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STATE WATER CORPORATION

CHAFFEY DAM AUGMENTATION AND SAFETY UPGRADE

ENVIRONMENTAL IMPACT STATEMENT

STATE SIGNIFICANT INFRASTRUCTURE

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## Appendix 7: OEH Consultation



# WorleyParsons

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## Infrastructure & Environment

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28 May 2012

Ref: 301015-02980  
File: 301015-02980-LET-0001\_OEH\_Biodiversity  
Assessment Methodology\_280512.doc

Peter Christie  
Office of Environment and Heritage  
PO Box 402  
Armidale NSW 2350

Dear Mr Christie

## **CHAFFEY DAM ENVIRONMENTAL IMPACT ASSESSMENT - BIODIVERSITY ASSESSMENT METHODOLOGY**

WorleyParsons has been engaged by State Water Corporation to prepare the Environmental Impact Statement (EIS) for the Chaffey Dam Augmentation and Safety Upgrade Project (the Project). As part of our methodology for the EIS we are committed to consult with the NSW Office of Environment and Heritage (OEH) regarding our proposed **Biodiversity Assessment methodology**.

By way of background, Chaffey Dam is located on the Peel River, approximately 30km south-east of Tamworth. The Project will see the permanent storage capacity of Chaffey Dam increased from 62 gigalitres (GL) to 100GL, by raising the dam wall 8.4 metres and the full supply water level by 6.5 metres, which complies with modern dam safety standards.

The Project has been classified as State Significant Infrastructure (SSI) under the *Environmental Planning and Assessment Act 1979*.

Final DGRs have been provided for the Project which require the EIS to assess issues relating to matters such as soil and water, biodiversity, heritage, traffic, transport, noise, vibration, air quality, visual impact, land use, property and socioeconomic matters, spoil, waste management, hazard and risk. The preparation of the EIS will involve consultation with stakeholders including local landholders, recreational users and government agencies.

In relation to Biodiversity matters, the DGRs require that the EIS address:

*“impacts on the biodiversity values of the site and adjoining areas, including terrestrial, riparian and aquatic habitats;*

*impacts on Endangered Ecological Communities, critical habitat, threatened and protected species, populations and their habitats, listed under both State and Commonwealth legislation that have been recorded or considered likely to occur on the site and surrounding*



*land, and whether the proposal or specific aspects of the proposal constitute Key Threatening Processes in terms of the Threatened Species Conservation Act 1995;*

*targeted surveys of threatened flora and fauna species and their habitat that are known or likely to occur within the project's study area based on the presence of suitable habitat. Details of the survey methodology employed, including survey effort and timing and representativeness for the species targeted, should be included;*

*the details of available offset measures to compensate the biodiversity impacts of the proposal where offset measures are proposed, consistent with the Principles for the use of biodiversity offsets in NSW; and*

*taking into account the Draft Guidelines for Threatened Species Assessment (Department of Environment and Conservation, 2005); Threatened Species Survey and Assessment Guidelines: Field Survey Methods for Fauna - Amphibians (DECCW, 2009); and Threatened Biodiversity Survey and Assessment: Guidelines for Developments and Activities - Working Draft (D5C,2004).”*

Other Government agencies were requested to comment on the draft DGRs (refer **Attachment 1**). The following comments were provided in relation to biodiversity:

**NSW Department of Primary Industries (Fisheries):**

*“Works to raise the dam wall (Section 2.2.1) and modify other infrastructure (Section 2.2.3 - alteration to existing waterway crossings) require assessment under Section 199 Dredge and Reclamation of the Fisheries Management Act 1994 (FMA). Details covering the area to be dredged or reclaimed need to be provided including the area of the activity and volume of material involved, nature of material, and implementation of suitable environmental control measures.*

*Waterway crossings constructed or modified as part of the project need to include fish passage requirements consistent with the Policy and Guidelines for Fish Friendly Waterway Crossings (DPI 2004).*

*The Murray-Darling Basin population of the Eel-tailed Catfish (*Tandanus tandanus*) is a declared endangered population, with records occurring from the Peel River below Chaffey Dam post 1980.*

*The PEA does not discuss impacts of the proposed project on this threatened species, and should be included in the EA along with Murray Cod, Silver Perch, and the Lowland Darling River endangered aquatic ecological community.*

*Raising the full supply level (FSL) of Chaffey Dam by 6.5 m will result in the loss of 2.5 km of lotic pool riffle sequences in the upper Peel River catchment. The impacts of this habitat loss upon aquatic fauna were not discussed in the PEA and need to be included in the EA. The EA should consider the value of this habitat relative to lotic habitat that will remain following dam raising.*

*Chaffey Dam has an existing multi-level offtake (MLO) to assist with mitigating cold water pollution (CWP). As part of works to increase the dam's FSL, the MLO will be raised. Mitigating CWP is an identified outcome under Objective 2 (Monitoring water quality and*



*manage operational impacts on aquatic habitat) of State Water's Environmental Management Plan (EMP 2011 - 2016). The EA should list targeted annual temperature ranges for water discharged from Chaffey Dam, with monitoring to occur to ensure State Water EMP objectives are met.*

*The proposed works will alter and modify Chaffey Dam, and therefore trigger Section 218 (Fishways to be provided in the construction of dams and weirs) of the FMA 1994. Chaffey Dam is located in the upper reaches of the Namoi catchment, with previous departmental assessments determining that the ecological benefits achieved by inserting a high-level fishway at the dam did not justify the capital expenditure. Therefore, DPI Fisheries confirms previous correspondence with State Water (dated 291 h January 2007) that a high-level fishway will not be pursued at Chaffey Dam."*

**Environment Protection Authority:**

*"Note: The DECC, 2008 BioBanking Assessment Methodology can be used to assess biodiversity losses at development sites and calculate offset requirements."*

**Namoi Catchment Management Authority:**

*Identification of all vegetation communities along with condition assessments of communities in accordance with a recognised methodology. Details of methodology to be included in EIS;*

*Maps to be included in the EIS depicting vegetation communities with various condition ratings. Maps to depict non vegetated areas;*

*Potential impacts on both fauna and flora from clearing, specifically impacts resulting from fragmentation of vegetation, destruction of habitat, corridor loss, edge effects, increased predation and weed introduction;*

*An alignment of the mapped vegetation communities with Regional Vegetation Communities (RVC) (NCMA 2009) and assessment against RVC ecological condition benchmarks and Namoi CAP 2010-2020 critical thresholds;*

*All riparian areas need to be identified, terrestrial and aquatic impacts assessed and mitigation measures and safeguards addressed; and*

*Significant natural features including threatened species, geological features and aboriginal cultural heritage issues.*

Accordingly, WorleyParsons, through its specialist subconsultants **ng**henvironmental, propose to carry out a Biodiversity Assessment. To facilitate the carrying out of the Assessment our Biodiversity subconsultant has prepared the methodology provided at **Attachment 2**.



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It is requested that OEH review the Biodiversity Assessment methodology as set out in **Attachment 2** and provide any comments on it. It would be appreciated if we could have your comments in writing (by post, fax or email), to be received by close of business Friday 8 June 2012, to:

Nicole Cowlshaw  
Senior Environmental Scientist  
WorleyParsons

Post: PO Box 1812 North Sydney NSW 2059

Fax: (02) 8923 6877

Email: [nicole.cowlshaw@worleyparsons.com](mailto:nicole.cowlshaw@worleyparsons.com)

Yours sincerely  
WorleyParsons

Nicole Cowlshaw  
Senior Environmental Scientist



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# **Attachment 1:**

## **DGRs and Government Agency Requirements**

# Director General's Environmental Assessment Requirements

Section 115Y of the *Environmental Planning and Assessment Act 1979*  
 Schedule 2 of the *Environmental Planning and Assessment Regulation 2000*

<b>Application Number</b>	SSI - 5039
<b>Infrastructure Project</b>	<b>Chaffey Dam Augmentation</b> The proposal includes a dam safety upgrade and increasing the storage capacity from 62 gigalitres (GL) to 100 GL, by raising the dam wall by 8.4 metres and full supply water level by 6.5 metres.
<b>Location</b>	Woolomin, approximately 23 km southeast of Tamworth
<b>Proponent</b>	State Water Corporation
<b>Date of Issue</b>	23 January 2012
<b>General Requirements</b>	<p>The Environmental Impact Statement (EIS) must be prepared in accordance with, and meet the minimum requirements of, Part 3 of Schedule 2 of the <i>Environmental Planning and Assessment Regulation 2000</i> (the EP&amp;A Regulation) and include the following:</p> <ol style="list-style-type: none"> <li>1. the information required under clause 6 of Schedule 2 of the EP&amp;A Regulation; and</li> <li>2. the content listed in clause 7 of Schedule 2 of the EP&amp;A Regulation, including, but not limited to:                         <ul style="list-style-type: none"> <li>• a summary of the environmental impact statement,</li> <li>• a statement of the objectives of the project, including a description of the strategic need, justification, objectives and outcomes,</li> <li>• an analysis of feasible alternatives to the carrying out of the project, including an analysis of options considered having regard to the project objectives (including an assessment of the environmental costs and benefits of the project relative to alternatives and the consequences of not carrying out the project), the suitability of the chosen option and whether or not the project is in the public interest,</li> <li>• an analysis of the project, including an assessment, with a particular focus on the requirements of the listed key issues, in accordance with clause 7(1)(d) of Schedule 2 of the EP&amp;A Regulation (where relevant),</li> <li>• an identification of how relevant planning, land use and development matters (including relevant strategic and statutory matters, such as relevant water sharing plans, State water environmental management plans, including Namoi Catchment Action Plan) have been considered in the impact assessment (direct, indirect and cumulative impacts) and/or in developing management/ mitigation measures,</li> <li>• a compilation of the measures proposed to mitigate any adverse effects of the project on the environment,</li> <li>• a justification for the preferred project taking into consideration the objects of the <i>Environmental Planning and Assessment Act 1979</i>, and</li> <li>• detailing how the principles of ecologically sustainable development will be incorporated in the design, construction and ongoing operation phases of the project.</li> </ul> </li> </ol>
<b>Key issues</b>	<p>The EIS must address the following specific matters:</p> <p><b>Soil and Water</b> – including but not limited to:</p> <ul style="list-style-type: none"> <li>• impacts on surface water flows, quality and quantity and risks to groundwater quality, with particular reference to impacts on surrounding</li> </ul>

	<p>(up and down stream) waterways, their habitats and environmental flows, and inclusion of baseline water quality and flow conditions;</p> <ul style="list-style-type: none"> <li>• flooding impacts and characteristics, with an assessment of the potential changes to flooding behaviour (levels, velocities and direction) and impacts on bed and bank stability, through flood modelling, including:       <ul style="list-style-type: none"> <li>○ hydraulic modelling for a range of flood events,</li> <li>○ description, justification and assessment of design objectives,</li> <li>○ an assessment of afflux and flood duration (inundation period) on land, infrastructure, property and business operations,</li> <li>○ consideration of the changes in rainfall frequency and/or intensity as a result of climate change; and</li> <li>○ outline contingency measures for flooding events with potential for inundation and discharge through the spillway area during construction;</li> </ul> </li> <li>• waterways to be modified as a result of the project, including ecological, hydrological and geomorphic impacts (as relevant), including temporary crossings, and measures to rehabilitate the waterways to pre-construction conditions or better, including fish passage requirements taking into account <i>Policy and Guidelines for Fish Friendly Waterway Crossings</i> (Department of Primary Industries, 2004); and</li> <li>• identification and assessment of soil characteristics and properties that may impact or be impacted by the project and details of erosion and sedimentation control measures.</li> </ul> <p><b>Biodiversity</b> - including but not limited to:</p> <ul style="list-style-type: none"> <li>• impacts on the biodiversity values of the site and adjoining areas, including terrestrial, riparian and aquatic habitats;</li> <li>• impacts on Endangered Ecological Communities, critical habitat, threatened and protected species, populations and their habitats, listed under both State and Commonwealth legislation that have been recorded or considered likely to occur on the site and surrounding land, and whether the proposal or specific aspects of the proposal constitute Key Threatening Processes in terms of the <i>Threatened Species Conservation Act 1995</i>;</li> <li>• targeted surveys of threatened flora and fauna species and their habitat that are known or likely to occur within the project's study area based on the presence of suitable habitat. Details of the survey methodology employed, including survey effort and timing and representativeness for the species targeted, should be included;</li> <li>• the details of available offset measures to compensate the biodiversity impacts of the proposal where offset measures are proposed, consistent with the <i>Principles for the use of biodiversity offsets in NSW</i>; and</li> <li>• taking into account the <i>Draft Guidelines for Threatened Species Assessment</i> (Department of Environment and Conservation, 2005); <i>Threatened Species Survey and Assessment Guidelines: Field Survey Methods for Fauna - Amphibians</i> (DECCW, 2009); and <i>Threatened Biodiversity Survey and Assessment: Guidelines for Developments and Activities – Working Draft</i> (DEC, 2004).</li> </ul> <p><b>Heritage</b> – including but not limited to:</p> <ul style="list-style-type: none"> <li>• impacts to <b>Aboriginal heritage</b> (including cultural and archaeological significance), in particular impacts to Aboriginal heritage sites identified within or near the project. Where impacts are identified, the assessment shall:       <ul style="list-style-type: none"> <li>○ outline the proposed mitigation and management measures (including measures to avoid significant impacts and an evaluation of the effectiveness of the measures), demonstrate effective consultation with Aboriginal communities in determining and assessing impacts and developing and selecting options and mitigation measures</li> </ul> </li> </ul>
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	<p>(including the final proposed measures),</p> <ul style="list-style-type: none"> <li>○ demonstration that an appropriate archaeological assessment methodology, including research design, (where relevant) has been undertaken, including results, and,</li> <li>○ take into account the <i>Draft Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation</i> (Department of Environment and Conservation, 2005) and be undertaken by a suitably qualified heritage consultant; and</li> </ul> <ul style="list-style-type: none"> <li>● impacts to <b>historic heritage</b> (including archaeology, heritage items conservation areas and natural areas), in particular impacts to the Bowling Alley Point site should be assessed. Where impacts to State or locally significant historic heritage items are identified, the assessment shall:       <ul style="list-style-type: none"> <li>○ outline the proposed mitigation and management measures (including measures to avoid significant impacts and an evaluation of the effectiveness of the mitigation measures),</li> <li>○ include a statement of heritage impact for heritage items (including significance assessment),</li> <li>○ demonstrate that an appropriate archaeological assessment methodology, including research design, (where relevant) has been undertaken, including results, and</li> <li>○ take into account the guidelines in the NSW Heritage Manual (1996) and be undertaken by a suitably qualified heritage consultant.</li> </ul> </li> </ul> <p><b>Traffic and Transport</b> – including but not limited to:</p> <ul style="list-style-type: none"> <li>● construction traffic impacts, including:       <ul style="list-style-type: none"> <li>○ the identification of construction traffic routes and the nature of existing traffic on these routes,</li> <li>○ an assessment of construction traffic volumes, and</li> <li>○ potential impacts to the State, regional and local road network (including safety and level of service) and potential disruption to existing public transport/school bus services and access to properties and businesses. The assessment shall identify suitable mitigation and management measures; and</li> </ul> </li> <li>● operational traffic and transport impacts to the State, regional and local road network, including changes to local road connectivity and impacts on local traffic arrangements, road capacity/ safety and modified access to realigned roads. The assessment shall identify suitable mitigation and management measures.</li> </ul> <p><b>Noise and Vibration</b> – including but not limited to construction and operational noise and vibration impacts taking into account (where relevant) the <i>Interim Construction Noise Guideline</i> (Department of Environment and Climate Change, 2009), <i>Assessing Vibration: A Technical Guideline</i> (Department of Environment and Conservation, 2006) and the <i>NSW Road Noise Policy</i> (Department of Environment Climate Change and Water, 2011).</p> <p><b>Air Quality</b> – including but not limited to an assessment of the construction air quality impacts on sensitive receptors, including impacts from particulate matter, total suspended solids and other air pollutants generated by the project.</p> <p><b>Visual Amenity</b> – including but not limited to an assessment of the visual impact of the project on the landscape character of the area and details of landscaping treatment and design.</p> <p><b>Land Use, Property and Socioeconomic</b> - including but not limited to:</p> <ul style="list-style-type: none"> <li>● impacts on directly affected properties and land uses, including impacts related to access and recreational uses of the dam, land use, mineral resources and exploration, property infrastructure, future development</li> </ul>
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	<p>potential, property acquisition and land sterilisation;</p> <ul style="list-style-type: none"> <li>• impacts on Crown land, reserves and assets, and land reserved under the <i>National Parks and Wildlife Act 1974</i>;</li> <li>• impacts on natural resources, including mining and extractive resources utilisation; and</li> <li>• identification of services and utilities to be relocated.</li> </ul> <p><b>Spoil and Waste Management</b> – including but not limited to dredging impacts, an estimation of the likely spoil generation and type (including identification of known or potential contamination issues), disposal/recycling sites and management of all types of waste material.</p> <p><b>Hazards and Risk</b> – including an assessment of the hazards and risk associated with the proposal including details of hazardous materials used or kept on the premises during the construction and operation phases. The assessment must refer to the Department's Guideline <i>Applying SEPP 33</i> (DUAP, 1994), where relevant.</p>
<b>Environmental Risk Analysis</b>	<p>Notwithstanding the above key assessment requirements, the EIS must include an environmental risk analysis to identify potential environmental impacts associated with the project (construction and operation), proposed mitigation measures and potentially significant residual environmental impacts after the application of proposed mitigation measures. Where additional key environmental impacts are identified through this environmental risk analysis, an appropriately detailed impact assessment of this additional key environmental impact must be included in the EIS.</p>
<b>Consultation</b>	<p>You should undertake an appropriate and justified level of consultation with relevant parties during the preparation of the EIS, including but not limited to:</p> <ul style="list-style-type: none"> <li>• local, State and Commonwealth government authorities, including the: <ul style="list-style-type: none"> <li>○ Department of Primary Industries (Agriculture, Forests, Fisheries, Minerals, Crown Land and Office of Water),</li> <li>○ Heritage Council of NSW,</li> <li>○ Office of Environment and Heritage (Environment Protection Authority),</li> <li>○ Roads and Maritime Services,</li> <li>○ Namoi Catchment Management Authority,</li> <li>○ NSW Dams Safety Committee, and</li> <li>○ Tamworth Regional Council;</li> </ul> </li> <li>• specialist interest groups, including Local Aboriginal Councils, Aboriginal stakeholders and industry/ growers associations, mining and petroleum title holders and exploration licence holders;</li> <li>• utilities and service providers; and</li> <li>• the public, including community groups and adjoining and affected landowners.</li> </ul> <p>The EIS must describe the consultation process and the issues raised, and identify where the design of the infrastructure has been amended in response to these issues. Where amendments have not been made to address an issue, a short explanation should be provided.</p>
<b>Further consultation after 2 years</b>	<p>If you do not lodge an EIS for the infrastructure within 2 years of the issue date of these DGRs, you must consult with the Director General in relation to the requirements for lodgement.</p>



Kane Winwood  
Manager, Water Projects, Infrastructure Projects  
Department of Planning and Infrastructure  
GPO Box 39  
Sydney NSW 2001

Contact Mark Simons  
Phone 02 4904 2572  
Mobile 0447 429 336  
Fax 02 4904 2503  
Email mark.simons@water.nsw.gov.au

Our ref ER21717  
Your ref SSI-5039

**Attention: Swati Sharma**

Dear Mr Winwood

**Re: Chaffey Dam Augmentation (SSI-5039) Environmental Assessment Requirements**

I refer to your letter of the 5 December 2011, inviting comment on the draft EARs for the proposal. The NSW Office of Water has reviewed the draft EARs, and the Preliminary Environmental Assessment, (PEA) and provides the following comments, for inclusion in the EARs.

The *Water Management Act 2000* (WMA) governs sustainable and integrated management of water sources across the State. The *Water Sharing Plan for the Peel Valley Regulated, Unregulated, Alluvium and Fractured Rock Water Sources 2010* applies to the water regulated by Chaffey Dam and the supply of this water to water users within the Peel Regulated River Water Source. The *Water Sharing Plan for the Upper Namoi and Lower Namoi Regulated River Water Sources 2003* provides water sharing rules for the Namoi River System, which is downstream of Chaffey Dam and below the Peel Regulated water source.

The EA should provide a justification of the activity in terms of the water management outcomes. This should include:

- A description of the various classes of water user which will be affected by the proposal
- Details of the increase in flood security criteria
- Quantification of the changes in quantity, reliability of supply, yield or increased drought security to downstream water users within the Peel Regulated Water Source water, for all classes of licence.
- Quantification of the changes in reliability of supply to water users in the Upper Namoi and Lower Namoi Regulated Water Sources, for all classes of licence.
- A description of how the project will maintain compliance with the Murray Darling Basin Cap and relevant Water Sharing Plans.

The EA should describe the ecological systems which will be affected by the proposal, with an assessment made of the level of effect.

The EA should provide details of the expected hydrologic impacts on downstream flow frequencies, and durations between significant events, both immediately below and at key points along the river system, in comparison to current dam structure, and pre development flow behaviour. This information should be provided with reference to the potential for downstream ecologic, geomorphologic, water quality and temperature impacts. Details of any proposal to mitigate expected impacts (through environmental releases, changes to the design of the offtake structure, or transparency/translucency requirements) should be provided.

The increase in storage volume provides for potential water quality impacts within the storage, as a result of vegetation breakdown and lake shore erosion of the enlarged dam. The EA should describe the potential for water quality impacts, and describe management options for these impacts.

The EA should include an assessment of any construction impacts on the flow of water, water quality, and geomorphic stability both within the storage and downstream.

Should you require further information or clarification, please contact Mark Simons on (02) 4904 2572 at the Newcastle office.

Yours sincerely



**Mark Mignanelli**  
**Manager Major Projects, Mines and Assessment**  
19 January 2012



PCU029398



Transport  
Roads & Maritime  
Services

The Manager (Water)  
Major Projects Assessment  
NSW Planning & Infrastructure  
GPO Box 39  
SYDNEY NSW 2001

Department of Planning  
Received  
23 DEC 2011  
Scanning Room

Attn: Swati Sharma

Dear Mr Winwood,

**SSI-5039 Environmental Assessment Requirements - Chaffey Dam Augmentation**

I refer to your letter dated 5 December 2011 relating to the abovementioned development proposal and apologise for the time taken in responding to your request for comment.

On 1 November 2011 a new organisation called Roads and Maritime Services (RMS) was formed to replace the Roads and Traffic Authority (RTA). The RMS will focus solely on delivering quality services to its customers.

RMS advises that it has no objections in principle to the proposed development. RMS agrees with the issues identified in the draft Environmental Assessment Requirements (EARs). In addition to the key issues identified the following requirements should be addressed;

- Identify if traffic routes relating to the proposal will include any State roads, particularly the Oxley Highway (HW12) and New England Highway (HW9).
- Assess the potential for impact upon safety and efficiency of the state road network.
- Identify suitable measures to mitigate and control any identified impacts upon the state road network so as to ensure that the safety and efficiency that roads is maintained.
- Any road works required on a State road will require the developer to enter into a Works Authorisation Deed (WAD) with the RMS. All works shall be undertaken at full cost to the developer to the satisfaction of the RMS. Should works on a state road be identified as necessary then the developer is encourage to discuss the matter with RMS at their earliest convenience.

Current AUSTRROADS standards should be adopted when designing any necessary upgrading of the surrounding road infrastructure. Detailed plans of any road works should be submitted with the Environmental Impact Statement (EIS) for consideration.

Should you have any further enquiries regarding the above comments please do not hesitate to contact Matt Adams on 6640 1344 or via email at: [land\\_use\\_northern@rta.nsw.gov.au](mailto:land_use_northern@rta.nsw.gov.au)

Yours faithfully,

David Bell  
Regional Manager, Northern Region

19 DEC 2011

Roads & Maritime Services



## Primary Industries

Our Reference: INW 11/35187; OUT 11/24185  
Your Reference: SSI-5039

Kane Winwood  
Manager, Water Projects  
Major Projects Assessment  
23-33 Bridge Street  
SYDNEY NSW 2000

**Attention: Swati Sharma**

Dear Swati,

### **RE: Chaffey Dam Augmentation (SSI-5039) Environmental Assessment Requirements**

Thank you for providing the Department of Trade & Investment, Regional Infrastructure and Services (DTIRIS) incorporating the Department of Primary Industries NSW (NSW DPI) with the State Significant Infrastructure (SSI) Preliminary Environmental Assessment Report for the Chaffey Dam Augmentation project on 5<sup>th</sup> December 2011, and requesting advice on the draft Director Generals Environmental Assessment Requirements (DGRs).

NSW DPI has reviewed the documentation and provides the following coordinated departmental response.

#### **AGRICULTURAL ISSUES**

DPI Ag has no further comment at this time.

Should you require any further information or advice with regard to Agricultural issues, please contact Andrew Scott – Resource Management Officer on 02-6763-1142 or via email on [Andrew.scott@industry.nsw.gov.au](mailto:Andrew.scott@industry.nsw.gov.au).

#### **MINERAL RESOURCES ISSUES**

The subject area is located within Exploration Licence (EL) 7489 held by Gold of Ophir Pty Ltd for Group 1 (metallic minerals). A number of historic workings are located to the south of the dam. Whilst the Division does not anticipate that the project will have major impacts on potential mineral resources, the key issue which needs to be addressed in the EA is consultation by the proponent with mineral title holders in the subject area.

Contact details for Gold of Ophir Pty Ltd are:

c/- Bob Harrison  
Mining Title Services Pty Ltd  
9 Kinsellas Drive  
Lane Cove North NSW 206  
Ph:9420 3591

NSW Department of Primary Industries  
1243 Bruxner Highway, WOLLONGBAR NSW 2477  
Tel: 02 6626 1395 Fax: 02 6626 1377  
Email: [matthew.gordos@industry.nsw.gov.au](mailto:matthew.gordos@industry.nsw.gov.au)  
[www.dpi.nsw.gov.au](http://www.dpi.nsw.gov.au)

### **Additional Information**

The Division has a range of data available online through our primary website address at:  
<http://www.dpi.nsw.gov.au/minerals>

This site hosts a range of data to enable research into exploration, land use and general geoscience topics. Three useful applications are also available online. **MinView** allows users to interactively display and query current and historical exploration tenement information. **TAS Map** permits the search, display and download of up to date NSW mineral, coal and petroleum titles maps and related information. **DIGS**<sup>®</sup> is an interactive searchable database of exploration and geoscience information that is in the public domain.

For further information regarding mineral issues please contact Cressida Gilmore – Team Leader Land Use on 02 49316537 or email [cressida.gilmore@industry.nsw.gov.au](mailto:cressida.gilmore@industry.nsw.gov.au)

### **FORESTRY ISSUES**

Forests NSW has no further comment at this time.

Should you require any further information or advice with regard to Forestry issues, please contact Jude Parr – Land Administration Officer on 02-6586-9718 or via email on [judep@sf.nsw.gov.au](mailto:judep@sf.nsw.gov.au).

### **FISHERIES ISSUES**

NSW DPI Fisheries has reviewed the Preliminary Environmental Assessment (PEA) and draft DGRs and provides the following comments.

- The PEA indicates in Section 1.1 that "State Water is proposing to increase the dam's storage capacity to provide more water for town and irrigation supplies". The PEA is unclear as to whether this translates into more water per annum for town and irrigation supplies, or whether more security will be provided due to the larger dam capacity. If the former, further discussion is required as to how increased annual flows are compliant with the existing Namoi and Peel River Water Sharing Plans.
- The PEA mentions but does not discuss in any detail provisions of environmental water that will be created upon completion of the enlarged dam. The EA should discuss the provision, rules and associate hydrologic regime (if available) that will accompany environmental water deliveries from Chaffey Dam.
- Works to raise the dam wall (Section 2.2.1) and modify other infrastructure (Section 2.2.3 – alteration to existing waterway crossings) require assessment under Section 199 Dredge and Reclamation of the *Fisheries Management Act 1994* (FMA). Details covering the area to be dredged or reclaimed need to be provided including the area of the activity and volume of material involved, nature of material, and implementation of suitable environmental control measures.
- Waterway crossings constructed or modified as part of the project need to include fish passage requirements consistent with the *Policy and Guidelines for Fish Friendly Waterway Crossings* (DPI 2004).
- The Murray-Darling Basin population of the Eel-tailed Catfish (*Tandanus tandanus*) is a declared endangered population, with records occurring from the Peel River below Chaffey Dam post 1980. The PEA does not discuss impacts of the proposed project on this threatened species, and should be included in the EA along with Murray Cod, Silver Perch, and the Lowland Darling River endangered aquatic ecological community.
- Raising the full supply level (FSL) of Chaffey Dam by 6.5 m will result in the loss of 2.5 km of lotic pool riffle sequences in the upper Peel River catchment. The impacts of this habitat loss upon aquatic fauna were not discussed in the PEA and need to be included in the EA. The EA should consider the value of this habitat relative to lotic habitat that will remain following dam raising.
- Chaffey Dam has an existing multi-level offtake (MLO) to assist with mitigating cold water pollution (CWP). As part of works to increase the dam's FSL, the MLO will be raised. Mitigating CWP is an identified outcome under Objective 2 (Monitoring water quality and manage operational impacts on aquatic habitat) of State Water's Environmental Management Plan (EMP 2011 – 2016). The EA should list targeted annual temperature ranges for water discharged from Chaffey Dam, with monitoring to occur to ensure State Water EMP objectives are met.

- Chaffey Dam and the downstream reaches of the Peel River are an important recreational fishery for Tamworth and the surrounding region. Changes to the dam's FSL need to ensure the maintenance or enhancement of existing recreational amenities and waterway access (e.g. boat ramps). Consultation should occur with recreational users to ensure existing values are maintained.
- The proposed works will alter and modify Chaffey Dam, and therefore trigger Section 218 (Fishways to be provided in the construction of dams and weirs) of the FMA 1994. Chaffey Dam is located in the upper reaches of the Namoi catchment, with previous departmental assessments determining that the ecological benefits achieved by inserting a high-level fishway at the dam did not justify the capital expenditure. Therefore, DPI Fisheries confirms previous correspondence with State Water (dated 29<sup>th</sup> January 2007) that a high-level fishway will not be pursued at Chaffey Dam.

Should you require any further information or advice with regard to Fisheries issues, please contact Matthew Gordos – Senior Conservation Manager on 02-6626-1395 or via email on [matthew.gordos@dpi.nsw.gov.au](mailto:matthew.gordos@dpi.nsw.gov.au).

Yours sincerely



**Dr. Matthew Gordos**  
Senior Conservation Manager, Aquatic Habitat Conservation Unit

22<sup>nd</sup> December 2011

**Swati Sharma - Chaffey Dam Augumentation (SSI-5039) EAR's**

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**From:** Jackes Andrea <Andrea.Jackes@environment.nsw.gov.au>  
**To:** "swati.sharma@planning.nsw.gov.au" <swati.sharma@planning.nsw.gov.au>  
**Date:** 20/12/2011 1:11 PM  
**Subject:** Chaffey Dam Augumentation (SSI-5039) EAR's  
**CC:** Turnbull Kharl <Kharl.Turnbull@environment.nsw.gov.au>  
**Attachments:** 2011-12-05 Draft DGRs Chaffey Dam Augumentation.doc

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Hi Swati

Please find attached our response to the Environmental Assessment Requirements letter from Planning & Infrastructure. I have added comments in track changes plus a couple of issues we thought should be included as key issues to your document. I have also added Attachment 1 that contains a list of up-to-date Technical and Policy guidelines for your reference.

Please don't hesitate to call me if you wish to discuss.

Kind Regards  
Andrea

Andrea Jackes  
Acting Regional Operations Officer  
North West Branch - Armidale Region  
Environment Protection Authority

P: 6773 7000  
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This email is intended for the addressee(s) named and may contain confidential and/or privileged information. If you are not the intended recipient, please notify the sender and then delete it immediately. Any views expressed in this email are those of the individual sender except where the sender expressly and with authority states them to be the views of the Office of Environment and Heritage, NSW Department of Premier and Cabinet.

PLEASE CONSIDER THE ENVIRONMENT BEFORE PRINTING THIS EMAIL

## Director General's Environmental Assessment Requirements

### Schedule 2 of the *Environmental Planning and Assessment Regulation 2000*

<b>Application Number</b>	SSI - 5039
<b>Proposal</b>	<b>Chaffey Dam Augmentation</b> The proposal includes a dam safety upgrade and increasing the storage capacity from 62 gigalitres (GL) to 100 GL, by raising the dam wall by 8.4 metres and full supply water level by 6.5 metres.
<b>Location</b>	Woolomin, approximately 23 km southeast of Tamworth
<b>Proponent</b>	State Water Corporation
<b>Date of Issue</b>	
<b>General Requirements</b>	<p>The Environmental Impact Statement (EIS) must be prepared in accordance with, and meet the minimum requirements of, Part 3 of Schedule 2 of the <i>Environmental Planning and Assessment Regulation 2000</i> (the EP&amp;A Regulation) and include the following:</p> <ol style="list-style-type: none"> <li>1. the information required under clause 6 of Schedule 2 of the EP&amp;A Regulation; and</li> <li>2. the content listed in clause 7 of Schedule 2 of the EP&amp;A Regulation, including but not limited to: <ul style="list-style-type: none"> <li>• a summary of the environmental impact statement,</li> <li>• a statement of the objectives of the project, including a description of the strategic need, justification, objectives and outcomes,</li> <li>• an analysis of feasible alternatives to the carrying out of the project, including: <ul style="list-style-type: none"> <li>➢ an analysis of options considered having regard to the project objectives (including an assessment of the environmental costs and benefits of the project relative to alternatives and the consequences of not carrying out the project), the suitability of the chosen option and whether or not the project is in the public interest,</li> <li>➢ justification for the preferred project taking into consideration the objects of the <i>Environmental Planning and Assessment Act 1979</i>.</li> </ul> </li> <li>• an analysis of the project, including an assessment, with a particular focus on the requirements of the listed key issues, in accordance with clause 7(1)(d) of Schedule 2 of the EP&amp;A Regulation (where relevant), undertaken by suitably qualified consultants,</li> <li>• an identification of how relevant planning, land use and development matters (including relevant strategic and statutory matters) have been considered in the impact assessment (direct, indirect and cumulative impacts) and/or in developing management/ mitigation measures, and</li> <li>• detail how the principles of ecologically sustainable development will be incorporated in the design, construction and ongoing operation phases of the project.</li> </ul> </li> </ol>
<b>Key issues</b>	<p>The EIS must address the following specific matters:</p> <p><b>Soil and Water</b> – including but not limited to:</p> <ul style="list-style-type: none"> <li>• impacts on surface water flows, quality and quantity, with particular reference to impacts on surrounding waterways and their habitats;</li> <li>• flooding impacts and characteristics, with an assessment of the potential changes to flooding behaviour (levels, velocities and direction) and impacts on bed and bank stability, through flood modelling, including: <ul style="list-style-type: none"> <li>○ hydraulic modelling for a range of flood events,</li> </ul> </li> </ul>

- description, justification and assessment of design objectives,
- an assessment of afflux and flood duration (inundation period) on land, infrastructure, property and business operations, and
- consideration of the changes in rainfall frequency and/or intensity as a result of climate change;
- waterways to be modified as a result of the project, including ecological, hydrological and geomorphic impacts (as relevant), including temporary crossings, and measures to rehabilitate the waterways to pre-construction conditions or better, including fish passage requirements consistent with *Policy and Guidelines for Fish Friendly Waterway Crossings* (Department of Primary Industries, 2004); and
- identification and assessment of soil characteristics and properties that may impact or be impacted by the project and details of erosion and sedimentation control measures.
- Contingency measures for flooding events with potential for inundation and discharge through the spillway area during construction should be included in the EA.

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**Biodiversity** - including but not limited to:

- impacts on the biodiversity values of the site and adjoining areas, including terrestrial, riparian and aquatic habitats;
- impacts on Endangered Ecological Communities, critical habitat, threatened and protected species, populations and their habitats, listed under both State and Commonwealth legislation that have been recorded or considered likely to occur on the site and surrounding land, and whether the proposal or specific aspects of the proposal constitute Key Threatening Processes in terms of the *Threatened Species Conservation Act 1995*;
- targeted surveys of threatened flora and fauna species and their habitat that are known or likely to occur within the project's study area based on the presence of suitable habitat. Details of the survey methodology employed, including survey effort and timing and representativeness for the species targeted, should be included; and
- taking into account the *Draft Guidelines for Threatened Species Assessment* (Department of Environment and Conservation, 2005); *Threatened Species Survey and Assessment Guidelines: Field Survey Methods for Fauna - Amphibians* (DECCW, 2009); and *Threatened Biodiversity Survey and Assessment: Guidelines for Developments and Activities – Working Draft* (DEC, 2004).
- Note: The DECC, 2008 BioBanking Assessment Methodology can be used to assess biodiversity losses at development sites and calculate offset requirements.

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**Heritage** – including but not limited to:

- impacts to **Aboriginal heritage** (including cultural and archaeological significance), in particular impacts to Aboriginal heritage sites identified within or near the project. Where impacts are identified, the assessment shall:
  - outline the proposed mitigation and management measures (including measures to avoid significant impacts and an evaluation of the effectiveness of the measures) taking into account the *Draft Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation* (Department of Environment and Conservation, 2005),
  - demonstrate effective consultation with Aboriginal communities in determining and assessing impacts and developing and selecting options and mitigation measures (including the final proposed measures), and
  - include an appropriate archaeological assessment methodology,

including research design, to guide physical archaeological test excavations of the areas of PAD identified in a manner that establishes the full spatial extent and significance of any archaeological evidence across each area of PAD, and include the results of these excavations; and

- impacts to **historic heritage** (including archaeology, heritage items conservation areas and natural areas), in particular impacts to the Bowling Alley Point site should be assessed. Where impacts to State or locally significant historic heritage items are identified, the assessment shall:
  - outline the proposed mitigation and management measures (including measures to avoid significant impacts and an evaluation of the effectiveness of the mitigation measures) taking into account the guidelines in the NSW Heritage Manual (1996),
  - include a statement of heritage impact for heritage items (including significance assessment), and
  - include an appropriate archaeological assessment methodology, including research design, to guide physical archaeological test excavations and include the results of these excavations.

**Traffic and Transport** – including but not limited to:

- construction traffic impacts, including:
  - the identification of construction traffic routes and the nature of existing traffic on these routes,
  - an assessment of construction traffic volumes, and
  - potential impacts to the regional and local road network (including safety and level of service) and potential disruption to existing public transport/school bus services and access to properties and businesses; and
- operational traffic and transport impacts to the local and regional road network, including changes to local road connectivity and impacts on local traffic arrangements, road capacity/ safety and modified access to realigned roads.

**Noise and Vibration** – including but not limited to construction and operational noise and vibration impacts taking into account (where relevant) the *Interim Construction Noise Guideline* (Department of Environment and Climate Change, 2009), *Assessing Vibration: A Technical Guideline* (Department of Environment and Conservation, 2006) and the *NSW Road Noise Policy* (Department of Environment Climate Change and Water, 2011).

Air Quality

- The proponent needs to consider the impact of dust as the primary air quality concern with potential emissions from, including but not limited to, excavation sites, transfer points, loading facilities and stockpiles and the impact on residents, commercial operations and the general public visiting Chaffey Dam. Reference should be made to the "POEO (Clean Air) Regulation 2010".

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Waste Management and Chemical/Fuel Storage

- The proponent must provide information on the types of chemicals/fuels to be stored on the premises and proposed storage and management to ensure no pollution of surface waters, groundwater's or contamination of soils. Spill management measures, including items such as bunding and emergency procedures should be clearly outlined.
- The handling, processing and storage of all materials used at the premises should not have negative environmental or amenity impacts.

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	<p><b>Visual Amenity</b> – including but not limited to an assessment of the visual impact of the project on the landscape character of the area and details of landscaping treatment and design.</p> <p><b>Land Use, Property and Socioeconomic</b> - including but not limited to:</p> <ul style="list-style-type: none"> <li>• impacts on directly affected properties and land uses, including impacts related to access, land use, property infrastructure, future development potential, property acquisition and land sterilisation;</li> <li>• impacts on Crown land, reserves and assets, and land reserved under the <i>National Parks and Wildlife Act 1974</i>;</li> <li>• impacts on natural resources, including mining and extractive resources utilisation; and</li> <li>• identification of services and utilities to be relocated.</li> </ul>
<b>Environmental Risk Analysis</b>	Notwithstanding the above key assessment requirements, the EIS must include an environmental risk analysis to identify potential environmental impacts associated with the project (construction and operation), proposed mitigation measures and potentially significant residual environmental impacts after the application of proposed mitigation measures. Where additional key environmental impacts are identified through this environmental risk analysis, an appropriately detailed impact assessment of this additional key environmental impact must be included in the EIS.
<b>Consultation</b>	<p>You should undertake an appropriate and justified level of consultation with relevant parties during the preparation of the EIS, including but not limited to:</p> <ul style="list-style-type: none"> <li>• local, State and Commonwealth government authorities, including the: <ul style="list-style-type: none"> <li>○ Department of Primary Industries (Agriculture, Forests, Fisheries, Minerals and Crown Land divisions),</li> <li>○ Heritage Council of NSW,</li> <li>○ NSW Office of Water,</li> <li>○ Office of Environment and Heritage,</li> <li>○ Roads and Maritime Services,</li> <li>○ Namoi Catchment Management Authority;</li> <li>○ NSW Dams Safety Committee, and</li> <li>○ Tamworth Regional Council;</li> </ul> </li> <li>• specialist interest groups, including Local Aboriginal Councils, Aboriginal stakeholders and industry/ growers associations, mining and petroleum title holders;</li> <li>• utilities and service providers; and</li> <li>• the public, including community groups and adjoining and affected landowners.</li> </ul> <p>The EIS must describe the consultation process and the issues raised, and identify where the design of the infrastructure has been amended in response to these issues. Where amendments have not been made to address an issue, a short explanation should be provided.</p>
<b>Further consultation after 2 years</b>	If you do not lodge an EIS for the infrastructure within 2 years of the issue date of these DGRs, you must consult with the Director General in relation to the requirements for lodgement.
<b>References</b>	<u>The assessment of the key issues listed above must take into account relevant guidelines, policies, and plans as identified. While not exhaustive, Attachment 1 contains a list of some of the guidelines, policies, and plans that may be relevant to the environmental assessment of this development.</u>

## 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.bookshop.nsw.gov.au>

<http://www.publications.gov.au>

### Policies, Guidelines & Plans

<b>Risk Assessment</b>	AS/NZS 4360:2004 Risk Management (Standards Australia)
	HB 203: 203:2006 Environmental Risk Management – Principles & Process (Standards Australia)
<b>Biodiversity</b>	Threatened Species Survey and Assessment Guidelines: Field Survey Methods for Fauna – Amphibians (DECCW 2009)
	Threatened Biodiversity Survey and Assessment: Guidelines for Developments and Activities – Working Draft (DECC 2004)
	Threatened Species Assessment Guidelines: the Assessment of Significance (DECC 2007)
	NSW State Groundwater Dependent Ecosystem Policy (DLWC)
	Policy & Guidelines - Aquatic Habitat Management and Fish Conservation (NSW Fisheries)
	Policy & Guidelines - Fish Friendly Waterway Crossings (NSW Fisheries)
	State Environmental Planning Policy No. 44 – Koala Habitat Protection
	BioBanking Assessment Methodology (DECC 2008)
<b>Water Resources</b>	
<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)
	National Water Quality Management Strategy: Guidelines for Sewerage Systems – Effluent Management (ARMCANZ/ANZECC)
	National Water Quality Management Strategy: Guidelines for Sewerage Systems – Use of Reclaimed Water (ARMCANZ/ANZECC)
	Using the ANZECC Guideline and Water Quality Objectives in NSW (DEC)
	State Water Management Outcomes Plan
	Any relevant Water Sharing Plans for surface waters under the <i>Water Management Act 2000</i>
	NSW Government Water Quality and River Flow Objectives (DECC)
	Approved Methods for the Sampling and Analysis of Water Pollutants in NSW (DEC)
	Managing Urban Stormwater: Soils & Construction (Landcom) and associated Volume 2E: Mines and Quarries.
	Managing Urban Stormwater: Treatment Techniques (DECC)
	Managing Urban Stormwater: Source Control (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)
	National Water Quality Management Strategy Guidelines for Groundwater Protection in Australia (ARMCANZ/ANZECC)
	NSW State Groundwater Policy Framework Document (DLWC, 1997)
	NSW State Groundwater Quality Protection Policy (DLWC, 1998)
	NSW State Groundwater Quantity Management Policy (DLWC, 1998)
Groundwater	Murray-Darling Basin Groundwater Quality. Sampling Guidelines. Technical Report No 3 (MDBC)
	Murray-Darling Basin Commission. Groundwater Flow Modelling Guideline (Aquaterra Consulting Pty Ltd)
	Guidelines for the Assessment & Management of Groundwater Contamination (DECC, 2007)
	Any relevant Water Sharing Plan for groundwater resources under the <i>Water Management Act 2000</i>
<b>Air Quality</b>	
	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)
	NSW Coal Mining Benchmarking Study: International Best Practice Measures to Prevent and/or Minimise Emissions of Particulate Matter from Coal Mining, DECCW, December 2010.
<b>Noise &amp; Blasting</b>	
	NSW Industrial Noise Policy (DECC)
	Environmental Noise Management – Assessing Vibration: a technical guide (DEC)
	NSW Road Noise Policy (DECCW)
	Interim Guideline for the Assessment of Noise From Rail Infrastructure Projects (DECC)
	Technical basis for guidelines to minimise annoyance due to blasting overpressure and ground vibration (ANZECC)
<b>Land Resources</b>	
	Draft Agricultural Impact Assessment Guidelines 2011 (DP&I)
	Australian and New Zealand Guidelines for the Assessment and Management of Contaminated Sites (ANZECC)
	Rural Land Capability Mapping (DLWC)
	Agfact AC25: Agricultural Land Classification (NSW Agriculture)
<b>Traffic &amp; Transport</b>	
	Guide to Traffic Generating Development (RTA)
	Road Design Guide (RTA)
<b>Heritage</b>	
	Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW (OEH 2011)
	Due diligence code of practice for protection of Aboriginal objects in NSW (DECCW 2010)
Aboriginal	Aboriginal cultural heritage consultation requirements for proponents 2010 (DECCW)
	Code of practice for archaeological investigation of Aboriginal objects in NSW (DECCW 2010)
	Applying for an Aboriginal heritage impact permit: guide for applicants 2010 (DECCW)
	The Burra Charter (The Australia ICOMOS charter for places of cultural significance)
Historic	NSW Heritage Manual (NSW Heritage Office)
	The Burra Charter (The Australia ICOMOS charter for places of cultural significance)

<b>Greenhouse Gases</b>	National Greenhouse Accounts Factors (Australian Department of Climate Change (DCC)) Guidelines for Energy Savings Action Plans (DEUS)
<b>Waste</b>	Waste Classification Guidelines (DECC)
<b>Hazards</b>	State Environmental Planning Policy No. 33 – Hazardous and Offensive Development Hazardous and Offensive Development Application Guidelines - Applying SEPP 33 Hazardous Industry Planning Advisory Paper No. 6 – Guidelines for Hazard Analysis
<b>Rehabilitation</b>	Mine Rehabilitation – Leading Practice Sustainable Development Program for the Mining Industry (Commonwealth of Australia) Mine Closure and Completion – Leading Practice Sustainable Development Program for the Mining Industry (Commonwealth of Australia) Strategic Framework for Mine Closure (ANZMEC-MCA)
<b>Socio-Economic</b>	Draft Economic Evaluation in Environmental Impact Assessment (DoP) Techniques for Effective Social Impact Assessment: A Practical Guide (Office of Social Policy, NSW Government Social Policy Directorate)

DRAFT



19<sup>th</sup> December 2011

Department of Planning and Infrastructure  
GPO Box 39  
Sydney NSW 2001

**Attention** : Ms Swati Sharma.

Dear Swati,

**Re: Chaffey Dam Augmentation (SSI-5039) Environmental Assessment Requirements**

Thank you for the opportunity to provide input into the Director General's EA requirements (DGRs) for the Chaffey Dam Augmentation.

Namoi CMA is primarily interested in major developments such as the Chaffey Dam Augmentation from the perspective of catchment impacts especially in the areas of protection of biodiversity, management of riparian areas, sustainability of agricultural soils and enhancement of social and economic values. Namoi CMA advocates the protection, maintenance and improvement of the Catchment for the community.

For the purposes of this DGRs, Namoi CMA focuses its attention on the Namoi Catchment Action Plan 2010 - 2020 (Namoi CAP 2010-2020) to guide developments in the Catchment.

#### **Namoi Catchment Action Plan 2010 - 2020**

The Namoi CAP 2010-2020 is a strategic statutory plan which guides sustainable natural resource management in the Namoi Catchment. The Namoi CAP 2010–2020 was developed following a review of the Namoi CAP 2007 and is based on 'resilience thinking' and environmental thresholds in determining the Catchment Targets. This CAP was developed in consultation with the community and government and is currently awaiting ministerial approval. The Namoi CAP 2010–2020 complements other natural resource plans including water sharing plans, regional strategies, conservation plans, etc, has a key role in addressing the environmental, social and economic priorities of the NSW State Plan and the Australian Government's Caring for our Country Program.

The CAP 2010-2020 identifies the major natural resource management assets of the Catchment, which are categorised into 4 themes: Biodiversity, Land, Water and People. Within each theme the critical thresholds are identified, along with the related targets and actions. Each of the thresholds and targets will be further highlighted in the relevant sections of this response. The Namoi CAP 2010-2020 can be downloaded from our website ([www.namoi.cma.nsw.gov.au](http://www.namoi.cma.nsw.gov.au)).

Namoi CMA finds that the key Issues identified in the draft EAR are generally consistent with Namoi CMA's advice and strategic settings.

Namoi CMA would also take this opportunity to recommend that the following activities are undertaken to ensure the quality of assessment is maintained to fully support any proposed EIS recommendations.

### **Soil and Water**

The EIS should address and consider the following:

- Potential impacts on the soils within the development area. Issues that need to be addressed are the potential for soil degradation, soil characteristics and quality, potential erosion, soil biology and chemistry impacts;
- Soils (topsoils and subsoils) need to be characterised, mapped and assessed for topdressing suitability using Australian standards and the most recent assessment methodologies; and
- Measures to manage soils to prevent degradation and methods to monitor and evaluate soils need to be thoroughly addressed in the EIS.

### **Biodiversity**

The EIS should address and consider the following:

- Identification of all vegetation communities along with condition assessments of communities in accordance with a recognised methodology. Details of methodology to be included in EIS;
- Maps to be included in the EIS depicting vegetation communities with various condition ratings. Maps to depict non vegetated areas;
- Potential impacts on both fauna and flora from clearing, specifically impacts resulting from fragmentation of vegetation, destruction of habitat, corridor loss, edge effects, increased predation and weed introduction;
- An alignment of the mapped vegetation communities with Regional Vegetation Communities (RVC) (NCMA 2009) and assessment against RVC ecological condition benchmarks and Namoi CAP 2010-2020 critical thresholds;
- All riparian areas need to be identified, terrestrial and aquatic impacts assessed and mitigation measures and safeguards addressed; and
- Significant natural features including threatened species, geological features and aboriginal cultural heritage issues.

## Heritage

The EIS should address and consider the potential impacts on aboriginal archaeology and cultural heritage especially with regard to clearing (inundation) and potential loss of significant aboriginal cultural sites. Mitigation measures and safeguards need to be addressed and assessed.

If you need to discuss this matter further, please do not hesitate to contact James Hutchinson-Smith on (02) 67645970.

Yours Sincerely



Bruce Brown  
General Manager  
Namoi Catchment Management Authority



Contact: Gary Estcourt  
Phone: (02) 9873 8562  
Fax: (02) 9873 8599  
Email: [Gary.estcourt@heritage.nsw.gov.au](mailto:Gary.estcourt@heritage.nsw.gov.au)  
File: 11/22310  
Our Ref: B518268  
Your Ref: SSI-5039

Major Projects Assessment  
GPO Box 39  
SYDNEY NSW 2001

Attention: Swati Sharma

Dear Ms Sharma

**STATE SIGNIFICANT INFRASTRUCTURE – CHAFFEY DAM AUGMENTATION (SSI-5039) – ENVIRONMENTAL ASSESSMENT REQUIREMENTS**

I refer to your letter dated 5<sup>th</sup> December 2011, requesting information regarding the NSW Heritage Council's requirements in relation to the Environmental Assessment for the proposed Chaffey Dam Augmentation, pursuant to Part 5 of the *Environmental Planning and Assessment Act 1979* (as amended). The proposal consists, in part, of the following works:

- Increasing the height of the dam wall by 10.2m;
- Modify the existing spillways;
- Nundle Road (and its bridge) and Western Foreshore Road will be re-aligned and/or raised to ensure they are not blocked by storage water or flood water inundation; and
- Parts of the Tamworth Fishing Club facilities and the Bowling Alley Point Recreation Area will be relocated.

Various sections of the Preliminary Environmental Assessment deal with Cultural Heritage as follows:

Identification of Heritage Items Section 4.2.2

*A total of 24 non-indigenous heritage sites have been identified in the Chaffey dam study area. Of these, ten are previously recorded non-indigenous heritage sites, including eight historic sites and two monuments, are located within the Chaffey Dam study area.*

Construction Impacts Section 5.4

*The heritage impacts would be minimal as the upgrade is preserving the dam structure and reducing the likelihood of future failure. This is seen as a positive heritage impact. There are also a number of heritage sites which may be affected by the road re-alignment works on both the Tamworth-Nundle Road and the Western Foreshore Road. These impacts can be further determined once the full extent of the road realignment is decided on.*

Upstream Impacts Section 6.1.1

*It is estimated that approximately five European heritage sites could be affected by permanent or semi-permanent inundation, including a commemorative plaque, a footbridge, Chaffey Dam, the Dulegal Arboretum and the possible remains of 'Lodhaver' homestead.*

Downstream Impacts Section 6.1.2

*Because the extent of downstream flooding will not change there is not likely to be any significant impacts on indigenous or non-indigenous heritage.*



Specifically in terms of cultural heritage the Summary of Draft Management and Mitigation Options is as follows:

- Non-indigenous heritage assessment including field surveys of present and potential heritage sites and their options for relocation;
- If impact to site 8 (iron footbridge) is to occur then the footbridge will be moved out of the impact area;
- If impact to site CDHS12 is to occur then further assessment will be undertaken including a heritage significance assessment;
- The Australian Agricultural Company commemorative plaque will be moved away from the new full supply level of the dam;
- If impact to site 11 (Dulegal Arboretum) is to occur the extent of this impact will be further investigated; and
- Site CDHS11 (possible remains of 'Lodhaver' homestead) would be affected by the full supply dam level and its historical significance will be evaluated.

The proposed scope of the Environmental Assessment will include (Page 34 of PEA):

*Non-indigenous heritage assessment including field surveys of present and potential heritage sites and their options for relocation*

The draft DGRs that have been prepared for this project are generally considered acceptable as is the proposed assessment in relation to non-Indigenous heritage to be undertaken in the EA.

It is recommended that the third dot point in the draft DGRs relating to non-indigenous heritage be amended as follows:

**Include an appropriate archaeological assessment methodology, including research design, to guide physical test excavations and/or broader archaeological excavations, where appropriate, and include the results of these excavations.**

The reason this modification is suggested is that based on the results of the heritage assessment and discussion of potential impacts it may be found that archaeological salvage of sites likely to be destroyed is an appropriate measure.

More broadly it is advised that the environmental assessment should address the following issues:

- The heritage significance of the site and any impacts the development may have upon this significance should be assessed. This assessment should include natural areas and places of Aboriginal, historic or archaeological significance. It should also include a consideration of wider heritage impacts in the area surrounding the site;
- The Heritage Council maintains the State Heritage Inventory which lists some items protected under the *Heritage Act, 1977* (e.g. listed on the NSW State Heritage Register) and other statutory instruments. This register can be accessed through the Heritage Office home page on the internet (<http://www.heritage.nsw.gov.au>);
- It should be noted that the legal standing of items listed on the State Heritage Register can also be provided by applying for a section 167 Certificate through the Heritage Branch home page;



## Heritage Council



of New South Wales

3 Marist Place  
Parramatta NSW 2150

Locked Bag 5020  
Parramatta NSW 2124  
DX 8225 PARRAMATTA

Telephone: 61 2 9873 8500  
Facsimile: 61 2 9873 8599

[heritage@heritage.nsw.gov.au](mailto:heritage@heritage.nsw.gov.au)  
[www.heritage.nsw.gov.au](http://www.heritage.nsw.gov.au)

- You should consult lists maintained by the Office of Environment & Heritage, the National Trust of Australia (NSW), the Australian Government under the *Environment Protection and Biodiversity Conservation Act 1999* and the local council in order to identify any identified items of heritage significance in the area affected by the proposal. Please be aware, however, that these lists are constantly evolving and that items with potential heritage significance may not yet be listed;
- Non-Aboriginal heritage items within the area affected by the proposal should be identified by field survey. This should include any buildings, works, relics (including relics underwater), gardens, landscapes, views, trees or places of non-Aboriginal heritage significance. A statement of significance and an assessment of the impact of the proposal on the heritage significance of these items should be undertaken. Any policies/measures to conserve their heritage significance should be identified. This assessment should be undertaken in accordance with the guidelines in the NSW Heritage Manual. The field survey and assessment should be undertaken by a qualified practitioner/consultant with historic sites experience. The Branch's website [http://www.heritage.nsw.gov.au/13\\_subnav\\_07.cfm](http://www.heritage.nsw.gov.au/13_subnav_07.cfm) can provide lists of suitable consultants;
- The proposal should have regard to any impacts on places, items or relics of significance to Aboriginal people. Where it is likely that the project will impact on Aboriginal heritage, adequate community consultation should take place regarding the assessment of significance, likely impacts and management/mitigation measures. For guidelines regarding the assessment of Aboriginal sites, please contact the Environmental Protection & Regulation Group of the Office of Environment & Heritage;
- The relics provisions in the Heritage Act require an excavation permit to be obtained from the Heritage Council, or an exception to be endorsed by the Heritage Council, prior to commencement of works if disturbance to a site with known or potential archaeological relics is proposed. Where possible refer to archaeological zoning plans or archaeological management plans held by Local Councils. If any unexpected archaeological relics are uncovered during the course of work excavation should cease and an excavation permit, or an exception notification endorsement, obtained;
- If they exist, archaeological zoning plans or archaeological management plans should also be consulted;
- If approval is required under the Heritage Act due to the listing of an item or place on the State Heritage Register, or being subject to an Interim Heritage Order, the Heritage Council's approval must be sought prior to an approval being issued by the consent authority under the *Environmental Planning and Assessment Act 1979* (except where application relates to Integrated Development OR Major Infrastructure and Other Projects under Part 3A of the *EP&A Act, 1979*). In accordance with section 67 of the Heritage Act, an approval given by a consent authority in these cases before the Heritage Council's determination of the application has been notified to the consent authority, is void.



Heritage Council



of New South Wales

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Parramatta NSW 2150

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Locked Bag 5020  
Parramatta NSW 2124  
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[heritage@heritage.nsw.gov.au](mailto:heritage@heritage.nsw.gov.au)  
[www.heritage.nsw.gov.au](http://www.heritage.nsw.gov.au)

The Heritage Branch would be happy to review any further documentation that may address any likely heritage impacts. If you have any further enquiries regarding this matter, please contact Gary Estcourt at the Heritage Branch on (02) 9873 8562.

Yours Sincerely

16/12/2011

**Vincent Sicari**

Manager

Conservation Team

Office of Environment and Heritage

**AS DELEGATE OF THE NSW HERITAGE COUNCIL**



**WorleyParsons**

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# **Attachment 2:**

## **Proposed Biodiversity Assessment Methodology**



## Proposed Biodiversity Assessment Methodology

The Proposed Biodiversity Assessment Methodology and the scope of the Field Surveys as described in Table 1 have been designed following completion of a Preliminary Literature Review and Gap Analysis. It is estimated that the field work for the survey would be over 5 days for 4 people. Following completion of the initial five day survey period (to be carried out in May and June 2012), the requirement for further surveys, including spring surveys identified in Table 1, will be confirmed.

Vegetation and flora site investigations will be undertaken by a botanist and ecologist within the Project impact zones to identify existing vegetation and species. The entire Project area will be traversed on foot where access is possible to record native plants and common or significant exotic species, including noxious weeds. Targeted surveys for likely threatened species (as listed under the TSC Act and EPBC Act) will be included in our site investigations as per Table 1. Observations of vegetation communities present, including their boundaries and conditions will be made.

We will photograph and record details of each of the vegetation areas expected to be impacted, by direct removal or through inundation, including:

- species names;
- presence, size and number of hollows;
- general condition of vegetation to be removed; and
- any other important features.

Fauna site investigations of the Project area will include an assessment of habitat types present and their quality and suitability as threatened species habitat (e.g. hollow bearing trees, groundcover and other microhabitats). Incidental sightings of fauna during the site investigations will also be recorded.

Targeted surveys will be carried out within suitable habitat for threatened fauna species as Table 1.

We will carry out aquatic surveys to assess Project impacts in line with the requirements of the NSW Fisheries' Policy and Guidelines for Aquatic Habitat Management. Our Preliminary Survey Methodology has been developed having regard to this document. The Methodology will be further refined following detailed review of available literature on the aquatic ecology of the site and downstream and upstream areas. The objective of the aquatic surveys is to determine the presence and condition of aquatic habitats, especially those along the dam foreshore that will become inundated as a result of the Project. Fish surveys are considered **not** to be required.

Further, the aquatic surveys will cover the foreshore of the dam and downstream and upstream creeks. We will record and map general features, including the presence of gravel beds, waterfalls or barriers to fish movement and the presence and type of aquatic vegetation and snags. GPS coordinates of habitat features will be recorded.

The condition of aquatic habitats will be assessed in relation to the likely degree and extent of disturbance. A list of fish species and other aquatic fauna using the aquatic environments in the



Project area will be developed, primarily based on the above referred to Literature Review and Gap Analysis. In the event that the proposed site investigations reveal that particular aquatic environments warrant further detailed surveys, this will be discussed with State Water.

All field work would be completed under appropriate OEH and NSW Fisheries licenses.

We will develop GIS mapping of the Project area, comprising GPS waypoints taken during our site investigations and other resources such as existing vegetation mapping. Maps of survey effort, habitat features, vegetation communities, locations of hollow bearing trees and any other relevant items and/or features will be prepared using this GIS mapping.

Our methodology does **not** include preparation of a Species Impact Statement or engagement of species specialists as they are not considered to be required based on currently available information.

**Table 1: Proposed Biodiversity Survey**

Species	Where Previously Found	Previous Survey Timing	Previous Survey Effort	Gap (proposed survey effort)
<b>FAUNA</b>				
<b>Speckled Warbler</b>	on the ridge to be cleared for the auxiliary spillway	October 2008	2 days	Determine presence of this species and potential loss of foraging habitat & nesting sites in relation to the Project
<b>Peregrine Falcon</b>	Not recorded	18-22 June 2007	Roost and nest search	Was conducted outside breeding season
	2 individuals recorded 1 km north of the wall. No nests found.	October 2008	Roost and nest search over 1 day?	Surveys required in areas relevant to the Project between August and early December
<b>Brown Treecreeper</b>	Recorded	18-22 June 2007	During habitat assessments over 4 days	Bird surveys to determine presence of this species and nesting sites in relation to the Project
<b>Little Lorikeet</b>	Recorded	18-22 June 2007	During habitat assessments over 4 days	Nesting (small hollows) and foraging habitat to be assessed.
<b>Owls</b>	No threatened species recorded.	January 2009	Call playback over 2 nights for Barking Owl & Masked Owl	Nesting (large hollows) and foraging habitat to be assessed.
<b>Border Thick-tailed Gecko</b>	Habitat recorded.	18-22 June 2007	80 x habitat assessments over 4 days	Likely to be impacted by works. Surveys to be conducted at bridges to be removed or upgraded as well as sites listed above. Identify suitable habitat for translocation.



Species	Where Previously Found	Previous Survey Timing	Previous Survey Effort	Gap (proposed survey effort)
	4 individuals recorded	January 2009	Targeted spotlight search over 2 nights - in vicinity of Options 1 & 2, dam walls and rocky ridge	
<b>Booroolong Frog</b>	69 individuals recorded upstream	January 2009	Targeted spotlight search over 2 nights – in vicinity of Options 1 & 2, upstream and downstream of dam	More survey required downstream of the dam, confirmation of upstream population and investigate other suitable habitat at upstream sites. Was assessed as not being impacted by Options 1 and 2 (NWES, 2009). Consideration of habitat creation and translocation will be required.
<b>Microbats</b>	No threatened species recorded	18-22 June 2007	Spotlighting (8 person hours)	Outside optimal season
	No threatened species recorded	January 2009	2 harp traps, 1 mist net, 1 Anabat over 1 night	More survey effort is required under bridges to be impacted and in areas relevant to the Project.
<b>Squirrel Glider</b>	Habitat recorded.	18-22 June 2007	80 x habitat assessments over 4 days	Habitat assessment and spotlighting required in areas relevant to the Project.
	Not recorded	January 2009	Call playback over 2 nights.	
<b>Yellow-bellied Glider</b>	Habitat recorded.	18-22 June 2007	80 x habitat assessments over 4 days	Habitat assessment required in areas relevant to the Project.
<b>Platypus</b>	14 individuals recorded downstream	2007	Targeted searches and habitat assessments 2km upstream and 1.5 km downstream (approx 25 person hours)	We know that they occur, therefore possibly only useful to support mitigation methods from Grant (2007). Surveys required in areas relevant to the Project. NICOLE: What does this mean? Reads a bit contradictory! Also, did Grant recommend a methodology for monitoring?  Long-term monitoring recommended by Grant (2007).
	2 individuals recorded within spillway downstream of	January 2009	Targeted spotlight search over 2 nights – in vicinity of Options 1 & 2,	



Species	Where Previously Found	Previous Survey Timing	Previous Survey Effort	Gap (proposed survey effort)
	outlet		upstream and downstream of dam	
<b>FLORA</b>				
<b>Small Snake Orchid</b>	Not recorded	October 2008	Targeted search 1 day	Targeted searches between August and October required.
<b>Narrow Goodenia</b>	Not recorded	October 2008	Targeted search 1 day	No longer listed as threatened, surveys not required.
<b>New England Bush Pea</b>	Not recorded	October 2008	Targeted search 1 day	No longer listed as threatened, surveys not required.
<b>Aquatic</b>				
<b>River Snail</b>	Habitat recorded	2007	Habitat assessment	Targeted searches required.
<b>FISH</b>	Silver Perch and Murray Cod occur or have occurred in the dam, upstream and downstream	1990	Fish habitat assessment	Habitat assessment and consultation with local fishing clubs at the dam and/or DPI fisheries required.
	Bycatch in Chaffey Dam included small numbers of Eeltailed catfish (Tandanus tandanus) & Silver Perch (Bidyanus bidyanus).	2005	Splash netting in Chaffey Dam	Habitat assessment and consultation with local fishing clubs at the dam and/or DPI fisheries required.
<b>Eel-tailed Catfish population</b>	Records in dam, downstream and upstream of dam.		Lit review & database searches	Habitat assessment and consultation with local fishing clubs at the dam and/or DPI fisheries required.
<b>Endangered Ecological Communities</b> Why isn't this part of the FLORA Section above?				
<b>Aquatic Ecological Community in the natural drainage system of the lowland catchment of the Darling River (Darling River</b>	Downstream of dam		Lit reviews only	Condition assessment of the EEC downstream required



Species	Where Previously Found	Previous Survey Timing	Previous Survey Effort	Gap (proposed survey effort)
EEC) (FM Act and TSC Act).				
<b>White Box-Yellow Box-Blakely's Red Gum Woodland Endangered Ecological Community (TSC Act)</b>	This EEC occurs in the central section of the eastern foreshore (GHD 2008)			Ground truth extent of this community from existing maps, and assess additional areas relevant to the Project. Map condition, quality and area to be impacted/lost.
<b>White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland Critically Endangered Ecological Community (EPBC Act)</b>	This EEC occurs between the full supply level (FSL) and Peak Maximum Flood level in the central section of the eastern foreshore (GHD 2008).			Ground truth extent of this community from existing maps, and assess additional areas relevant to the Project. Map condition, quality and area to be impacted/lost.



Office of  
Environment  
& Heritage

Our reference: DOC12/23323

Nicole Cowlshaw  
Senior Environmental Scientist  
WorleyParsons  
PO Box 1812  
North Sydney NSW 2059

7 June 2012

Dear Ms Cowlshaw,

Thank you for the opportunity to comment on the proposed biodiversity assessment methodology for the Chaffey Dam Augmentation Project (the Project), provided to us in your letter of 28 May 2012. In relation to this matter, OEH raises the following points for your consideration.

- OEH notes that the Biobanking Assessment Methodology (BBAM) is not mentioned in the Director-General's Requirements (DGRs); however, OEH spoke to your consultant David Maynard on 4 June, who indicated that the BBAM would be used to assess native vegetation impacts resulting from the Project, and OEH support this approach.
- With regard to consideration of White Box - Yellow Box - Blakely's Red Gum Woodland (Box-Gum) EEC, it will be necessary to consider impacts to Derived Native Grassland that constitutes Box-Gum EEC under the TSC Act. Guidelines for the identification of Box-Gum EEC are available from OEH.
- OEH has reviewed the list of proposed target species (Table 1) with regard to relatively recent Atlas records from the vicinity of the Project area. In addition to the species listed in Table 1, OEH highlights the need for considering potential impacts to the following threatened species: *Dichanthium setosum*, *Eucalyptus oresbia*, *Eucalyptus rubida* subsp. *barbigerorum*, *Euphrasia arguta*, Regent Honeyeater, Gang-gang Cockatoo, Varied Sittella, Hooded Robin (south-eastern form), Turquoise Parrot, Diamond Firetail, Powerful Owl, Scarlet Robin, Flame Robin, Squirrel Glider, Koala and Spotted-tailed Quoll. OEH would require justification for not undertaking an assessment of impacts on any of these additional species. Survey techniques, timing and intensity should be undertaken in accordance with the guidelines alluded to in the DGRs and the BBAM.
- A chief concern for OEH is the impact of the Project on the Upper Peel River population of the Booroolong Frog. Comprehensive surveys for the Booroolong Frog in 2008 and 2009 identified a significant population of this Commonwealth listed Endangered species in the Upper Peel, including within the Project area (*North West Ecological Services (2009) Review of the conservation status of the Booroolong Frog (Litoria booroolongensis) within the Namoi River Catchment. Report to the Namoi CMA*). As a result, OEH recommends that targeted surveys for this species need not be undertaken. However, a detailed survey of the amount of habitat that will be lost to this species as a result of the Project will be necessary in order to determine the significance of this impact and appropriate avoidance, mitigation and offsets. For instance, consideration should be given to determining how exactly this portion of the population might avoid direct impacts (to avoid elevated water levels, will frogs move upstream or laterally into

non-preferred riparian habitat?), whether upstream habitat will accommodate the movements of these frogs (are there impediments including unsuitable habitat that may prevent dispersal?), and whether translocation of frogs will be required (will frogs be able to disperse unassisted, and is translocation feasible?). With regard to the forced dispersal or translocation of frogs, consideration should be given to the amphibian chytrid fungus and the potential for increased virulence with increased population densities and/or altitude.

Should you have any further questions regarding this matter please contact David Coote on 02-6883-5303.

Yours sincerely,

A handwritten signature in cursive script that reads "Todd Soderquist". The signature is written in black ink and is positioned above the typed name.

**Todd Soderquist**  
**A/Head Biodiversity Conservation Unit North West Region**  
**Conservation and Regulation Division**



# WorleyParsons

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## Infrastructure & Environment

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28 May 2012

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File: 301015-02980-LET-0001\_OEH\_Aboriginal  
Heritage Assessment Methodology\_280512.doc

Gary Estcourt  
Office of Environment and Heritage  
Heritage Branch  
Locked Bag 5020  
Parramatta, NSW 2124

Dear Mr Estcourt

## CHAFFEY DAM ENVIRONMENTAL IMPACT ASSESSMENT - ABORIGINAL HERITAGE ASSESSMENT METHODOLOGY

WorleyParsons has been engaged by State Water Corporation to prepare the Environmental Impact Statement (EIS) for the Chaffey Dam Augmentation and Safety Upgrade Project (the Project). As part of our methodology for the EIS we are committed to consult with the NSW Office of Environment and Heritage (OEH) regarding our proposed **Aboriginal Heritage Assessment methodology**.

By way of background, Chaffey Dam is located on the Peel River, approximately 30km south-east of Tamworth. The Project will see the permanent storage capacity of Chaffey Dam increased from 62 gigalitres (GL) to 100GL, by raising the dam wall 8.4 metres and the full supply water level by 6.5 metres, which complies with modern dam safety standards.

The Project has been classified as State Significant Infrastructure (SSI) under the *Environmental Planning and Assessment Act 1979*.

Final DGRs have been provided for the Project which require the EIS to assess issues relating to matters such as soil and water, biodiversity, heritage, traffic, transport, noise, vibration, air quality, visual impact, land use, property and socioeconomic matters, spoil, waste management, hazard and risk (refer **Attachment 1**). The preparation of the EIS will involve consultation with stakeholders including local landholders, recreational users and government agencies.

In relation to Aboriginal heritage, the DGRs require that the EIS address:

*“impacts to Aboriginal heritage (including cultural and archaeological significance), in particular impacts to Aboriginal heritage sites identified within or near the project. Where impacts are identified, the assessment shall:*



- *outline the proposed mitigation and management measures (including measures to avoid significant impacts and an evaluation of the effectiveness of the measures), demonstrate effective consultation with Aboriginal communities in determining and assessing impacts and developing and selecting options and mitigation measures (including the final proposed measures),*
- *demonstration that an appropriate archaeological assessment methodology, including research design, (where relevant) has been undertaken, including results, and,*
- *take into account the Draft Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation (Department of Environment and Conservation, 2005) and be undertaken by a suitably qualified heritage consultant.”*

Other Government agencies were requested to comment on the draft DGRs (refer **Attachment 1**). The following comments were provided in relation to Aboriginal heritage:

**NSW Office of Environment and Heritage, Heritage Branch:**

*“The heritage significance of the site and any impacts the development may have upon this significance should be assessed. This assessment should include natural areas and places of Aboriginal, historic or archaeological significance. It should also include a consideration of wider heritage impacts in the area surrounding the site...”*

*The proposal should have regard to any impacts on places, items or relics of significance to Aboriginal people. Where it is likely that the project will impact on Aboriginal heritage, adequate community consultation should take place regarding the assessment of significance, likely impacts and management/mitigation measures. For guidelines regard the assessment of Aboriginal sites, please contact the Environmental Protection & Regulation Group of the Office of Environment & Heritage.”*

**Namoi Catchment Management Authority:**

*“The EIS should address and consider the potential impacts on aboriginal archaeology and cultural heritage especially with regard to clearing (inundation) and potential loss of significant aboriginal cultural sites. Mitigation measures and safeguards need to be addressed and assessed.”*

Accordingly, WorleyParsons, through its specialist subconsultants Navin Officer Heritage Consultants, propose to carry out an Aboriginal Heritage Assessment. To facilitate the carrying out of the Assessment, our Aboriginal Heritage subconsultant has prepared the methodology provided at **Attachment 2**.



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It is requested that OEH review the Aboriginal Heritage Assessment methodology as set out in **Attachment 2** and provide any comments on it. It would be appreciated if we could have your comments in writing (by post, fax or email), to be received by close of business Friday 8 June 2012, to:

Nicole Cowlshaw  
Senior Environmental Scientist  
WorleyParsons

Post: PO Box 1812 North Sydney NSW 2059

Fax: (02) 8923 6877

Email: [nicole.cowlshaw@worleyparsons.com](mailto:nicole.cowlshaw@worleyparsons.com)

Yours sincerely  
WorleyParsons

Nicole Cowlshaw  
Senior Environmental Scientist



**WorleyParsons**

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# **Attachment 1:**

## **DGRs and Government Agency Requirements**

# Director General's Environmental Assessment Requirements

Section 115Y of the *Environmental Planning and Assessment Act 1979*  
 Schedule 2 of the *Environmental Planning and Assessment Regulation 2000*

<b>Application Number</b>	SSI - 5039
<b>Infrastructure Project</b>	<b>Chaffey Dam Augmentation</b> The proposal includes a dam safety upgrade and increasing the storage capacity from 62 gigalitres (GL) to 100 GL, by raising the dam wall by 8.4 metres and full supply water level by 6.5 metres.
<b>Location</b>	Woolomin, approximately 23 km southeast of Tamworth
<b>Proponent</b>	State Water Corporation
<b>Date of Issue</b>	23 January 2012
<b>General Requirements</b>	<p>The Environmental Impact Statement (EIS) must be prepared in accordance with, and meet the minimum requirements of, Part 3 of Schedule 2 of the <i>Environmental Planning and Assessment Regulation 2000</i> (the EP&amp;A Regulation) and include the following:</p> <ol style="list-style-type: none"> <li>1. the information required under clause 6 of Schedule 2 of the EP&amp;A Regulation; and</li> <li>2. the content listed in clause 7 of Schedule 2 of the EP&amp;A Regulation, including, but not limited to:                         <ul style="list-style-type: none"> <li>• a summary of the environmental impact statement,</li> <li>• a statement of the objectives of the project, including a description of the strategic need, justification, objectives and outcomes,</li> <li>• an analysis of feasible alternatives to the carrying out of the project, including an analysis of options considered having regard to the project objectives (including an assessment of the environmental costs and benefits of the project relative to alternatives and the consequences of not carrying out the project), the suitability of the chosen option and whether or not the project is in the public interest,</li> <li>• an analysis of the project, including an assessment, with a particular focus on the requirements of the listed key issues, in accordance with clause 7(1)(d) of Schedule 2 of the EP&amp;A Regulation (where relevant),</li> <li>• an identification of how relevant planning, land use and development matters (including relevant strategic and statutory matters, such as relevant water sharing plans, State water environmental management plans, including Namoi Catchment Action Plan) have been considered in the impact assessment (direct, indirect and cumulative impacts) and/or in developing management/ mitigation measures,</li> <li>• a compilation of the measures proposed to mitigate any adverse effects of the project on the environment,</li> <li>• a justification for the preferred project taking into consideration the objects of the <i>Environmental Planning and Assessment Act 1979</i>, and</li> <li>• detailing how the principles of ecologically sustainable development will be incorporated in the design, construction and ongoing operation phases of the project.</li> </ul> </li> </ol>
<b>Key issues</b>	<p>The EIS must address the following specific matters:</p> <p><b>Soil and Water</b> – including but not limited to:</p> <ul style="list-style-type: none"> <li>• impacts on surface water flows, quality and quantity and risks to groundwater quality, with particular reference to impacts on surrounding</li> </ul>

	<p>(up and down stream) waterways, their habitats and environmental flows, and inclusion of baseline water quality and flow conditions;</p> <ul style="list-style-type: none"> <li>• flooding impacts and characteristics, with an assessment of the potential changes to flooding behaviour (levels, velocities and direction) and impacts on bed and bank stability, through flood modelling, including: <ul style="list-style-type: none"> <li>○ hydraulic modelling for a range of flood events,</li> <li>○ description, justification and assessment of design objectives,</li> <li>○ an assessment of afflux and flood duration (inundation period) on land, infrastructure, property and business operations,</li> <li>○ consideration of the changes in rainfall frequency and/or intensity as a result of climate change; and</li> <li>○ outline contingency measures for flooding events with potential for inundation and discharge through the spillway area during construction;</li> </ul> </li> <li>• waterways to be modified as a result of the project, including ecological, hydrological and geomorphic impacts (as relevant), including temporary crossings, and measures to rehabilitate the waterways to pre-construction conditions or better, including fish passage requirements taking into account <i>Policy and Guidelines for Fish Friendly Waterway Crossings</i> (Department of Primary Industries, 2004); and</li> <li>• identification and assessment of soil characteristics and properties that may impact or be impacted by the project and details of erosion and sedimentation control measures.</li> </ul> <p><b>Biodiversity</b> - including but not limited to:</p> <ul style="list-style-type: none"> <li>• impacts on the biodiversity values of the site and adjoining areas, including terrestrial, riparian and aquatic habitats;</li> <li>• impacts on Endangered Ecological Communities, critical habitat, threatened and protected species, populations and their habitats, listed under both State and Commonwealth legislation that have been recorded or considered likely to occur on the site and surrounding land, and whether the proposal or specific aspects of the proposal constitute Key Threatening Processes in terms of the <i>Threatened Species Conservation Act 1995</i>;</li> <li>• targeted surveys of threatened flora and fauna species and their habitat that are known or likely to occur within the project's study area based on the presence of suitable habitat. Details of the survey methodology employed, including survey effort and timing and representativeness for the species targeted, should be included;</li> <li>• the details of available offset measures to compensate the biodiversity impacts of the proposal where offset measures are proposed, consistent with the <i>Principles for the use of biodiversity offsets in NSW</i>; and</li> <li>• taking into account the <i>Draft Guidelines for Threatened Species Assessment</i> (Department of Environment and Conservation, 2005); <i>Threatened Species Survey and Assessment Guidelines: Field Survey Methods for Fauna - Amphibians</i> (DECCW, 2009); and <i>Threatened Biodiversity Survey and Assessment: Guidelines for Developments and Activities – Working Draft</i> (DEC, 2004).</li> </ul> <p><b>Heritage</b> – including but not limited to:</p> <ul style="list-style-type: none"> <li>• impacts to <b>Aboriginal heritage</b> (including cultural and archaeological significance), in particular impacts to Aboriginal heritage sites identified within or near the project. Where impacts are identified, the assessment shall: <ul style="list-style-type: none"> <li>○ outline the proposed mitigation and management measures (including measures to avoid significant impacts and an evaluation of the effectiveness of the measures), demonstrate effective consultation with Aboriginal communities in determining and assessing impacts and developing and selecting options and mitigation measures</li> </ul> </li> </ul>
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	<p>(including the final proposed measures),</p> <ul style="list-style-type: none"> <li>○ demonstration that an appropriate archaeological assessment methodology, including research design, (where relevant) has been undertaken, including results, and,</li> <li>○ take into account the <i>Draft Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation</i> (Department of Environment and Conservation, 2005) and be undertaken by a suitably qualified heritage consultant; and</li> </ul> <ul style="list-style-type: none"> <li>● impacts to <b>historic heritage</b> (including archaeology, heritage items conservation areas and natural areas), in particular impacts to the Bowling Alley Point site should be assessed. Where impacts to State or locally significant historic heritage items are identified, the assessment shall:       <ul style="list-style-type: none"> <li>○ outline the proposed mitigation and management measures (including measures to avoid significant impacts and an evaluation of the effectiveness of the mitigation measures),</li> <li>○ include a statement of heritage impact for heritage items (including significance assessment),</li> <li>○ demonstrate that an appropriate archaeological assessment methodology, including research design, (where relevant) has been undertaken, including results, and</li> <li>○ take into account the guidelines in the NSW Heritage Manual (1996) and be undertaken by a suitably qualified heritage consultant.</li> </ul> </li> </ul> <p><b>Traffic and Transport</b> – including but not limited to:</p> <ul style="list-style-type: none"> <li>● construction traffic impacts, including:       <ul style="list-style-type: none"> <li>○ the identification of construction traffic routes and the nature of existing traffic on these routes,</li> <li>○ an assessment of construction traffic volumes, and</li> <li>○ potential impacts to the State, regional and local road network (including safety and level of service) and potential disruption to existing public transport/school bus services and access to properties and businesses. The assessment shall identify suitable mitigation and management measures; and</li> </ul> </li> <li>● operational traffic and transport impacts to the State, regional and local road network, including changes to local road connectivity and impacts on local traffic arrangements, road capacity/ safety and modified access to realigned roads. The assessment shall identify suitable mitigation and management measures.</li> </ul> <p><b>Noise and Vibration</b> – including but not limited to construction and operational noise and vibration impacts taking into account (where relevant) the <i>Interim Construction Noise Guideline</i> (Department of Environment and Climate Change, 2009), <i>Assessing Vibration: A Technical Guideline</i> (Department of Environment and Conservation, 2006) and the <i>NSW Road Noise Policy</i> (Department of Environment Climate Change and Water, 2011).</p> <p><b>Air Quality</b> – including but not limited to an assessment of the construction air quality impacts on sensitive receptors, including impacts from particulate matter, total suspended solids and other air pollutants generated by the project.</p> <p><b>Visual Amenity</b> – including but not limited to an assessment of the visual impact of the project on the landscape character of the area and details of landscaping treatment and design.</p> <p><b>Land Use, Property and Socioeconomic</b> - including but not limited to:</p> <ul style="list-style-type: none"> <li>● impacts on directly affected properties and land uses, including impacts related to access and recreational uses of the dam, land use, mineral resources and exploration, property infrastructure, future development</li> </ul>
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	<p>potential, property acquisition and land sterilisation;</p> <ul style="list-style-type: none"> <li>• impacts on Crown land, reserves and assets, and land reserved under the <i>National Parks and Wildlife Act 1974</i>;</li> <li>• impacts on natural resources, including mining and extractive resources utilisation; and</li> <li>• identification of services and utilities to be relocated.</li> </ul> <p><b>Spoil and Waste Management</b> – including but not limited to dredging impacts, an estimation of the likely spoil generation and type (including identification of known or potential contamination issues), disposal/recycling sites and management of all types of waste material.</p> <p><b>Hazards and Risk</b> – including an assessment of the hazards and risk associated with the proposal including details of hazardous materials used or kept on the premises during the construction and operation phases. The assessment must refer to the Department's Guideline <i>Applying SEPP 33</i> (DUAP, 1994), where relevant.</p>
<b>Environmental Risk Analysis</b>	<p>Notwithstanding the above key assessment requirements, the EIS must include an environmental risk analysis to identify potential environmental impacts associated with the project (construction and operation), proposed mitigation measures and potentially significant residual environmental impacts after the application of proposed mitigation measures. Where additional key environmental impacts are identified through this environmental risk analysis, an appropriately detailed impact assessment of this additional key environmental impact must be included in the EIS.</p>
<b>Consultation</b>	<p>You should undertake an appropriate and justified level of consultation with relevant parties during the preparation of the EIS, including but not limited to:</p> <ul style="list-style-type: none"> <li>• local, State and Commonwealth government authorities, including the: <ul style="list-style-type: none"> <li>○ Department of Primary Industries (Agriculture, Forests, Fisheries, Minerals, Crown Land and Office of Water),</li> <li>○ Heritage Council of NSW,</li> <li>○ Office of Environment and Heritage (Environment Protection Authority),</li> <li>○ Roads and Maritime Services,</li> <li>○ Namoi Catchment Management Authority,</li> <li>○ NSW Dams Safety Committee, and</li> <li>○ Tamworth Regional Council;</li> </ul> </li> <li>• specialist interest groups, including Local Aboriginal Councils, Aboriginal stakeholders and industry/ growers associations, mining and petroleum title holders and exploration licence holders;</li> <li>• utilities and service providers; and</li> <li>• the public, including community groups and adjoining and affected landowners.</li> </ul> <p>The EIS must describe the consultation process and the issues raised, and identify where the design of the infrastructure has been amended in response to these issues. Where amendments have not been made to address an issue, a short explanation should be provided.</p>
<b>Further consultation after 2 years</b>	<p>If you do not lodge an EIS for the infrastructure within 2 years of the issue date of these DGRs, you must consult with the Director General in relation to the requirements for lodgement.</p>



Kane Winwood  
Manager, Water Projects, Infrastructure Projects  
Department of Planning and Infrastructure  
GPO Box 39  
Sydney NSW 2001

Contact Mark Simons  
Phone 02 4904 2572  
Mobile 0447 429 336  
Fax 02 4904 2503  
Email mark.simons@water.nsw.gov.au

Our ref ER21717  
Your ref SSI-5039

**Attention: Swati Sharma**

Dear Mr Winwood

**Re: Chaffey Dam Augmentation (SSI-5039) Environmental Assessment Requirements**

I refer to your letter of the 5 December 2011, inviting comment on the draft EARs for the proposal. The NSW Office of Water has reviewed the draft EARs, and the Preliminary Environmental Assessment, (PEA) and provides the following comments, for inclusion in the EARs.

The *Water Management Act 2000* (WMA) governs sustainable and integrated management of water sources across the State. The *Water Sharing Plan for the Peel Valley Regulated, Unregulated, Alluvium and Fractured Rock Water Sources 2010* applies to the water regulated by Chaffey Dam and the supply of this water to water users within the Peel Regulated River Water Source. The *Water Sharing Plan for the Upper Namoi and Lower Namoi Regulated River Water Sources 2003* provides water sharing rules for the Namoi River System, which is downstream of Chaffey Dam and below the Peel Regulated water source.

The EA should provide a justification of the activity in terms of the water management outcomes. This should include:

- A description of the various classes of water user which will be affected by the proposal
- Details of the increase in flood security criteria
- Quantification of the changes in quantity, reliability of supply, yield or increased drought security to downstream water users within the Peel Regulated Water Source water, for all classes of licence.
- Quantification of the changes in reliability of supply to water users in the Upper Namoi and Lower Namoi Regulated Water Sources, for all classes of licence.
- A description of how the project will maintain compliance with the Murray Darling Basin Cap and relevant Water Sharing Plans.

The EA should describe the ecological systems which will be affected by the proposal, with an assessment made of the level of effect.

The EA should provide details of the expected hydrologic impacts on downstream flow frequencies, and durations between significant events, both immediately below and at key points along the river system, in comparison to current dam structure, and pre development flow behaviour. This information should be provided with reference to the potential for downstream ecologic, geomorphologic, water quality and temperature impacts. Details of any proposal to mitigate expected impacts (through environmental releases, changes to the design of the offtake structure, or transparency/translucency requirements) should be provided.

The increase in storage volume provides for potential water quality impacts within the storage, as a result of vegetation breakdown and lake shore erosion of the enlarged dam. The EA should describe the potential for water quality impacts, and describe management options for these impacts.

The EA should include an assessment of any construction impacts on the flow of water, water quality, and geomorphic stability both within the storage and downstream.

Should you require further information or clarification, please contact Mark Simons on (02) 4904 2572 at the Newcastle office.

Yours sincerely



**Mark Mignanelli**  
**Manager Major Projects, Mines and Assessment**  
19 January 2012



PCU029398



Transport  
Roads & Maritime  
Services

The Manager (Water)  
Major Projects Assessment  
NSW Planning & Infrastructure  
GPO Box 39  
SYDNEY NSW 2001

Department of Planning  
Received  
23 DEC 2011  
Scanning Room

Attn: Swati Sharma

Dear Mr Winwood,

**SSI-5039 Environmental Assessment Requirements - Chaffey Dam Augmentation**

I refer to your letter dated 5 December 2011 relating to the abovementioned development proposal and apologise for the time taken in responding to your request for comment.

On 1 November 2011 a new organisation called Roads and Maritime Services (RMS) was formed to replace the Roads and Traffic Authority (RTA). The RMS will focus solely on delivering quality services to its customers.

RMS advises that it has no objections in principle to the proposed development. RMS agrees with the issues identified in the draft Environmental Assessment Requirements (EARs). In addition to the key issues identified the following requirements should be addressed;

- Identify if traffic routes relating to the proposal will include any State roads, particularly the Oxley Highway (HW12) and New England Highway (HW9).
- Assess the potential for impact upon safety and efficiency of the state road network.
- Identify suitable measures to mitigate and control any identified impacts upon the state road network so as to ensure that the safety and efficiency that roads is maintained.
- Any road works required on a State road will require the developer to enter into a Works Authorisation Deed (WAD) with the RMS. All works shall be undertaken at full cost to the developer to the satisfaction of the RMS. Should works on a state road be identified as necessary then the developer is encourage to discuss the matter with RMS at their earliest convenience.

Current AUSTRROADS standards should be adopted when designing any necessary upgrading of the surrounding road infrastructure. Detailed plans of any road works should be submitted with the Environmental Impact Statement (EIS) for consideration.

Should you have any further enquiries regarding the above comments please do not hesitate to contact Matt Adams on 6640 1344 or via email at: [land\\_use\\_northern@rta.nsw.gov.au](mailto:land_use_northern@rta.nsw.gov.au)

Yours faithfully,

David Bell  
Regional Manager, Northern Region

19 DEC 2011

Roads & Maritime Services



## Primary Industries

Our Reference: INW 11/35187; OUT 11/24185  
Your Reference: SSI-5039

Kane Winwood  
Manager, Water Projects  
Major Projects Assessment  
23-33 Bridge Street  
SYDNEY NSW 2000

**Attention: Swati Sharma**

Dear Swati,

### **RE: Chaffey Dam Augmentation (SSI-5039) Environmental Assessment Requirements**

Thank you for providing the Department of Trade & Investment, Regional Infrastructure and Services (DTIRIS) incorporating the Department of Primary Industries NSW (NSW DPI) with the State Significant Infrastructure (SSI) Preliminary Environmental Assessment Report for the Chaffey Dam Augmentation project on 5<sup>th</sup> December 2011, and requesting advice on the draft Director Generals Environmental Assessment Requirements (DGRs).

NSW DPI has reviewed the documentation and provides the following coordinated departmental response.

#### **AGRICULTURAL ISSUES**

DPI Ag has no further comment at this time.

Should you require any further information or advice with regard to Agricultural issues, please contact Andrew Scott – Resource Management Officer on 02-6763-1142 or via email on [Andrew.scott@industry.nsw.gov.au](mailto:Andrew.scott@industry.nsw.gov.au).

#### **MINERAL RESOURCES ISSUES**

The subject area is located within Exploration Licence (EL) 7489 held by Gold of Ophir Pty Ltd for Group 1 (metallic minerals). A number of historic workings are located to the south of the dam. Whilst the Division does not anticipate that the project will have major impacts on potential mineral resources, the key issue which needs to be addressed in the EA is consultation by the proponent with mineral title holders in the subject area.

Contact details for Gold of Ophir Pty Ltd are:

c/- Bob Harrison  
Mining Title Services Pty Ltd  
9 Kinsellas Drive  
Lane Cove North NSW 206  
Ph:9420 3591

NSW Department of Primary Industries  
1243 Bruxner Highway, WOLLONGBAR NSW 2477  
Tel: 02 6626 1395 Fax: 02 6626 1377  
Email: [matthew.gordos@industry.nsw.gov.au](mailto:matthew.gordos@industry.nsw.gov.au)  
[www.dpi.nsw.gov.au](http://www.dpi.nsw.gov.au)

### **Additional Information**

The Division has a range of data available online through our primary website address at:  
<http://www.dpi.nsw.gov.au/minerals>

This site hosts a range of data to enable research into exploration, land use and general geoscience topics. Three useful applications are also available online. **MinView** allows users to interactively display and query current and historical exploration tenement information. **TAS Map** permits the search, display and download of up to date NSW mineral, coal and petroleum titles maps and related information. **DIGS<sup>®</sup>** is an interactive searchable database of exploration and geoscience information that is in the public domain.

For further information regarding mineral issues please contact Cressida Gilmore – Team Leader Land Use on 02 49316537 or email [cressida.gilmore@industry.nsw.gov.au](mailto:cressida.gilmore@industry.nsw.gov.au)

### **FORESTRY ISSUES**

Forests NSW has no further comment at this time.

Should you require any further information or advice with regard to Forestry issues, please contact Jude Parr – Land Administration Officer on 02-6586-9718 or via email on [judep@sf.nsw.gov.au](mailto:judep@sf.nsw.gov.au).

### **FISHERIES ISSUES**

NSW DPI Fisheries has reviewed the Preliminary Environmental Assessment (PEA) and draft DGRs and provides the following comments.

- The PEA indicates in Section 1.1 that "State Water is proposing to increase the dam's storage capacity to provide more water for town and irrigation supplies". The PEA is unclear as to whether this translates into more water per annum for town and irrigation supplies, or whether more security will be provided due to the larger dam capacity. If the former, further discussion is required as to how increased annual flows are compliant with the existing Namoi and Peel River Water Sharing Plans.
- The PEA mentions but does not discuss in any detail provisions of environmental water that will be created upon completion of the enlarged dam. The EA should discuss the provision, rules and associate hydrologic regime (if available) that will accompany environmental water deliveries from Chaffey Dam.
- Works to raise the dam wall (Section 2.2.1) and modify other infrastructure (Section 2.2.3 – alteration to existing waterway crossings) require assessment under Section 199 Dredge and Reclamation of the *Fisheries Management Act 1994* (FMA). Details covering the area to be dredged or reclaimed need to be provided including the area of the activity and volume of material involved, nature of material, and implementation of suitable environmental control measures.
- Waterway crossings constructed or modified as part of the project need to include fish passage requirements consistent with the *Policy and Guidelines for Fish Friendly Waterway Crossings* (DPI 2004).
- The Murray-Darling Basin population of the Eel-tailed Catfish (*Tandanus tandanus*) is a declared endangered population, with records occurring from the Peel River below Chaffey Dam post 1980. The PEA does not discuss impacts of the proposed project on this threatened species, and should be included in the EA along with Murray Cod, Silver Perch, and the Lowland Darling River endangered aquatic ecological community.
- Raising the full supply level (FSL) of Chaffey Dam by 6.5 m will result in the loss of 2.5 km of lotic pool riffle sequences in the upper Peel River catchment. The impacts of this habitat loss upon aquatic fauna were not discussed in the PEA and need to be included in the EA. The EA should consider the value of this habitat relative to lotic habitat that will remain following dam raising.
- Chaffey Dam has an existing multi-level offtake (MLO) to assist with mitigating cold water pollution (CWP). As part of works to increase the dam's FSL, the MLO will be raised. Mitigating CWP is an identified outcome under Objective 2 (Monitoring water quality and manage operational impacts on aquatic habitat) of State Water's Environmental Management Plan (EMP 2011 – 2016). The EA should list targeted annual temperature ranges for water discharged from Chaffey Dam, with monitoring to occur to ensure State Water EMP objectives are met.

- Chaffey Dam and the downstream reaches of the Peel River are an important recreational fishery for Tamworth and the surrounding region. Changes to the dam's FSL need to ensure the maintenance or enhancement of existing recreational amenities and waterway access (e.g. boat ramps). Consultation should occur with recreational users to ensure existing values are maintained.
- The proposed works will alter and modify Chaffey Dam, and therefore trigger Section 218 (Fishways to be provided in the construction of dams and weirs) of the FMA 1994. Chaffey Dam is located in the upper reaches of the Namoi catchment, with previous departmental assessments determining that the ecological benefits achieved by inserting a high-level fishway at the dam did not justify the capital expenditure. Therefore, DPI Fisheries confirms previous correspondence with State Water (dated 29<sup>th</sup> January 2007) that a high-level fishway will not be pursued at Chaffey Dam.

Should you require any further information or advice with regard to Fisheries issues, please contact Matthew Gordos – Senior Conservation Manager on 02-6626-1395 or via email on [matthew.gordos@dpi.nsw.gov.au](mailto:matthew.gordos@dpi.nsw.gov.au).

Yours sincerely



**Dr. Matthew Gordos**  
Senior Conservation Manager, Aquatic Habitat Conservation Unit

22<sup>nd</sup> December 2011

**Swati Sharma - Chaffey Dam Augumentation (SSI-5039) EAR's**

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**From:** Jackes Andrea <Andrea.Jackes@environment.nsw.gov.au>  
**To:** "swati.sharma@planning.nsw.gov.au" <swati.sharma@planning.nsw.gov.au>  
**Date:** 20/12/2011 1:11 PM  
**Subject:** Chaffey Dam Augumentation (SSI-5039) EAR's  
**CC:** Turnbull Kharl <Kharl.Turnbull@environment.nsw.gov.au>  
**Attachments:** 2011-12-05 Draft DGRs Chaffey Dam Augumentation.doc

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Hi Swati

Please find attached our response to the Environmental Assessment Requirements letter from Planning & Infrastructure. I have added comments in track changes plus a couple of issues we thought should be included as key issues to your document. I have also added Attachment 1 that contains a list of up-to-date Technical and Policy guidelines for your reference.

Please don't hesitate to call me if you wish to discuss.

Kind Regards  
Andrea

Andrea Jackes  
Acting Regional Operations Officer  
North West Branch - Armidale Region  
Environment Protection Authority

P: 6773 7000  
F: 6772 2336  
E: andrea.jackes@environment.nsw.gov.au

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This email is intended for the addressee(s) named and may contain confidential and/or privileged information. If you are not the intended recipient, please notify the sender and then delete it immediately. Any views expressed in this email are those of the individual sender except where the sender expressly and with authority states them to be the views of the Office of Environment and Heritage, NSW Department of Premier and Cabinet.

PLEASE CONSIDER THE ENVIRONMENT BEFORE PRINTING THIS EMAIL

## Director General's Environmental Assessment Requirements

### Schedule 2 of the *Environmental Planning and Assessment Regulation 2000*

<b>Application Number</b>	SSI - 5039
<b>Proposal</b>	<b>Chaffey Dam Augmentation</b> The proposal includes a dam safety upgrade and increasing the storage capacity from 62 gigalitres (GL) to 100 GL, by raising the dam wall by 8.4 metres and full supply water level by 6.5 metres.
<b>Location</b>	Woolomin, approximately 23 km southeast of Tamworth
<b>Proponent</b>	State Water Corporation
<b>Date of Issue</b>	
<b>General Requirements</b>	<p>The Environmental Impact Statement (EIS) must be prepared in accordance with, and meet the minimum requirements of, Part 3 of Schedule 2 of the <i>Environmental Planning and Assessment Regulation 2000</i> (the EP&amp;A Regulation) and include the following:</p> <ol style="list-style-type: none"> <li>1. the information required under clause 6 of Schedule 2 of the EP&amp;A Regulation; and</li> <li>2. the content listed in clause 7 of Schedule 2 of the EP&amp;A Regulation, including but not limited to: <ul style="list-style-type: none"> <li>• a summary of the environmental impact statement,</li> <li>• a statement of the objectives of the project, including a description of the strategic need, justification, objectives and outcomes,</li> <li>• an analysis of feasible alternatives to the carrying out of the project, including: <ul style="list-style-type: none"> <li>➢ an analysis of options considered having regard to the project objectives (including an assessment of the environmental costs and benefits of the project relative to alternatives and the consequences of not carrying out the project), the suitability of the chosen option and whether or not the project is in the public interest,</li> <li>➢ justification for the preferred project taking into consideration the objects of the <i>Environmental Planning and Assessment Act 1979</i>.</li> </ul> </li> <li>• an analysis of the project, including an assessment, with a particular focus on the requirements of the listed key issues, in accordance with clause 7(1)(d) of Schedule 2 of the EP&amp;A Regulation (where relevant), undertaken by suitably qualified consultants,</li> <li>• an identification of how relevant planning, land use and development matters (including relevant strategic and statutory matters) have been considered in the impact assessment (direct, indirect and cumulative impacts) and/or in developing management/ mitigation measures, and</li> <li>• detail how the principles of ecologically sustainable development will be incorporated in the design, construction and ongoing operation phases of the project.</li> </ul> </li> </ol>
<b>Key issues</b>	<p>The EIS must address the following specific matters:</p> <p><b>Soil and Water</b> – including but not limited to:</p> <ul style="list-style-type: none"> <li>• impacts on surface water flows, quality and quantity, with particular reference to impacts on surrounding waterways and their habitats;</li> <li>• flooding impacts and characteristics, with an assessment of the potential changes to flooding behaviour (levels, velocities and direction) and impacts on bed and bank stability, through flood modelling, including: <ul style="list-style-type: none"> <li>○ hydraulic modelling for a range of flood events,</li> </ul> </li> </ul>

- description, justification and assessment of design objectives,
- an assessment of afflux and flood duration (inundation period) on land, infrastructure, property and business operations, and
- consideration of the changes in rainfall frequency and/or intensity as a result of climate change;
- waterways to be modified as a result of the project, including ecological, hydrological and geomorphic impacts (as relevant), including temporary crossings, and measures to rehabilitate the waterways to pre-construction conditions or better, including fish passage requirements consistent with *Policy and Guidelines for Fish Friendly Waterway Crossings* (Department of Primary Industries, 2004); and
- identification and assessment of soil characteristics and properties that may impact or be impacted by the project and details of erosion and sedimentation control measures.
- Contingency measures for flooding events with potential for inundation and discharge through the spillway area during construction should be included in the EA.

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**Biodiversity** - including but not limited to:

- impacts on the biodiversity values of the site and adjoining areas, including terrestrial, riparian and aquatic habitats;
- impacts on Endangered Ecological Communities, critical habitat, threatened and protected species, populations and their habitats, listed under both State and Commonwealth legislation that have been recorded or considered likely to occur on the site and surrounding land, and whether the proposal or specific aspects of the proposal constitute Key Threatening Processes in terms of the *Threatened Species Conservation Act 1995*;
- targeted surveys of threatened flora and fauna species and their habitat that are known or likely to occur within the project's study area based on the presence of suitable habitat. Details of the survey methodology employed, including survey effort and timing and representativeness for the species targeted, should be included; and
- taking into account the *Draft Guidelines for Threatened Species Assessment* (Department of Environment and Conservation, 2005); *Threatened Species Survey and Assessment Guidelines: Field Survey Methods for Fauna - Amphibians* (DECCW, 2009); and *Threatened Biodiversity Survey and Assessment: Guidelines for Developments and Activities – Working Draft* (DEC, 2004).
- Note: The DECC, 2008 BioBanking Assessment Methodology can be used to assess biodiversity losses at development sites and calculate offset requirements.

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**Heritage** – including but not limited to:

- impacts to **Aboriginal heritage** (including cultural and archaeological significance), in particular impacts to Aboriginal heritage sites identified within or near the project. Where impacts are identified, the assessment shall:
  - outline the proposed mitigation and management measures (including measures to avoid significant impacts and an evaluation of the effectiveness of the measures) taking into account the *Draft Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation* (Department of Environment and Conservation, 2005),
  - demonstrate effective consultation with Aboriginal communities in determining and assessing impacts and developing and selecting options and mitigation measures (including the final proposed measures), and
  - include an appropriate archaeological assessment methodology,

including research design, to guide physical archaeological test excavations of the areas of PAD identified in a manner that establishes the full spatial extent and significance of any archaeological evidence across each area of PAD, and include the results of these excavations; and

- impacts to **historic heritage** (including archaeology, heritage items conservation areas and natural areas), in particular impacts to the Bowling Alley Point site should be assessed. Where impacts to State or locally significant historic heritage items are identified, the assessment shall:
  - outline the proposed mitigation and management measures (including measures to avoid significant impacts and an evaluation of the effectiveness of the mitigation measures) taking into account the guidelines in the NSW Heritage Manual (1996),
  - include a statement of heritage impact for heritage items (including significance assessment), and
  - include an appropriate archaeological assessment methodology, including research design, to guide physical archaeological test excavations and include the results of these excavations.

**Traffic and Transport** – including but not limited to:

- construction traffic impacts, including:
  - the identification of construction traffic routes and the nature of existing traffic on these routes,
  - an assessment of construction traffic volumes, and
  - potential impacts to the regional and local road network (including safety and level of service) and potential disruption to existing public transport/school bus services and access to properties and businesses; and
- operational traffic and transport impacts to the local and regional road network, including changes to local road connectivity and impacts on local traffic arrangements, road capacity/ safety and modified access to realigned roads.

**Noise and Vibration** – including but not limited to construction and operational noise and vibration impacts taking into account (where relevant) the *Interim Construction Noise Guideline* (Department of Environment and Climate Change, 2009), *Assessing Vibration: A Technical Guideline* (Department of Environment and Conservation, 2006) and the *NSW Road Noise Policy* (Department of Environment Climate Change and Water, 2011).

Air Quality

- The proponent needs to consider the impact of dust as the primary air quality concern with potential emissions from, including but not limited to, excavation sites, transfer points, loading facilities and stockpiles and the impact on residents, commercial operations and the general public visiting Chaffey Dam. Reference should be made to the "POEO (Clean Air) Regulation 2010".

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Waste Management and Chemical/Fuel Storage

- The proponent must provide information on the types of chemicals/fuels to be stored on the premises and proposed storage and management to ensure no pollution of surface waters, groundwater's or contamination of soils. Spill management measures, including items such as bunding and emergency procedures should be clearly outlined.
- The handling, processing and storage of all materials used at the premises should not have negative environmental or amenity impacts.

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	<p><b>Visual Amenity</b> – including but not limited to an assessment of the visual impact of the project on the landscape character of the area and details of landscaping treatment and design.</p> <p><b>Land Use, Property and Socioeconomic</b> - including but not limited to:</p> <ul style="list-style-type: none"> <li>• impacts on directly affected properties and land uses, including impacts related to access, land use, property infrastructure, future development potential, property acquisition and land sterilisation;</li> <li>• impacts on Crown land, reserves and assets, and land reserved under the <i>National Parks and Wildlife Act 1974</i>;</li> <li>• impacts on natural resources, including mining and extractive resources utilisation; and</li> <li>• identification of services and utilities to be relocated.</li> </ul>
<b>Environmental Risk Analysis</b>	Notwithstanding the above key assessment requirements, the EIS must include an environmental risk analysis to identify potential environmental impacts associated with the project (construction and operation), proposed mitigation measures and potentially significant residual environmental impacts after the application of proposed mitigation measures. Where additional key environmental impacts are identified through this environmental risk analysis, an appropriately detailed impact assessment of this additional key environmental impact must be included in the EIS.
<b>Consultation</b>	<p>You should undertake an appropriate and justified level of consultation with relevant parties during the preparation of the EIS, including but not limited to:</p> <ul style="list-style-type: none"> <li>• local, State and Commonwealth government authorities, including the: <ul style="list-style-type: none"> <li>○ Department of Primary Industries (Agriculture, Forests, Fisheries, Minerals and Crown Land divisions),</li> <li>○ Heritage Council of NSW,</li> <li>○ NSW Office of Water,</li> <li>○ Office of Environment and Heritage,</li> <li>○ Roads and Maritime Services,</li> <li>○ Namoi Catchment Management Authority;</li> <li>○ NSW Dams Safety Committee, and</li> <li>○ Tamworth Regional Council;</li> </ul> </li> <li>• specialist interest groups, including Local Aboriginal Councils, Aboriginal stakeholders and industry/ growers associations, mining and petroleum title holders;</li> <li>• utilities and service providers; and</li> <li>• the public, including community groups and adjoining and affected landowners.</li> </ul> <p>The EIS must describe the consultation process and the issues raised, and identify where the design of the infrastructure has been amended in response to these issues. Where amendments have not been made to address an issue, a short explanation should be provided.</p>
<b>Further consultation after 2 years</b>	If you do not lodge an EIS for the infrastructure within 2 years of the issue date of these DGRs, you must consult with the Director General in relation to the requirements for lodgement.
<b>References</b>	<u>The assessment of the key issues listed above must take into account relevant guidelines, policies, and plans as identified. While not exhaustive, Attachment 1 contains a list of some of the guidelines, policies, and plans that may be relevant to the environmental assessment of this development.</u>

## 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.bookshop.nsw.gov.au>

<http://www.publications.gov.au>

### Policies, Guidelines & Plans

<b>Risk Assessment</b>	AS/NZS 4360:2004 Risk Management (Standards Australia)
	HB 203: 203:2006 Environmental Risk Management – Principles & Process (Standards Australia)
<b>Biodiversity</b>	Threatened Species Survey and Assessment Guidelines: Field Survey Methods for Fauna – Amphibians (DECCW 2009)
	Threatened Biodiversity Survey and Assessment: Guidelines for Developments and Activities – Working Draft (DECC 2004)
	Threatened Species Assessment Guidelines: the Assessment of Significance (DECC 2007)
	NSW State Groundwater Dependent Ecosystem Policy (DLWC)
	Policy & Guidelines - Aquatic Habitat Management and Fish Conservation (NSW Fisheries)
	Policy & Guidelines - Fish Friendly Waterway Crossings (NSW Fisheries)
	State Environmental Planning Policy No. 44 – Koala Habitat Protection
	BioBanking Assessment Methodology (DECC 2008)
<b>Water Resources</b>	
<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)
	National Water Quality Management Strategy: Guidelines for Sewerage Systems – Effluent Management (ARMCANZ/ANZECC)
	National Water Quality Management Strategy: Guidelines for Sewerage Systems – Use of Reclaimed Water (ARMCANZ/ANZECC)
	Using the ANZECC Guideline and Water Quality Objectives in NSW (DEC)
	State Water Management Outcomes Plan
	Any relevant Water Sharing Plans for surface waters under the <i>Water Management Act 2000</i>
	NSW Government Water Quality and River Flow Objectives (DECC)
	Approved Methods for the Sampling and Analysis of Water Pollutants in NSW (DEC)
	Managing Urban Stormwater: Soils & Construction (Landcom) and associated Volume 2E: Mines and Quarries.
	Managing Urban Stormwater: Treatment Techniques (DECC)
	Managing Urban Stormwater: Source Control (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)
	National Water Quality Management Strategy Guidelines for Groundwater Protection in Australia (ARMCANZ/ANZECC)
	NSW State Groundwater Policy Framework Document (DLWC, 1997)
	NSW State Groundwater Quality Protection Policy (DLWC, 1998)
	NSW State Groundwater Quantity Management Policy (DLWC, 1998)
Groundwater	Murray-Darling Basin Groundwater Quality. Sampling Guidelines. Technical Report No 3 (MDBC)
	Murray-Darling Basin Commission. Groundwater Flow Modelling Guideline (Aquaterra Consulting Pty Ltd)
	Guidelines for the Assessment & Management of Groundwater Contamination (DECC, 2007)
	Any relevant Water Sharing Plan for groundwater resources under the <i>Water Management Act 2000</i>
<b>Air Quality</b>	
	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)
	NSW Coal Mining Benchmarking Study: International Best Practice Measures to Prevent and/or Minimise Emissions of Particulate Matter from Coal Mining, DECCW, December 2010.
<b>Noise &amp; Blasting</b>	
	NSW Industrial Noise Policy (DECC)
	Environmental Noise Management – Assessing Vibration: a technical guide (DEC)
	NSW Road Noise Policy (DECCW)
	Interim Guideline for the Assessment of Noise From Rail Infrastructure Projects (DECC)
	Technical basis for guidelines to minimise annoyance due to blasting overpressure and ground vibration (ANZECC)
<b>Land Resources</b>	
	Draft Agricultural Impact Assessment Guidelines 2011 (DP&I)
	Australian and New Zealand Guidelines for the Assessment and Management of Contaminated Sites (ANZECC)
	Rural Land Capability Mapping (DLWC)
	Agfact AC25: Agricultural Land Classification (NSW Agriculture)
<b>Traffic &amp; Transport</b>	
	Guide to Traffic Generating Development (RTA)
	Road Design Guide (RTA)
<b>Heritage</b>	
	Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW (OEH 2011)
	Due diligence code of practice for protection of Aboriginal objects in NSW (DECCW 2010)
Aboriginal	Aboriginal cultural heritage consultation requirements for proponents 2010 (DECCW)
	Code of practice for archaeological investigation of Aboriginal objects in NSW (DECCW 2010)
	Applying for an Aboriginal heritage impact permit: guide for applicants 2010 (DECCW)
	The Burra Charter (The Australia ICOMOS charter for places of cultural significance)
Historic	NSW Heritage Manual (NSW Heritage Office)
	The Burra Charter (The Australia ICOMOS charter for places of cultural significance)

<b>Greenhouse Gases</b>	National Greenhouse Accounts Factors (Australian Department of Climate Change (DCC)) Guidelines for Energy Savings Action Plans (DEUS)
<b>Waste</b>	Waste Classification Guidelines (DECC)
<b>Hazards</b>	State Environmental Planning Policy No. 33 – Hazardous and Offensive Development Hazardous and Offensive Development Application Guidelines - Applying SEPP 33 Hazardous Industry Planning Advisory Paper No. 6 – Guidelines for Hazard Analysis
<b>Rehabilitation</b>	Mine Rehabilitation – Leading Practice Sustainable Development Program for the Mining Industry (Commonwealth of Australia) Mine Closure and Completion – Leading Practice Sustainable Development Program for the Mining Industry (Commonwealth of Australia) Strategic Framework for Mine Closure (ANZMEC-MCA)
<b>Socio-Economic</b>	Draft Economic Evaluation in Environmental Impact Assessment (DoP) Techniques for Effective Social Impact Assessment: A Practical Guide (Office of Social Policy, NSW Government Social Policy Directorate)

DRAFT



19<sup>th</sup> December 2011

Department of Planning and Infrastructure  
GPO Box 39  
Sydney NSW 2001

**Attention** : Ms Swati Sharma.

Dear Swati,

**Re: Chaffey Dam Augmentation (SSI-5039) Environmental Assessment Requirements**

Thank you for the opportunity to provide input into the Director General's EA requirements (DGRs) for the Chaffey Dam Augmentation.

Namoi CMA is primarily interested in major developments such as the Chaffey Dam Augmentation from the perspective of catchment impacts especially in the areas of protection of biodiversity, management of riparian areas, sustainability of agricultural soils and enhancement of social and economic values. Namoi CMA advocates the protection, maintenance and improvement of the Catchment for the community.

For the purposes of this DGRs, Namoi CMA focuses its attention on the Namoi Catchment Action Plan 2010 - 2020 (Namoi CAP 2010-2020) to guide developments in the Catchment.

#### **Namoi Catchment Action Plan 2010 - 2020**

The Namoi CAP 2010-2020 is a strategic statutory plan which guides sustainable natural resource management in the Namoi Catchment. The Namoi CAP 2010–2020 was developed following a review of the Namoi CAP 2007 and is based on 'resilience thinking' and environmental thresholds in determining the Catchment Targets. This CAP was developed in consultation with the community and government and is currently awaiting ministerial approval. The Namoi CAP 2010–2020 complements other natural resource plans including water sharing plans, regional strategies, conservation plans, etc, has a key role in addressing the environmental, social and economic priorities of the NSW State Plan and the Australian Government's Caring for our Country Program.

The CAP 2010-2020 identifies the major natural resource management assets of the Catchment, which are categorised into 4 themes: Biodiversity, Land, Water and People. Within each theme the critical thresholds are identified, along with the related targets and actions. Each of the thresholds and targets will be further highlighted in the relevant sections of this response. The Namoi CAP 2010-2020 can be downloaded from our website ([www.namoi.cma.nsw.gov.au](http://www.namoi.cma.nsw.gov.au)).

Namoi CMA finds that the key Issues identified in the draft EAR are generally consistent with Namoi CMA's advice and strategic settings.

Namoi CMA would also take this opportunity to recommend that the following activities are undertaken to ensure the quality of assessment is maintained to fully support any proposed EIS recommendations.

### **Soil and Water**

The EIS should address and consider the following:

- Potential impacts on the soils within the development area. Issues that need to be addressed are the potential for soil degradation, soil characteristics and quality, potential erosion, soil biology and chemistry impacts;
- Soils (topsoils and subsoils) need to be characterised, mapped and assessed for topdressing suitability using Australian standards and the most recent assessment methodologies; and
- Measures to manage soils to prevent degradation and methods to monitor and evaluate soils need to be thoroughly addressed in the EIS.

### **Biodiversity**

The EIS should address and consider the following:

- Identification of all vegetation communities along with condition assessments of communities in accordance with a recognised methodology. Details of methodology to be included in EIS;
- Maps to be included in the EIS depicting vegetation communities with various condition ratings. Maps to depict non vegetated areas;
- Potential impacts on both fauna and flora from clearing, specifically impacts resulting from fragmentation of vegetation, destruction of habitat, corridor loss, edge effects, increased predation and weed introduction;
- An alignment of the mapped vegetation communities with Regional Vegetation Communities (RVC) (NCMA 2009) and assessment against RVC ecological condition benchmarks and Namoi CAP 2010-2020 critical thresholds;
- All riparian areas need to be identified, terrestrial and aquatic impacts assessed and mitigation measures and safeguards addressed; and
- Significant natural features including threatened species, geological features and aboriginal cultural heritage issues.

**Heritage**

The EIS should address and consider the potential impacts on aboriginal archaeology and cultural heritage especially with regard to clearing (inundation) and potential loss of significant aboriginal cultural sites. Mitigation measures and safeguards need to be addressed and assessed.

If you need to discuss this matter further, please do not hesitate to contact James Hutchinson-Smith on (02) 67645970.

Yours Sincerely



Bruce Brown  
General Manager  
Namoi Catchment Management Authority



Contact: Gary Estcourt  
Phone: (02) 9873 8562  
Fax: (02) 9873 8599  
Email: [Gary.estcourt@heritage.nsw.gov.au](mailto:Gary.estcourt@heritage.nsw.gov.au)  
File: 11/22310  
Our Ref: B518268  
Your Ref: SSI-5039

Major Projects Assessment  
GPO Box 39  
SYDNEY NSW 2001

Attention: Swati Sharma

Dear Ms Sharma

**STATE SIGNIFICANT INFRASTRUCTURE – CHAFFEY DAM AUGMENTATION (SSI-5039) – ENVIRONMENTAL ASSESSMENT REQUIREMENTS**

I refer to your letter dated 5<sup>th</sup> December 2011, requesting information regarding the NSW Heritage Council's requirements in relation to the Environmental Assessment for the proposed Chaffey Dam Augmentation, pursuant to Part 5 of the *Environmental Planning and Assessment Act 1979* (as amended). The proposal consists, in part, of the following works:

- Increasing the height of the dam wall by 10.2m;
- Modify the existing spillways;
- Nundle Road (and its bridge) and Western Foreshore Road will be re-aligned and/or raised to ensure they are not blocked by storage water or flood water inundation; and
- Parts of the Tamworth Fishing Club facilities and the Bowling Alley Point Recreation Area will be relocated.

Various sections of the Preliminary Environmental Assessment deal with Cultural Heritage as follows:

Identification of Heritage Items Section 4.2.2

*A total of 24 non-indigenous heritage sites have been identified in the Chaffey dam study area. Of these, ten are previously recorded non-indigenous heritage sites, including eight historic sites and two monuments, are located within the Chaffey Dam study area.*

Construction Impacts Section 5.4

*The heritage impacts would be minimal as the upgrade is preserving the dam structure and reducing the likelihood of future failure. This is seen as a positive heritage impact. There are also a number of heritage sites which may be affected by the road re-alignment works on both the Tamworth-Nundle Road and the Western Foreshore Road. These impacts can be further determined once the full extent of the road realignment is decided on.*

Upstream Impacts Section 6.1.1

*It is estimated that approximately five European heritage sites could be affected by permanent or semi-permanent inundation, including a commemorative plaque, a footbridge, Chaffey Dam, the Dulegal Arboretum and the possible remains of 'Lodhaver' homestead.*

Downstream Impacts Section 6.1.2

*Because the extent of downstream flooding will not change there is not likely to be any significant impacts on indigenous or non-indigenous heritage.*



Specifically in terms of cultural heritage the Summary of Draft Management and Mitigation Options is as follows:

- Non-indigenous heritage assessment including field surveys of present and potential heritage sites and their options for relocation;
- If impact to site 8 (iron footbridge) is to occur then the footbridge will be moved out of the impact area;
- If impact to site CDHS12 is to occur then further assessment will be undertaken including a heritage significance assessment;
- The Australian Agricultural Company commemorative plaque will be moved away from the new full supply level of the dam;
- If impact to site 11 (Dulegal Arboretum) is to occur the extent of this impact will be further investigated; and
- Site CDHS11 (possible remains of 'Lodhaver' homestead) would be affected by the full supply dam level and its historical significance will be evaluated.

The proposed scope of the Environmental Assessment will include (Page 34 of PEA):

*Non-indigenous heritage assessment including field surveys of present and potential heritage sites and their options for relocation*

The draft DGRs that have been prepared for this project are generally considered acceptable as is the proposed assessment in relation to non-Indigenous heritage to be undertaken in the EA.

It is recommended that the third dot point in the draft DGRs relating to non-indigenous heritage be amended as follows:

**Include an appropriate archaeological assessment methodology, including research design, to guide physical test excavations and/or broader archaeological excavations, where appropriate, and include the results of these excavations.**

The reason this modification is suggested is that based on the results of the heritage assessment and discussion of potential impacts it may be found that archaeological salvage of sites likely to be destroyed is an appropriate measure.

More broadly it is advised that the environmental assessment should address the following issues:

- The heritage significance of the site and any impacts the development may have upon this significance should be assessed. This assessment should include natural areas and places of Aboriginal, historic or archaeological significance. It should also include a consideration of wider heritage impacts in the area surrounding the site;
- The Heritage Council maintains the State Heritage Inventory which lists some items protected under the *Heritage Act, 1977* (e.g. listed on the NSW State Heritage Register) and other statutory instruments. This register can be accessed through the Heritage Office home page on the internet (<http://www.heritage.nsw.gov.au>);
- It should be noted that the legal standing of items listed on the State Heritage Register can also be provided by applying for a section 167 Certificate through the Heritage Branch home page;



## Heritage Council



of New South Wales

3 Marist Place  
Parramatta NSW 2150

Locked Bag 5020  
Parramatta NSW 2124  
DX 8225 PARRAMATTA

Telephone: 61 2 9873 8500  
Facsimile: 61 2 9873 8599

[heritage@heritage.nsw.gov.au](mailto:heritage@heritage.nsw.gov.au)  
[www.heritage.nsw.gov.au](http://www.heritage.nsw.gov.au)

- You should consult lists maintained by the Office of Environment & Heritage, the National Trust of Australia (NSW), the Australian Government under the *Environment Protection and Biodiversity Conservation Act 1999* and the local council in order to identify any identified items of heritage significance in the area affected by the proposal. Please be aware, however, that these lists are constantly evolving and that items with potential heritage significance may not yet be listed;
- Non-Aboriginal heritage items within the area affected by the proposal should be identified by field survey. This should include any buildings, works, relics (including relics underwater), gardens, landscapes, views, trees or places of non-Aboriginal heritage significance. A statement of significance and an assessment of the impact of the proposal on the heritage significance of these items should be undertaken. Any policies/measures to conserve their heritage significance should be identified. This assessment should be undertaken in accordance with the guidelines in the NSW Heritage Manual. The field survey and assessment should be undertaken by a qualified practitioner/consultant with historic sites experience. The Branch's website [http://www.heritage.nsw.gov.au/13\\_subnav\\_07.cfm](http://www.heritage.nsw.gov.au/13_subnav_07.cfm) can provide lists of suitable consultants;
- The proposal should have regard to any impacts on places, items or relics of significance to Aboriginal people. Where it is likely that the project will impact on Aboriginal heritage, adequate community consultation should take place regarding the assessment of significance, likely impacts and management/mitigation measures. For guidelines regarding the assessment of Aboriginal sites, please contact the Environmental Protection & Regulation Group of the Office of Environment & Heritage;
- The relics provisions in the Heritage Act require an excavation permit to be obtained from the Heritage Council, or an exception to be endorsed by the Heritage Council, prior to commencement of works if disturbance to a site with known or potential archaeological relics is proposed. Where possible refer to archaeological zoning plans or archaeological management plans held by Local Councils. If any unexpected archaeological relics are uncovered during the course of work excavation should cease and an excavation permit, or an exception notification endorsement, obtained;
- If they exist, archaeological zoning plans or archaeological management plans should also be consulted;
- If approval is required under the Heritage Act due to the listing of an item or place on the State Heritage Register, or being subject to an Interim Heritage Order, the Heritage Council's approval must be sought prior to an approval being issued by the consent authority under the *Environmental Planning and Assessment Act 1979* (except where application relates to Integrated Development OR Major Infrastructure and Other Projects under Part 3A of the *EP&A Act, 1979*). In accordance with section 67 of the Heritage Act, an approval given by a consent authority in these cases before the Heritage Council's determination of the application has been notified to the consent authority, is void.



Heritage Council



of New South Wales

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[www.heritage.nsw.gov.au](http://www.heritage.nsw.gov.au)

The Heritage Branch would be happy to review any further documentation that may address any likely heritage impacts. If you have any further enquiries regarding this matter, please contact Gary Estcourt at the Heritage Branch on (02) 9873 8562.

Yours Sincerely

16/12/2011

**Vincent Sicari**

Manager

Conservation Team

Office of Environment and Heritage

**AS DELEGATE OF THE NSW HERITAGE COUNCIL**



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# **Attachment 2:**

## **Proposed Aboriginal Heritage Assessment Methodology**



## Proposed Aboriginal heritage assessment methodology

Works will be consistent with:

- Investigation and report writing standards outlined by the NSW Office of Environment and Heritage (OEH); and
- Standards and protocols defined in the 'Burra Charter' (Australia ICOMOS).

### **Desktop Investigations**

A search of the NSW Office of Environment and Heritage's (OEH's) Aboriginal Heritage Information Management System (AHIMS) will be undertaken for the area. A Native Title Search will also be carried out.

An Aboriginal heritage literature review will be undertaken, including:

- a review of site cards, reports and associated documents relevant to the defined study area held in the AHIMS;
- a review of published monographs and other relevant material; and
- a review of existing available information for the area, including the *Chaffey Dam Upgrade - Stage 1 Preliminary Archaeological and Heritage Assessment* (Navin Officer Heritage Consultants 2008).

### **Site Investigations**

Site investigations will target the full supply level and will aim to fill all survey gaps that remain following previous investigations, resulting in a comprehensive survey of the project area. Site investigations are currently planned to be undertaken by two personnel (one Consultant and one Field Assistant) over three days.

### **Consultation**

It is standard practice and an OEH requirement that Aboriginal people, representing various local groups, are consulted in relation to Aboriginal heritage studies.

The Director-General's Requirements (DGRs) for the Chaffey Dam Augmentation and Safety Upgrade Project refer to the *Draft Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation* (Department of Environment and Conservation, 2005). Given that these guidelines are now superseded, it is proposed to use the *Aboriginal cultural heritage consultation requirements for proponents 2010* (NSW DECCW 2010). This document sets out the requirements for 'consulting with those Aboriginal people who can provide information about the significance of Aboriginal cultural heritage as part of the heritage assessment process that informs any AHIP application'. This document also defines consultation requirements for the drafting and finalising of reports.



Aboriginal consultation will involve implementation of the *Aboriginal cultural heritage consultation requirements for proponents 2010* (NSW DECCW 2010) as follows:

## **Stage 1 - Notification of project proposal and registration of interest**

Ascertain, from reasonable sources, the names of Aboriginal people who may hold cultural knowledge relevant to determining the significance of Aboriginal objects or places.

- Write to:**
- (a) the relevant OEH EPRG regional office
  - (b) the relevant Local Aboriginal Land Council;
  - (c) the Registrar, Aboriginal Land Rights Act 1983, for a list of Aboriginal owners;
  - (d) the National Native Title Tribunal for a list of registered native title claimants, native title holders and registered Indigenous Land Use Agreement;
  - (e) Native Title Services Corporation Limited (NTSCORP Limited);
  - (f) the relevant local council(s);
  - (g) the relevant catchment management authorities for contact details of any established Aboriginal reference group; and
  - (h) the Aboriginal people whose names were obtained in through steps (a-g) above.

**Place:** notice in local newspaper

**Allow:** a minimum of 14 days for registrations of interest

**Provide:** copies of the letter, newspaper notice and a record of the names of each Aboriginal person who registered an interest to the Local Aboriginal land Council and the OEH EPRG regional office within 28 days from the closing date for registration of interest.

## **Stage 2 - Presentation of information about the proposed project**

Provide registered Aboriginal parties with information about the scope of the proposed project and the proposed cultural heritage assessment

**Present:** the proposed project information to the registered Aboriginal parties (from Stage 1).

**Record and document** that the proposed project information has been presented.

Depending on the nature, scale and complexity of the project, it may be reasonable and necessary for the proponent to:

- Conduct additional project information sessions
- Create the opportunity for registered Aboriginal parties to visit the project site



### Stage 3 - gathering information about cultural significance

Facilitate a process whereby registered Aboriginal parties can contribute to culturally appropriate information and the research methodology; provide information that will enable the cultural significance of Aboriginal objects and/or places on the proposed project area to be determined and have input into the development of any cultural heritage management options.

**Present:** and/or provide the proposed methodology(s) for the cultural heritage assessment to the registered Aboriginal parties

**Allow:** a minimum of 28 days for responses

**Incorporate:** \_\_\_\_\_ any protocols and matters such as issues/areas of cultural significance that might affect, inform or refine the assessment methodology

**Seek:** \_\_\_\_\_ cultural information from registered Aboriginal parties to identify whether there are any Aboriginal objects or places of cultural value to Aboriginal people in the area of the proposed project.

**Integrate:** \_\_\_\_\_ this information with the archaeological (scientific) assessment of significance

**Seek:** \_\_\_\_\_ views from registered Aboriginal parties on potential management options.

**Incorporate:** \_\_\_\_\_ all feedback into final cultural heritage assessment report

### Stage 4 - review of draft cultural heritage assessment report

Prepare and finalise an Aboriginal cultural heritage assessment report with input from registered Aboriginal parties.

**Prepare:** draft cultural heritage assessment report

**Provide:** draft cultural heritage assessment report to registered Aboriginal parties to review and comment

**Allow:** \_\_\_\_\_ a minimum of 28 days for responses

**Finalise:** cultural heritage assessment report including responses to each submission

**Provide:** \_\_\_\_\_ copy of final cultural heritage assessment report and Aboriginal Heritage Impact Permits (AHIP) application registered Aboriginal parties and relevant LALC (even if not registered) within 14 days of submission of AHIP application to OEH.

Although there is no legal requirement to include Aboriginal representatives in paid fieldwork (and OEH does not recognise participation in fieldwork as consultation) there is an expectation on the part of the Aboriginal groups that this will occur in the majority of cases.

It is anticipated that a site visit will be undertaken for interested registered Aboriginal stakeholders, following completion of Aboriginal heritage site investigations. This site visit is expected to comprise a single day in which registered Aboriginal stakeholders would be shown the identified sites. Invitations will be provided to selected local representatives to participate in the site visit. This approach is considered to maintain scheduling efficiencies, whilst allowing registered



Aboriginal stakeholders to understand and provide input to the Aboriginal Heritage Assessment for the project.

*Aboriginal Heritage Assessment Report*

A report will be prepared that documents the results of the investigation inclusive of site assessment and recommendations for management and mitigative measures as necessary.

The necessity for and scope of further archaeological investigations such as site collection, subsurface testing, archival recording and salvage, will also be defined.

## Cowlishaw, Nicole (Sydney)

---

**From:** Robert Taylor <Robert.Taylor@environment.nsw.gov.au>  
**Sent:** Thursday, 31 May 2012 12:45 PM  
**To:** Cowlishaw, Nicole (Sydney)  
**Subject:** FW: Chaffey Dam EIA Aboriginal Heritage Assessment Methodology

**Importance:** High

**Follow Up Flag:** Follow up  
**Flag Status:** Flagged

Nicole

We do not usually provide comment on proposed Aboriginal Heritage Assessment Methodology as the DGRs and our associated policy and guidelines available on the internet are considered to be adequate information for a professional to garner what is required.

However I did have a **brief** scan on the methodology and noticed there was no mention of assessment of the sensitivity of environments (landforms) present ie in the due diligence code it refers to some environments being more likely to contain sites than others.

Rob

---

**From:** Ewins Lou  
**Sent:** Wednesday, 30 May 2012 3:15 PM  
**To:** Taylor Robert  
**Cc:** Estcourt Gary  
**Subject:** FW: Chaffey Dam EIA Aboriginal Heritage Assessment Methodology  
**Importance:** High

Hello Rob, one for you as it is in your region. Regards, Lou

Lou Ewins Manager Planning & Aboriginal Heritage Section, Metropolitan Branch

Office of Environment & Heritage, Department of Premier and Cabinet

79 George Street Parramatta NSW 2150 | **ph** (02) 9995 6802 | **mobile** 0419404998 | **fax** (02) 9995 6900

[Lou.Ewins@environment.nsw.gov.au](mailto:Lou.Ewins@environment.nsw.gov.au)



Please consider the environment before printing this e-mail

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**From:** Gary Estcourt [mailto:Gary.Estcourt@heritage.nsw.gov.au]  
**Sent:** Monday, 28 May 2012 2:50 PM  
**To:** Ewins Lou  
**Cc:** Sicari Vincent  
**Subject:** Fwd: Chaffey Dam EIA Aboriginal Heritage Assessment Methodology

Lou,

I have received this email regarding the proposed methodology for an Aboriginal Heritage Assessment in regard to the Chaffey Dam EIA (SSI-5039). Could you please advise who this should be sent to as it is not really within the role of the Heritage Branch.

Thanks for your assistance.

Gary

Gary Estcourt  
Heritage Officer  
Conservation Team  
Heritage Branch  
Environment and Heritage, Policy and Programs  
Office of Environment and Heritage  
E-mail: [gary.estcourt@heritage.nsw.gov.au](mailto:gary.estcourt@heritage.nsw.gov.au)  
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>>> "Cowlishaw, Nicole (Sydney)" <Nicole.Cowlishaw@WorleyParsons.com> 5/28/2012 1:54 pm >>>  
Hi Gary,

Please find attached an advance copy of a letter posted to you today regarding the Aboriginal Heritage Assessment methodology for the Chaffey Dam Environmental Impact Assessment.

I also left a voicemail message for you on this matter.

Kind regards, Nicole.

**Nicole Cowlishaw**

**Senior Environmental Scientist, WorleyParsons**

Tel: +61 (0)2 8456 7209 | Email: [nicole.cowlishaw@worleyparsons.com](mailto:nicole.cowlishaw@worleyparsons.com)

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