

Secretary's Environmental Assessment Requirements

Section 78A(8A) of the *Environmental Planning and Assessment Act*

State Significant Development

Application Number	SSD 7228
Development	Construction and operation of the Sydney Zoo comprising animal exhibits and associated infrastructure including: • up to 200 animal exhibition areas; • internal roads, power and water supplies; • customer service areas; and • additional support facilities including picnic areas, wetlands and waterways.
Location	Western Sydney Parklands, Bungarribee (Lot 101 DP 1195067) within the Blacktown local government area.
Applicant	Sydney Zoo Pty Ltd
Date of Issue	16 September 2015
General Requirements	The Environmental Impact Statement (EIS) must meet the minimum form and content requirements in clauses 6 and 7 of Schedule 2 of the <i>Environmental Planning and Assessment Regulation 2000</i>. The EIS must include: • a detailed description of the development, including: – need and justification of the proposed development having regard to its location and environmental impacts, the suitability of the site and public interest; – alternatives considered; – likely staging of the development; – likely interactions between the development and any existing, approved and proposed operations in the vicinity of the site; and – plans of any proposed building works. • consideration of all relevant guidelines and environmental planning instruments, including identification and justification of any inconsistencies with these instruments; • a risk assessment of any potential environmental impacts of the development, identifying the key issues for further assessment; • a detailed assessment of the key issues specified below, and any other significant issues identified in this risk assessment, which includes: – a description of the existing environment, using sufficient baseline data; – an assessment of the potential impacts of all stages of the development, including any cumulative impacts, taking into consideration relevant guidelines, policies, plans and legislation; and – a description of the measures that would be implemented to avoid, minimise and if necessary, offset the potential impacts of the development, including proposals for adaptive management and/or contingency plans to manage any significant risks to the environment; and • a consolidated summary of all the proposed environmental management and monitoring measures, highlighting commitments included in the EIS. The EIS must also be accompanied by a report from a qualified quantity surveyor providing: • a detailed calculation of the Capital Investment Value (CIV) (as defined in clause 3 of the <i>Environmental Planning and Assessment Regulation</i>

	2000) of the proposal, including details of all assumptions and components from which the CIV calculation is derived; • a close estimate of the jobs that will be created by the development during the construction and operational phases of the development; and • certification that the information provided is accurate at the date of preparation.
Key issues	The EIS must address the following specific matters: • Air and Odour – including: – a quantitative air quality assessment of the air quality and odour impacts of the proposed development including impacts on any surrounding receivers. The assessment must consider impacts from construction and operation, and include: ▪ details of the air emissions during both construction and operation; ▪ identification of all pollutants of concern; ▪ a quantitative assessment of all potential impacts using dispersion modelling, including adequate justification and validation (where appropriate) of all model inputs and outputs; ▪ a cumulative assessment of all existing and proposed emission sources; and ▪ details of the proposed management and monitoring measures. • Noise and Vibration – including: – an assessment of all construction, operational and transportation noise and vibration impacts, including impacts on nearby sensitive receivers; – cumulative impacts of other developments both on the site and in the vicinity of the site; and – details of the proposed noise management and monitoring measures • Animal welfare, bio-security and disease management – including: – details of how the proposed development would comply with relevant animal welfare, bio-security and disease management codes and guidelines; – details of all disease control measures; and – a detailed description of the contingency measures that would be implemented for the any required disposal of animals in the event of disease outbreak. • Transport, Access and Parking – including: – a detailed traffic assessment undertaken by a suitably qualified person that includes: ▪ consultation with NSW Roads and Maritime Services, Transport for NSW, Blacktown City Council and any other providers of public transport; ▪ accurate predictions of the traffic generated by the development during construction and operation, including during peak visitor periods; ▪ a detailed assessment of the potential impacts of the development on the capacity, efficiency and safety of the road network during construction and operation, including the truck routes, cumulative traffic generated by the existing and the proposed development; ▪ details of any required upgrades to road infrastructure; ▪ details of surrounding public transport and any upgrades or changes in services required for the development; and ▪ details of access, internal roads and vehicular parking required as a result of the development. • Soil and Water – including: – an assessment of the potential soil, groundwater and surface water impacts of the proposal during construction and operation; – details of water supply including any water licensing requirements or other approvals under the <i>Water Act 1912</i> and/or the <i>Water Management Act 2000</i>; – a detailed water balance for the development, outlining the measures

	to minimise water use and any potential for a sustainable water supply; – wastewater predictions, and the measures that would be implemented to treat, reuse and/or dispose of this water; and – details of the existing and proposed wastewater management system. • Heritage – including: – an Aboriginal cultural heritage assessment prepared by a suitably qualified archaeologist (including cultural and archaeological significance), which must demonstrate effective consultation with relevant Aboriginal community groups; and – a non-Aboriginal cultural heritage assessment prepared by a suitably qualified archaeologist, (including both cultural and archaeological significance) which must detail potential impacts on heritage assets and any proposed management and mitigation measures of the potential impacts of vibration on heritage items. • Waste – including: – identification of the quantity and type of waste that would be handled, stored, processed or disposed of at the site; – a description of the waste processing and recycling measures, timeframes for processing and recycling and the quality control measures that would be implemented; and – details of the potential impacts associated with treating, storing, using and disposing of any waste and waste products. • Design and Visual – including: – layout of the development including staging, site coverage, setbacks, proposed open space and landscaped areas; – details of suitable landscaping incorporating endemic species; – a detailed description (including photomontages and perspectives) of the zoo (enclosures, recreational areas, buildings and any storage areas) including height, colour, scale, building materials and finishes, signage and lighting, particularly from: ▪ nearby receivers; ▪ significant vantage points of the broader public domain; and – the layout and design of the development having regard to the surrounding vehicular, pedestrian and cycling networks. • Contamination – including: – an assessment of any potential site contamination and details of all potential contamination sources; – identification of any contaminated soil likely to be impacted by the development; – proposed measures to be implemented in the event that soil contamination is encountered; and – details of remediation and management for the proposed development (if required). • Biodiversity – including – identification of species on-site; – detail of the potential direct and indirect impacts on any threatened species, populations, endangered ecological communities or their habitats, groundwater dependant ecosystems and any potential for offset requirements; – a detailed description of the measures to avoid, minimise, mitigate and offset biodiversity impacts; and – an assessment of the proposal and all biodiversity values on the site under the <i>Framework for Biodiversity Assessment 2014</i>. • Hazards and Risks including: – a preliminary risk screening in accordance with <i>State Environmental Planning Policy No. 33 – Hazardous and Offensive Development</i>, and <i>Applying SEPP 33</i> (DoP, 2011), with a clear indication of class, quantity, package size, and location of all dangerous goods and hazardous materials associated with the proposal;
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	– should the preliminary risk screening indicate that the project is “potentially hazardous”, a Preliminary Hazard Analysis (PHA) must be prepared in accordance with <i>Hazardous Industry Planning Advisory Paper No. 6 – Guidelines for Hazard Analysis</i> (DoP, 2011), and <i>Multi-Level Risk Assessment</i> (DoP, 2011). The PHA must: ▪ identify the hazards associated with the proposal to determine the potential for off-site impacts; ▪ estimate the combined risks from the existing site and the proposed development (overall site); and ▪ demonstrate that the risks from the overall site (as modified by this proposal) comply with the criteria set out in <i>Hazardous Industry Planning Advisory Paper No 4 – Risk Criteria for Land Use Safety Planning</i>. • Bushfire and Incident Management - including technical information on the environmental protection equipment to be installed on the premises such as air, water and noise controls, spill clean-up equipment and fire management and containment measures. • Greenhouse Gas Emissions – including: – a quantitative assessment of the potential scope 1 and 2 greenhouse gas emissions from the development, and a qualitative assessment of the potential impacts of these emissions on the environment; and – a detailed description of the proposed measures that would be implemented on site to ensure that the development is energy efficient.
Plans and Documents	The EIS must include all relevant plans, architectural drawings, diagrams and relevant documentation required under Schedule 1 of the <i>Environmental Planning and Assessment Regulation 2000</i> . Those documents should be included as part of the EIS rather than as separate documents.
Consultation	During the preparation of the EIS, you must consult with the relevant local, State or Commonwealth Government authorities, service providers, community groups and affected landowners. In particular you must consult with: • Western Sydney Parklands; • Blacktown City Council; • Department of Primary Industries including the Exhibited Animals Advisory Committee and NSW Office of Water; • Commonwealth Department of the Environment; • NSW Environment Protection Authority; • WorkCover NSW; • NSW Health; • Office of Environment and Heritage; • Featherdale Wildlife Park; • Taronga Zoo; • Transport for NSW; • Roads and Maritime Services; and • Any other public transport service providers including Busways. The EIS must describe the consultation process and the issues raised, and identify where the design of the development has been amended in response to those issues. Where amendments have not been made to address an issue, a short explanation should be provided.
Further consultation after 2 years	If you do not lodge an EIS for the development within 2 years of the issue date of these SEARs, you must consult with the Secretary in relation to the requirements for lodgement.
References	The assessment of the key issues listed above must take into account relevant guidelines, policies, and plans. While not exhaustive, the following attachment contains a list of some of the guidelines, policies, and plans that may be relevant to the environmental assessment of this development.

ATTACHMENT 1

Technical and Policy Guidelines

The following guidelines may assist in the preparation of the Environmental Impact Statement. This list is not exhaustive and not all of these guidelines may be relevant to your proposal.

Many of these documents can be found on the following websites:

<http://www.planning.nsw.gov.au>

<http://www.epa.nsw.gov.au/>

<http://www.environment.nsw.gov.au/>

<http://www.dpi.nsw.gov.au/>

Plans and Documents

The EIS must include all relevant plans, architectural drawings, diagrams and relevant documentation required under Schedule 1 of the Environmental Planning and Assessment Regulation 2000. Provide these as part of the EIS rather than as separate documents.

In addition, the EIS must include the following:

1. An existing site survey plan drawn at an appropriate scale illustrating:
 - the location of the land, boundary measurements, area (sq.m) and north point;
 - the existing levels of the land in relation to buildings and roads;
 - location and height of existing structures on the site;
 - location and height of adjacent buildings and private open space; and
 - all levels to be to Australian Height Datum (AHD).
2. A locality/context plan drawn at an appropriate scale should be submitted indicating:
 - significant local features such as heritage items;
 - the location and uses of existing buildings, shopping and employment areas; and
 - traffic and road patterns, pedestrian routes and public transport nodes.
3. Drawings at an appropriate scale illustrating:
 - detailed plans, sections and elevations of the existing building, which clearly show all proposed internal and external alterations and additions.

Documents to be Submitted

Documents to submit include:

- 1 hard copy and 1 electronic copy of all the documents and plans for review prior to exhibition; and
- Additional copies as determined by the Department once the development application is lodged

Policies, Guidelines and Plans

Aspect	Policy /Methodology
Air Quality	Protection of the Environment Operations (Clean Air) Regulation 2010 Approved Methods for the Modelling and Assessment of Air Pollutants in NSW (DEC) Approved Methods for the Sampling and Analysis of Air Pollutants in NSW (DEC) TRC (2011), Generic Guidance and Optimum Model Settings for the CALPUFF Modelling System for Inclusion into the 'Approved Methods for the Modelling and Assessment of Air Pollutants in NSW, Australia'
Odour	

Policies, Guidelines and Plans

Aspect	Policy /Methodology
	Technical Framework: Assessment and Management of Odour from Stationary Sources in NSW (DEC)
	Technical Notes: Assessment and Management of Odour from Stationary Sources in NSW (DEC)
Noise and Vibration	
	Assessing Vibration: a technical guide (DEC)
	NSW Industrial Noise Policy (DECC)
	Environmental Criteria for Road Traffic Noise (NSW EPA)
	Rail Infrastructure Noise Guidelines (EPA)
	Environmental Noise Control Manual (DECC)
	Interim Construction Noise Guideline (DECC)
	Technical basis for guidelines to minimise annoyance due to blasting overpressure and ground vibration (ANZEC)
Waste	
	Waste Avoidance and Resource Recovery Strategy 2014-2021 (EPA)
	Waste Classification Guidelines (DECC)
	Environmental Guidelines: Assessment Classification and Management of Non-Liquid and Liquid Waste (NSW EPA)
	Environmental guidelines: Composting and Related Organics Processing Facilities (DEC)
	Environmental guidelines: Use and Disposal of Biosolid Products (NSW EPA)
	Composts, soil conditioners and mulches (Standards Australia, AS 4454)
	EPA's Environmental Guidelines: Solid Waste Landfills
	State Environmental Planning Policy (Infrastructure) 2007
Transport	
	Guide to Traffic Generating Development (RTA)
	Planning Guidelines for Walking and Cycling
	Austroads Guide to Traffic Management – Part 12: Traffic Impacts of Development
	Cycling Aspects of Austroads Guides
	Road Design Guide (RTA)
	NSW 2021
	NSW Long Term Transport Master Plan
	Sydney's Walking Future
	Sydney's Cycling Future
Soil and Water	
	National Water Quality Management Strategy: Water quality management - an outline of the policies (ANZECC/ARMCANZ)
	National Water Quality Management Strategy: Policies and principles - a reference document (ANZECC/ARMCANZ)
	National Water Quality Management Strategy: Implementation guidelines (ANZECC/ARMCANZ)
<i>Surface Water</i>	National Water Quality Management Strategy: Australian Guidelines for Fresh and Marine Water Quality (ANZECC/ARMCANZ)
	National Water Quality Management Strategy: Australian Guidelines for Water Quality Monitoring and Reporting (ANZECC/ARMCANZ)
	Using the ANZECC Guideline and Water Quality Objectives in NSW (DEC)
	State Water Management Outcomes Plan
	NSW Government Water Quality and River Flow Environmental Objectives

Policies, Guidelines and Plans

Aspect	Policy /Methodology
	(DECC)
	Approved Methods for the Sampling and Analysis of Water Pollutants in NSW (DEC)
	Managing Urban Stormwater: Soils & Construction (Landcom)
	Managing Urban Stormwater: Treatment Techniques (DECC)
	Managing Urban Stormwater: Source Control (DECC)
	Technical Guidelines: Bunding & Spill Management (DECC)
	Floodplain Development Manual (DIPNR)
	Floodplain Risk Management Guideline (DECC)
	A Rehabilitation Manual for Australian Streams (LWRRDC and CRCCH)
	Technical Guidelines: Bunding & Spill Management (DECC)
	Environmental Guidelines: Use of Effluent by Irrigation (DECC)
Groundwater	National Water Quality Management Strategy Guidelines for Groundwater Protection in Australia (ARMCANZ/ANZECC)
	NSW State Groundwater Policy Framework Document (DLWC)
	NSW State Groundwater Quality Protection Policy (DLWC)
	NSW State Groundwater Quantity Management Policy (DLWC) Draft
	The NSW State Groundwater Dependent Ecosystem Policy (DLWC)
	Guidelines for the Assessment and Management of Groundwater Contamination (DECC) Draft
	NSW Aquifer Interference Policy (NOW)
Soil	Australian and New Zealand Guidelines for the Assessment and Management of Contaminated Sites (ANZECC & NHMRC)
	National Environment Protection (Assessment of Site Contamination) Measure 1999 (NEPC)
	Draft Guidelines for the Assessment & Management of Groundwater Contamination (DECC)
	State Environmental Planning Policy No. 55 – Remediation of Land
	Managing Land Contamination – Planning Guidelines SEPP 55 – Remediation of Land (DOP)
	Rural Land Capability Map
Heritage	
Non-Aboriginal	NSW Heritage Manual (NSW Heritage Office and DUAP)
	The Burra Charter (The Australia ICOMOS charter for places of cultural significance)
Aboriginal	Draft guidelines for Aboriginal Cultural Heritage Assessment and Community Consultation
	The Burra Charter (The Australia ICOMOS charter for places of cultural significance)
Waste	
	Waste Avoidance and Resource Recovery Strategy 2014-2021 (EPA)
	Waste Classification Guidelines (DECC)
	Environmental Guidelines: Assessment Classification and Management of Non-Liquid and Liquid Waste (NSW EPA)
	Environmental guidelines: Composting and Related Organics Processing Facilities (DEC)
	Environmental guidelines: Use and Disposal of Biosolid Products (NSW EPA)
	Composts, soil conditioners and mulches (Standards Australia, AS 4454)

Policies, Guidelines and Plans

Aspect	Policy /Methodology
	EPA's Environmental Guidelines: Solid Waste Landfills
	State Environmental Planning Policy (Infrastructure) 2007
Biodiversity	NSW Biodiversity Offsets Policy for Major Projects (2014) and the Framework for Biodiversity Assessment
Hazard and Risk	AS/NZS 4360:2004 Risk Management
	HB 203:2006 Environmental Risk Management – Principals and Process
	State Environmental Planning Policy No 33 – Hazardous and Offensive Development (SEPP 33)
	Planning Advisory Paper No. 6 – Guidelines for Hazardous Analysis (DUAP)
	Planning Advisory Paper No. 4 – Risk Criteria for Land Use Safety Planning (DUAP)
Greenhouse Gas	AGO Factors and Methods Workbook (AGO)
	Guidelines for Energy Savings Action Plans (DEUS, 2005)
Land use	Agricultural Issues for Landfill Developments

ATTACHMENT 2
Public Authority Responses to Request for Key Issues



Our reference: EF15/2643, DOC15/
Contact: John Goodwin

Ms Rebecca Sommer
Department of Planning and Infrastructure
GPO BOX 39
SYDNEY 2001

Dear Ms Sommer

SSD 7228 – SYDNEY ZOO – DRAFT SEARS

I am writing to you in reply to your invitation to the EPA to comment on the draft SEARs for the proposed Sydney Zoo project.

The EPA understands that a private entity, referred to in the request for SEARs as 'Sydney Zoo' proposes to lease part of the 'Bungaribee Precinct' from Western Sydney Parklands Trust for the purposes of a zoo.

The EPA notes the location of residential development approximately 600 metres to the north.

The EPA notes with concern the proximity of the project site to Eastern Creek and potential adverse impacts from the project on water quality.

The environmental impact assessment (EIA) should assess, quantify and report on:

- air quality (including dust emissions during construction);
- noise and vibration during construction and operational phases of the project;
- waste management in the context of the waste management hierarchy;
- soil erosion and sedimentation particularly during the construction phase;
- radiation control associated with veterinary services;
- construction and operational water quality impacts;
- Water conservation and energy efficiency; and
- Cumulative environmental impacts.

The proponent should ensure that the EIS is sufficiently comprehensive and detailed to allow the EPA to determine the extent of the impact(s) of the proposal. The EIS should both:

- (a) describe mitigation and management options that will be used to prevent, control, abate or minimise identified environmental impacts associated with the project and to reduce risks to human health and prevent the degradation of the environment; and
- (b) include an assessment of the effectiveness and reliability of the measures and any residual impacts after these measures are implemented.

The EPA has identified the following site specific concerns based on the information (including the draft SEARs) supplied to it by Department of Planning and Environment:

- (a) the need for preliminary assessment of any potential site contamination;
- (b) bulk earthworks, construction and construction-related noise and vibration impacts (including recommended standard construction hours and intra-day respite periods for highly intrusive noise generating work);
- (c) bulk earthworks, construction and construction-related dust control and management;
- (d) bulk earthworks, construction and construction-related erosion and sediment control and management;
- (e) detailed assessment of operational noise impacts on noise sensitive receivers (especially surrounding residences) arising from operational activities;
- (g) requirements under the Radiation Control Act and Regulation in respect of any 'regulated material' associated with veterinary science services likely to be provided on site;
- (h) operational storage, handling, transport and disposal of 'clinical and related wastes';
- (i) minimisation of operational water quality impacts on surface and groundwater, including Eastern Creek and its tributaries; and
- (j) operational water conservation and energy efficiency measures.

The EPA expands on its concerns in Attachment A to this letter.

Should you require clarification of any of the above please contact John Goodwin on 9995 6838.

Yours sincerely



FRANK GAROFALOW
Manager Metropolitan Infrastructure
Environment Protection Authority

Encl. Attachment A

ATTACHMENT A
- ENVIRONMENT PROTECTION AUTHORITY COMMENTS -
SYDNEY ZOO

1. General

The EPA considers that the project comprises two distinct phases (construction and operational) and has set out its comments on that basis.

2. Construction phase

The EPA anticipates a range of environmental impacts during the construction phase of the development which should be comprehensively addressed in detail by the environmental assessment. And, notes the proximity of Eastern Creek and residences to the north.

The EPA anticipates that site preparation, bulk earthworks, construction and construction-related activities will be undertaken in an environmentally responsible manner with particular emphasis on –

- detailed site contamination investigation,
- compliance with recommended standard construction hours,
- waste management consistent with the hierarchy of re-use, recycle and then disposal as the last resort,
- feasible and reasonable noise and vibration minimisation and mitigation,
- intra-day respite periods from high noise generating construction activities (including jack hammering, rock breaking, pile boring or driving, saw cutting and vibratory rolling),
- effective dust control and management, and
- effective erosion and sediment control.

2.1 Site investigation

The EPA is unclear about any previous use of the land and thus considers that the EIS should provide sufficient information on the contamination status of soils and groundwater to enable it to provide meaningful comments.

For instance, the EIA should include detailed information about –

- (a) groundwater (example: depth and any likely impact to groundwater),
- (b) any fill material and illegally dumped waste, and
- (c) potential impacts from demolished buildings and infrastructure.

2.2 Waste control and management (general)

The proponent should manage waste in accordance with the waste management hierarchy. The waste hierarchy, established under the Waste Avoidance and Resource Recovery Act 2001, is one that ensures that resource management options are considered against the following priorities:

Avoidance including action to reduce the amount of waste generated by households, industry and all levels of government

Resource recovery including reuse, recycling, reprocessing and energy recovery, consistent with the most efficient use of the recovered resources

Disposal including management of all disposal options in the most environmentally responsible manner.

All wastes generated during the project must be properly assessed, classified and managed in accordance with the EPA's guidelines to ensure proper treatment, transport and disposal at a landfill legally able to accept those wastes.

The EPA further anticipates that, without proper site controls and management, mud and waste may be tracked off the site during the course of the project.

Recommendation

The proponent should commit to ensuring that :

- (1) all waste generated during the project is assessed, classified and managed in accordance with the "*Waste Classification Guidelines Part 1: Classifying Waste*" (Department of Environment Climate Change and Water, December 2009);
- (2) the body of any vehicle or trailer, used to transport waste or excavation spoil from the premises, is covered before leaving the premises to prevent any spill or escape of any dust, waste, or spoil from the vehicle or trailer; and
- (3) mud, splatter, dust and other material likely to fall from or be cast off the wheels, underside or body of any vehicle, trailer or motorised plant leaving the site, is removed before the vehicle, trailer or motorised plant leaves the premises.

2.3 Asbestos sheeting

The proponent should confirm whether asbestos containing material is evident on the site and the measures to be adopted should it be encountered during the site preparation, bulk earthworks and construction phases.

EPA guidance material concerning the handling, transport and disposal of asbestos wastes is available via the following link to its web-site

<http://www.environment.nsw.gov.au/waste/asbestos/index.htm>.

Recommendation

The proponent be required to satisfy the requirements of the Protection of the Environment Operations (Waste) Regulation 2014 with particular reference to Part 7 'asbestos wastes'.

Recommendation

The proponent should be required to consult with Workcover NSW concerning the handling of any asbestos waste.

2.4 Dust control and management

The EPA considers dust control and management to be an important air quality issue during site preparation and subsequent construction. Bulk earthworks inevitably generate dust as a result of –

- (a) the excavation, processing and handling of excavation spoil,
- (b) wind action on spoil stock piles, and
- (c) wind action on and plant movement across areas bare of vegetation or other cover.

The proponent should commit to:

- (a) minimising dust emissions on the site, and
- (b) preventing dust emissions from the site.

2.5 Erosion and sediment control

The EPA notes the proximity of Eastern Creek to the west and an ephemeral tributary of Eastern Creek to the east and north of the development site. And, considers that erosion and sediment controls should be designed and implemented to prevent pollution of the Creek during site preparation, bulk earthworks, construction and construction-related activities.

The Managing Urban Stormwater Soils and Construction, 4th Edition published by Landcom (the so-called 'Blue Book') provides guidance material for achieving effective erosion and sediment control on construction sites.

The EPA emphasises the importance of –

- (a) not commencing earthmoving or vegetation removal until appropriate erosion and sediment controls are in place, and
- (b) daily inspection of erosion and sediment controls which is fundamental to ensuring timely maintenance and repair of those controls.

Recommendation

The EIS should identify how the proponent will implement erosion and sediment control measures consistent with the practices and principles in –

- Managing Urban Stormwater Soils and Construction, Volume 1, 4th Edition, 2004, and
- Managing Urban Stormwater Soils and Construction Volume 2A Installation of Services.

2.6 Noise

The EPA notes the location of residences approximately 600 metres to the north of the development site.

The EPA considers that the project is likely to generate significant noise impacts on surrounding residences and other noise sensitive land uses during site preparation, bulk earthworks and construction.

The EPA provides the following guidance material for the assessment of noise and vibration impacts -

- Interim Construction Noise Guideline (2009), and
- Assessing Vibration: a technical guideline (2006).

The proponent may download a copy of the above mentioned guidance material via the following link –

<http://www.epa.nsw.gov.au/noise/>

The EIS should –

- (a) identify surrounding noise sensitive land uses, and
- (b) incorporate a comprehensive noise impact assessment of site preparation, bulk earthworks, construction and construction-related activities, especially any such activities -
 - (i) likely to generate noise with annoying or intrusive characteristics, or
 - (ii) proposed to be undertaken outside the recommended standard hours discussed in Table 1 to the *Interim Construction Noise Guideline* (ICNG).

2.6.1 construction hours (including respite periods)

Site preparation, bulk earthworks, demolition, construction and construction-related activities should be undertaken during the recommended standard construction hours set out in ICNG Table 1.

The EPA accepts that certain emergency work may need to be undertaken urgently (other than during the standard recommended hours) in order to avoid –

- loss of life,
- damage to property, or
- environmental harm.

ICNG section 4.5 specifies construction activities proven to be particularly annoying and intrusive to nearby residents and which are considered at least as annoying to the nearby private hospital and schools. The EPA anticipates that those activities generating noise with particularly annoying or intrusive characteristics would be subject to a regime of intra-day respite periods where –

- (a) they are only undertaken over continuous periods not exceeding 3 hours with at least a 1 hour respite every three hours, and.
- (b) 'continuous' means any period during which there is less than an uninterrupted 60 minute respite between temporarily halting and recommencing any of the work referred to in ICNG section 4.5

The proponent should commit to :

- (a) complying with the standard construction hours as recommended in Table 1 Chapter 2 of the Interim Construction Noise Guideline, July 2009;
- (b) scheduled intra-day 'respite periods' for construction activities identified in the Interim Construction Noise Guideline as being particularly annoying to surrounding residents and other noise sensitive receivers.

2.6.2 reversing and movement alarms

The EPA has identified the noise from 'beeper' type plant movement alarms to be particularly intrusive and is aware of feasible and reasonable alternatives. Transport for NSW (nee Transport Construction Authority), Barangaroo Delivery Authority/Lend Lease and Leighton Contractors (M2 Upgrade project) have undertaken safety risk assessments of alternatives to the traditional 'beeper' alarms. Each determined that adoption of 'quacker' type movement/reversing alarms instead of traditional beepers on all plant and vehicles would not only maintain a safe workplace but also deliver improved outcomes of reduced noise impacts on surrounding residents.

Interim Construction Noise Guideline Appendix C provides additional background material on this issue.

The proponent should commit to undertaking a safety risk assessment of construction activities to determine whether it is practicable to use audible movement alarms of a type that would minimise the noise impact on surrounding noise sensitive receivers, without compromising safety.

3. Operational phase

The EPA considers that environmental impacts that arise once the zoo commences operation can largely be averted by responsible environmental management practices, particularly with regard to:

- (a) feasible and reasonable noise avoidance and minimisation.
- (b) proper assessment, storage, handling, transport and disposal of wastes, especially clinical and cytotoxic waste;
- (c) water quality impact avoidance and minimisation;
- (d) radiation control; and
- (e) energy and water conservation.

3.1 Noise impacts

EPA is aware from long experience that significant risks of unacceptable noise impact which may arise from inadequate noise management and mitigation measures.

The EPA anticipates that the proposed facilities may change the nature and intensity of noise impacts on surrounding residences. The *NSW Industrial Noise Policy, January 2000* (INP) provides guidance material on noise impact assessment.

The EIS should include a comprehensive assessment of noise impacts associated with operation of the zoo together with design for feasible and reasonable noise impact avoidance and mitigation, including but not limited to:

- (a) potential sleep disturbance impacts on surrounding residents;
- (b) the need to apply 'modifying factors' (see INP chapter 4) to noise monitoring data and associated noise impact assessment;
- (c) adequate design, selection and maintenance of noise generating mechanical services (especially air handling plant and equipment and automated valves).

The proponent should commit to averting unacceptable noise impacts on surrounding noise sensitive receivers by –

- preparing a detailed operational noise impact statement that incorporates feasible and reasonable measures to avoid, minimise and manage noise and incorporating those noise avoidance and minimisation measures at the design stage of the project,
- establishing and fostering a good relationship with surrounding residents (including facilitation of the logging noise complaints and of obtaining an active and timely response to those complaints);
- undertaking a noise monitoring program to 'ground truth' noise impact predictions at set periods following commencement of operation of the new facilities;
- restricting loading dock and waste collection activities to 'day-time' as defined in the NSW Industrial Noise Policy, January 2000;
- undertaking a noise monitoring program at various periods after commencement of operation of the each project element to verify that measured noise levels do not exceed levels predicted in the required noise impact statement and acceptable noise levels identified in the NSW Industrial Noise Policy, January 2000.

3.2 Clinical and related waste

The EPA anticipates that the proposed facilities will include veterinary services that generate 'clinical and related waste' in the nature of 'sharps waste' which are defined in clause 50 of Schedule 1 to the Protection of the Environment Operations Act 1997 as follows –

'Clinical and related waste' includes clinical waste; cytotoxic waste; pharmaceutical, drug or medicine waste; and sharps waste.

'Sharps waste' means any waste collected from designated sharps waste containers used in the course of business, commercial or community service activities, being waste resulting from the use of sharps for any of the following purposes:

- (a) human health care by health professionals and other health care providers,
- (b) medical research or work on cadavers,
- (c) veterinary care or veterinary research,
- (d) skin penetration or the injection of drugs or other substances for medical or non-medical reasons,

but does not include waste that has been treated on the site where it was generated (and to a standard specified in an EPA Gazettal notice) or waste that has been treated by a method approved in writing by the Secretary of the Ministry of Health.

Recommendation

The EIS should identify the nature and scope of clinical and related waste likely to be generated during operation of the zoo and the measures proposed to handle, store, transport and dispose of those wastes.

3.2.1 Trackable waste

Clinical and related waste is identified in Part 1 of Schedule 1 to the Protection of the Environment Operations (Waste) Regulation 2014 as trackable waste subject to the requirements of Part 4 of that Regulation.

However, a limited exemption applies to the tracking of clinical and related waste transported only within New South Wales. The notice of exemption is available via the following link –

<http://www.epa.nsw.gov.au/wasteregulation/track-clinical.htm>

Recommendation

The EIS should identify how the proponent will ensure compliance with any relevant trackable waste requirements of Part 4 of the Protection of the Environment Operations (Waste) Regulation 2014 in relation to clinical and related waste generated in the course of zoo operations.

3.3 Radiation Control Act and Regulation

The EPA administers the Radiation Control Act 1990 (and Radiation Control Regulation 2013) and anticipates that 'regulated material' will be stored and possessed at the zoo for the purposes of veterinary care. 'Regulated material' means -

- (a) radioactive substances,
- (b) ionising radiation apparatus,
- (c) non-ionising radiation apparatus of a kind prescribed by the regulations, and
- (d) sealed source devices.

A 'person responsible' within the meaning of section 6 of the Radiation Control Act 1990 is obliged to hold an appropriate 'radiation management licence' in respect of regulated material at the zoo.

A natural person who uses regulated material at the university campus must hold a 'radiation user licence' and must comply with any conditions to which the licence is subject.

Frequently asked questions about radiation management licences is available via the following link –

<http://www.epa.nsw.gov.au/radiation/management/faq.htm>

The EIS should include details of consultation with the Environment Protection Authority in regard to any necessary amendment to the Western Sydney Local Health District 'radiation management licence' in respect of regulated material at the new facilities and the management and handling of waste containing radioactive material.

3.4 Water Quality (Eastern Creek)

The EIS should provide a detailed assessment of potential operational impacts on water quality in Eastern Creek and its tributaries. And should, identify feasible and reasonable measures including rainwater re-use to minimise those impacts.

Guidance material is available via the following link –

<http://www.environment.nsw.gov.au/water/usinganzeccandwqos.htm>

The EIS should also explicitly:

- a) assess existing surface water and groundwater quality against relevant criteria for the environmental values of Eastern Creek identified in ANZECC Guidelines for Fresh and Marine Water Quality 2000;
- b) identify pollutants likely to be generated by project activities, including stormwater runoff, and estimate the concentration and quantity of those pollutants reported against the environmental values and criteria referred to in paragraph (a) above;
- c) assess the impact of any pollutants referred to in paragraph (b) on surface and groundwater, including Eastern Creek and its tributaries;
- d) include details of practical measures proposed to be adopted to prevent, control, abate and mitigate any water pollution arising from the project activities; and
- e) include details of any proposed discharge (nature, volume and location) to receiving waters, including Eastern Creek and its tributaries.

3.5 Energy and Water Conservation

The EPA considers the zoo is likely to be major consumer of energy and potable water.

The EIS should identify and evaluate –

- a) practical opportunities to minimise energy use,
- b) practical opportunities to minimise water use,
- c) project water requirements on a total water cycle basis, outlining –
 - project water requirements and sources, and
 - total water balances for the project operations with the objective of minimising demands and impacts on external water resources.



**Office of
Environment
& Heritage**

DOC15/339708
SSD 7228

Mr Chris Ritchie
Director Industry Assessments
Department of Planning and Environment
rebecca.sommer@planning.nsw.gov.au

Attention: Rebecca Sommer

Dear Mr Ritchie

Request for SEARs for the Sydney Zoo Bungaribee Western Sydney Parklands

I refer to your letter dated 28 August 2015 seeking input from the Office of Environment and Heritage (OEH) to the Secretary's environmental assessment requirements (SEARs) for the Sydney Zoo, Bungaribee Western Sydney Parklands, Blacktown Local Government Area (SSD 7228).

OEH provides recommendations for the SEARs for the project environmental impact statement (EIS) in relation to Aboriginal cultural heritage, biodiversity and flooding in Attachment 1.

If you have any queries regarding this matter please contact Rachel Lonie, Senior Operations Officer, on 9995 6837.

Yours sincerely

10/9/15

MARNIE STEWART
A/ Senior Team Leader Planning

Attachment 1: OEH recommended SEARs for the Sydney Zoo, Bungarribee (SSD 7228)

1. Aboriginal Cultural Heritage

- 1.1. The EIS must identify and describe the tangible and intangible Aboriginal cultural heritage values that exist across the whole area that will be affected by the project and document these in the EIS. This may include the need for surface survey and test excavation. The identification of cultural heritage values should be guided by the Guide to investigating, assessing and reporting on Aboriginal Cultural Heritage in NSW (DECCW, 2011).
- 1.2. Where Aboriginal cultural heritage values are identified, consultation with Aboriginal people must be undertaken and documented in accordance with the Aboriginal cultural heritage consultation requirements for proponents 2010 (DECCW). The significance of cultural heritage values for Aboriginal people who have a cultural association with the land must be documented in the EIS.
- 1.3. Impacts on Aboriginal cultural heritage values are to be assessed and documented in the EIS. The EIS must demonstrate attempts to avoid impact upon cultural heritage values and identify any conservation outcomes. Where impacts are unavoidable, the EIS must outline measures proposed to mitigate impacts. Any objects recorded as part of the assessment must be documented and notified to OEH.

2. Biodiversity

- 2.1. Biodiversity impacts related to the proposed project are to be assessed and documented in accordance with the *NSW Biodiversity Offsets Policy for Major Projects* (2014) and the Framework for Biodiversity Assessment, by a person accredited in accordance with s142B(1)(c) of the *Threatened Species Conservation Act 1995*.
- 2.2. Impacts on the following species, populations and ecological communities will require further consideration and provision of the information specified in s9.2 of the Framework for Biodiversity Assessment:
 - a. Threatened Flora
 - Downy Wattle (*Acacia pubescens*) (only requires further consideration if greater than 5 individuals will be impacted by development)
 - *Grevillea juniperina* ssp. *juniperina* (only requires further consideration if greater than 5 individuals will be impacted by development)
 - *Marsdenia viridiflora* ssp. *viridiflora*
 - Spiked Rice Flower (*Pimelea spicata*) (only requires further consideration if greater than 2 individuals will be impacted by development)
 - *Pultenaea parviflora* (only requires further consideration if greater than 10 individuals will be impacted by development)
 - b. Threatened Fauna
 - Little Bentwing-Bat (*Miniopterus australis*) (only if maternity or roost sites are impacted)
 - Grey-headed Flying-fox (*Pteropus poliocephalus*) (only if camps are impacted)

3. Flooding and coastal erosion

- 3.1. The EIS must map the following features relevant to flooding as described in the Floodplain Development Manual 2005 (NSW Government 2005) including:
 - Flood prone land

- Flood planning area, the area below the flood planning level.
 - Hydraulic categorisation (floodways and flood storage areas).
- 3.2. The EIS must describe flood assessment and modelling undertaken in determining the design flood levels for events, including a minimum of the 1 in 10 year, 1 in 100 year flood levels and the probable maximum flood, or an equivalent extreme event.
- 3.3. The EIS must model the effect of the proposed Sydney Zoo project (including fill) on the flood behaviour under the following scenarios:
- a. Current flood behaviour for a range of design events as identified in 11 above. This includes the 1 in 200 and 1 in 500 year flood events as proxies for assessing sensitivity to an increase in rainfall intensity of flood producing rainfall events due to climate change.
- 3.4. Modelling in the EIS must consider and document:
- a. The impact on existing flood behaviour for a full range of flood events including up to the probable maximum flood.
 - b. Impacts of the development on flood behaviour resulting in detrimental changes in potential flood affection of other developments or land. This may include redirection of flow, flow velocities, flood levels, hazards and hydraulic categories.
 - c. Relevant provisions of the NSW Floodplain Development Manual 2005.
- 3.5 The EIS must assess the impacts on the proposed Sydney Zoo project on flood behaviour, including:
- a. Whether there will be detrimental increases in the potential flood affection of other properties, assets and infrastructure.
 - b. Consistency with Council floodplain risk management plans.
 - c. Compatibility with the flood hazard of the land.
 - d. Compatibility with the hydraulic functions of flow conveyance in floodways and storage in flood storage areas of the land.
 - e. Whether there will be adverse effect to beneficial inundation of the floodplain environment, on, adjacent to or downstream of the site.
 - f. Whether there will be direct or indirect increase in erosion, siltation, destruction of riparian vegetation or a reduction in the stability of river banks or watercourses.
 - g. Any impacts the development may have upon existing community emergency management arrangements for flooding. These matters are to be discussed with the SES and Council.
 - h. Whether the proposal incorporates specific measures to manage risk to life from flood. These matters are to be discussed with the SES and Council.
 - i. Emergency management, evacuation and access, and contingency measures for the development considering the full range of flood risk (based upon the probable maximum flood or an equivalent extreme flood event). These matters are to be discussed with and have the support of Council and the SES.
 - j. Any impacts the development may have on the social and economic costs to the community as consequence of flooding.



Western Sydney Parklands Trust

Mr Chris Ritchie
Department of
Planning and Environment
23-33 Bridge Street
Sydney NSW 200

Contact: Bojan Sodic
Phone (02) 9895 7047
Email bojan.sodic@wspt.nsw.gov.au
Date: 3rd September 2015

Dear Chris

Owner's Consent Letter to Request for SEARs for The Sydney Zoo, Bungarribee – SSD 7228
Western Sydney Parklands, Blacktown Local Government Area

Western Sydney Parklands Trust (Lessor and registered Land Owner) and Sydney Zoo Pty Ltd have entered into an Agreement For Lease for the construction of a Zoo at Bungarribee Park.

We are writing to you in response to your letter dated 28th August 2015 in relation to a request for SEARs from JBA Urban Planning Consultants, on behalf of Sydney Zoo Pty Limited, Bungarribee – SSD 7228. We have reviewed all documentation provided and have no issues to raise at this time.

Accordingly, the Western Sydney Parklands Trust grants its written consent to the SEARs lodgement by JBA Urban Planning Consultants, on behalf of Sydney Zoo Pty Limited, Bungarribee – SSD 7228

Yours sincerely
Western Sydney Parklands Trust

Suellen Fitzgerald
Director

Your ref: SSD 7228
File no: MC-15-1942

14 September 2015

Industry Assessments
Department of Planning & Environment
GPO Box 39
SYDNEY NSW 2001

Attention: Rebecca Sommer

Dear Ms Sommer,

**SSD 7217 Input into Draft Secretary's Environmental Assessment
Requirements for Sydney Zoo, Bungaribee Park, Western Sydney Parklands**

I refer to your correspondence dated 28 August 2015 and 9 September 2015, requesting that Council provide input with regard to the draft Secretary's Environmental Assessment Requirements (SEARs) for the above proposal. Blacktown City Council appreciates the opportunity to provide comments on the key issues and assessment requirements for the proposal.

We have undertaken a preliminary review of the proposal and the draft SEARs, and request that additional specific items are included as listed in **Attachment A** to this letter.

We also trust that all relevant owners and occupiers will be informed of this proposal, in particular the residential properties in the Bungaribee residential area (on both the eastern and western side of Doonside Road), up to Bungaribee Road.

If you would like to discuss this matter further, please contact me on 9839 6228.

Yours faithfully,



Judith Portelli
Manager Development Assessment

ATTACHMENT A

The following items are requested to be included in the draft SEARS:

1. Environmental Health

1.1 Air Quality Impact Assessment

- a) An air impact assessment must be conducted by a suitably qualified expert in line with the *Approved Methods and Guidance for the Modelling and Assessment of Air Pollutants in NSW* (EPA 2011) which includes:
 - All processes and scenarios that could result in air pollution and/or generation of odour, this must also include worst case scenarios.
 - An assessment of the air quality impacts arising from the project on surrounding sensitive receptors (particularly dust and odour).
 - Provide an air pollutant management plan that includes details of the various methods that will be employed to control pollutants both during the construction and operational phases.

1.2 Noise Impact Assessment

- a) Determine the existing background ambient noise levels in accordance with the *NSW Industrial Noise Policy, 2000*.
- b) Determine the existing road traffic noise levels in accordance with the *NSW Road Noise Policy*.
- c) Conduct a noise assessment by a suitably qualified consultant in accordance with *NSW Industrial Noise Policy, 2000* that:
 - Identifies all existing and proposed noise sources, including animal noises.
 - Identifies any noise sensitive locations which may be affected by activities.
 - Quantifies the cumulative noise impacts upon the surrounding receivers.
 - Assesses all construction noise associated with the proposal using the *Interim Construction Noise Guideline* (DECC, 2009).
 - Specifies the proposed operating hours over a 24 hours period that includes an assessment of the maximum noise levels during the night-time period (10pm-7am).
 - Assesses any increased road traffic generated at the premises.
 - Assesses the noise impact associated with use of access roads, internal roads and potential environmental impacts from increased vehicle movements as a result of the proposal.
- d) Outline the noise management and mitigation measures including appropriate controls for both construction and operational noise.

1.3 Waste Management

- a) Identify all waste streams both incoming and outgoing from the premises in accordance with the EPA's Waste Classification Guidelines.
- b) Provide details regarding the source, quantity and types of all wastes that will be generated, accepted, handled, processed or treated.
- c) Provide details regarding the proposed transportation, receipt and handling of waste generated.
- d) Detail the extent of any waste that is to be stockpiled including:

- Estimated average and maximum amount of materials to be stored at any one time.
 - Stockpile heights.
 - The approximate locations of these stockpiles.
 - Proposed containment of materials and stockpiles.
 - Fire management and odour from any green waste stockpiles.
- e) Assess the estimated emissions arising from the handling, storage, treatment, processing and reprocessing of waste at the site.

1.4 Surface Water and Wastewater Management

- a) Describe the intake and discharge of water at the site including:
- Volumes;
 - Water quality; and
 - Frequency of all water discharges.
- b) Assess and provide details of all surface water, groundwater and wastewater impacts that are likely to occur during and as a result of discharges at the site.
- c) Assess all surrounding water bodies and receiving waters that are likely to be affected by the proposal.
- d) Describe any control measures to be implemented that minimise wastewater generation, erosion, and sediment mobilisation during both construction and operational phases of the proposal.
- e) Describe how stormwater will be managed both during and after construction.
- f) Describe how predicted impacts will be monitored and assessed over time.

2. Engineering

All Civil Engineering Works should follow *Blacktown City Council, Engineering Guide for Development – 2005* to facilitate the efficient processing of engineering plan submissions, and to ensure that infrastructure associated with any development is designed and constructed to be safe, serviceable, economical to maintain and meets community expectations.

3. Stormwater Drainage

- 3.1 Stormwater water quality improvement targets are to be achieved on-site prior to discharge, accounting for all bypass. The targets are to be assessed using MUSIC and in accordance with all the requirements of Blacktown City Council's Water Sensitive Urban Design. An electronic copy of MUSIC is to be provided to Council for assessment. The required percentage reductions in post development average annual load of pollutants are:

Pollutant	% post development pollutant reduction targets
Gross Pollutants	90
Total Suspended Solids	85
Total Phosphorous	65
Total Nitrogen	45
Total Hydrocarbons	90

Note: As MUSIC does not assess hydrocarbons, a gross pollutant trap targeting hydrocarbons and designed to treat the minimum 6 month flow is deemed to comply.

- 3.2 The development should achieve a minimum of 80% (assessed using MUSIC) of the non-potable water uses on-site being met using rainwater or treated stormwater. Non-potable uses include toilet flushing and landscape watering. Allow for toilet reuse of 0.1 KL/day per toilet/urinal, ignoring any disabled toilet. For watering landscaped areas (ignoring turf areas) allow 0.4 kL/year/m² as PET-Rain. For bioretention filter areas only (if used) allow 1 kL/year/m² as PET-Rain. Allow for a 20% loss in rainwater tank size volume in MUSIC compared to that shown on the design plans to allow for anaerobic zones, mains water top up levels and overflow levels.
- 3.3 Provide two additional MUSIC models (pre and post) to demonstrate that the Stream Erosion Index is less than 3.5 based on the technique in Council's MUSIC Modelling Guide in part 4 of the *Developer Handbook for Water Sensitive Urban Design* available on Council's website.
- 3.4 Design an on-site detention basin to mitigate all post developed flows from the site to not exceed pre developed rural catchment flows (with an initial pervious loss of 15 mm) for all storm events from 1 in 2 year ARI to 1 in 100 year ARI. This design is to be supported by electronic modelling that complies with the requirements of the Council's *Engineering Guide for Development 2005* and account for any bypass of the detention basin. The spillway should be designed to cater for the PMF event with scour protection and ensuring the stability of the basin wall.
- 3.5 All development including carparks are to be above the 1 in 100 year ARI flood level. Any building floor levels are to be above the 1 in 100 year ARI flood level plus 0.5 m.
- 3.6 Prepare a Flood Management Plan for the site.
- 3.7 Develop a Vegetation Management Plan for the restoration of the Eastern Creek Embankment with endemic riparian vegetation within the floodplain.

4. Building

The proposal is to include an access report for the entire built environment. The report is to be prepared by a qualified and accredited access consultant.

It is recommended that measures are in place to foster a 'wheelchair and pram friendly' atmosphere.

5. Traffic and Transport

Provide a Plan of Management which considers peak visitor periods, parking for full-time and casual staff, bus parking / layover areas, the bus drop off zone, permanent visitor parking spaces and the overflow visitor parking spaces. This plan should also make provision for traffic management when the recreational uses also within Bungaribee Park are the also accessible to the public.

Clarify access to the new internal access road and the site, including detailing is the potential intersection upgrade works comprise left in-left out access, etc.

Ensure the Traffic Impact Assessment specifically addresses any impact on Doonside Road and the future intersection with Doonside Road that would be utilised by the Zoo patrons.

6. Planning Matters

- 6.1** Provide a Bushfire Risk Assessment Report.
- 6.2** Provide details of the expected finished ground levels, cut and fill, bulk earthworks and retaining works. Should importation of fill be required, include a draft Management Plan detailing the source of fill, truck routes (in particular if routes are past residential properties) and the quantity of imported fill.
- 6.3** Should any evening or night activities be held, provide specific details and consideration of these activities (such as evening concerts) in light of potential adverse impacts on the nearby residential properties.
- 6.4** The Preliminary Environmental Assessment Report states that a new substation is to be provided. The Proponent is requested to consult with the energy provider. The location and details of the substation are requested to be nominated on the plans.
- 6.5** It is noted that there are minimal staff facilities and amenities for up to 100 staff. The EIS is to demonstrate that appropriate facilities are available to serve the needs of the staff.
- 6.6** Undertake continued consultation with public transport providers. It is noted that the Preliminary Environmental Assessment Report states that two Busway routes already service the site from Blacktown Station. It is recommended that the Proponent also investigates bus services from Doonside Station, and/or shuttle services to suitable locations.

- 6.7** Provide details of any business identification and general signage, including details of illumination, if relevant. The proposal is to satisfy the requirements of SEPP 64 – Advertising and Signage.

Provide a plan which details way finding signage and lighting to ensure that vehicular, pedestrian and cycle movement through the site is clearly communicated. Particular attention is to be paid to signage which manages overflow parking and ingress/egress to and from the site and the new access road.

- 6.8** Confirm if the proposed parking comprises any parking fees or timing restrictions. If this is the case, details are requested to be provided as to how this will be managed and the application of any parking fees.
- 6.9** Provide details of security and safety measures to be implemented, including any after-hours measures for staff. Also confirm if the parking area is to be closed to the public after-hours, whilst also maintaining after-hours access for staff and emergency vehicles.



Department of Primary Industries

OUT15/24831

Ms Rebecca Sommer
Industry Assessments
NSW Department of Planning and Environment
GPO Box 39
SYDNEY NSW 2001

21 SEP 2015

Rebecca.Sommer@planning.nsw.gov.au

Dear Ms Sommer,

The Sydney Zoo, Bungarribee [SSD_7228] Request for input into Secretary's Environmental Assessment Requirements

I refer to your email dated 28 August 2015 to the Department of Primary Industries in respect to the above matter.

Comment by DPI Water

DPI Water has reviewed the supporting documentation accompanying the request for Secretary's Environmental Assessment Requirements (SEARs) and provides the following comments, and further detail in **Attachment A**.

It is recommended that the EIS be required to include:

- Annual volumes of surface water and groundwater proposed to be taken by the activity (including through inflow and seepage) from each surface and groundwater source as defined by the relevant water sharing plan.
- Assessment of any volumetric water licensing requirements (including those for ongoing water take following completion of the project).
- The identification of an adequate and secure water supply for the life of the project. Confirmation that water can be sourced from an appropriately authorised and reliable supply. This is to include an assessment of the current market depth where water entitlement is required to be purchased.
- A detailed and consolidated site water balance.
- Assessment of impacts on surface and ground water sources (both quality and quantity), related infrastructure, adjacent licensed water users, basic landholder rights, watercourses, riparian land, and groundwater dependent ecosystems, and measures proposed to reduce and mitigate these impacts.
- Full technical details and data of all surface and groundwater modelling.

- Proposed surface and groundwater monitoring activities and methodologies.
- Assessment of any potential cumulative impacts on water resources, and any proposed options to manage the cumulative impacts.
- Consideration of relevant policies and guidelines.

A statement of where each element of the SEARs is addressed in the EIS (i.e. in the form of a table). The Concept Plan for Sydney Zoo appears to show a car park is proposed to encroach into existing vegetation along the Eastern Creek riparian/bushland corridor which seems contrary to *State Environmental Planning Policy (Western Sydney Parklands) 2009* and the *Parklands Plan of Management 2020*.

SEPP (Western Sydney Parklands) 2009 includes an aim (d) to protect and enhance the natural systems of the Western Parklands including riparian corridors and the *Parklands Plan of Management 2020* includes an objective to secure a bushland corridor along the entire length of the Parklands to improve biodiversity. Within the Bungaribee Precinct the bushland corridor is located along Eastern Creek.

The EIS needs to consider consistency with these instruments, and in particular, clarify whether the SSD development proposes to encroach into the bushland corridor and remove/disturb any remnant native riparian vegetation from along Eastern Creek. It is recommended the design and layout of the zoo is reconfigured to locate the carpark so that the SSD avoids disturbing the riparian/bushland corridor along Eastern Creek and it protects native fauna that inhabit and use the corridor.

For further information please contact Janne Grose, Planning and Assessment Coordinator (Penrith office) on 8838 7505 or at janne.grose@dpi.nsw.gov.au.

DPI Fisheries advise no issues.

Yours sincerely



Kristian Holz
Director Policy, Legislation and Innovation

Attachment A

The Sydney Zoo, Bungarribee [SSD_7228] Request for Input into Secretary's Environment Assessment Requirements General Assessment Requirements for general projects – DPI Water

The following detailed assessment requirements are provided to assist in adequately addressing the assessment requirements for this proposal.

For further information visit the DPI Water website, www.water.nsw.gov.au

Key Relevant Legislative Instruments

This section provides a basic summary to aid proponents in the development of an Environmental Impact Statement (EIS), and should not be considered a complete list or comprehensive summary of relevant legislative instruments that may apply to the regulation of water resources for a project.

The EIS should take into account the objects and regulatory requirements of the *Water Act 1912* (WA 1912) and *Water Management Act 2000* (WMA 2000), and associated regulations and instruments, as applicable.

Water Management Act 2000 (WMA 2000)

Key points:

- Volumetric licensing in areas covered by water sharing plans,
- Works within 40m of waterfront land,
- SSD & SSI projects are exempt from requiring water supply work approvals and controlled activity approvals as a result of the *Environmental Planning & Assessment Act 1979* (EP&A Act),
- No exemptions for volumetric licensing apply as a result of the EP&A Act,
- Basic landholder rights, including harvestable rights dams,
- Aquifer interference activity approval and flood management work approval provisions have not yet commenced and are regulated by the *Water Act 1912*,
- Maximum penalties of \$2.2 million plus \$264,000 for each day an offence continues apply under the *WMA 2000*.

Water Act 1912 (WA 1912)

Key points:

- Volumetric licensing in areas where no water sharing plan applies,
- Monitoring bores,
- Aquifer interference activities that are not regulated as a water supply work under the *WMA 2000*,
- Flood management works,
- No exemptions apply to licences or permits under the *WA 1912* as a result of the EP&A Act,
- Regulation of water bore driller licensing.

Water Management (General) Regulation 2011

Key points:

- Provides various exemptions for volumetric licensing and activity approvals
- Provides further detail on requirements for dealings and applications.

Water Sharing Plans – these are considered regulations under the *WMA 2000*

Access Licence Dealing Principles Order 2004

Water Sharing Plans

It is important that the proponent understands and describes the ground and surface water sharing plans, water sources, and management zones that apply to the project. The relevant water sharing plans can be determined spatially at www.ourwater.nsw.gov.au. Multiple water sharing plans may apply and these must all be described.

The *Water Act 1912* applies to all water sources not yet covered by a commenced water sharing plan.

The EIS is required to:

- Demonstrate how the proposal is consistent with the relevant rules of the Water Sharing Plan including rules for access licences, distance restrictions for water supply works and rules for the management of local impacts in respect of surface water and groundwater sources, ecosystem protection (including groundwater dependent ecosystems), water quality and surface-groundwater connectivity.
- Provide a description of any site water use (amount of water to be taken from each water source) and management including all sediment dams, clear water diversion structures with detail on the location, design specifications and storage capacities for all the existing and proposed water management structures.
- Provide an analysis of the proposed water supply arrangements against the rules for access licences and other applicable requirements of any relevant WSP, including:
 - Sufficient market depth to acquire the necessary entitlements for each water source.
 - Ability to carry out a “dealing” to transfer the water to relevant location under the rules of the WSP.
 - Daily and long-term access rules.
 - Account management and carryover provisions.
- Provide a detailed and consolidated site water balance.
- Further detail on licensing requirements is provided below.

Relevant Policies and Guidelines

The EIS should take into account the following policies (as applicable):

- NSW Guidelines for Controlled Activities on Waterfront Land (NOW, 2012)
- NSW Aquifer Interference Policy (NOW, 2012)
- Risk Assessment Guidelines for Groundwater Dependent Ecosystems (NOW, 2012)
- Australian Groundwater Modelling Guidelines (NWC, 2012)
- NSW State Rivers and Estuary Policy (1993)
- NSW Wetlands Policy (2010)
- NSW State Groundwater Policy Framework Document (1997)
- NSW State Groundwater Quality Protection Policy (1998)
- NSW State Groundwater Dependent Ecosystems Policy (2002)
- NSW Water Extraction Monitoring Policy (2007)

DPI Water policies can be accessed at the following links:

<http://www.water.nsw.gov.au/Water-management/Law-and-policy/Key-policies/default.aspx>
<http://www.water.nsw.gov.au/Water-licensing/Approvals/Controlled-activities/default.aspx>

An assessment framework for the NSW Aquifer Interference Policy can be found online at: <http://www.water.nsw.gov.au/Water-management/Law-and-policy/Key-policies/Aquifer-interference>.

Licensing Considerations

The EIS is required to provide:

- Identification of water requirements for the life of the project in terms of both volume and timing (including predictions of potential ongoing groundwater take following the cessation of operations at the site – such as evaporative loss from open voids or inflows).
- Details of the water supply source(s) for the proposal including any proposed surface water and groundwater extraction from each water source as defined in the relevant Water Sharing Plan/s and all water supply works to take water.
- Explanation of how the required water entitlements will be obtained (i.e. through a new or existing licence/s, trading on the water market, controlled allocations etc).
- Information on the purpose, location, construction and expected annual extraction volumes including details on all existing and proposed water supply works which take surface water, (pumps, dams, diversions, etc).
- Details on all bores and excavations for the purpose of investigation, extraction, dewatering, testing and monitoring. All predicted groundwater take must be accounted for through adequate licensing.
- Details on existing dams/storages (including the date of construction, location, purpose, size and capacity) and any proposal to change the purpose of existing dams/storages.
- Details on the location, purpose, size and capacity of any new proposed dams/storages.
- Applicability of any exemptions under the *Water Management (General) Regulation 2011* to the project.

Water allocation account management rules, total daily extraction limits and rules governing environmental protection and access licence dealings also need to be considered.

The Harvestable Right gives landholders the right to capture and use for any purpose 10% of the average annual runoff from their property. The Harvestable Right has been defined in terms of an equivalent dam capacity called the Maximum Harvestable Right Dam Capacity (MHRDC). The MHRDC is determined by the area of the property (in hectares) and a site-specific run-off factor. The MHRDC includes the capacity of all existing dams on the property that do not have a current water licence. Storages capturing up to the harvestable right capacity are not required to be licensed but any capacity of the total of all storages/dams on the property greater than the MHRDC may require a licence.

For more information on Harvestable Right dams, including a calculator, visit:

<http://www.water.nsw.gov.au/Water-licensing/Basic-water-rights/Harvesting-runoff/Harvesting-runoff>

Dam Safety

Where new or modified dams are proposed, or where new development will occur below an existing dam, the NSW Dams Safety Committee should be consulted in relation to any safety issues that may arise. Conditions of approval may be recommended to ensure safety in relation to any new or existing dams.

See www.damsafety.nsw.gov.au for further information.

Surface Water Assessment

The predictive assessment of the impact of the proposed project on surface water sources should include the following:

- Identification of all surface water features including watercourses, wetlands and floodplains transected by or adjacent to the proposed project.
- Identification of all surface water sources as described by the relevant water sharing plan.
- Detailed description of dependent ecosystems and existing surface water users within the area, including basic landholder rights to water and adjacent/downstream licensed water users.
- Description of all works and surface infrastructure that will intercept, store, convey, or otherwise interact with surface water resources.
- Assessment of predicted impacts on the following:
 - flow of surface water, sediment movement, channel stability, and hydraulic regime,
 - water quality,
 - flood regime,
 - dependent ecosystems,
 - existing surface water users, and
 - planned environmental water and water sharing arrangements prescribed in the relevant water sharing plans.

Groundwater Assessment

To ensure the sustainable and integrated management of groundwater sources, the EIS needs to include adequate details to assess the impact of the project on all groundwater sources.

Where it is considered unlikely that groundwater will be intercepted or impacted (for example by infiltration), a brief site assessment and justification for the minimal impacts may be sufficient, accompanied by suitable contingency measures in place in the event that groundwater is intercepted, and appropriate measures to ensure that groundwater is not contaminated.

Where groundwater is expected to be intercepted or impacted, the following requirements should be used to assist the groundwater assessment for the proposal.

- The known or predicted highest groundwater table at the site.
- Works likely to intercept, connect with or infiltrate the groundwater sources.
- Any proposed groundwater extraction, including purpose, location and construction details of all proposed bores and expected annual extraction volumes.
- Bore construction information is to be supplied to DPI Water by submitting a "Form A" template. DPI Water will supply "GW" registration numbers (and licence/approval numbers if required) which must be used as consistent and unique bore identifiers for all future reporting.
- A description of the watertable and groundwater pressure configuration, flow directions and rates and physical and chemical characteristics of the groundwater source (including connectivity with other groundwater and surface water sources).
- Sufficient baseline monitoring for groundwater quantity and quality for all aquifers and GDEs to establish a baseline incorporating typical temporal and spatial variations.
- The predicted impacts of any final landform on the groundwater regime.
- The existing groundwater users within the area (including the environment), any potential impacts on these users and safeguard measures to mitigate impacts.

- An assessment of groundwater quality, its beneficial use classification and prediction of any impacts on groundwater quality.
- An assessment of the potential for groundwater contamination (considering both the impacts of the proposal on groundwater contamination and the impacts of contamination on the proposal).
- Measures proposed to protect groundwater quality, both in the short and long term.
- Measures for preventing groundwater pollution so that remediation is not required.
- Protective measures for any groundwater dependent ecosystems (GDEs).
- Proposed methods of the disposal of waste water and approval from the relevant authority.
- The results of any models or predictive tools used.

Where potential impact/s are identified the assessment will need to identify limits to the level of impact and contingency measures that would remediate, reduce or manage potential impacts to the existing groundwater resource and any dependent groundwater environment or water users, including information on:

- Any proposed monitoring programs, including water levels and quality data.
- Reporting procedures for any monitoring program including mechanism for transfer of information.
- An assessment of any groundwater source/aquifer that may be sterilised from future use as a water supply as a consequence of the proposal.
- Identification of any nominal thresholds as to the level of impact beyond which remedial measures or contingency plans would be initiated (this may entail water level triggers or a beneficial use category).
- Description of the remedial measures or contingency plans proposed.
- Any funding assurances covering the anticipated post development maintenance cost, for example on-going groundwater monitoring for the nominated period.

Groundwater Dependent Ecosystems

The EIS must consider the potential impacts on any Groundwater Dependent Ecosystems (GDEs) at the site and in the vicinity of the site and:

- Identify any potential impacts on GDEs as a result of the proposal including:
 - the effect of the proposal on the recharge to groundwater systems;
 - the potential to adversely affect the water quality of the underlying groundwater system and adjoining groundwater systems in hydraulic connections; and
 - the effect on the function of GDEs (habitat, groundwater levels, connectivity).
- Provide safeguard measures for any GDEs.

Watercourses, Wetlands and Riparian Land

The EIS should address the potential impacts of the project on all watercourses likely to be affected by the project, existing riparian vegetation and the rehabilitation of riparian land. It is recommended the EIS provides details on all watercourses potentially affected by the proposal, including:

- Scaled plans showing the location of:
 - wetlands/swamps, watercourses and top of bank;
 - riparian corridor widths to be established along the creeks;
 - existing riparian vegetation surrounding the watercourses (identify any areas to be protected and any riparian vegetation proposed to be removed);

- the site boundary, the footprint of the proposal in relation to the watercourses and riparian areas; and
- proposed location of any asset protection zones.
- Photographs of the watercourses/wetlands and a map showing the point from which the photos were taken.
- A detailed description of all potential impacts on the watercourses/riparian land.
- A detailed description of all potential impacts on the wetlands, including potential impacts to the wetlands hydrologic regime; groundwater recharge; habitat and any species that depend on the wetlands.
- A description of the design features and measures to be incorporated to mitigate potential impacts.
- Geomorphic and hydrological assessment of water courses including details of stream order (Strahler System), river style and energy regimes both in channel and on adjacent floodplains.

Landform rehabilitation

Where significant modification to landform is proposed, the EIS must include:

- Justification of the proposed final landform with regard to its impact on local and regional surface and groundwater systems;
- A detailed description of how the site would be progressively rehabilitated and integrated into the surrounding landscape;
- Outline of proposed construction and restoration of topography and surface drainage features if affected by the project; and
- An outline of the measures to be put in place to ensure that sufficient resources are available to implement the proposed rehabilitation.

Consultation and general enquiries

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General licensing enquiries can be made to Advisory Services: water.enquiries@dpi.nsw.gov.au, 1800 353 104.

Assessment or state significant development enquiries, or requests for review or consultation should be directed to the Strategic Stakeholder Liaison Unit, water.referrals@dpi.nsw.gov.au.

A consultation guideline and further information is available online at:

www.water.nsw.gov.au/water-management/law-and-policy/planning-and-assessment

End Attachment A



Transport
for NSW

Mr Chris Ritchie
Industry Assessments
Department of Planning and Environment
GPO Box 39
Sydney NSW 2001

Attn: Rebecca Sommer

Requests for SEARs for The Sydney Zoo, Bungarribee – SSD 7228

Dear Mr Ritchie

Thank you for your recent correspondence inviting Transport for NSW (TfNSW) to provide input into the Secretary's Environmental Assessment Requirements (SEARs) for the above development in Bungarribee.

TfNSW recommends the following SEARs outlined in **Attachment 1** for the proposed development.

Should you have any questions regarding this matter, please contact Edmond Platon, Transport Planner on 8202 2557 or edmond.platon@transport.nsw.gov.au.

Yours sincerely

A handwritten signature in black ink, appearing to be 'M. Ozinga', written over a circular stamp.

16/9/15

Mark Ozinga

**Principal ManExecutive Director, Transport Strategy
Freight, Strategy and Planning**

CD15/15954

Attachment 1

TfNSW recommends the following SEARs for the proposed development:

Policies

- NSW 2021
- NSW Long Term Transport Master Plan
- Sydney's Walking Future
- Sydney's Cycling Future

Transport and Accessibility (Construction and Operation)

A Traffic and Transport Impact Assessment shall be prepared to include, but not limited to, the following:

- Identify accurate details of the current daily and peak hour vehicle, public transport, pedestrian and bicycle movements and existing traffic and transport facilities provided on the surrounding road network. Details should be provided for the seasonal variation, special events and peak demand of the proposal (e.g. weekends and school holidays particularly during the summer months).
- Estimate (based on empirical evidence) the total daily and peak hour event trips anticipated to be generated by the development, including accurate details of the future daily and peak hour vehicle movements with consideration for seasonal variations and special events.
- Assess the impacts of the traffic generated by the proposed development on the local and regional road network, including impacts on road safety, intersection capacity and the potential need/associated funding for upgrading or road works, having regard to the planning controls applicable to the site. The assessment needs to be supported by appropriate modelling and analysis.
- Assessment of the cumulative impact of traffic volumes from the proposal together with existing and approved developments as well as major recreational traffic attractors in the surrounding area.
- Details of any upgrades to transport services and road infrastructure that would be required due to the development.
- Provide details of access, car parking provisions, bicycle storage provisions, proposed car parking layout, including the proposed accesses, internal road network and truck marshalling, staging and driver facility areas including compliance with the requirements of the relevant Australian Standards (i.e. turning lanes, swept paths, sight distance requirements) and other relevant parking codes.

- Details of travel demand measures to promote sustainable means of transport including public transport usage, shuttle buses to major transport interchanges and/or park and ride facilities, end-of-trip facilities and pedestrian and bicycle linkages.
- Assessment and details of traffic, transport and safety impacts during construction and how these impacts will be mitigated for any associated traffic, pedestrian, cyclists and public transport, including the preparation of a draft Construction Traffic Management Plan to demonstrate the proposed management of impact. This Plan should include vehicle routes, number of trucks, hours of operation, access arrangements and traffic control measures for all demolition/construction activities.
- Detail service vehicle movements (including vehicle type and likely arrival and departure times).

Relevant Policies and Guidelines:

- *Guide to Traffic Generating Developments (Roads and Maritime Services)*
- *Planning Guidelines for Walking and Cycling*
- *Austroads Guide to Traffic Management – Part 12: Traffic Impacts of Development*
- *Cycling Aspects of Austroads Guides*

Consultation

- Transport for NSW
- Roads and Maritime Services



21 September 2015

Our Reference: SYD15/01086/01 (A10119860)
DP&E Ref: SSD 7228

Manager – Industry Assessments
Department of Planning and Environment
GPO Box 39
SYDNEY NSW 2001

Attention: **Rebecca Sommer**

Dear Sir/Madam

**REQUEST FOR SEARS FOR THE SYDNEY ZOO
WESTERN SYDNEY PARKLANDS, BUNGARRIBEE**

Reference is made to your letter dated 28 August 2015, requesting Roads and Maritime Services (Roads and Maritime) to provide details of key issues and assessment requirements regarding the abovementioned development for inclusion in the Secretary's Environmental Assessment (EA) requirements.

Roads and Maritime require the following issues to be included in the transport and traffic impact assessment of the proposed development:

1. Daily and peak traffic movements likely to be generated by the proposed development including the impact on nearby intersections and the need/associated funding for upgrading or road improvement works (if required).
2. Details of the proposed accesses and the parking provisions associated with the proposed development including compliance with the requirements of the relevant Australian Standards (ie: turn paths, sight distance requirements, aisle widths, etc).
3. Proposed number of car parking spaces and compliance with the appropriate parking codes.
4. Details of service vehicle movements (including vehicle type and likely arrival and departure times).
5. Roads and Maritime will require in due course the provision of a traffic management plan for all demolition/construction activities, detailing vehicle routes, number of trucks, hours of operation, access arrangements and traffic control measures.

Any inquiries in relation to this development application can be directed to Malgy Coman on 8849 2413 or development.sydney@rms.nsw.gov.au.

Yours sincerely,

A handwritten signature in dark ink, appearing to read 'A Malloch', written in a cursive style.

Angela Malloch

Senior Land Use Planner
Network and Safety Section