely projected population growth to be generated from the West Dapto Release Area over the next 20 to 30 years.	• Based on the forecast population growth on the Tallawarra Lands site, there is no requirement for a school based on NSW Department of Education and Communities standards. • The West Dapto release area has been the subject of social needs studies and appropriate infrastructure provision is being planned such that it is not necessary to involve population growth in West Dapto with the Tallawarra Lands assessment.
Social planning - location of community centre	54	The potential location of a community centre in the south east corner of the B1 Neighbourhood Zone is not supported and should be relocated adjacent to the area shown as Medical or Child Care.	The SE corner of the B1 zone is nominated as "expansion retail or community use" (not a community centre) and would be subject to viability assessment as a future stage of development. Retail expansion could be in the order of 500sqm. At a future stage, community facilities could be combined with the medical centre/child care area within the footprint indicated.
Social planning - housing choice	55	Council supports a varied housing product mix insofar as providing an assortment of allotment sizes that will provide a variety of housing types i.e. multi-residential dwellings, 2-3 storey town houses, dual occupancy, 3-4 storey residential apartments. The appropriate allotment mix should offer 50% detached housing i.e. 450 - 700m2 lots and the remaining balance an assortment of allotments that will provide a rich mix of housing types. This approach is supported by the Illawarra Regional Strategy (IRS) in section	• The Tallawarra Lands site does not contain any R3 Medium Density Residential zoned land. • The minimum lot size of 450sqm under the Wollongong Local Environmental Plan creates a limit to the range of lot sizes that can be provided and it also restricts residential density outcomes. While apartments, townhouses and other forms of multi-residential development are theoretically possible, it is expected that market preference will be overwhelmingly in favour of affordable housing in a format that is conveniently delivered by the building industry in growth areas. • We note that throughout the rest of Australia there is evolution of house product and built form to suit lot sizes of 250-450sqm. Development in this space would be more likely to achieve a mix of housing types, price points, affordable outcomes and market acceptance because of a lower cost of construction when compared to apartments and townhouses.

		6 of the Housing and Settlement chapter. The outcome of this strategy is to provide an appropriate mix of housing from detached housing (50%) to medium (35%) and high (15%) density housing around neighbourhood centres or key services. Provision of an assortment of allotment sizes that would provide an opportunity to locate medium and high residential density around the neighbourhood centre or key services would increase the proposed overall densities of 13 to 15 dwelling /ha. It is therefore recommended the proposed residential densities are revised upwards to allow for medium to high density development and a higher percentage of unconventional lot sizes.	
Subdivision requirements	56	The following items are considered essential in ensuring that the development can be undertaken generally in accordance with the requirements of Wollongong Council's Subdivision Code. This will ensure that future assets handed over the Council will comply with Council's accepted standards. Any approval should detail the required staging and ensure that each stage is validated prior to the subdivision being released for that stage. <u>Road Network</u> a. The road network and width should be designed in accordance with Council's Development Control Plan 2009 Chapter B2 Sections 20, 21, and 22. b. All road design and construction works should comply with the requirements of Council's Subdivision Code and the requirements of Austroads and the RTA Road Design Guide.	• The road network has been designed in accordance with Landcom's Street Design Guidelines (2006). • It is neither planned nor likely that coalwash be imported to the site and used as fill. If this material were to be used, then the comments provided would be taken into consideration and to prevent potential impacts to groundwater. • Noted.

	Bulk Earthworks It is noted that 320,000 cubic metres of fill is proposed to be imported into the site. Results from the groundwater monitoring for the nearby Haywards Bay coalwash emplacement have indicated a gradual rise in the nitrogen / ammonium levels in the groundwater. The use of coalwash should not be supported in areas affected by groundwater or in deep emplacements where anaerobic decay is likely. Soil and Water Management Although dependant on individual staging requirements and the extent of the proposed works, all soil and water management on site should be undertaken in accordance with the requirement of the 'Blue Book', Landcom's 'Soils and Construction' Manual. Soil and Water Management Plans, ongoing maintenance and monitoring and reporting requirements should be provided at Construction Certificate stage, including those stages relating to bulk earthworks. All environmental assessment reports should be considered in the preparation of these documents.	
57	The submitted documents fully satisfy Council's requirements for assessment of heritage impact, both in the areas of European and Aboriginal heritage. It is considered that these reports present a sound background basis for further decision making and that for the purpose of the current application the essence of heritage requirements has been satisfied. Regarding both the current application and future actions, the following is noted: - It is important to refer this and any future applications to the Office of Environment and Heritage (OEH) and seek their comments in	Noted.

relation to Aboriginal Heritage.

- It is noted that the Lake Foreshore has been continually identified as a place of high cultural significance in Aboriginal Heritage Studies and assessments. It is noted in the Aboriginal report that the views and input of the local Aboriginal Community have been sought and it is concurred with the requirement that it will be important to respond to any eventually received feedback and to translate it into particular actions.

- It is also noted that the high area and ridge around Mt Brown Reserve have been recognised in past Council studies as having high cultural significance. The views and input of the local Aboriginal Community have been sought and it will again be important to include any eventually received feedback regarding this matter, both from the Aboriginal and from the general community, and to translate it into particular actions.

- As per the report on Aboriginal heritage, in any future detailed development it will be important to continue to seek views and input from the local Aboriginal Community in relation to the assessment of the application.

Wollongong Local Environmental Plan 2009 and developer contributions	58	Subsequent development application submissions to the Concept Plan will need to account for the requirements of Wollongong Local Environmental Plan 2009, in particular Part 6 Urban Release Areas. - Council's Section 94A Development Contributions Plan (2011) should be considered by the Department in the project assessment process. - Council is investigating a range of additional traffic calming measures to address concerns relating to through-traffic and road safety. In view of the additional traffic movements predicted from the Tallawarra development, the proponent will be required to contribute towards future traffic calming measures based on percentage increase/impact. Concept plans and cost estimates are currently being prepared by Council to allow implementation as funding becomes available.	The need for a Development Control Plan to be prepared for the Tallawarra Lands site as required by Clause 6.2 of Wollongong LEP 2009 is considered to be superseded by the Concept Plan the subject of the EA. Accordingly, the Department is asked to dispense of this requirement.
Infrastructure	59	Desire of Council for infrastructure to lead development, as well as Council to have the ability to prepare a site specific chapter of the DCP and that employment lands be first and foremost in the development.	• TRUenergy concurs that infrastructure delivery should generally lead development. • Preparation of a site specific DCP chapter is considered inappropriate and unnecessary in the circumstances. It's role is arguably replaced by the Concept Plan (site specific master plan) which is being determined by the DoP&I. • See responses to issue 1. We agree that employment lands are integral to the development of the Tallawarra Lands site. If the suggestion is that employment lands should be developed ahead of the other land uses proposed in the Concept Plan, then this is unreasonable and fundamentally detrimental to intended project outcomes.
Lake Illawarra	60	Sensitivity to the impact on Lake Illawarra. Ensure that the water quality from the development is protected.	Both noted, and addressed in the Environmental Assessment.
Bicycle path	61	Ensure that the bicycle path is appropriate to the requirements identified by the Bicycle Users' Group.	The RTA's NSW Bicycle Guidelines (2003) have been applied to planning the network. Any material inconsistencies can be addressed, if necessary, in a supplement to the EA.

Yours sincerely

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