Appendix A – Director-General's Requirements

Director-General's Requirements for a Species Impact Statement

NSW GOVERNMENT | Office of Environment & Heritage

Your reference : SF2011/10011903
Our reference : ED12/900
Contact : Matt Cameron 02 6022 0605

Applicant(s):

ROADS & MARITIME SERVICES,
ABN 76 236 371 088,
484,
WAGGA WAGGA NSW 2650
STANDARD POST

Dear Sir/Madam

DIRECTOR-GENERAL'S REQUIREMENTS FOR A SPECIES IMPACT STATEMENT FOR THE REALIGNMENT OF THE OLYMPIC HIGHWAY AT KAPOOKA

Issued pursuant to s. 111 Threatened Species Conservation Act 1995

Thank you for your letter dated 14 November 2012 and received by the Department of Premier and Cabinet, Office of Environment and Heritage (OEH) on 19 November 2012 requesting Director-General's (DGRs) requirements for a species impact statement (SIS) for the proposal cited above. Please find enclosed a copy of the DGRs (Attachment A) issued on behalf of the Director General.

The purpose of an SIS is to:

- allow the applicant or proponent to identify threatened species issues and provide appropriate amelioration for adverse impacts resulting from the proposal;
- assist consent and determining authorities in the assessment of a development application under Part 4 or request for Part 5 approval under the Environment Planning and Assessment Act 1979 (EP&A Act);
- assist the Director-General of the Department of Premier and Cabinet, OEH in deciding whether or not concurrence should be granted for the purposes of Parts 4 or 5 of the EP&A Act;
- assist the Director-General of the Department of Premier and Cabinet, OEH or the Minister for the Environment when consulted for the purposes of Parts 4 or 5 of the EP&A Act;
- assist the Director-General of the Department of Premier and Cabinet, OEH in the assessment of Section 91 Licence applications lodged under the TSC Act.

OEH understands that Roads and Maritime Services (RMS) is, or will in the future be, considering a proposal under Part 5 of the Environmental Planning and Assessment Act for this activity. To assist RMS with the approval process, OEH provides the following information.

Referrals

Whilst OEH is unable to provide comment on draft Species Impact Statements (SISs) in their entirety, OEH will provide comment to proponents and their consultants on key issues arising in the drafting process. The ability of OEH to provide such advice is dependent on the availability of OEH resources and on other statutory priorities.

Please note that it is the determining or consent authority's responsibility to ensure that a draft or final SIS complies with the requirements issued by the Director-General. OEH is not available to perform this function on the determining authority's behalf.

Concurrence

If RMS, as determining authority, decides to approve the proposal following a review of the environmental impact assessment and final SIS, then the concurrence of the Director-General of OEH is required in accordance with s112C of the Environmental Planning and Assessment Act 1979, before approval can be granted. A concurrence application is not required should RMS decide to refuse the proposal.

Concurrence applications to OEH should be accompanied by:

1. Two copies of the SIS;
2. A copy of any preliminary flora and fauna assessment undertaken (i.e. the report addressing the assessment of significance that triggered the requirement for the SIS);
3. A copy of the Review of Environmental Factors;
4. A copy of the determination notice and the conditions of the proposed approval;
5. A copy of any submissions or objections received by RMS concerning the proposal;
6. A copy of any other supporting information lodged in support of the development application including social and economic impact assessments; and
7. A cheque for $320 in accordance with s.252A of the *Environmental Planning and Assessment Regulation 2000* (EP&A Regulation) (as amended).

Public Notification

RMS is required to give public notification of the Species Impact Statement in accordance with s113 of the *Environmental Planning and Assessment Act 1979.*

Other Information

If OEH grants concurrence to RMS's determination notice, then OEH would appreciate a copy of the determination notice issued by RMS to the proponent. OEH would use this information to monitor the type and number of consents and approvals being issued which affect threatened species, populations or ecological communities.

OEH would also like to mention the requirements of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The EPBC Act requires the approval of the Federal Minister for the Environment (in addition to any State or Local Government approval or determination) for an action that will have, or is likely to have, a significant impact on a matter of national environmental significance. Threatened species and communities listed by the EPBC Act are considered to be a matter of national environmental significance. OEH recommends discussing this proposal with the Department of Sustainability Environment Water Population and Communities (DSEWPaC) to establish if the proposal may be determined as a controlled action. If DSEWPaC call the proposal in as a controlled action it would be beneficial to have all areas of this assessment included in the assessment undertaken for the SIS.

Many of the species and ecological communities listed in the *Threatened Species Conservation Act 1995* (NSW) are also listed in the Commonwealth EPBC Act. Further information regarding the operation of the EPBC Act (including Federally listed threatened species and communities) may be obtained from the website of the Commonwealth Department of Environment and Water Resources www.dewr.gov.au or by contacting the department on 1800 803 772.

Should you require any additional information please contact Matt Cameron, Regional Biodiversity Conservation Officer, on (02) 6022 0605.

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Mr Michael Saxon **Mr Michael Saxon**

Regional Co-ordination Officer

SouthRegional Co-ordination Officer

South

(by Delegation)

Dated: 13-Dec-2012

ATTACHMENT A

DIRECTOR GENERAL'S REQUIREMENTS FOR A SPECIES IMPACT STATEMENT FOR THE REALIGNMENT OF THE OLYMPIC HIGHWAY AT KAPOOKA

INTRODUCTION

The purpose of a Species Impact Statement (SIS) in the development assessment process as it relates to your application is:

- to allow you, as applicant, to identify the issues pertaining to threatened species, populations, ecological communities or their habitats, and provide appropriate amelioration for adverse impacts resulting from the action; and
- to assist the consent or approval authorities in the assessment of your proposal pursuant to the *Environmental Planning and Assessment Act 1979* (EP&A Act).

Section 111(1) of the *Threatened Species Conservation Act 1995* (TSC Act) requires that it must be either the applicant for the development consent or the proponent of the activity who makes the request for Director-General's Requirements (DGRs). The Office of Environment and Heritage (OEH) notes that in this instance Erica Adamson, (General Manager, Environment Branch), made the request for the DGRs. Please advise the OEH contact officer, Matt Cameron (Regional Biodiversity Conservation Officer) on (02) 6022 06505 if it is not intended that Erica Adamson will be the applicant or proponent, whatever the case may be.

It is also essential to note that Section 111(1) requires that the applicant must, in preparing the SIS, comply with the requirements of the Director-General. As any consent or approval granted where the Director-General's requirements are not met may be invalid, it is strongly recommended that the Roads and Maritime Services ensure that all of the requirements detailed below are complied with.

DEFINITIONS

The definitions given below are relevant to these requirements:

- **Development** has the same meaning as in the EP&A Act.
- **Activity** has the same meaning as in the EP&A Act
- **Proposal** is the development, activity or action proposed
- **Subject Site** means the area directly affected by the proposal.
- **Study Area** means the subject site and any additional areas which are likely to be affected by the proposal, either directly or indirectly. The study area should extend as far as is necessary to take all potential impacts into account. As a minimum, the study area must include all lands within 500-m of the subject site (as shown in the Kapooka Bridge Replacement Ecological Assessment, November 2012).

- **Subject Species, Populations or Ecological Communities** means those threatened species, populations or ecological communities that are known or considered likely to occur in the study area. The SIS is to explicitly consider the impacts of the proposal on each of these entities.

- **Direct Impacts** are those that directly affect habitat and individuals, usually within the footprint of the proposal. They include, but are not limited to, clearing and habitat removal. Consideration must be given to all of the likely direct impacts of the proposed activity or development.

- **Indirect Impacts** occur when project-related actions affect species, populations or ecological communities in a manner other than direct loss, usually beyond the footprint of the proposal. Indirect impacts can include loss of individuals through predation by domestic and/or feral animals, deleterious hydrological changes (including increased runoff and raising or lowering of the water table), erosion, weed invasion, pollution, trampling or other impacts due to increased human activity within or directly adjacent to sensitive habitat areas, altered fire regimes, habitat fragmentation and disruption of wildlife movement corridors. As with direct impacts, consideration must be given to all of the likely indirect impacts of the proposed activity or development.

- **Life Cycle** is the series or stages of reproduction, growth, development, aging and death of an organism.

- **Viable** means the capacity to successfully complete each stage of the life cycle under normal conditions.

- **Risk of Extinction** is the likelihood that the local population of the species or local occurrence of the endangered population or ecological community will become extinct either in the short, medium or long-term as a result of direct or indirect impacts on the viability of that population and includes changes to the ecological function of communities.

- **Local Population** is the population that occurs in the study area. The assessment of the local population may be extended to include individuals beyond the study area if it can be clearly demonstrated that contiguous or interconnecting parts of the population continue beyond the study area, according to the following definitions.

  - The local population of a threatened plant species comprises those individuals occurring in the study area or the cluster of individuals that extend into habitat adjoining and contiguous with the study area that could reasonably be expected to be cross-pollinating with those in the study area.
  - The local population of resident fauna species comprises those individuals known or likely to occur in the study area, as well as any individuals occurring in adjoining areas (contiguous or otherwise) that are known or likely to utilise habitats in the study area.
  - The local population of migratory or nomadic fauna species comprises those individuals that are likely to occur in the study area from time to time.

  In cases where multiple populations occur in the study area, each population should be assessed separately.

- **Local Occurrence** means the ecological community that occurs within the study area. However the local occurrence may include adjacent areas if the ecological community on the study area forms part of a larger contiguous area of that ecological community and the movement of individuals and exchange of genetic material across the boundary of the study area can be clearly demonstrated.
- **Composition** means both the plant and animal species present, and the physical structure of the ecological community. Note that while many ecological communities are identified primarily by their vascular plant composition, an ecological community consists of all plants and animals as defined under the TSC Act that occur in that ecological community.

All other definitions are the same as those contained in the TSC Act.

MATTERS WHICH HAVE BEEN LIMITED OR MODIFIED

The following Section 110 matters of the TSC Act need not be addressed by the subject SIS:

- Section 110(2)(g) and 110(3)(d).

The matters raised in these sections of the TSC Act have been clarified by the requirements below.

The following Section 110 matters need only be addressed where relevant:

- All reference to threat abatement plans
- All reference to recovery plans
- All reference to key threatening processes
- All reference to critical habitat. At the time of printing, the areas of declared critical habitat are not relevant to this proposal.

The proponent should be aware that recovery plans may be approved, critical habitat may be declared and key threatening processes may be listed between the issue of these requirements and the granting of approval. If this occurs, these additional matters will need to be addressed in the SIS and considered by the consent, determining or concurrence authority.

MATTERS TO BE ADDRESSED

The TSC Act provides that the SIS must meet all the matters specified in Sections 109 and 110 of the Act with the exception of those matters limited above. Some of the requirements outlined in Sections 109 and 110 (excluding the matters limited above) have been repeated below (italics) along with the specific Director-General's Requirements for your proposal.

Previous surveys and assessments may be used to assist in addressing these requirements. All references used throughout the SIS must be cited and detailed in a reference list.

1 FORM OF THE SPECIES IMPACT STATEMENT

A species impact statement must be in writing [Section 109 (1)]

A species impact statement must be signed by the principal author of the statement and by:

(a) the applicant for the licence, or

(b) if the species impact statement is prepared for the purposes of the Environmental Planning and Assessment Act 1979, the applicant for development consent or the proponent of the activity proposed to be carried out (as the case requires) [Section 109(2)].

The SIS must include the following declaration signed by the applicant or proponent:

"I...[insert name], of ..[address], being the applicant for the [choose one of the following development consent for/proponent of] the action proposed...[insert DA number, Lot & DP numbers, street, suburb and LGA names] have read and understood this species impact statement. I understand the implications of the recommendations made in the statement and accept that they may be imposed as conditions of consent or concurrence for the action proposed."

2 CONTEXTUAL INFORMATION

2.1 Description of proposal, subject site and study area

A species impact statement must include a full description of the action proposed, including its nature, extent, location, timing and layout [Section 110 (1)]

A full description of the action proposed includes a description of all associated actions. These actions may occur on or off the *subject site*. In describing the action proposed, the proportion of the *subject site* and the *study area* that will be affected is to be provided, including details of the location of any auxiliary infrastructure and all component parts of the *proposal* including, but not restricted to, (i) roadworks and temporary access and egress routes, (ii) cycleways, walkways, drainage and settling ponds, stockpile areas, diversion banks, vehicle parking areas and temporary buildings, (iii) changes in surface water flows (iv) location of stormwater and drainage infrastructure (v) location of power and data easements.

The type of action proposed shall be detailed, including the timetable for the construction of the *proposal*. If a staged construction approach is adopted then the timetable shall clearly indicate this.

If subsequent development of adjacent land is proposed by the proponent in the future, including any additional road construction then this shall be identified to the extent that it is known at the time of preparing the SIS. If existing structures, such as pipelines and transmission lines, are to be relocated, this should also be described and assessed.

Where the proposed road passes through endangered ecological communities, the habitat of endangered populations, or the habitat of threatened species, the construction methods used shall be described in detail and the feasibility of construction of the road without adversely impacting on these entities and their habitats shall be demonstrated.

The vegetation within the study that is to be retained is to be fully documented, and shown on the relevant plans and maps. The proposed management regimes for such areas are also to be documented.

2.2 Provision of relevant plans and maps

A detailed plan of the *study area* shall be provided at a preferred scale of 1:4,000 or finer. This plan shall show the *proposal*, the location and type of vegetation communities present within the *study area*, the full extent of vegetation clearing anticipated, and the scale of the plan. This plan shall also show the location of any key habitat resources for threatened species (e.g., hollow-bearing trees, large old trees, identified feed trees, potential breeding sites, rock outcrops, concentrations of fallen timber, areas supporting mistletoes). Where the general habitat of each *subject species, population or ecological community* within the *study area* can be clearly delineated, this habitat shall be represented on the plan.

Colour aerial photography of the locality (or a reproduction of such a photograph) shall be provided. This aerial photograph shall clearly show the subject site and the scale of the photograph.

The locations of the *subject species populations or ecological communities* recorded in any survey conducted for the purposes of the SIS or relied upon in this SIS shall be represented on a map of the *study area* that shows the *proposal* (preferred scale 1:4,000 or finer).

A topographic map of the general *locality* at a scale of 1:25,000 is to be provided. This map is to detail the location of the action proposed, landscape features including rivers, swamps, wetlands, any locally significant sites of *subject species, populations or ecological communities*, and areas of high human activity such as townships, railways, and roads. This map shall incorporate the area within a radius of 10km from the subject site. All available historical records are to be included of *subject species, populations of ecological communities* sourced from various databases and other sources are to be included on this map.

2.3 Land tenure information

The land tenure across the *study area* is to be described and any limitations to sampling across the *study area* resulting from this tenure (e.g., denied access to private land) shall be noted.

3 INITIAL ASSESSMENT

A general description of the threatened species or populations known or likely to be present in the area that is the subject of the action and in any area that is likely to be affected by the action [Section 110 (2)(a)].

3.1 Identifying subject species and populations

For the purposes of this SIS, the species listed in Table 1 are to be addressed as *subject species*:

Table 1. List of *subject species*.

SPECIES	SCIENTIFIC NAME	STATUS
FAUNA		
Birds		
Regent Honeyeater	*Anthochaera phrygia*	Critically Endangered
Bush-stone Curlew	*Burhinus grallarius*	Endangered
Swift Parrot	*Lathamus discolor*	Endangered
Painted Honeyeater	*Grantiella picta*	Vulnerable
Black-chinned Honeyeater (eastern subspecies)	*Melithreptus gularis gularis*	Vulnerable
Brown Treecreeper	*Climacteris picumnus victoriae*	Vulnerable
Diamond Firetail	*Stagonopleura guttata*	Vulnerable
Hooded Robin	*Melanodryas cucullata cucullata*	Vulnerable
Speckled Warbler	*Pyrrholaemus sagittatus*	Vulnerable
Grey-crowned Babbler (eastern subspecies)	*Pomatostomus temporalis temporalis*	Vulnerable
Scarlet Robin	*Petroica boodang*	Vulnerable
Flame Robin	*Petroica phonecea*	Vulnerable
Varied Sittella	*Daphoenositta chrysoptera*	Vulnerable
White-fronted Chat	*Epthianura albifrons*	Vulnerable
Gilbert's Whistler	*Pachycephala inomata*	Vulnerable
Glossy Black Cockatoo	*Calyptorhynchus lathami*	Vulnerable
Turquoise Parrot	*Neophema pulchella*	Vulnerable
Superb Parrot	*Polytelis swainsonii*	Vulnerable
Little Lorikeet	*Glossopsitta pusilla*	Vulnerable
Barking Owl	*Ninox connivens*	Vulnerable
Spotted Harrier	*Circus assimilis*	Vulnerable
Little Eagle	*Hieraaetus morphnoides*	Vulnerable

SPECIES	SCIENTIFIC NAME	STATUS
Mammals		
Eastern Bentwing-bat	*Miniopterus schreibersii oceanensis*	Vulnerable
Corben's Long-eared Bat	*Nyctophilus corbeni*	Vulnerable
Yellow-bellied Sheathtail-bat	*Saccolaimus flaviventris*	Vulnerable
Southern Myotis	*Myotis macropus*	Vulnerable
Squirrel Glider	*Petaurus norfolcensis*	Vulnerable
FLORA		
Woolly Ragwort	*Senecioo garlandi*	Vulnerable
ENDANGERED POPULATIONS		
Squirrel Glider in the Wagga Wagga Local Government Area		
ENDANGERED ECOLOGICAL COMMUNITIES		
White Box, Yellow Box, Blakely's Red Gum Woodland		
Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions		

One of the roles of a SIS is to determine which species, populations or ecological communities may be utilising, or present, on a development site. This list is not exhaustive and other entities may also need to be included for assessment in this SIS on the basis of desktop and habitat analyses and the outcomes of fieldwork.

In determining whether other entities, should also be addressed as *subject species, populations and ecological communities*, consideration shall be given to the habitat types present within the *study area*, recent records of threatened species, populations or ecological communities in the *locality* and the known distributions of threatened species, populations and ecological communities. This analysis and its conclusion are to be documented in the SIS.

Databases such as the OEH Atlas of NSW Wildlife and BioNet, as well as databases held by the Australian Museum and Royal Botanic Gardens, should be consulted to assist in compiling the list of possible entities to be analysed. It should be noted that if the OEH Atlas is the only database that is referred to, due to data exchange agreements, the data provided by OEH will only include that for which OEH is a custodian. In many cases, this may only be a small subset of the data available. Other databases must also be consulted to create a comprehensive list of entities for consideration as *subject species, populations or ecological communities*.

3.2 Identifying habitats

In describing the *study area*, consideration shall be given to the previous land uses and the effect of these land uses on the *study area*. Relevant historical events may include fire, clearing, logging, slashing, recreational use and agricultural activities including grazing and cropping.

A description of habitats including such components as the abundance of tree hollows, the presence of wetlands, the density of understorey vegetation, the floristic composition and cover of ground cover plants species, the soil type and the presence of heath and permanent or ephemeral swamps shall be given. The condition of these habitats within the *study area* shall be discussed, including the prevalence of introduced species. A description of the habitat requirements of threatened species, populations or ecological communities likely to occur in the *study area* shall be provided.

Any areas which may provide habitat connectivity between the *study area* and adjacent areas of likely habitat for *subject species, populations or ecological communities* shall be identified and described.

In defining the *study area*, consideration shall be given to possible *indirect impacts* of the proposed action on species/habitats in and surrounding the *subject site*. These could include impacts arising from altered fire and hydrology regimes, soil erosion or pollution, fencing, habitat fragmentation and disruption of wildlife movement corridors, edge effects, altered light and noise regimes, disturbance of roosting areas or other impacts due to increased use of the area by humans, and the impacts of increased levels of domestic and feral predators. As a minimum, the *study area* must include all lands within 500-m of the subject site (as shown in the Kapooka Bridge Replacement Ecological Assessment, November 2012).

4 SURVEY

4.1 Requirement to survey

A flora and fauna survey is to be conducted in the *study area*. Survey may be required beyond the *study area* to clarify the conservation significance of the *subject site* and *study area* to the *subject species, populations and ecological communities*. Targeted surveys shall be conducted for all *subject species, populations and ecological communities* determined in accordance with Section 3. Previous surveys and assessments may be used to assist in addressing this requirement. However, the efficacy of such previous surveys and assessments in meeting this requirement must be described in full. These previous surveys do not negate the need for the additional targeted survey work set out in Appendix 1 of these DGRs.

Particular attention shall be paid to the timing and climatic conditions for conducting fauna surveys including invertebrates, as many of the *subject species* will only be present or detectable for a few months each year or during certain climatic conditions. The Olympic Highway represents a significant noise source that has the potential to reduce the efficacy of surveys relying on the detection of calls. Surveys relying on call detection should be undertaken when the impact of traffic noise is minimal. Additional advice on these matters should be sought from the OEH contact officer.

Identification of all species is essential. Identification to genus only is not acceptable. Species of taxonomic uncertainty shall be confirmed by a recognised authority such as the Australian Museum or National Herbarium at the Royal Botanic Gardens, Sydney.

4.2 Documentation of survey effort and technique

Survey technique(s) shall be described and a reference given, where available, outlining the survey technique employed.

Survey site(s) shall be identified on a map with a clear legend. The size, orientation and dimensions of quadrat or length of transect shall be clearly noted for each type of survey technique undertaken. Full AMG grid references for the survey site(s) shall be provided. Completed data sheets are to be included as an appendix to the SIS.

The time invested in each survey technique shall be summarised in the SIS, based on completed survey forms, e.g. number of person hours / transect, duration of call playback, number of nights that traps are set and total area surveyed in hectares.

It is not sufficient to aggregate all time spent on all survey techniques. Effort must be expressed separately for each survey technique that is applied.

Personnel details including name of surveyor(s), contact phone number, qualifications and experience must be included. The person who identified records (e.g. Anabat, hair tubes, scat analysis) shall also be identified in this manner.

Environmental conditions during the survey shall be noted from the commencement of each survey technique until its completion. These conditions must be documented in the SIS.

An assessment of the efficacy of each survey regime in detecting each species under the intensity utilised by the study is to be provided. The effect of the season, weather and any other factors likely to influence survey results (including traffic noise) at the time of the field survey shall be considered with respect to the adequacy of survey results. An assessment will also be made of the adequacy of the survey and background information used to assess the likely area of use (home range) for each *subject species, population or ecological community*, and the areas providing habitat connectivity.

A full list of all flora and fauna species recorded during the course of surveys shall be included (such information is indicative of the habitat quality of the site). Completed Atlas of NSW Wildlife cards are to be provided for each threatened species record in any survey conducted for the purposes of the SIS. For confidentiality, these cards are not to be included in the SIS but rather shall accompany the SIS when supplied to the OEH.

4.3 Specific survey requirements

Appendix 1 details the specific survey requirements for the *subject species, populations or ecological communities* identified in Table 1 of these DGRs. These survey requirements can determine the presence of *subject species, populations or ecological communities* known or likely to be in the *study area* and/or can provide contextual information on habitats to allow appropriate

assessment of impacts at a broader scale. The flora and fauna survey of the *study area* must include the use of these survey methods.

You are advised that discussions between the consultant(s) engaged to prepare the SIS and OEH may be necessary in order to derive an appropriate survey regime for some of these requirements, and to confirm the survey regimes proposed for any additional *subject species, populations and ecological communities* derived by analysis as part of this SIS.

5 ASSESSMENT OF LIKELY IMPACTS ON THREATENED SPECIES, POPULATIONS AND ECOLOGICAL COMMUNITIES

For all *subject species, populations and ecological communities*, the SIS shall describe the following:

a. the location, nature and extent of habitat removal or modification which will result from the action proposed;

b. the likely and potential direct and indirect impacts of the removal of habitat. Particular attention shall be given to the loss of:

   i. White Box, Yellow Box, Blakely's Red Gum Woodland

   ii. habitat for threatened woodland birds, Superb Parrots, and Squirrel Gliders

   iii. fragmentation of habitat for threatened woodland birds, Superb Parrots, and Squirrel Gliders

   iv. the likelihood of and extent of loss of hollow-bearing trees

   v. the likelihood of and extent of loss of large old trees

   vi. the likelihood of and extent of loss of native grasslands.

   Similarly, attention is to be given to the likelihood of and extent of loss of food resources and the impact this may have on the *subject species, populations or ecological communities*.

c. any indirect impacts of the proposal including:

   i. the fragmentation or isolation of *local populations* and/or *local occurrences*, and the increased distance required for the movement of individuals/genetic material between habitat patches,

   ii. change in vegetation floristics and structure resulting from edge effects,

   iii. altered hydrology regimes (including increased runoff and raising or lowering of the water table),

   iv. soil erosion and pollution,

   v. disturbance to foraging or nesting/breeding habitat of species,

vi. trampling or other impacts due to increased use of the area by humans, particularly on White Box, Yellow Box, Blakely's Red Gum Woodland,

vii. increased mortality rates due to road deaths,

viii. habitat fragmentation and disruption of wildlife movement corridors and pollination mechanisms,

ix. altered light and noise regimes,

x. the likely contribution of the action proposed to the threatening processes already acting on populations of those *subject species or populations* and occurrences of *subject ecological communities* in the *locality.*

All of the above contextual information (which can be incorporated into Sections 5.1 - 5.5 below) will assist with the assessment of cumulative impacts on the *subject species, populations and ecological communities.*

5.1 Assessment of species likely to be affected

An assessment of which threatened species or populations known or likely to be present in the area are likely to be affected by the action [Section 110(2)(b)].

This requirement allows refinement of the list of *subject species or populations* (given the outcome of survey and analysis of likely impacts) in order to identify which threatened species or populations may be affected, and the nature of the impact.

The remaining requirements in this section (5.2 – 5.5) need only be addressed for those threatened species or populations that are likely to be affected by the proposal.

5.2 Discussion of local and regional abundance

An estimate for the local and regional abundance of those species or populations [Section 110 (2)(d)]

5.2.1 Discussion of other known local populations

A discussion of other known *local populations* in the *locality* shall be provided. The long-term security of other habitats shall be examined as part of this discussion. The relative significance of the *subject site* for the *subject species, populations and ecological communities* in the *locality* shall be discussed. It is essential that the SIS includes some surveys conducted beyond the *study area* to clarify the conservation significance of the *subject site* to the *subject species and populations*.

The need for off-site surveys to provide context to the anticipated impacts of the *proposal* may also be required for other threatened species recorded during the surveys of the *study area.*

5.2.2 Discussion of habitat utilisation

An estimate of the number of individuals of each *subject species* utilising the *study area* shall be provided as well as a description of how these individuals use the *study area* (e.g. residents, transients, adults, juveniles, nesting, foraging). A discussion of the significance of these individuals to the viability of the *subject species* in the *locality* shall be provided.

5.2.3 Description of vegetation
The vegetation present within the *study area* and the surface area covered by each vegetation community shall be mapped and described. Reference to the vegetation classification system used (e.g. Specht, Benson, Keith) and to the ecological communities determined as endangered by the NSW Scientific Committee shall be provided. Classification must have regard to both structural and floristic elements.

5.2.4 Discussion of corridors
Particular attention shall be given to identifying movement corridors for *subject species* within the *study area*. The impact of the proposal on these corridors and the resulting impact on the resident *subject species* shall be discussed.

5.3 Assessment of habitat

A full description of the type, location, size and condition of the habitat (including critical habitat) of those species, populations and ecological communities and details of the distribution and condition of similar habitats in the region [Section 110 (2)(f) and Section 110 (3)(c)]

5.3.1 Description of habitat values
Specific habitat features in the *study area* shall be described and quantified (e.g. frequency and location of stags, hollow bearing trees, culverts, rock shelters, rock outcrops, crevices, caves, drainage lines, soaks, area of ecological communities etc.), as well as the density of understorey vegetation and groundcover.

The condition of the habitat within the *study area* shall be discussed, including the prevalence of introduced species, species of weeds present and an estimate of the total weed cover as a percentage of each vegetation community, whether trampling or grazing is apparent, effects of erosion, prevalence of rubbish dumping, history of resource extraction or logging and proximity to roads. Details of the *study area's* fire history (e.g. frequency, time since last fire, intensity) and the source of fire history (e.g. observation, local records), shall be provided.

5.3.2 Distribution and condition of regional habitats
For the habitats of *subject species and populations* found in the study area, the SIS shall discuss the distribution and condition of similar habitats in the region. For the *subject ecological communities* found in the study area, the SIS shall discuss the distribution and condition of these ecological communities in the region. Regional information may be obtained from existing datasets and from other sources.

5.4 Discussion of conservation status

For each species or population likely to be affected, and for each ecological community present, details of its local, regional and State-wide conservation status,...[and]... its habitat requirements ... [Section 110(2)(c) and Section 110(3)(b)]

Assessment shall include reference to the threatening processes that are generally accepted by the scientific community as affecting the *subject species, population or ecological community* and which are likely to be caused or exacerbated by the *proposal*. Assessment shall also include reference to any approved or draft recovery plans which may be relevant to the *proposal*. Up-to-

date lists and copies of approved and draft recovery plans are available on the OEH website www.environment.nsw.gov.au by following the links to threatened species.

5.5 Description of feasible alternatives

A description of any feasible alternatives to the action that are likely to be of lesser effect and the reasons justifying the carrying out of the action in the manner proposed, having regard to the biophysical, economic and social considerations and the principles of ecologically sustainable development [Section 110(2)(h) and Section 110(3)(e)].

In this instance, the reasons for the selection of the proposed alignment over other options that potentially had less impact on biodiversity must be fully detailed and justified.

6 IMPACT AMELIORATION

6.1 Description of ameliorative measures

A full description and justification of the measures proposed to mitigate any adverse effect of the action on the species, populations and ecological communities including a compilation (in a single section of the statement) of those measures [Section 110 (2)(i) and Section 110 (3)(f)].

6.1.1 Long term management strategies

Consideration shall be given to the information contained in approved and draft recovery plans or threat abatement plans for existing taxa, known or likely to occur in the *study area*, and whether any recommendation is applicable to the *proposal*.

The development of long-term management strategies shall be considered to protect areas within the *study area* which are of particular importance for the *subject species, populations or ecological communities* likely to be affected by the *proposal*. This may include proposals to restore or improve habitat on site where possible. If mitigation is to include rehabilitation of the site, then the rehabilitation strategy shall be detailed.

Any measures proposed to mitigate the effect of the proposal on *local populations* of threatened species and populations and/or *local occurrences* of ecological communities shall be described. The potential effectiveness of any such amelioration in maintaining a viable *local population* and/or *local occurrence* in the short, medium and long term shall be discussed (e.g. wildlife crossing structures, fauna underpasses, vegetation management).

6.1.2 Compensatory strategies

If significant modification of the *proposal* to minimise impacts on *subject species, populations or ecological communities* is not possible, then compensatory strategies shall be considered. These may include other off-site or local area proposals that contribute to long term conservation of the *subject species, populations or ecological communities*. These areas should be assessed in accordance with the Principles for the use of biodiversity offsets in NSW, which can be found on the following link on the OEH website http://www.environment.nsw.gov.au/biocertification/offsets.htm.

The areas proposed to be used for compensatory strategies must be described in full including a detailed description of their biodiversity. A complete description of how the area will be managed for conservation in perpetuity must also be provided.

Where such proposals involve other lands, or where involvement of community groups is envisaged in such proposals, landholders, land managers and/or community groups are to be consulted and *proposals* shall contain evidence of support from these stakeholders and relevant land managers.

Compensatory benefits likely to result from such measures proposed for alternative sites are to be discussed and evaluated along with a discussion of the mechanisms through which they might best occur.

The proposal will impact on land that is currently being used to offset the loss of Box-Gum Woodland elsewhere in the Wagga Wagga Local Government Area. An offset ratio of 10:1 was applied through this arrangement, which resulted in the Wagga Wagga Local Environment Plan 2010 being biodiversity certified under the *Threatened Species Conservation Act 1995*. When considering strategies for offsetting the loss of this habitat, there is a need to offset the original loss (which the lands are currently offsetting) and also the proposed loss of the offset site. This would require an offset ratio of 11:1 for both the area of native vegetation impacted, and also for the number of hollow-bearing trees lost as a consequence of the project. For these lands, the offset ratios applied as part of the Biodiversity Certification of the Wagga Wagga Local Environment Plan represent a minimum.

6.1.3 Ongoing monitoring

Any proposed pre-construction monitoring plans or on-going monitoring of the effectiveness of the mitigation measures shall be outlined in detail, including the objectives of the monitoring program, method of monitoring, reporting framework, duration and frequency. Generally, ameliorative strategies that have not been proved effective should be undertaken under experimental design conditions and appropriately monitored.

6.1.4 Translocation

OEH does not consider that translocation of threatened species, populations and ecological communities is an appropriate ameliorative strategy for the purposes of considering impacts of a particular development/activity. It strongly supports the view that development proposals which may impact on significant local populations of *subject species and populations* or significant local occurrences of *subject ecological communities* as determined by the SIS should aim to:

i. minimise the impacts by considering all possible alternatives to the *proposal*, such that a significant impact is not likely; and

ii. manage the remaining habitat (if any) to ensure that the *local population* and/or *local occurrence* continues to exist in the long term.

The translocation of *subject species, populations and ecological communities* is only supported by OEH in specific conservation programs (e.g. recovery planning).

7. ASSESSMENT OF SIGNIFICANCE OF LIKELY EFFECT OF PROPOSED ACTION

An assessment of significance (s5A EP&A Act) is to be provided for each *subject species, population or ecological community* identified in the SIS, incorporating relevant information from sections 5.1 to 7 of the SIS. On the basis of these assessments, a conclusion is to be provided concerning whether, based on more detailed assessment through the SIS process and consideration of alternatives and/or ameliorative measures proposed in the SIS, the proposal is considered likely to have a significant effect on threatened species, populations or ecological communities or their habitats.

8 ADDITIONAL INFORMATION

8.1 Qualifications and experience

A species impact statement must include details of the qualifications and experience in threatened species conservation of the person preparing the statement and of any other person who has conducted research or investigations relied on in preparing the statement [Section 110(4)]

8.2 Other approvals required for the development or activity

A list of any approvals that must be obtained under any other Act or law before the action may be lawfully carried out, including details of the conditions of any existing approvals that are relevant to the species or population or ecological community [Sections 110(2)(j) and 110(3)(g)]

In providing a list of other approvals the following shall be included:

- Where consent is required under Part 4 of the *Environmental Planning and Assessment Act 1979*, the name of the consent authority and the timing of the development application shall be included; or
- Where approval is required under Part 5 of the *Environmental Planning and Assessment Act 1979*, the name of the determining authority, the basis for the approval and when the approval is proposed to be obtained shall be included.
- Where consent or approval is required under any other Act, the name of the consent or determining authority and the timing of the development application, basis for the approval and when the approval is proposed to be obtained shall be included

8.3 Licensing matters relating to flora and fauna surveys

Persons conducting flora and fauna surveys must have appropriate licences or approvals under relevant legislation. The relevant legislation and associated licences and approvals that may be required are listed below:

National Parks and Wildlife Act 1974:

- General Licence (Section 120) to harm or obtain protected fauna (this may include threatened fauna).
- Licence to pick protected native plants (Section 131).

- Scientific Licence (Section 132C) to authorise the carrying out of actions for scientific, educational or conservation purposes.

Threatened Species Conservation Act 1995:

- Licence to harm threatened animal species, and/or pick threatened plants and/or damage the habitat of a threatened species (Section 91).

Animal Research Act 1985:

- Animal Research Authority to undertake fauna surveys.

8.4 Reports of State-wide conservation status

Section 110(5) of the *Threatened Species Conservation Act 1995* has the effect of requiring OEH to provide available information regarding the State-wide conservation status of the subject species, populations or ecological communities, in order to satisfy ss.110(2)&(3) of the Act.

OEH has also produced a set of profiles for a number of threatened species, populations and ecological communities that are available on the OEH threatened species website (www.threatenedspecies.environment.nsw.gov.au). Some of these are relevant to the list of *subject species, populations and ecological communities* for this *proposal*.

Proponents and consultants should note that OEH has no further published information available to satisfy s.110(5) of the Act and that receipt and use of the above profiles can be taken to have satisfied the requirements of ss.110(2)&(3) in relation to the State-wide conservation status of the listed species, populations and ecological communities.

Appendix 1. Survey requirements

SPECIES	SURVEY REQUIREMENTS
Birds	
Woodland birds	Surveys must be undertaken during September to October. Surveys must be undertaken in the early morning (sunrise to four hours after sunrise) on clear, still days. Surveys should be undertaken when traffic noise is at a minimum. The *study area* must be surveyed systematically by walking parallel transects that cover all areas of potential habitat. Transects should be 50-m wide (i.e. 25-m either side of the transect mid-line). Transects must be surveyed at a maximum rate of 100-m per 10 minutes. Each survey must be undertaken over two days, with transects on the second day located midway between those walked on the first day (i.e.. transects on a given day will be 100-m apart). All birds seen or heard within the transect or flying over must be recorded. Two surveys must be undertaken, separated by a period of at least one week.
Regent Honeyeater, Swift Parrot, Little Lorikeet	Surveys must be undertaken during Winter, timed where possible to coincide with periods of peak food availability. Surveys must be undertaken in the early morning (sunrise to four hours after sunrise) on clear, still days. Surveys should be undertaken when traffic noise is at a minimum. The *study area* must be surveyed systematically by walking parallel transects that cover all areas of potential habitat. Transects should be 50-m wide (i.e. 25-m either side of the transect mid-line). Transects must be surveyed at a maximum rate of 100-m per 10 minutes. Each survey must be undertaken over two days, with transects on the second day located midway between those walked on the first day (i.e.. transects on a given day will be 100-m apart). All birds seen or heard within the transect or flying over must be recorded.
Little Eagle, Spotted Harrier	Surveys for these species can be conducted during the diurnal bird censuses for the smaller woodland bird species, but in addition, traverses of the *study area* must be undertaken during daylight hours to locate these species and to search for potential nests trees with large stick nests. These traverses can be done as part of other habitat and vegetation community surveys and mapping.
Barking Owl	Barking Owl nest surveys should be undertaken within the *study area*, with all potential nest trees identified and monitored for evidence of use by nesting Barking Owls. Monitoring of potential nest sites should occur on at least two occasions (separated by approximately 30-days) during the period September to October. The area within 20-m of potential nest trees should be searched for the presence of roosting male Barking Owls, or signs of their presence (e.g., whitewash on the ground). If signs of their presence are found, additional follow up surveys should be undertaken to confirm the presence of nesting birds.

SPECIES	SURVEY REQUIREMENTS
Glossy Black Cockatoo	Glossy Black-cockatoo nest surveys should be undertaken within the *study area*, with all potential nest trees identified and monitored for evidence of use by nesting Glossy Black-cockatoos. Monitoring of potential nest sites should occur on at least two occasions (separated by approximately 30-days) during the breeding season. Targeted searches for Glossy Black-cockatoos must be undertaken throughout the *locality* outside the breeding season, with the objectives of identifying foraging habitat, determining the use of foraging habitat, and identifying flight paths.
Superb Parrot	Superb Parrot nest surveys should be undertaken within the *study area*, with all potential nest trees monitored for evidence of use by nesting Superb Parrots. Monitoring of potential nest sites should occur on at least two occasions (separated by approximately 30-days) during the breeding season (September – November), with known nests used to get the timing right. Nest surveys should also be undertaken in the wider local area in order to assist in the possible identification of flight paths and allow for the relative importance of nests impacted by the development to be determined. Targeted searches for Superb Parrots must be undertaken throughout the *locality* during the breeding season, with the objective of identifying foraging areas and flight paths. These surveys should be timed to coincide with periods when birds are undertaking these activities. A focus of these surveys should be identifying foraging habitat or flight paths that may be negatively impacted by the development, or which may bring birds into contact with proposed infrastructure. These targeted searches should be undertaken at least twice during the breeding season (separated by approximately 30-days) to allow for changes in the use of habitat over time. Foraging areas and flight paths are likely to vary between years, depending on the availability and spatial distribution of food resources (natural and exotic). Superb Parrot habitat in the *locality,* including potential habitat (e.g., paddocks that may be cropped in subsequent years), must be mapped. This will allow for a more complete assessment of the impacts, particularly with regard to potential movement pathways.
Mammals	
Microchiropteran bats	Surveys using Anabat recorders and stag watching should aim to identify the number and location of roost sites for the subject bats and identify important foraging habitat in the study area and the locality. If required, the OEH can provide further advice on bat survey techniques to acquire this information.

SPECIES	SURVEY REQUIREMENTS
	Surveys of the *subject site*, *study area* and *locality* shall be undertaken for hollow-bearing trees. This shall involve intensive searches for hollow-bearing trees in the *subject site* and *study area*. Representative sampling of the *locality* for hollow-bearing trees shall involve the use of transects in selected locations and the gathering of data in conjunction with ground-truthing for endangered ecological communities. The number of hollow-bearing trees recorded shall be used to provide context to the potential breeding habitat affected by the action proposed. Surveys can be undertaken at any time of the year under varied seasonal conditions.
Squirrel Gliders	Surveys of the *study area* must be undertaken during Autumn. Survey sites should be located to sample remnants on both sides of the existing Olympic Highway, and on both sides of the proposed new alignment. Appropriately sized cage traps (200 x 170 x 500-mm) must be used. Traps must be baited with a mixture of peanut butter, rolled oats and honey. A diluted honey and water mixture must be sprayed on the tree trunk leading to the trap as an attractant. Traps should be set at approximately 100-m intervals. Traps must be located so that potential den sites, foraging habitat, and movement pathways are targeted. The number of traps set per site will depend on the size and configuration of the remnant being sampled. Each site should be trapped for a minimum of seven consecutive nights. As a guide, survey effort per site should approximate 100 trap nights.
Flora	
Woolly Ragwort.	The *study area* should be systematically surveyed using evenly spaced transects located about 20 m apart through all areas of woodland habitat.
White Box, Yellow Box, Blakely's Red Gum Woodland	Surveys shall identify and map the extent and condition of this ecological community in the *subject site*, *study area* and *locality*. This shall involve the use of vegetation surveys in the *subject site* and the *study area*. The use of existing datasets held by OEH in combination with ground-truthing of selected sites within areas mapped by OEH as the ecological community is recommended for surveys of the *locality*. The sites sampled shall be used to provide context to the ecological community affected by the action proposed. Surveys can be undertaken at any time of the year under varied seasonal conditions.