Appendix B
Approval conditions, actions, outcomes, management

EPBC 2007/3385 approval conditions addressed by this module, actions taken by Gunns to prepare management measures, action outcomes and resultant environmental management measures

Condition	Issue	Approval requirement addressed by this module	Actions taken to prepare management measures	Findings	Management measures adopted to ensure approval condition is met
14	Wedge-tailed eagle (*Aquila audax fleayi*)	To minimise impacts on the Wedge-tailed Eagle – Tasmanian (*Aquila audax fleayi*) Gunns Limited must put in place and implement, as part of the EIMP, measures including: a) Not carrying out construction during the breeding season within the exclusion buffers of 500 m or a 1 km line of sight from any active nest. b) If a new active nest is found within 500 m or a 1 km line of sight of clearing or construction activities, construction during the breeding season within the exclusion buffers must cease immediately. Gunns Limited must immediately notify the Department if a new active nest is found. c) The breeding season buffer must be applied from 1 August to 31 January inclusive.	In addition to the surveys undertaken by Gunns for the Draft Integrated Impact Statement (Weeding, S. (2005) *Eagle nest search proposed pulp mill and associated infrastructure survey report*), Mark Wapstra has also undertaken a detailed survey of the pulp mill footprint, looking for other wedge-tailed eagle or white-bellied sea eagle nests. The results are reported in: Environmental Consulting Options Tasmania (September 2007) *Assessment of proposed pulp mill footprint for nests of the wedge-tailed eagle and white-bellied sea-eagle*. A copy of that report was submitted with EIMP Module B (as Appendix I, report 1). No new nests of wedge-tailed eagles (or white-bellied sea-eagles) were located.	The only nest in the vicinity of the project footprint is the already known nest #130. This is 900 m from the closest disturbance area of the project as a whole but not in line of sight. For the project as a whole, it is therefore outside the relevant 500 m buffer distance specified by the approval condition. The water supply and effluent pipelines are outside both buffer distances specified by the approval condition. Nevertheless, this module includes measures to address this approval condition's restrictions.	*Eagles nests (condition 14(a)):* During the period between 1 August and 1 February construction activities must not occur within: • 1000 metres of an active Wedge-tailed Eagle nest if the construction activities are in line-of-sight of the nest site; or • 500 metres of an active Wedge-tailed Eagle nest site. *Identify previously unknown eagle nest sites (condition 14(b))*: Previously unrecorded eagle nest sites, noted during clearing and/or construction activities will be reported to the Environmental Manager who will inform DEWHA and NPWS. If a new active nest is located within 500 m or 1 km line of site of clearing or construction activities during the breeding season (1 August to 31 January) work within that buffer must cease immediately and DEWHA will be notified.

Condition	Issue	Approval requirement addressed by this module	Actions taken to prepare management measures	Findings	Management measures adopted to ensure approval condition is met
19	Trapping of animals in trenches	To minimise impacts during pipeline construction on the Tasmanian Devil, Spot-tailed quoll and Eastern Barred Bandicoot, and as part of the EIMP, Gunns Limited must: a) Install trench ramps and trench plugs in open trenches to enable fauna to escape from the pipeline trench. b) Ensure that a suitably qualified person, agreed to by the Department, checks all open trenches for trapped fauna each morning. Surviving fauna are to be relocated to suitable habitat by an ecologist trained in fauna handling procedures. Records must be kept of all live and dead fauna, including amphibians, removed from the trench. c) These records must be provided to the Department within three months of commencement of trench construction and progressively each month until all trenches have been filled. d) If at any time the number of fauna found in the trenches, reaches or exceeds the trigger levels defined in the EIMP, then response strategies must be implemented within the stipulated timeframes.	No action was required to prepare management measures, as it is assumed that the entire construction corridor could potentially be visited by Tasmanian devil, spot-tailed quoll and eastern barred bandicoot.	It is assumed that the entire construction corridor could potentially be visited by Tasmanian devil, spot-tailed quoll and eastern barred bandicoot.	Trenches will be kept open for a minimal period to conduct works. They will be checked for trapped animals each morning before the start of work by a suitably qualified person approved by DEWHA. Trenches will include trench ramps and plugs to enable fauna to escape of their own accord. Should an animal become trapped, despite the above preventative measures, Gunns will immediately implement management measures including, but not limited to, the following: • When an animal is noted as trapped, work in the immediate vicinity (ie. 50 m) will stop immediately and the Gunns' Site Supervisor will be notified. Fauna trapped in trenches will be removed as soon as possible. No operations will commence or continue until fauna have been removed. • Animals will only be handled by trained personnel, or by untrained personnel under the direct visual supervision of a trained person. No untrained personnel will approach or unduly stress fauna. Trained personnel will be present in each pipeline trenching work team. • Trained personnel will firstly attempt to relocate the animal passively by encouraging the animal to leave, or if this fails physically capture/trap the animal where required • Fauna that require capture and relocation will be relocated to a safe area of suitable habitat in the vicinity of the trap site. Should a Tasmanian devil, spot-tailed quoll or eastern barred bandicoot require relocation this will be performed by an ecologist trained to handle wildlife. • Injured fauna will be captured/trapped and taken to a veterinarian for assessment and treatment. • Dead fauna will be removed and disposed of only by a trained person. • Dead fauna will be buried in an appropriate location. • All trapped fauna will be recorded and reported to DEWHA within three months of commencement of trench construction and progressively each month until all trenches have been filled. The preventative measures will be reviewed within 12 hours of an animal being found trapped and enhanced within a further 24 hours if potential improvements are apparent. These may include but are not limited to increasing the number or reducing the spacing of trench ramps and plugs.

(Continued): EPBC 2007/3385 approval conditions addressed by this module, actions taken by Gunns to prepare management measures, action outcomes and resultant environmental management measures

Condition	Issue	Approval requirement addressed by this module	Actions taken to prepare management measures	Findings	Management measures adopted to ensure approval condition is met
20	Vegetation disturbance	Disturbance of vegetation at the site must be confined to the construction corridors of the pipelines and the pulp mill site and associated infrastructure and in accordance with the EIMP, including: a) No disturbance must occur until such time as the relevant pre-construction and construction requirements of the EIMP have been approved by the Minister; b) All areas to be cleared must be clearly marked to prevent damage to listed species outside the project area; c) Access to project areas must be via established roads or access tracks located on areas that have been subject to flora and fauna surveys as required in the EIMP and described in the preliminary documentation.	No construction will occur outside the pipeline project area, which is shown in the maps provided in Schedule 1 to the Approval. The pipeline and associated infrastructure construction corridor (which lies within the pipeline project area) shown in Appendix C is subject to change during design finalisation but will be compliant with the pipeline project area shown in Schedule 1 of the approval (see Figure 2 of this module).	The vegetation disturbance will be limited to the pipeline and associated infrastructure construction corridor within the pipeline project area.	All construction areas, access tracks, car parks and other infrastructure will be identified and delineated with flagging tape (other flagging options will include delineator rope or electric fencing tape) All construction activities and materials will remain within the construction boundaries. All vehicle access will be confined to existing roads and tracks that have been subject to flora and fauna surveys. Permanent access tracks located in native vegetation areas must be as narrow as practicable in order to minimise the clearance of native vegetation. Regular monitoring inspections and audits will be undertaken to ensure that disturbance is confined to the delineated work areas. Inspection will involve daily checks, recording of any non-conformance by date.
21	Green and gold Frog (*Litoria raniformis*)	To minimise impacts on potentially suitable habitat for the Green and gold Frog (*Litoria raniformis*) and to manage risks associated with the amphibian Chytrid fungus, and as part of the EIMP, Gunns Limited must: a) Not commence construction of effluent and water supply pipelines until such time as the relevant pre-construction and construction requirements have been approved by the Minister. b) Avoid impact on areas of identified habitat through micro-siting of the pipeline route.	DEWHA approved Mark Wapstra (ECOTas) to be a suitably qualified person on 23 October 2007 Mark Wapstra has conducted a detailed survey of the construction corridors to identify habitat for *Litoria raniformis*. The findings of the survey work are summarised here.	Two areas of potential habitat for *Litoria raniformis* were identified in the vicinity of the construction corridor: • Slippers Hill in Cimitiere Creek, downstream of the construction corridor (see map 5-1 of Appendix C). • A small depression near the landing strip at Aerodrome Road adjacent to the construction corridor (see map 5-1 of Appendix C). The edge of the corridor marginally impinges on this depression. Run-off from the construction corridor has the potential to enter those water bodies, so procedures for the management of Chytrid fungus will be required for work in those areas.	The small depression adjacent to the construction corridor at the landing strip will be protected with flagging tape and signage to exclude personnel and construction equipment. The pipeline will be microsited to avoid this area of potential habitat. In the areas of construction corridor identified as potential habitat, Chytrid fungus hygiene management procedures will be implemented. Hygiene management procedures will be similar to those required for management of *Phytophthora cinnamomi* and include, but not exclusive to, wash down of plant, vehicles and equipment entering the site with water and an appropriate fungicide, to ensure that no soil is transported into sections of construction corridor within the catchment area of the potential *Litoria raniformis* habitat. In addition, should the green and gold frog be identified elsewhere within the construction corridor then the pipeline will be micro-sited to avoid the habitat and Chytrid fungus hygiene management procedures will be implemented.

Condition	Issue	Approval requirement addressed by this module	Actions taken to prepare management measures	Findings	Management measures adopted to ensure approval condition is met
22	Rehabilitation of pipeline corridors	All areas of the pipeline corridors, with the exception of access tracks and roads, are to be progressively rehabilitated as each 10 km of pipeline is constructed and revegetated with endemic species sourced from local seed stocks with the aim of providing habitat for listed threatened species in the area. a) Rehabilitation activities and timeframes must be approved as part of the EIMP. b) Rehabilitation performance must be reported in the EIMP annual report.	Vegetation types and land use along the construction corridor have been surveyed and mapped (see Appendix C).	The construction corridor for the water supply and effluent pipelines crosses both native vegetation and privately owned pasture. It is proposed that only areas previously containing native vegetation will be rehabilitated as native vegetation (with the exception of large tree species being excluded from the pipeline corridor) and pasture be returned to pasture.	The construction corridor will be rehabilitated commensurate with the pre-existing vegetation with the exception of large tree species, which need to be excluded from the construction corridor so that they do not damage the pipeline. Rehabilitation will be progressive and commence in any completed 10 km section of pipeline within 2 months after trenching and pipe-laying are complete and is anticipated to take up to 2 years. All areas of corridor disturbed by construction activities, including creek crossings, will be rehabilitated so that they are stable, resistant to erosion and revegetated. Compacted exposed soil will be deep-ripped before respreading stockpiled subsoil and topsoil. The subsoil and topsoil will be returned and spread, primarily using an excavator mounted with a rock bucket. All soils will be returned moist (not wet or dry) to prevent structural degradation. In areas to be returned to native vegetation, the topsoil will be left in a loose, rough and uneven condition. In areas of agricultural land the topsoil surface will be levelled. Stockpiled native vegetation material will be respread across the disturbed areas after soil replacement. No stockpiles of excess vegetative material will be left within the construction corridor. Replanting will be undertaken, using species commensurate with the surrounding vegetation. Species selected for areas of native species revegetation within the construction corridor will be based on those species that: • are rapid colonisers of disturbed areas • do not affect the integrity of the pipeline • are competitive with undesirable colonising weed species • are economic to obtain as seed or tube stock • are threatened species where applicable.

Condition	Issue	Approval requirement addressed by this module	Actions taken to prepare management measures	Findings	Management measures adopted to ensure approval condition is met
22 (continued)	Rehabilitation of pipeline corridors (continued)				Grass swards will be re-established for grazing by native herbivores in areas where they existed prior to construction. Fertiliser will not be used in areas where threatened orchids may occur. Seed and fertiliser will be applied in the period between the first autumn rains in April through to September. The success of rehabilitation, including erosion and weed control, of the effluent and water supply pipelines and shore crossing will be monitored by inspection and by photographs taken at fixed photo points. Baseline photographs will be taken prior to the start of construction. These photos and reporting of the effectiveness of rehabilitation will be included in the annual report to DEWHA. Monitoring inspections, including photographs, will occur every three months for two years following rehabilitation, then at six month intervals for a further two years. In addition, in areas of high erosion potential, determined from soil type and slope, inspections will occur after each significant rain event and monthly during winter for two years after completion of rehabilitation. A significant rain event is one likely to over-saturate the soil and provide run-off. All declared weed species will be monitored on-site and if they limit regeneration or have the potential to spread to other areas control measures will be implemented. Weed spraying will: • be undertaken by weed control contractors who hold appropriate State based certification for the application of herbicides; • be target specific, with care taken to avoid and protect non-target species, including threatened species; • use an aquatic organism safe herbicide (e.g. Roundup Bi-active) near watercourses.

(Continued): EPBC 2007/3385 approval conditions addressed by this module, actions taken by Gunns to prepare management measures, action outcomes and resultant environmental management measures

Condition	Issue	Approval requirement addressed by this module	Actions taken to prepare management measures	Findings	Management measures adopted to ensure approval condition is met
23	Burrowing crayfish (*Engaeus granulatus and* *Engaeus orramakunna*)	To minimise impacts on, the Central North Burrowing Crayfish (*Engaeus granulatus*) and the Mt Arthur Burrowing Crayfish (*Engaeus orramakunna*) and as part of the EIMP, Gunns Limited must: a) Conduct surveys, using a suitably qualified person, agreed to by the Department, prior to commencement of construction of each relevant stage of works; b) If any of these species are identified during surveys, detailed management procedures must be included in the EIMP and approved prior to continuing relevant construction. Management procedures may include but not be limited to: i) Micro-siting of the pipeline alignment to avoid populations; ii) Exclusion zones around the pulp mill site as necessary; and iii) Translocation of individuals.	DEWHA approved Mark Wapstra (ECOTas) to be a suitably qualified person on 23 October 2007. The area was assessed by Mark Wapstra (ECOtas) on 30th and 31st October 2007. The survey report was submitted with Module B in Appendix I (report 3). The findings of the survey work are summarised here.	Five live specimens of *Engaeus* were collected from various sites, as follows: • Williams Creek (1 specimen from within the area designated as the solid waste disposal site) • Williams Creek (1 specimen from within the area designated as the reservoir site) • Unnamed creek flowing into Big Bay under powerline easement (pulp mill site) • Poorly drained ground near Bell Bay Line (effluent pipeline route) • Macquarie Rivulet tributary/drain near Bullocks Head Road (water pipeline route). • (An additional survey of the water supply pipeline in the vicinity of the Dilston Bypass in September 2008 found no crayfish burrows within the pipeline and associated infrastructure construction corridor.) All specimens were identified as the non-threatened *Engaeus mairener*. No evidence of *E. granulatus* or *E. orramakunna* was found.	Neither *Engaeus granulatus* nor *Engaeus orramakunna* occur within the construction corridor. No management measures are necessary.

(Continued): EPBC 2007/3385 approval conditions addressed by this module, actions taken by Gunns to prepare management measures, action outcomes and resultant environmental management measures

Condition	Issue	Approval requirement addressed by this module	Actions taken to prepare management measures	Findings	Management measures adopted to ensure approval condition is met
24	Shiny grass tree *(Xanthorrhoea aff. bracteata)*	To minimise impacts on the listed *Xanthorrhoea aff. bracteata* species, as part of the EIMP, Gunns Limited must: a) Not commence construction of the onshore component of the effluent pipeline until such time as the relevant pre-construction and construction requirements of the EIMP have been approved by the Minister; b) Use an ecologist, agreed to by the Department, to conduct surveys and mark out the location of the X. aff. bracteata on the effluent pipeline route. c) Protect this site from disturbance, through micro-siting of the pipeline. d) Completely prevent disturbance of the habitat of the species by boring under the dune where the X. aff. bracteata is located. e) Develop and implement management procedures to minimise the risk of spreading the fungus Phytophthora cinnamomi. f) Ensure all access tracks to this site are located to avoid all localities of X. aff. bracteata species. g) Report on performance of effectiveness of these mitigation measures in the EIMP annual report.	DEWHA approved Mark Wapstra (ECOTas) to be a suitably qualified person on 23 October 2007. A survey for this species has been undertaken by him and reported to DEWHA in the report ECOTas 2008: *Assessment of the Distribution of Xanthorrhoea bracteata along the pulp mill effluent pipeline route between Aerodrome Road and Five Mile Bluff (Permit Condition 24).*	The Commonwealth listed *Xanthorrhoea bracteata* is restricted to small patches on the edge of Aerodrome Road outside of but near the effluent pipeline and shore crossing construction corridor (see Map 5-2 of Appendix C). The dune slopes and rises, in the vicinity of the shore crossing previously tentatively (due to taxonomic difficulties) identified as *X. bracteata* have now been positively identified as the common *X. australis*. The dunes are not the preferred habitat of *X. bracteata* which prefers low lying areas with more moisture. Mark Wapstra has also confirmed that the species found on the dunes is not *Xanthorrhoea arenaria* (*ECOTas 2008: Information on Xanthorrhoea arenaria from the proposed effluent pipeline route and stringing area*).	Since *X. bracteata* is only present on the side of the Aerodrome Road in the vicinity of the construction corridor and entrance to the access road to the shore crossing, the *X. bracteata* plants will be clearly marked with flagging tape and signage by an ecologist prior to construction and no personnel, vehicles or equipment will be allowed to enter that area. Since there is only *X. australis* on the dune area of the shore crossing, boring under the dune and micro-siting will not be required. The access road for the shore crossing will also, therefore, avoid localities of *X. bracteata*. Best practice guidelines will be adopted, with application of the *Phytophthora cinnamomi* Management Guidelines produced by Tasmanian Department of Primary Industries and Water. These Management Guidelines include a series of measures to prevent the introduction and minimise the spread of this pathogen, including vehicle wash down hygiene procedures to ensure no relocation of potentially infected soil (see section 2b). The effectiveness of these mitigation measures will be reported in the annual report to DEWHA.

(Continued): EPBC 2007/3385 approval conditions addressed by this module, actions taken by Gunns to prepare management measures, action outcomes and resultant environmental management measures

Condition	Issue	Approval requirement addressed by this module	Actions taken to prepare management measures	Findings	Management measures adopted to ensure approval condition is met
25	Northern leek orchid (*Prasophyllum secutum*) Tailed spider orchid (*Caladenia caudata*) South Esk heath (*Epacris exserta*) Clover glycine (*Glycine latrobeana*)	To minimise the risk of non-detection of listed flora, Gunns Limited must: a) Conduct pre-construction surveys for *Prasophyllum secutum*, *Caladenia caudata*, *Epacris exserta* and *Glycine latrobeana* within the area of potential habitat for these species at appropriate times. b) Conduct these surveys at all construction sites associated with the pulp mill and at 'comparative sites', where populations are known to occur. c) Record both positive and negative search outcomes. An estimate should then be provided of the confidence in detection of these species. Methods for this estimation should follow those described by Keith (2000)*. d) If populations are detected at construction sites associated with the action, then their population size and area of occupancy should be measured as described by Keith (2000)* and the management procedures included in the EIMP. e) Disturbance of vegetation at the site must be confined to the construction corridors of the pipelines and the pulp mill site and associated infrastructure. All areas to be cleared must be clearly marked to prevent damage to listed species outside the project area. Access to project areas must be via established roads or access tracks located on areas that have been subject to surveys. *Keith DA (2000). Sampling Designs, field techniques and analytical methods for systematic plant population surveys. Ecological Management and Restoration, 1, 125-139.	The (then) Department of Environment and Water Resources approved Mark Wapstra (ECOTas) to be a suitably qualified person on 23 October 2007. Mark Wapstra (ECOTas) has conducted a detailed survey of the construction corridors for the listed species. Mark Wapstra has also conducted spring surveys for *Prasophyllum secutum and Caladenia caudata* over the full corridor, apart from some small areas where there have since been adjustments. The survey report is attached as Appendix E. The findings of the survey work are summarised here. The proposed pipeline and associated infrastructure construction corridor has been modified in some places since the spring surveys were conducted in November 2007. Where the pipeline and associated infrastructure construction corridor has been modified areas containing potential habitat for *Prasophyllum secutum* and *Caladenia caudata* within the new construction corridor were surveyed in October 2008 and a supplementary survey report is also provided in Appendix E. All areas of the pipeline and associated infrastructure construction corridor have therefore been surveyed for *Prasophyllum secutum*, *Caladenia caudata*, *Epacris exserta* and *Glycine latrobeana* within the area of potential habitat for these species at appropriate times. If detailed design or site difficulties lead to additional access tracks being required within the pipeline project area, but where no flora or fauna surveys have previously been conducted, surveys of the proposed access track will be conducted for Commonwealth listed threatened species prior to construction start and the results submitted to DEWHA. If Commonwealth listed threatened species are found on the proposed access track routes, management plans (including micrositing) will be prepared to minimise impacts on those species. These will be submitted to DEWHA for approval. Access tracks will be sited to ensure that clearance of native vegetation for the project does not exceed 200 ha.	*Prasophyllum secutum*: The species was not found within the construction corridor. Potential habitat is limited to the last 2 km of the effluent pipeline route. No evidence of this species was found in that area. *Caladenia caudata*: The species was not found within the corridor. *Epacris exserta*: The species was not found within the corridor. The only area within the project footprint with potential habitat is the base of the cliffs adjacent to Lake Trevallyn Dam. No evidence of this species was found in that area. *Glycine latrobeana*: The species was not found within the corridor. Potential habitat for this species within the project footprint is limited. It is mainly along the water supply pipeline route close to Lake Trevallyn but there are small areas adjacent to the mill site and near the effluent pipeline route. Areas of prime potential habitat near Lake Trevallyn and adjacent to the mill site have been inspected. The species was not found. Nevertheless, this module includes measures to implement this approval condition's restrictions.	The listed flora species were not found within the pipeline and associated infrastructure construction corridor. However, if any of the species is subsequently found within the corridor Gunns will: • Stop work in the immediate vicinity (100 m) of the listed species; • Notify DEWHA and await an agreed course of action (such as micrositing) before recommencing the construction activity.

Condition	Issue	Approval requirement addressed by this module	Actions taken to prepare management measures	Findings	Management measures adopted to ensure approval condition is met
26	Roadkill	To manage the risks to listed threatened species associated with roadkill, Gunns Limited must, in accordance with the EIMP: a) Immediately following the date of this approval, establish baseline monitoring of roadkill along the East Tamar highway and other major access routes for construction. b) Monitor roadkill and implement response strategies, as necessary, in accordance with the EIMP if the number of road killed mammals exceeds the trigger levels in the EIMP.	A consulting firm, Genames, was commissioned to undertake a 3-month baseline survey of roadkill on the East Tamar Highway.	A report (Genames (February 2008) *Baseline Roadkill Monitoring Programme for Bell Bay Alliance. Report prepared for Gunns Ltd*) has been provided to DEWHA and is attached to this module as Appendix F. Rather than delay the implementation of strategies until a statistical trigger level might be available, Gunns has developed and will implement response strategies as if there were a zero trigger level for road killed mammals. Gunns will implement those strategies for the full duration of the project's construction activities, including the yet to be commenced vegetation clearing of the mill site (but not including the preliminary activity of constructing the property perimeter fence, which will not cause any appreciable increase in traffic).	This issue is addressed in EIMP Module C, which describes agreed roadkill management measures for the project as a whole. These measures are aimed at reducing the number of worker vehicles movements. Worker vehicles present the greatest risk for roadkill due to their number, speed and the greater likelihood of their movements being during crepuscular hours. Construction of the pipelines will involve small work teams scattered along the length of the pipelines. Only the shore crossing will involve a concentration of worker vehicle movements over prolonged periods. In addition, the construction of the temporary berm will require two periods of concentrated truck movements for the construction and removal of the berm (see section 1a5.2). Although these truck movements will be outside crepuscular hours, thereby minimising the likelihood of roadkill, due to the concentrated truck movements required to construct and remove the temporary berm a number of the project's roadkill management commitments will also be applied to the construction of the shore crossing, modified to recognise that they apply to the shore crossing site rather than the pulp mill site itself. These modifications will be supplementary commitments to the agreed roadkill measures approved with Module C. *Supplementary (modification of) Commitment 1:* A 20 km/hr speed limit on the shore crossing access road from Aerodrome Road. Speed limit signs will be posted at relevant locations on the access road. *Supplementary (modification of) Commitment 2:* Monitoring of the access road and removal of any roadkill carcasses to minimise risks of roadkill from carcass feeding. Monitoring of road-killed mammals will occur on a daily basis by inspection of the shore crossing access road. Any roadkilled fauna found will be removed from the road and placed in adjacent vegetation a minimum of 10 m from the roadside to remove the risk of secondary roadkill from carcass feeding. Prior to removal, located fauna will be recorded, GPS-located and photographed. Records relating to this monitoring will be kept and available on site for review by the Independent Site Supervisor, and will be reported to DEWHA on a weekly basis during the construction and removal of the berm and on a quarterly basis at other times. *Supplementary (modification of) Commitment 5:* Construction related heavy vehicle (ie. not worker vehicles) traffic will be scheduled to minimise traffic during crepuscular periods (dawn and dusk) to minimise fauna roadkill.

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					Construction officers who are accountable for procurement of materials or equipment to site will be informed of the general avoidance strategy and reminder posters will be located in site offices. An annual timetable will be included on the posters defining the crepuscular period for each month (half an hour either side of sunrise and sunset). *Supplementary (modification of) Commitment 7:* Site induction for all employees will include alerting them to the impact of roadkill and the need for care. Site induction for employees and contractors will include information on: • The likelihood of encountering native fauna on roads; • What fauna species may be encountered at what times of day, ie. nocturnal vs diurnal species; • Avoidance strategies including strict adherence to site speed limits and physical avoidance through vigilance and evasive action (where safe to do so); Reporting roadkilled fauna to security to enable removal. Site induction processes will include the requirement of employees to notify the entry security booth of any roadkilled fauna. These fauna will be removed from the road as soon as practicable.

(Continued): EPBC 2007/3385 approval conditions addressed by this module, actions taken by Gunns to prepare management measures, action outcomes and resultant environmental management measures

Condition	Issue	Approval requirement addressed by this module	Actions taken to prepare management measures	Findings	Management measures adopted to ensure approval condition is met
27	Minimisation of impacts on listed threatened and migratory birds	To minimise impacts during onshore effluent pipeline and wharf construction on listed threatened and migratory birds, Gunns Limited must, in accordance with the EIMP: a) Carry out a pre-construction survey of the shoreline for breeding shorebirds for a distance of 200 m on either side of the onshore effluent pipeline construction corridor. b) In the event that nests are located within this area, they will be clearly marked and construction activities managed in accordance with the agreed requirements of the EIMP. c) Restore the beach profile to its original shape within two months of completion of the onshore effluent pipeline construction; d) Within two months of completion of the onshore effluent pipeline construction commence rehabilitation of vegetation in the impacted areas of the pipeline construction corridor in accordance with the requirements of the EIMP e) Report on performance of effectiveness of these mitigation measures in the EIMP annual report.	As is appropriate for the temporary nature of shore bird nests, a survey of the construction corridor for shore bird nests will be conducted one week before construction activities commence within the shore crossing corridor.	As the survey cannot be conducted at present, the results of this survey will be communicated to DEWHA at the time.	A survey of the construction corridor for shore bird nests will be conducted one week before construction activities commence within the shore crossing corridor. The results of this survey will be communicated to DEWHA. If shore bird nests are found within the construction corridor, construction will be delayed until after breeding is completed. After construction within the corridor has commenced, the corridor will be regularly monitored for shore birds. If shore birds begin nesting within the corridor after construction commences, the nest will be signposted at a distance that will not disturb the birds and avoided by construction vehicles and personnel. If the temporary berm has led to any changes in beach profile, the profile will be restored to its original shape within 2 months of construction activities being completed in that area. Following rehabilitation of the beach profile after construction ends, a confirmation engineering survey of the beach profile will be undertaken and the results made available to DEWHA. Rehabilitation will commence progressively as construction activities are completed so that the maximum delay between construction ending and rehabilitation in a particular area is 2 months.
28	Minimise impacts during onshore effluent pipeline and wharf construction on the Whitebellied Sea-eagle (*Haliaeetus leucogaster*)	To minimise impacts during onshore effluent pipeline and wharf construction on the Whitebellied Sea-eagle (*Haliaeetus leucogaster*) Gunns Limited must put in place and implement, as part of the EIMP, measures including: a) Conducting pre-construction surveys, by a suitably qualified person, agreed to by the Department; b) Not carrying out construction during the breeding season within the exclusion buffers of 500 m or a 1 km line of sight from any recorded nest except in accordance with this condition. c) If a new active nest is found within 500 m or a 1 km line of sight of clearing or construction activities, construction within exclusion buffers during the breeding season must cease immediately. d) Gunns Limited must immediately notify the Department if a new active nest is found. e) Applying a breeding season buffer from 1 August to 31 January inclusive.	In addition to the surveys undertaken by Gunns for the Draft Integrated Impact Statement (Weeding, S. (2005) *Eagle nest search proposed pulp mill and associated infrastructure survey report*), Mark Wapstra has also undertaken a detailed survey of the pulp mill footprint, looking for other wedge-tailed eagle or white-bellied sea eagle. The results are reported in: Environmental Consulting Options Tasmania (September 2007) *Assessment of proposed pulp mill footprint for nests of the wedge-tailed eagle and white-bellied sea-eagle*, a report prepared for Gunns Limited and submitted with Module B.	No new nests of white-bellied sea-eagles (or wedge-tailed eagles) were located. A white-bellied sea-eagle nest recorded at Dilston was originally identified as part of the Dilston Bypass project and this nest accordingly was noted in the Preliminary Documentation. Its veracity as an eagle nest was questioned during that project and the nest has been confirmed to not be an eagle nest; it has been removed DPIW's natural values database. Nevertheless, this module includes measures to implement this approval condition's restrictions.	During the period between 1 August and 1 February construction activities must not occur within: (a) 1000 metres of an active Wedge-tailed Eagle or a White-bellied Sea-eagle nest if the construction activities or maintenance activities are in line-of-sight of the nest site; or (b) 500 metres of an active Wedge-tailed Eagle or a White-bellied Sea-eagle nest site. Previously unrecorded eagle nest sites, noted during clearing and/or construction activities will be reported to DEWHA. If a new active nest is located within 500 m or 1 km line of site of clearing or construction activities during the breeding season (1 August to 31 January) work within that buffer will cease immediately and DEWHA will be notified.

(Continued): EPBC 2007/3385 approval conditions addressed by this module, actions taken by Gunns to prepare management measures, action outcomes and resultant environmental management measures

Condition	Issue	Approval requirement addressed by this module	Actions taken to prepare management measures	Findings	Management measures adopted to ensure approval condition is met
30	Minimise impacts on listed threatened and migratory marine species	To minimise impacts on listed threatened and migratory marine species during construction of the wharf and the ocean outfall, Gunns Limited must put in place and implement, as part of the EIMP, measures, including: a) Prior to wharf or ocean outfall construction, a desktop study must be conducted by a suitably qualified person, agreed to by the Department, to estimate the likely upper limits of the sound impacts at various distances from the relevant construction site. b) The sound fields of the pile-driving activities should be monitored in accordance with the EIMP to re-evaluate the findings of the desktop study. c) If necessary, bubble curtains or other agreed response strategies must be implemented if trigger levels in the EIMP are exceeded. d) No night construction or under-water blasting is permitted. e) A suitably qualified person, agreed to by the Department, must visually monitor for marine mammals within the areas defined in the EIMP; f) Radius zones as follows must be implemented: i. A 2 km radius alert zone for whales, with a 1 km radius safety zone, within which noise-generating activities will be ceased if a whale approaches; and ii. A 1 km radius alert zone for seals and dolphins with a 0.5 km radius safety zone, within which noise-generating activities will cease if a seal or dolphin approaches.	A preconstruction noise modelling study (Prediction of underwater noise and associated environmental impacts from a proposed ocean outfall on the northern Tasmanian coast) has been undertaken for Gunns by R. D. McCauley and A.J. Duncan of the Centre for Marine Science and Technology at Curtin University. A copy of this report is provided as Appendix D.	• Estimates of transmission of vessel and barge noise, non-explosive rock fracturing cartridges used in the water and the noise of sheet piling and explosives to be used inside a dry berm have been calculated. These sources are considered to be the primary noise sources involved in the ocean outfall construction, from the point of view of maximum levels likely to be encountered (explosive and non-explosive charges, sheet piling) and persistence (vessel noise). While other noise sources will be involved in the construction process they either will not be as persistent in time or produce lower overall sound levels. Thus the ranges and recommendation for the noise sources modelled can be considered as covering all scenarios involved in the outfall construction. • Vessel noise sound transmission estimates were made using a source emulating a noisy working barge and various states of vessel manoeuvring noise, for the offshore ocean outfall site on eight equally spaced headings about the source. The levels of the stationary barge reached at 50, 200, 500 and 1000 m were 128-148, 120-137, 115-131 and 112-127 dB re 1mPa respectively, with the level ranges due to differing bathymetry paths. The levels of modest manoeuvring noise reached at 50, 200, 500 and 1000 m were 130-142, 128-135, 123-129 and 117-128 dB re 1mPa respectively with the ranges given by differing bathymetry paths. • Predictions of sheet piling and explosive noise produced inside a berm pumped dry and transmitted via the seabed into surrounding waters were made. These levels were considered high given the assumptions made. The levels of 40 g explosive charges reached in the surrounding water at 50, 200, 500 and 1000 m were 206, 194, 178 and 161 dB re 1mPa respectively. The levels of impact sheet piling reached in the surrounding water at 50, 200, 500 and 1000 m were 198, 180, 166 and 150 dB re 1mPa respectively. High frequency energy of the source was rapidly attenuated by the seabed thus all signals appearing in the water column outside the berm had most energy below a few hundred Hz. • The source signature of 100, 200 and 500 g slow-burn, non-explosive rock fracturing cartridges were predicted using a physics based model. These source signatures were mated with sound transmission modelling to give estimated received levels for the cartridges used in 36 m depth water. The levels of the cartridges reached at 50, 200, 500 and 1000 m were 172-176, 165-168, 159-163 and 155-160 dB re 1mPa2.s respectively, with the level ranges due to differing bathymetry paths.	The study found that potential significant underwater noise impacts on listed threatened and migratory marine species may occur if a marine mammal is within 500 m during rock popping inside the temporary berm or within 200 m during sheet piling within the berm. These distances are based on a maximum noise level of 180 dB re 1 µPa msp, which is the level at which temporary threshold shift (TTS) occurs in cetaceans (the TTS of seals and fish is higher). TTS is where hearing sensitivity is temporarily reduced. Using conservative assumptions, this level is predicted (see Table 5) to only be reached during sheet piling, at distances up to 200 m, or during rock popping inside the temporary berm, at distances up to 500 m. A TTS in marine mammals will therefore be avoided by ceasing rock popping if they are within 500 m of that activity and ceasing sheet piling if they are within 200 m of that activity. Condition 30 of the approval requires construction activities to cease anyway if whales are in a safety zone within 1 km of noise-generating activities or if seals and dolphins are in a safety zone within 500 m of noise-generating activities. Those safety zones achieve the TTS avoidance and no additional management measures are considered necessary. Marine mammal observers (MMOs) will be people agreed to by the Department under condition 30(e) of the approval. Requests for these approvals will be separate to the module submission process. As a minimum the MMOs will have a demonstrable familiarity with the Australian Petroleum Production and Exploration Association (APPEA) CD-based identification and reporting package.At least one observer will be on duty at the ocean outfall site and solely dedicated to observing marine mammals at all times during any activity that could generate significant underwater noise. MMOs will be equipped with appropriate equipment (e.g. range finder binoculars, camera and recording documents) and will be sited at strategic vantage points on the shore or on board vessels, as is most appropriate for the circumstances. The observer location will be whatever is necessary on a particular day (and time of day) to observe the area around the outfall construction without obstruction or glare. Potential observer sites include on patrol vessels on the temporary berm (if constructed) and on shore. MMOs will be in direct or radio contact with the person overseeing construction activities to enable communications regarding any whale, dolphin or seal observations. When construction activities that generate underwater noise are occurring at the outfall, regular visual surveillance at 10 to 15 minute intervals within the alert zones will be conducted.

(Continued): EPBC 2007/3385 approval conditions addressed by this module, actions taken by Gunns to prepare management measures, action outcomes and resultant environmental management measures

Condition	Issue	Approval requirement addressed by this module	Actions taken to prepare management measures	Findings	Management measures adopted to ensure approval condition is met
30 (continued)				• The range at which most great whales may avoid the area of offshore construction is estimated to lie between 200 m to 3 km from typical construction activities, with the higher ranges correlating with periods of the noisiest activities. With only the barge operating the range for great whale avoidance is estimated at 200 m to one km. Some great whales may approach close to construction activities due to curiosity or habituation to the construction activities For fish only the highest levels of noise generated during offshore construction may lead to avoidance and this only from a few hundred m about the noise source. • It is believed that toothed whales, penguins and pinnipeds will be little impacted by offshore construction as most of the noise source swill poorly overlap their hearing capability • During periods of sheet piling inside the berm great whales may keep away from the berm out to 2 km and fish behaviour may be altered out to 800 m from the berm during sheet piling. No marine animals will receive sound loadings sufficient to cause physiological harm from sheet piling noise. • Small explosive charges used inside the berm to fracture rock may cause temporary threshold shifts in marine mammals out to 500 m outside of the berm and would not be sufficient to harm fish except any immediately adjacent the berm wall and then only in worst case scenarios (all the assumptions used are met and the explosive signal shape remains suitable). All behavioural impacts on animals outside of the berm from the use of explosive charges inside the berm will be of short duration and given the low duty cycle of use, of little to no long term significance to the animals concerned. • The rock fracturing charges used outside the berm wall in the water, will not be capable of producing any serious physiological impacts on nearby marine animals, except possibly at very short (< 10 m) range. Cetaceans will need to be within 20 m of a large cartridge to receive a sound loading sufficient to cause any temporary hearing impairment. Like the use of explosives inside the berm, the frequency of use of the non-explosive rock-fracturing cartridges will be low with long breaks (many hours to days) between consecutive use. Hence the significance of any behavioural response to the cartridges will be low to negligible.	A trigger level of a single marine mammal entering the relevant safety zone will be adopted. A 2 km radius alert for whales will be implemented with a 1 km radius safety zone, within which underwater noise generating activities will be ceased if a whale approaches. A 1 km radius alert for seals and dolphins will be implemented with a 0.5 km radius safety zone, within which underwater noise generating activities will be ceased if a seal or dolphin approaches. In accordance with condition 30(b), underwater noise will be monitored during the first stages of construction to validate the model predictions of the noise modelling study (Appendix D). The validation monitoring will involve measuring underwater noise using a hydrophone lowered to mid-water depth at a distance of 500 m and 1000m away from the source of noise. Validation monitoring will be undertaken at both low tide and high tide. The monitoring findings will be compared with the study predictions. If measured values deviate significantly from the predictions, further advice will be taken from the study authors. If noise measured during validation exceeds 190dB re 1 µPa msp at 500m (the level at which TTS occurs in pinnipeds) or 180dB re 1 µPa msp at 1000m (the level at which TTS occurs in cetaceans) then the safety zones will immediately be extended accordingly so that construction that may cause underwater noise is suspended if a mammal is within a distance where TTS is possible. This will be achieved by recalibrating the underwater noise model using the measured underwater noise data, and using the revised underwater noise model to predict new safety zone distances and implementing those new safety zones. The new underwater model (if required) will be validated with underwater noise monitoring by hydrophone at the new predicted safety zone distances using the same method as the original validation monitoring. If the noise model requires recalibration and construction work cannot be suspended until that is complete and new safety zones are established, underwater noise from the construction will be measured at 50 m intervals outwards from the 500 m and 1000 m safety zones until a consistent measurement of less than 190 dB re 1 µPa msp and 180 dB re 1 µPa msp respectively is achieved. The distances at which those noise levels are not exceeded would temporarily be used as the safety zones, until the model is recalibrated and new safety zone distances are formally established. No night time works or underwater blasting will be used in construction of the ocean outfall.

(Continued): EPBC 2007/3385 approval conditions addressed by this module, actions taken by Gunns to prepare management measures, action outcomes and resultant environmental management measures

Condition	Issue	Approval requirement addressed by this module	Actions taken to prepare management measures	Findings	Management measures adopted to ensure approval condition is met
38	Hydrodynamic modelling	Additional modelling must be carried out in relation to the fate of effluent, as part of the EIMP, prior to the commencement of commissioning of the mill. The details of the modelling to be commissioned and the organisation responsible for performing the modelling must be approved by the Department. The modelling to be commissioned must include, but not be limited to: a) The inclusion of a sediment transport component. b) The use of three-dimensional models for all levels of spatial resolution. c) Increased vertical resolution for the high resolution model used in the water quality analysis. d) Forcing from all mechanisms that may potentially influence residual or diurnal dynamics, including background sea level gradients, low frequency sea level oscillations, surface heat flux, sea level, temperature and salinity open boundary and initial conditions which capture mesoscale variability and wave enhanced bottom friction. e) The execution of long term simulations that capture seasonal variability, and evidence of the model achieving pseudo-steady state in the regional (Bass Strait) field. f) The calibration of model tracers (e.g. temperature or salinity) and velocity to data derived from moored instruments (for temporal comparisons) and measured profiles (for spatial comparisons) over the period the model is simulated. This will involve a supplementary field program designed specifically for model calibration (i.e. implemented over an annual cycle). Detailed evidence of satisfactory calibration must be supplied, including correlation between phase and amplitude of calibration variables. g) Sensitivity analysis for key model parameters, particularly horizontal diffusion. h) The use of appropriate simulation lengths for generating plume statistics. i) The use of data (modelled or measured) that captures the three-dimensional nature of the water column and seasonal variability for use in the near-field model.	This condition relates to this module only in that the results of hydrodynamic modelling may influence the design of the ocean outfall diffuser. This issue is addressed by Module L (pre-commissioning).	The diffuser design is subject to change if required by the findings of the hydrodynamic modelling required under the Commonwealth approval. This module F-G-H-K will be revised accordingly.	
39	Results of hydrodynamic modelling	In accordance with the EIMP, if the results of the modelling resulting from condition 38 indicate that effluent hydrodynamics and deposition will result in chemicals reaching trigger levels, Gunns Limited must implement approved response strategies, including, if necessary, changing the design and operation of the effluent pipeline and diffuser.	This condition relates to this module only in that the results of hydrodynamic modelling may influence the design of the ocean outfall diffuser. This issue is addressed by Module L (pre-commissioning). Any potential changes to the diffuser design are unlikely to affect the construction method or the potential impacts of the construction of the outfall so this issue is not addressed by this module.		