Secretary's Environmental Assessment Requirements (SEARs)

Application Number	SSI 8441
Proposal	Warragamba Dam Raising
Location	Lot 1, DP 87998 and Lot 1124, DP1159978, being Farnsworth Avenue and Weir Road, Warragamba, respectively, and known as Warragamba Dam
Proponent	WaterNSW
Date of Issue	30 June 2017

1. General Standard SEARs

Desired Performance Outcome	Requirement	Current Guidelines[1]
1. Environmental Impact Assessment Process The process for assessment of the proposal is transparent, balanced, well focussed and legal.	1. The Environmental Impact Statement must be prepared in accordance with Part 3 of Schedule 2 of the *Environmental Planning and Assessment Regulation 2000* (the Regulation). 2. Where the project requires approval under the EPBC Act and is being assessed under the Bilateral Agreement the EIS should address: (a) Consideration of any Protected Matters that may be impacted by the development where the Commonwealth Minister has determined that the proposal is a Controlled Action. (b) Identification and assessment of those Protected Matters that are likely to be significantly impacted. (c) Details of how significant impacts to Protected Matters have been avoided, mitigated and, if necessary, offset. (d) Consideration of, and reference to, any relevant conservation advices, recovery plans and threat abatement plans. 3. The onus is on the Proponent to ensure legislative requirements relevant to the project are met.	EPBC Act Environment Assessment Process (SEWPAC, 2010)
2. Environmental Impact Statement The project is described in sufficient detail to enable clear understanding that the project has been developed through an iterative process of impact identification and assessment and project refinement to avoid, minimise or offset impacts so that the project, on balance, has the least adverse environmental, social and economic impact, including its cumulative impacts.	1. The EIS must include, but not necessarily be limited to, the following: (a) executive summary; (b) a description of the project, including all components and activities (including ancillary components and activities) required to construct and operate it; (c) a statement of the objective(s) of the project; (d) a summary of the strategic need for the project with regard to its critical State significance and relevant State Government policy; (e) an analysis of any feasible alternatives to the project.[2]; (f) a description of feasible options within the project.[3]; (g) a description of how alternatives to and options within the project were analysed to inform the selection of the preferred alternative / option. The description must contain sufficient detail to enable an understanding of why the preferred alternative to and options(s) within the project were selected;	

[1] Guidelines listed are the current list of guidelines that may be applicable to a CSSI project. It is the Proponents responsibility to identify, and justify, which guidelines have been applied to a specific project.

[2] Alternatives to a project are different projects which would achieve the same project objective(s) including the consequences of not carrying out the project. For example, alternatives to a road project may be a rail project in the same area and alternate routes for the road.

[3] Options within the project are variations of the same project. For example, options within a road project could be design of an intersection; the location or design of a bridge; locations for a vent stack.

Desired Performance Outcome	Requirement	Current Guidelines[1]
	(h) a concise description of the general biophysical and socio-economic environment that is likely to be impacted by the project (including offsite impacts). Elements of the environment that are not likely to be affected by the project do not need to be described; (i) a demonstration of how the project design has been developed to avoid or minimise likely adverse impacts both upstream and downstream of the dam wall; (j) the identification and assessment of key issues as provided in the 'Assessment of Key Issues' performance outcome; (k) a statement of the outcome(s) the proponent will achieve for each key issue; (l) measures to avoid, minimise or offset impacts must be linked to the impact(s) they treat, so it is clear which measures will be applied to each impact; (m) consideration of the interactions between measures proposed to avoid or minimise impact(s), between impacts themselves and between measures and impacts;[4] (n) an assessment of the cumulative impacts of the project taking into account other projects that have been approved but where construction has not commenced, projects that have commenced construction, and projects that have recently been completed; (o) statutory context of the project as a whole, including: – how the project meets the provisions of the EP&A Act and EP&A Regulation; – a list of any approvals that must be obtained under any other Act or law before the project may lawfully be carried out; (p) a chapter that synthesises the environmental impact assessment and provides: – a succinct but full description of the project for which approval is sought; – a description of any uncertainties that still exist around design, construction methodologies and/or operational methodologies and how these will be resolved in the next stages of the project; – a compilation of the impacts of the project that have not been avoided; – a compilation of the proposed measures associated with each impact to avoid or minimise (through design refinements or ongoing management during construction and operation) or offset these impacts; – a compilation of the outcome(s) the proponent will achieve; and – the reasons justifying carrying out the project as proposed, having regard to the biophysical, economic and social considerations, including ecologically sustainable development and cumulative impacts. (q) relevant project plans, drawings, diagrams in an electronic format that enables integration with	

[4] Measures proposed to avoid or minimise one impact may cause an unintended impact on another issue. Therefore these impacts and their interactions need to be analysed and resolved where possible.

Desired Performance Outcome	Requirement	Current Guidelines[1]
	mapping and other technical software. 2. The EIS must only include data and analysis that is reasonably needed to make a decision on the proposal. Relevant information must be succinctly summarised in the EIS and included in full in appendices. Irrelevant, conflicting or duplicated information must be avoided.	
3. Assessment of Key Issues Key issue impacts are assessed objectively and thoroughly to provide confidence that the project will be constructed and operated within acceptable levels of impact.	1. The level of assessment of likely impacts must be proportionate to the significance of, or degree of impact on, the issue, within the context of the proposal location and the surrounding environment. The level of assessment must be commensurate to the degree of impact and sufficient to ensure that the Department and other government agencies are able to understand and assess impacts. 2. For each key issue the Proponent must: (a) describe the biophysical and socio-economic environment, as far as it is relevant to that issue; (b) describe the legislative and policy context, as far as it is relevant to the issue; (c) identify, describe and quantify (if possible) the impacts associated with the issue, including the likelihood and consequence (including worst case scenario) of the impact (comprehensive risk assessment), and the cumulative impacts; (d) demonstrate how potential impacts have been avoided (through design, or construction or operation methodologies); (e) detail how likely impacts that have not been avoided through design will be minimised, and the predicted effectiveness of these measures (against performance criteria where relevant); and (f) detail how any residual impacts will be managed or offset, and the approach and effectiveness of these measures. 3. Where multiple reasonable and feasible options to avoid or minimise impacts are available, they must be identified and considered and the proposed measure justified taking into account the public interest.	
4. Consultation The project is developed with meaningful and effective engagement during project design and delivery.	1. The project must be informed by consultation, including with relevant government agencies, infrastructure and service providers, special interest groups, affected landowners, businesses and the community. 2. The Proponent must document the consultation process, and demonstrate how the project has responded to the inputs received.	

Desired Performance Outcome	Requirement	Current Guidelines[1]
	3. The Proponent must describe the timing and type of community consultation proposed during the design and delivery of the project, the mechanisms for community feedback, the mechanisms for keeping the community informed, and procedures for complaints handling and resolution.	

2. Key Issue Standard SEARs

Key Issue and Desired Performance Outcome	Requirement (specific assessment requirements in addition to the general requirement above)	Current Guidelines
5. Air Quality The project is designed, constructed and operated in a manner that minimises air quality impacts (including nuisance dust and odour) to minimise risks to human health and the environment to the greatest extent practicable.	1. The Proponent must undertake an air quality impact assessment (AQIA) for construction and operation of the project in accordance with the current guidelines. 2. The Proponent must ensure the AQIA includes a demonstrated ability to comply with the relevant regulatory framework, specifically the *Protection of the Environment Operations Act 1997* and the *Protection of the Environment Operations (Clean Air) Regulation (2010)*.	Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales (EPA, 2016) Approved Methods for the Sampling and Analysis of Air Pollutants in NSW (DEC, 2006) Technical Framework - Assessment and Management of Odour from Stationary Sources in NSW (DEC, 2006)
6. Biodiversity The project design considers all feasible measures to avoid and minimise impacts on terrestrial and aquatic biodiversity. Offsets and/or supplementary measures are assured which are equivalent to any remaining impacts of project construction and operation.	1. The Proponent must assess biodiversity impacts in accordance with the current guidelines including the Framework for Biodiversity Assessment (FBA), unless otherwise agreed by OEH, by a person accredited in accordance with s142B(1)(c) of the *Threatened Species Conservation Act 1995*. 2. The Proponent must assess any impacts on biodiversity values not covered by the FBA as specified in s2.3. 3. The Proponent must assess impacts on the following: endangered ecological communities (EECs), threatened species and/or populations, and provide the information specified in s9.2 of the FBA. Specific environmental requirements are provided in Attachment A. 4. The Proponent must identify whether the project as a whole, or any component of the project, would be classified as a Key Threatening Process in accordance with the listings in the *Threatened Species Conservation Act 1997* (TSC Act), *Fisheries Management Act 1994* (FM Act) and *Environment Protection and Biodiversity Conservation Act 2000* (EPBC Act).	NSW Biodiversity Offsets Policy for Major Projects (OEH, 2014) Framework for Biodiversity Assessment (OEH, 2014) Policy and Guidelines for Fish Habitat Conservation and Management – Update 2013 (DPI, 2013) Threatened Species Survey and Assessment Guidelines Why do Fish Need to Cross the Road? Fish Passage Requirements for Waterway Crossings (NSW Fisheries, 2003) NSW Sustainable Design Guidelines Version 3.0 (TfNSW, 2013) Aquatic Ecology in Environmental Impact Assessment – EIA Guideline (Marcus Lincoln Smith 2003)

Key Issue and Desired Performance Outcome	Requirement (specific assessment requirements in addition to the general requirement above)	Current Guidelines
7. Climate Change Risk The project is designed, constructed and operated to be resilient to the future impacts of climate change.	1. The Proponent must assess the risk and vulnerability of the project to climate change in accordance with the current guidelines. 2. The Proponent must quantify specific climate change risks with reference to the NSW Government's climate projections at 10km resolution (or lesser resolution if 10km projections are not available) and incorporate specific adaptation actions in the design.	Australian Government's Climate Change Impacts and Risk Management – A Guide for Business and Government (2006) AS/NZS 3100:2009 Risk Management – Principles and Guidelines Technical Guide for Climate Change Adaptation for the State Road Network (RMS, in draft)
8. Flooding The project minimises adverse impacts on existing flooding characteristics. Construction and operation of the project avoids or minimises the risk of, and adverse impacts from, infrastructure flooding, flooding hazards, or dam failure.	1. The Proponent must quantify what flood events can be mitigated by the dam. 2. The Proponent must assess and model the impacts on flood behaviour during construction and operation for a full range of flood events up to the probable maximum flood (accounting for sea level rise and storm intensity due to climate change) including: (a) any detrimental increases in the potential flood affectation of other developments, land, properties, assets and infrastructure. This may include redirection of flow, flow velocities, flood levels, hazards and hydraulic categories; (b) quantify the benefits of reducing flood affectation to developments, land, properties, assets and infrastructure; (c) consistency (or inconsistency) with applicable Council floodplain risk management plans; (d) compatibility with the flood hazard of the land; (e) compatibility with the hydraulic functions of flow conveyance in flood ways and storage areas of the land; (f) downstream velocity and scour potential; (g) impacts the development may have upon existing community emergency management arrangements for flooding. These matters must be discussed with the State Emergency Services (SES) and relevant Councils; and (h) any impacts the development may have on the social and economic costs to the community as consequence of flooding. Specifically, events at a minimum must be assessed for the 1 in 5 year, 1 in 10 year,	NSW Government's Floodplain Development Manual (Department of Natural Resources, 2005) PS 07-003 New guideline and changes to section 117 direction and EP&A Regulation on flood prone land Practical Consideration of Climate Change - Flood risk management guideline (DECC, 2007)

Key Issue and Desired Performance Outcome	Requirement (specific assessment requirements in addition to the general requirement above)	Current Guidelines
	1 in 20 year, 1 in 100 year and the probable maximum flood. Modelling should include flood characteristics such as extent, level, velocity, and rate of rise at a minimum. Discussion and an assessment of the flood management zone also needs to be included. 3. The Proponent must model the effect of the proposed project on the flood behaviour of the broader catchment under the following scenarios: (a) Current flood behaviour for a range of design events as identified in point 2 above; (b) 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 or modelling of the 1 in 100 year flood with the range of climate change scenarios recommended in Australian Rainfall and Runoff 2016. 4. The Proponent must identify and address any impacts the project may have upon existing emergency management arrangements for flooding. These matters are to be discussed with the SES and relevant councils downstream and upstream of the Dam. 5. The assessment must discuss emergency management, evacuation and access, and contingency measures for the construction and operational stages of the project considering the full range or flood risk including the probable maximum flood. These matters are required to be discussed with the SES and relevant councils. 6. Discussion in the assessment of the consequences of flooding on social and economic costs to the community and in the broader catchment, including up to the probable maximum flood level.	
9. Health and Safety The project avoids or minimises any adverse health impacts arising from the project. The project avoids, to the greatest extent	1. The Proponent should demonstrate that the proposed works shall comply with Dam Safety Committee Guidance. 2. The Proponent must assess the potential health impacts of the project, in accordance with the current guidelines. 3. The assessment must:	Environmental Health Risk Assessment, Guidelines for assessing human health risks from environmental hazards, Commonwealth of Australia (enHealth, 2012)

Key Issue and Desired Performance Outcome	Requirement (specific assessment requirements in addition to the general requirement above)	Current Guidelines
possible, risk to public safety.	(a) describe the current known health status of the affected population; (b) assess health risks associated with exposure to environmental hazards; (c) assess the effect of the project on other relevant determinants of health such as the level of physical activity and access to social infrastructure; (d) assess opportunities for health improvement; (e) assess the distribution of the health risks and benefits; and (f) discuss how, in the broader social and economic context of the project, the project will minimise negative health impacts while maximising the health benefits. 4. The Proponent must assess the likely risks of the project to public safety, paying particular attention to flood risk, subsidence risks, bushfire risks, and the handling and use of dangerous goods. 5. The Proponent needs to address whether the project incorporates specific measures to manage risk to life from flood, with these matters to be discussed with the SES and relevant Councils.	Methodology for Valuing the Health Impacts of Changes in Particle Emissions (EPA, 2013) Health Impact Assessment: A practical guide (NSW Health, 2007) Health Impact Assessment Guidelines, Commonwealth Department of Health and Aged Care (enHealth, 2001) SEPP No. 33 - Hazardous and Offensive Development Dam Safety Committee Guidance Sheets, including but not limited to, DSC2A (Dam Safety Management System) and DSC2B (Documentation and Information Flow Over Dam Life Cycle)
10. Heritage The design, construction and operation of the project facilitates, to the greatest extent possible, the long term protection, conservation and management of the heritage significance of items of environmental heritage and Aboriginal objects and places. The design, construction and operation of the project avoids or minimises impacts, to the greatest extent possible, on the heritage significance of environmental heritage and Aboriginal objects and places.	1. The Proponent must identify and assess any direct and/or indirect impacts (including cumulative impacts) to the heritage significance of: (a) Aboriginal places and objects, as defined under the *National Parks and Wildlife Act 1974* and in accordance with the principles and methods of assessment identified in the current guidelines; (b) Aboriginal places of heritage significance, as defined in the Standard Instrument – Principal Local Environmental Plan; (c) environmental heritage, as defined under the *Heritage Act 1977*; and (d) items listed on the National and World Heritage lists. Investigations including surveys and identification of cultural heritage values should be conducted in consultation with OEH regional officers. 2. Where impacts to State or locally significant heritage items are identified, the assessment must:	Guide to investigating, assessing and reporting on Aboriginal Cultural Heritage in NSW (OEH, 2011) Aboriginal Cultural Heritage Consultation requirements for proponents (DECCW, 2010) Code of practice for archaeological investigation of Aboriginal objects in NSW (DECCW, 2010) NSW Skeletal Remains: Guidelines for Management of Human Remains (Heritage Office, 1998) Aboriginal site recording form Aboriginal site impact recording form

Key Issue and Desired Performance Outcome	Requirement (specific assessment requirements in addition to the general requirement above)	Current Guidelines
	(a) include a statement of heritage impact for all heritage items (including significance assessment); (b) consider impacts to the item of significance caused by, but not limited to, vibration, demolition, archaeological disturbance, altered historical arrangements and access, visual amenity, landscape and vistas, curtilage, subsidence and architectural noise treatment (as relevant) (c) outline measures to avoid and minimise those impacts in accordance with the current guidelines; and (d) be undertaken by a suitably qualified heritage consultant(s) (note: where archaeological excavations are proposed, the relevant consultant must meet the NSW Heritage Council's Excavation Director criteria). 3. Where archaeological investigations of Aboriginal objects are proposed, these must be conducted by a suitably qualified archaeologist, in accordance with section 1.6 of the *Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW* (DECCW 2010). Consultation with Aboriginal people must be undertaken prior to investigations. Significance of cultural heritage values for Aboriginal people who have a cultural association with the land must be documented in the EIS. 4. Where impacts to Aboriginal objects and/or places are proposed, consultation must be undertaken with Aboriginal people in accordance with the current guidelines. 5. Any objects recorded as part of the assessment must be documented and notified to OEH. 6. Where land is declared wilderness under the *Wilderness Act 1987* or on the World Heritage List as part of the Greater Blue Mountains World Heritage Area (GBMWHA) and lands declared as Wild Rivers under the NPW Act the Proponent: (a) must define the area and extent of impact on such lands; (b) provide evidence that the proposal is consistent with the *Wilderness Act 1987* and the management principles for wilderness areas; (c) assess impacts on land to be included on the National Heritage List.	Aboriginal Heritage Information Management System site registration form Care agreement application form Criteria for the assessment of excavation directors (NSW Heritage Council, 2011) NSW Heritage Manual (Heritage Office and Department of Urban Affairs and Planning, 1994) Assessing Heritage Significance (NSW Heritage Office, 2001) The Australia ICOMOS Burra Charter Revocation, Re-categorisation and Road Adjustment Policy (OEH, 2012) Indigenous Land Use Agreements

Key Issue and Desired Performance Outcome	Requirement (specific assessment requirements in addition to the general requirement above)	Current Guidelines
11. Noise and Vibration - Amenity Construction noise and vibration (including airborne noise, ground-borne noise and blasting) are effectively managed to minimise adverse impacts on acoustic amenity. Increases in noise emissions and vibration affecting nearby properties and other sensitive receivers during operation of the project are effectively managed to protect the amenity and well-being of the community.	1. The Proponent must assess construction and operational noise and vibration impacts in accordance with relevant NSW noise and vibration guidelines. The assessment must include consideration of impacts to sensitive receivers including small businesses, and include consideration of sleep disturbance and, as relevant, the characteristics of noise and vibration (for example, low frequency noise). 2. The Proponent must demonstrate that blast impacts are capable of complying with the current guidelines, if blasting is required.	Technical Basis for Guidelines to Minimise Annoyance due to Blasting Overpressure and Ground Vibration (ANZECC, 1990) Assessing Vibration: a technical guideline (DEC, 2006) Interim Construction Noise Guideline (DECCW, 2009) NSW Industrial Noise Policy (EPA, 2000) Construction Noise Strategy (TfNSW, 2012) Rail Infrastructure Noise Guideline (EPA, 2013) NSW Road Noise Policy (DECCW, 2011) Environmental Noise Management Manual (RMS 2001) Development Near Rail Corridors and Busy Roads – Interim guideline (DoP, 2008) Noise Mitigation Guideline (RMS, 2015) Noise Criteria Guideline (RMS, 2015) NSW Sustainable Design Guidelines Version 3.0 (TfNSW, 2013)
12. Noise and Vibration - Structural Construction noise and vibration (including airborne noise, ground-borne noise and blasting) are effectively managed to minimise adverse impacts on the structural integrity of buildings and items including Aboriginal places and environmental heritage.	1. The Proponent must assess construction and operation noise and vibration impacts in accordance with relevant NSW noise and vibration guidelines. The assessment must include consideration of impacts to the structural integrity and heritage significance of items (including Aboriginal places and items of environmental heritage). 2. The Proponent must demonstrate that blast impacts are capable of complying with the current guidelines, if blasting is required.	German Standard DIN 4150-3: Structural Vibration - effects of vibration on structures

Key Issue and Desired Performance Outcome	Requirement (specific assessment requirements in addition to the general requirement above)	Current Guidelines
Increases in noise emissions and vibration affecting environmental heritage as defined in the *Heritage Act 1977* during operation of the project are effectively managed.		
13. Protected and Sensitive Lands The project is designed, constructed and operated to avoid or minimise impacts on protected and sensitive lands.	1. The Proponent must assess the impacts of the project on the water catchment and processes (and the impact of processes on the project) including, but not limited to: (a) protected areas (including land and water) managed by OEH and/or DPI Fisheries under the *National Parks and Wildlife Act 1974* and the *Marine Estate Management Act 2014*; (b) Key Fish Habitat as mapped and defined in accordance with the *Fisheries Management Act 1994* (FM Act); (c) waterfront land as defined in the *Water Management Act 2000;* (d) land or waters identified as Critical Habitat under the TSC Act, FM Act or EPBC Act; and (e) biobank sites, private conservation lands and other lands identified as offsets. 2. Maps should be included that clearly indicate the proposed high water mark line and current high water mark line, as well as protected area boundaries.	Guidelines for developments adjoining land and water managed by the Department of Environment, Climate Change and Water (DECCW, 2010) Revocation, Re-categorisation and Road Adjustment Policy (OEH, 2012) Guidelines for controlled activities on waterfront land (DPI 2012) *Water Management Act, 2000*
14. Socio-economic, Land Use and Property The project minimises adverse social and economic impacts and capitalises on opportunities potentially available to affected communities. The project minimises impacts to property and business and achieves appropriate integration with adjoining land uses, including maintenance of appropriate access to properties and community facilities, and minimisation of displacement of existing land	1. The Proponent will undertake a comprehensive Social Impact Assessment, prepared by a suitably qualified and experienced expert, supported and informed by a comprehensive, inclusive, and participatory program of community engagement, actively seeking input from the affected community and other stakeholders, paying particular attention to engaging vulnerable groups. 2. The Social Impact Assessment will be informed by work conducted to inform the Hawkesbury-Nepean Flood Risk Management Strategy, comprising the following components: • identification of the affected community and other interested stakeholders, specifying in what way each might be affected or interested, and paying particular attention to vulnerable groups and potential impacts on them; • assistance for these people and communities in understanding the proposal;	

Key Issue and Desired Performance Outcome	Requirement (specific assessment requirements in addition to the general requirement above)	Current Guidelines
use activities, dwellings and infrastructure.	• a quantitative and qualitative community profile, including values and aspirations; • identification of any diversity of views/concerns that might exist in the community/ies; • relevance of any previous, current, and anticipated relevant developments and resultant cumulative impacts. 3. Underpinned by the work at point 2 above, the Social Impact Assessment will identify potential impacts (positive and negative), considering the following matters: • way of life (how people live, work, play, and interact) • culture (including values, heritage, and customs) • community (including cohesion and sense of place) • decision-making systems (people's capacity and power to influence decisions that affect them) • environment (including amenity, aesthetics, and access) • wellbeing and health (physical and mental) • personal and property rights • justified fears and aspirations about any of the above matters. 4. The Social Impact Assessment will assess significance of each impact based on duration, extent, sensitivity (vulnerability to change and capacity to adapt), severity, and level of community concern. 5. The Social Impact Assessment will propose mitigation actions for significant negative social impacts that cannot be avoided, and strategies to secure and maximise beneficial impacts, and monitoring, management, and reporting arrangements, including discussion of how the applicant will respond to unanticipated social impacts as part of operational community consultation procedures. 6. Where land is reserved or acquired under the *National Parks and Wildlife Act 1974* (NPW Act), the EIS must detail:	

Key Issue and Desired Performance Outcome	Requirement (specific assessment requirements in addition to the general requirement above)	Current Guidelines
	(a) effects of accurately predicted intermittent inundation regime, and predictions of habitat, biodiversity and cultural heritage loss or change within the OEH estate; (b) expanded consideration of indirect effects of inundation, especially in the context of land reserved under the NPW Act; (c) consider impacts of the project on visual amenity and visitor experience in land reserved under the NPW Act; (d) identification of any proposed infrastructure (including roads) proposed within the OEH estate. Additional access and recreational opportunities that may be provided by proposed roads must be considered and discussed with NPWS; (e) predictions of the time and degree of disruption to recreational and management access during construction and the mitigation measures that will be undertaken. Changes to management and visitor access and infrastructure should be identified including walking track easements and access to heritage; (f) consideration of alternative options to avoid reserved lands and justification; (g) if on-park impacts are considered unavoidable and revocation/de-listing is required, consideration of the issues identified in Revocation, Re-categorisation and Road Adjustment Policy (OEH, 2012) is required, along with justification	
15. Soils The environmental values of land, including soils, subsoils and landforms, are protected. Risks arising from the disturbance and excavation of land and disposal of soil are minimised, including disturbance to acid sulphate soils and site contamination.	1. The Proponent must verify the risk of acid sulphate soils (Class 1, 2, 3 or 4 on the Acid Sulphate Soil Risk Map) within, and in the area likely to be impacted by the project. 2. The Proponent must assess the impact of the project on acid sulphate soils (including impacts of acidic runoff offsite) in accordance with the current guidelines. 3. The Proponent must assess whether the land is likely to be contaminated and identify if remediation of the land is required, having regard to the ecological and human health risks posed by the contamination in the context of past, existing and future land uses. Where assessment and/or remediation is required, the Proponent must document how the assessment and/or remediation would be undertaken in accordance with current guidelines.	Acid Sulfate Soils Assessment Guidelines (DoP, 2008) Acid Sulfate Soils Manual (Acid Sulfate Soils Management Advisory Committee, 1998) Managing Land Contamination: Planning Guidelines SEPP 55 –Remediation of Land, (DUAP & EPA, 1998) Guidelines for Consultants Reporting on Contaminated Sites (OEH, reprinted 2011) Guidelines for the NSW Site Auditor Scheme (DEC, 2006)

Key Issue and Desired Performance Outcome	Requirement (specific assessment requirements in addition to the general requirement above)	Current Guidelines
	4. The Proponent must assess whether salinity is likely to be an issue and if so, determine the presence, extent and severity of soil salinity within the project area. 5. The Proponent must assess the impacts of the project on soil salinity and how it may affect groundwater resources and hydrology. 6. The Proponent must assess the impacts on soil and land resources (including erosion risk or hazard). Particular attention must be given to soil erosion and sediment transport consistent with the practices and principles in the current guidelines. 7. Attention must also be given to direct and indirect increase in erosion, siltation, impact on riparian vegetation of increased sediment loads and reduction in stability or river banks or water courses both upstream and downstream in the event of a flood. Consideration must be given to the amount of time areas are inundated and the impact of soil during and after these events. 8. Consideration should also be given to areas inundated by probable maximum flood levels and the potential for the project to impact how siltation remains deposited in these areas, as well as the potential impact on existing vegetation and changes in soil characteristics. The Proponent should detail, in the event that a probable maximum flood level event occurs, how soil and areas affected by changed hydrological regimes as a result of the project will be managed and/or remediated. 9. The Proponent must detail the capacity of the site to support the increased size of the structure.	Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act 1997 (EPA, 2015) Urban and regional salinity – guidance given in the Local Government Salinity Initiative booklets (http://www.environment.nsw.gov.au/salinity/solutions/urban.htm) which includes *Site Investigations for Urban* Salinity (DLWC, 2002) Landslide risk management guidelines presented in Australian Geomechanics Society (2007) Soil and Landscape Issues in Environmental Impact Assessment (DLWC 2000) Managing Urban Stormwater: Soils and Construction Volume 1 (Landcom 2004) and Volume 2 (A. Installation of Services; B. Waste Landfills; C. Unsealed Roads; D. Main Roads; E. Mines and Quarries) (DECC, 2008) Other guidelines made or approved under section 105 of the *Contaminated Land Management Act 1997*
16. Sustainability	1. The Proponent must assess the sustainability of the project in accordance with the Infrastructure Sustainability Council of Australia (ISCA) *Infrastructure Sustainability Rating Tool* and recommend an appropriate target rating for the project. 2. The Proponent must assess the project against the current guidelines including targets and strategies to improve Government efficiency in use of water, energy and transport.	NSW Sustainable Design Guidelines Version 3.0 (TfNSW, 2013) Infrastructure Sustainability Rating Tool Scorecard relating to energy and carbon for large infrastructure projects, ISCA

Key Issue and Desired Performance Outcome	Requirement (specific assessment requirements in addition to the general requirement above)	Current Guidelines
The project reduces the NSW Government's operating costs and ensures the effective and efficient use of resources. Conservation of natural resources is maximised.		
17. Transport and Traffic Network connectivity, safety and efficiency of the transport system in the vicinity of the project are managed to minimise impacts. The safety of transport system customers is maintained. Impacts on network capacity and the level of service are effectively managed. Works are compatible with existing infrastructure and future transport corridors.	1. The Proponent must assess construction transport and traffic (vehicle, pedestrian and cyclists) impacts. The assessment should consider existing and planned developments, as well as upgrades around the Wollondilly Shire area. Consideration should be made to the structure and suitability of proposed access routes. 2. The Proponent must assess the operational transport impacts of the project. 3. The Proponent must provide consideration of the effects of extended inundation of downstream transport infrastructure, and of the effects on the road network of any alternate routes required where that transport infrastructure is inundated for prolonged periods. This should include assets such as Yarramundi, Richmond and Windsor road bridges and vehicular ferries at Lower Portland, Sackville and Wisemans Ferry. 4. The Proponent must consider contingency plans for management of traffic during construction in the event of: (a) emergency closures due to flood, fire and road accidents; (b) significant pavement failures due to some roads needing repair within the Wollondilly Shire area; and (c) load limits of bridges in the area.	Guide to Traffic Management – Part 3 Traffic Studies and Analysis (Austroads, 2007) Guide to Traffic Generating Developments Version 2.2 (RTA, 2002) Cycling Aspects of Austroads Guides (Austroads, 2014) NSW Bicycle Guidelines v 1.2 (RTA, 2005) Planning Guidelines for Walking and Cycling (DIPNR, 2004) NSW Sustainable Design Guidelines Version 3.0 (TfNSW, 2013)

Key Issue and Desired Performance Outcome	Requirement (specific assessment requirements in addition to the general requirement above)	Current Guidelines
18. Visual Amenity The project minimises adverse impacts on the visual amenity of the built and natural environment (including public open space) and capitalises on opportunities to improve visual amenity.	1. The Proponent must assess the visual impact of the project and any ancillary infrastructure on: (a) views and vistas; (b) streetscapes, key sites and buildings; (c) heritage items including Aboriginal places and environmental heritage; and (d) the local community. 2. The Proponent must assess the visual impact associated with the proposed maximum flood level both upstream and downstream within the catchment area. 3. The Proponent must provide artist impressions and perspective drawings of the project to illustrate how the project has responded to the visual impact through design and landscaping.	AS4282-1997 Control of the obtrusive effects of outdoor lighting Beyond the Pavement: urban design policy, procedures and design principles (RMS, 2014) Bridge Aesthetics: Design guidelines to improve the appearance of bridges in NSW (RMS, 2012) NSW Sustainable Design Guidelines Version 3.0 (TfNSW, 2013) Technical guideline for Urban Green Cover in NSW (OEH, 2015)
19. Waste All wastes generated during the construction and operation of the project are effectively stored, handled, treated, reused, recycled and/or disposed of lawfully and in a manner that protects environmental values.	1. The Proponent must assess predicted waste generated from the project during construction and operation, including: a) classification of the waste in accordance with the current guidelines; b) estimates / details of the quantity of each classification of waste to be generated during the construction of the project, including bulk earthworks and spoil balance; c) handling of waste including measures to facilitate segregation and prevent cross contamination; d) management of waste including estimated location and volume of stockpiles; e) waste minimisation and reuse; f) lawful disposal or recycling locations for each type of waste; and g) contingencies for the above, including managing unexpected waste volumes. 2. The Proponent must assess potential environmental impacts from the excavation, handling, storage on site and transport of the waste particularly with relation to sediment/leachate control, noise and dust. This extends to the removal and replacement of concrete and associated dust during construction works of the wall, and an assessment of potential for concrete dust to run off into water and potentially enter downstream areas.	NSW EPA's Waste Classification Guidelines (2014) and associated orders and exemptions NSW Sustainable Design Guidelines Version 3.0 (TfNSW, 2013) Managing Urban Stormwater: Soils and Construction Volume 1 (Landcom 2004) and Volume 2 (A. Installation of Services; B. Waste Landfills; C. Unsealed Roads; D. Main Roads; E. Mines and Quarries) (DECC, 2008)

Key Issue and Desired Performance Outcome	Requirement (specific assessment requirements in addition to the general requirement above)	Current Guidelines
20. Water - Hydrology Long term impacts on surface water and groundwater hydrology (including drawdown, flow rates and volumes) are minimised. The environmental values of nearby, connected and affected water sources, groundwater and dependent ecological systems including estuarine and marine water (if applicable) are maintained (where values are achieved) or improved and maintained (where values are not achieved). Sustainable use of water resources.	1. The Proponent must consider potential alternatives for managing flood waters and justify the selection having regard to the relative environmental impacts. 2. The Proponent must describe (and map) the existing hydrological regime for any surface and groundwater resource (including reliance by users and for ecological purposes) likely to be impacted by the project, including stream orders, as per the FBA. Mapping must include upstream and downstream tributaries that may potentially be impacted, including: (a) the extent of regional flood up to the probable maximum flood; (b) flood planning area, the area below the flood planning level (area below the 100 year ARI plus freeboard); (c) hydraulic categorisation (floodways and flood storage areas); and (d) hazard categorisation. The extent of mapping/modelling used needs to be identified and rationalised. 3. The Proponent must prepare a detailed water balance for ground and surface water including the intake and discharge locations, where relevant, volume, frequency and duration of flooding events (1 in 5 year, 1 in 10 year, 1 in 20 year, 1 in 100 year, and probable maximum flood) and at times of non-flood. 4. The Proponent must assess (and model if appropriate) the impact of the construction and operation of the project and any ancillary facilities (both built elements and discharges) on surface and groundwater hydrology in accordance with the current guidelines, including: (a) natural processes within rivers, wetlands, estuaries, marine waters and floodplains that affect the health of the fluvial, riparian, estuarine or marine system and landscape health (such as modified discharge volumes, durations and velocities), aquatic connectivity and access to habitat for spawning and refuge; (b) impacts from any permanent and temporary interruption of groundwater flow, including the extent of drawdown, barriers to flows, implications for groundwater dependent surface flows, ecosystems and species, groundwater users and the potential for settlement; (c) changes to environmental water availability and flows, both regulated/licensed	Framework for Biodiversity Assessment – Appendix 2 (OEH, 2014) Managing Urban Stormwater: Soils and Construction Volume 1 (Landcom 2004) and Volume 2 (A. Installation of Services; B. Waste Landfills; C. Unsealed Roads; D. Main Roads; E. Mines and Quarries) (DECC, 2008) NSW Aquifer Interference Policy (DPI, 2012) NSW Sustainable Design Guidelines Version 3.0 (TfNSW, 2013) Risk assessment Guidelines for Groundwater Dependent Ecosystems (Office of Water, 2012)

Key Issue and Desired Performance Outcome	Requirement (specific assessment requirements in addition to the general requirement above)	Current Guidelines
	and unregulated/rules-based sources; (d) direct or indirect increases in erosion, siltation, destruction of riparian vegetation or a reduction in the stability of river banks or watercourses; (e) minimising the effects of proposed stormwater and wastewater management during construction and operation on natural hydrological attributes (such as volumes, flow rates, management methods and re-use options) and on the conveyance capacity of existing stormwater systems where discharges are proposed through such systems; and (f) water take (direct or passive) from all surface and groundwater sources with estimates of annual volumes during construction and operation. 5. The Proponent must identify any requirements for baseline monitoring of hydrological attributes. 6. The Proponent must detail a framework for managing water releases from the dam that are capable of meeting the objectives of the project (in terms of flood mitigation), ensures impacts to upstream and downstream areas and ecosystems are minimised. The framework shall include consideration of the potential rates of rise and fall in the river, timing of water releases. These shall include consideration of antecedent, conditions within the river, flooding impacts, and transparent and translucent flows. 7. The Proponent must assess the potential impact on groundwater and surface water users, details of how existing water rights will be protected, including with respect to availability, quantity and quality of the water, noting the interjurisdictional users within the potentially impacted area. This would include an assessment of environmental availability, both regulated and unregulated use, licenced and rules-based sources of such water. 8. The Proponent must consider and discuss the rate at which flood waters would potentially recede following a probable maximum flood event, the impact on vegetation both upstream and downstream from the flood and the impact on water quality over time as flood waters are released from the dam throughout the catchment. Geomorphology and river management should be taken into account.	

Key Issue and Desired Performance Outcome	Requirement (specific assessment requirements in addition to the general requirement above)	Current Guidelines
21. Water - Quality The project is designed, constructed and operated to protect the NSW Water Quality Objectives where they are currently being achieved, and contribute towards achievement of the Water Quality Objectives over time where they are currently not being achieved, including downstream of the project to the extent of the project impact including estuarine and marine waters (if applicable). The project should not adversely affect drinking water quality.	1. The Proponent must: (a) state the ambient NSW Water Quality Objectives (NSW WQO) and environmental values for the receiving waters relevant to the project, including the indicators and associated trigger values or criteria for the identified environmental values; (b) identify and estimate the quality and quantity of all pollutants that may be introduced into the water cycle by source and discharge point and describe the nature and degree of impact that any discharge(s) may have on the receiving environment, including consideration of all pollutants that pose a risk of non-trivial harm to human health and the environment; (c) identify the rainfall event that the water quality protection measures will be designed to cope with; (d) assess the significance of any identified impacts including consideration of the relevant ambient water quality outcomes; (e) assess cumulative water quality and connective flow impacts on upstream and downstream areas and provide mitigation measures; (f) demonstrate how construction and operation of the project will, to the extent that the project can influence, ensure that: – where the NSW WQOs for receiving waters are currently being met they will continue to be protected; and – where the NSW WQOs are not currently being met, activities will work toward their achievement over time; – identify how potential concrete, dust and other by products of the construction phase will be managed during construction activities, to ensure that water quality is maintained throughout the works. Mitigation measures should be discussed for stormwater and wastewater management during and after construction; (g) justify, if required, why the WQOs cannot be maintained or achieved over time; (h) demonstrate that all practical measures to avoid or minimise water pollution and protect human health and the environment from harm are investigated and implemented; (i) identify sensitive receiving environments (which may include estuarine and	NSW Water Quality and River Flow Objectives at http://www.environment.nsw.gov.au/ieo/ Using the ANZECC Guidelines and Water Quality Objectives in NSW (DEC, 2006) Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC/ ARMCANZ, 2000) Approved Methods for the Sampling and Analysis of Water Pollutants in NSW (DEC, 2004) Managing Urban Stormwater: Soils and Construction Volume 1 (Landcom 2004) and Volume 2 (A. Installation of Services; B. Waste Landfills; C. Unsealed Roads; D. Main Roads; E. Mines and Quarries) (DECC, 2008) Guidelines for Managing Risks in Recreational Water (NHMRC, 2008) National Environment Protection (Assessment of Site Contamination) Measure 1999, (NEPC, as amended 2013)

Key Issue and Desired Performance Outcome	Requirement (specific assessment requirements in addition to the general requirement above)	Current Guidelines
	marine waters downstream) and develop a strategy to avoid or minimise impacts on these environments; and (j) identify sensitive upstream environments that become 'receivers' during times of flood and may become inundated. Develop a strategy to avoid or minimise impacts on these environments.	

Attachment A – Biodiversity Specific Requirements

Biodiversity – Matters for Further Consideration

Yengo IBRA Subregion

- *Botaurus poiciloptilus* – Australasian Bittern
- *Rostratula australis* – Australian Painted Snipe
- *Tyto longimembris* – Eastern Grass Owl
- *Epthianura albifrons* – White-fronted Chat
- *Gyrostemon thesioides*
- *Keraudrenia corollate* var. denticulata in the Hawkesbury local government area
- *Pilularia novae-hollandiae* – Austral Pillwort
- *Rhizanthella slateri* – Eastern Australian Underground Orchid
- *Pomaderris brunnea* – Brown Pomaderris

Wollemi IBRA Subregion

- *Epthianura albifrons* – White-fronted Chat
- *Marsdenia viridiflora* R. Br. subsp. *viridiflora* population in the Bankstown, Blacktown, Camden, Campbelltown, Fairfield, Holroyd, Liverpool and Penrith local government areas
- *Epacris purpurascens* var. *purpurascens*
- *Hibbertia puberula*
- *Epacris sparsa* – Sparse Heath
- *Melaleuca deanei* – Deane's Paperbark
- *Ancistrachne maidenii*
- *Dillwynia tenuifolia*

Kanangra IBRA Subregion

- *Epthianura albifrons* – White-fronted Chat
- *Eucalyptus benthamii* – Camden White Gum

Bungonia IBRA Subregion

- *Epthianura albifrons* – White-fronted Chat
- *Bossiaea oligosperma* – Few-seeded Bossiaea
- *Solanum amourense*

Burragorang IBRA Subregion

- *Epthianura albifrons* – White-fronted Chat
- *Hibbertia puberula*
- *Tetratheca glandulosa*
- *Epacris purpurascens* var. *purpurscens*
- *Bossiaea oligosperma* – Few-seeded Bossiaea
- *Gyrostemon thesioides*
- *Eucalyptus benthamii* – Camden White Gum
- *Genoplesium bauera* – Bauer's Midge Orchid
- *Hakea dohertyi* – Kowmun Hakea

Cumberland (HN) IBRA Subregion

- *Epthianura albifrons* – White-fronted Chat
- *Hibbertia superans*
- *Epacris purpurascens* var. *purpurascens*
- *Gyrostemon thesioides*
- *Haloragis exalata* subsp. *exalata*
- *Pilularia novae-hollandiae*
- *Eucalyptus benthamii* – Camden White Gum
- *Melaleuca biconvexa* – Biconvex Paperbark
- *Melaleuca deanei* – Deane's Papernark
- *Genoplesium baurei* – Bauer's Midge Orchid
- *Pterostylis saxicola* – Sydney Plains Greenhood

Entities which are specifically excluded from matters for further consideration

Yengo IBRA Subregion

- *Anthochaera phrygia* – Regent Honeyeater
- Blue Gum High Forest in the Sydney Basin Bioregion
- Cumberland Plain Woodland in the Sydney Basin Bioregion
- Shale Sandstone Transition Forest in the Sydeny Basin Bioregion

Wollemi IBRA Subregion

- *Anthochaera phrygia* – Regent Honeyeater
- *Callistemon megalongensis* – Megalong Valley Bottlebrush
- Sun Valley Cabbage Gum Forest in the Sydney Basin Bioregion

Kanangra IBRA Subregion

- *Anthochaera phrygia* – Regent Honeyeater

Bungonia IBRA Subregion

- *Anthochaera phrygia* – Regent Honeyeater

Burragorang IBRA Subregion

- *Anthochaera phrygia* – Regent Honeyeater
- *Pultenaea elusa* – Elusive Bush-pea
- *Gentiana wingecarribiensis* – Wingecarribee Gentian
- *Callistemon megalongensis* – Megalong Valley Bottlebrush
- Cumberland Plain Woodland in the Sydney Basin Bioregion
- Robertson Basalt Tall Open-forest in the Sydney Basin and South Eastern Highlands Bioregions

Cumberland IBRA Subregion

- *Anthochaera phrygia* – Regent Honeyeater
- Blue Gum High Forest in the Sydney Basin Bioregion
- Cumberland Plain Woodland in the Sydney Basin Bioregion
- Elderslie Banksia Scrub Forest in the Sydney Basin Bioregion
- Shale Sandstone Transition Forest in the Sydney Basin Bioregion