



DUNGOG SHIRE COUNCIL

All Communications to be addressed to:

The General Manager
Dungog Shire Council
PO Box 95
DUNGOG NSW 2420

Telephone: (02) 4995 7777
Facsimile: (02) 4995 7750
Email: shirecouncil@dungog.nsw.gov.au
Website: www.dungog.nsw.gov.au
ABN 62 610 350 056

Ref: 253 – cfd

6 December 2007

Ms Joanna Bakopanos
Acting Manager, Special Projects
Major Infrastructure Assessment
Department of Planning
GPO Box 39
SYDNEY NSW 2001

Dear Ms Bakopanos

TILLEGRA DAM – DIRECTOR GENERALS REQUIREMENTS

In reference to your email advice of 21 November 2007 requesting Councils requirements that need to be considered within the Environmental Assessment being undertaken by Hunter Water Corporation, please find attached Councils key issues for inclusion in the Director Generals Requirements.

Council has received numerous representations from members of the community since the announcement of this project and accordingly the issues raised are not just that of Council officers but from a cross-section of our community.

As you would be aware the proposal to build Tillegra Dam has the potential to significantly effect both the environment and the community in our area. Given this potential, Council is particularly concerned that the local impacts have not been adequately addressed in the assessment process to date. If the dam is to proceed, it is imperative for the sustainability of our community, that local scale issues and needs are also addressed in the assessment process.

Should you require clarification on any matter, please do not hesitate in contacting Councils staff in due course.

Yours faithfully

Craig Deasey
GENERAL MANAGER



DungogShire
Life as it should be.

COUNCIL'S VISION:

A vibrant, united community, with a sustainable economy. An area where rural character, community safety, and lifestyle are preserved.

A. SOCIO - ECONOMIC IMPACTS

Introductory Statement

Agriculture is the predominant industry within the Dungog LGA economy, the loss of agricultural production from the most sustainable area within the LGA has significant flow-on effects within the local economy. With a decline in revenue for many businesses that are supported by the agricultural sector already being experienced as those affected landholders are not investing back into their properties.

Accordingly Council seeks the applicant to address both the Social and Economic Impacts of this project from a local (micro) basis aside from the broader regional aspects. It is the community of Dungog Shire that is experiencing the direct impacts of this project at the present time and will continue to directly experience these issues well into the future.

In view of the significant impacts on the local community in both the social and economic areas Council requests that the applicant make an "in principle" and where possible detailed commitment to mitigate and compensate for those impacts.

Social Impacts Overview

There is very little comment afforded within the preliminary environmental assessment on the social impacts of the Dam aside from commentary on the relocation of Quartpot Cemetery, the Council seeks the following matters to be addressed within the Director Generals requirements.

1. Social Impact Analysis

- a) Council requires the applicant to undertake a local social impact analysis in relation to this project.

Commentary

The local community is already experiencing the impact of the Dam project, the displacement of members of the community who have to relocate to establish farm operations elsewhere will leave a further void in our communities.

Aside from the direct impact upon family members the indirect impact flows through to the local schools where their children attend and can impact on teacher numbers, the impact upon community organizations which they are members of and also sporting organizations again the Dam undermines the social fabric of our community.

Also during the construction phase there is the likelihood that members of the community within the lower socio economic backgrounds are likely to experience greater financial duress as the demand for rental accommodation within the LGA escalates. There is already a shortage of available public housing within our community and the property rental market is also in very limited supply.

It is further identified by Council that once the Dam is constructed the land that will be inundated will become non-rateable which will have a detrimental impact upon the Council effectively there will be a reduction in rates income received by the Shire from the applicant due to their exemptions under relevant NSW legislation. The Council effectively has 2 options available when the non-rateable status takes effect, the first option is to absorb the loss in rate revenue and cut services or the second option is to redistribute that loss in rateable income across the balance of the ratepaying community of the Shire which will place a further burden on households.

2. Assessment of impact upon community services and facilities (Social Infrastructure)

- a) Council requires the applicant to undertake an assessment of the potential impacts upon the social infrastructure. Such should include an assessment of the available services and their capability to deal with an influx of construction personnel within the Dungog LGA.

Commentary

Long term the applicant has identified that a total of 6 employees will be employed on the Dam, the short term employment generation through the construction phase will impact upon community services and facilities within the Dungog LGA. The applicant has identified that an estimated 200 jobs will be generated during the construction phase.

The capacity of medical services is already stretched, with limited hospital facilities available in Dungog and with four (4) Doctors at present with an expectation that at least one (1) will be retired by the time construction commences. The Doctor shortage in the lower Hunter is also rated as severe and accordingly any influx of population will have a detrimental impact upon existing services and infrastructure.

3. Community Service Obligations

- a) The applicant needs to define what their community service obligations will be to the Dungog LGA following construction of this project and include these obligations in a statement of commitments to the local community.

Commentary

As has been identified previously the loss of rate revenue leaves the Council with 2 options to consider, both options have a negative impact upon the local community and accordingly there should be a reasonable expectation that the applicant will deliver to the community a range of community service obligations to compensate for the loss.

Furthermore if the expectations that the Dam will be available for recreational activities there is the likelihood that such could accelerate demand for public utilities and facilities from the Council placing a further drain on Councils limited resources.

4. Public Safety

- a) Council requires the applicant to address public safety concerns in relation of road users of the Shire.

Commentary

A project of this nature will result in an increase in vehicle movements through the Shire during the construction phase from both construction workers and material imports. With seven (7) fatalities on the Councils road network this year there is a significant social cost in relation to road fatalities. The risk of even higher accident rates/ fatalities will increase with even more vehicles on the road network. The applicant should be required to identify the defined route for the movement of heavy transport into the Shire during the construction phase and a detailed route assessment should be undertaken of the regional roads leading into Dungog with a further detailed route assessment being undertaken from Dungog to the construction site and from Gresford to the construction site.

5. Recreational Use of Dam

- a) The applicant should be required to define the type of recreational activities that they anticipate being permitted and whether they include on the Dam type activities.

Commentary

The applicant has intimated that the Dam will be available for recreational use however such use has not been defined any further as regards passive/active recreational activities.

The impact of some activities may need to be assessed e.g. power boats.

Economic Impacts Overview

The commentary within the preliminary EA identifies that regional economic modelling will be undertaken to determine the total economic impacts. The basis of the modelling provides economic impacts at State and Regional levels however such modelling will fail to identify leakages particularly at the local level. The beneficiaries from this project is the population of the lower Hunter, the Dungog Shire Local Government Area **is not** identified as being part of the lower Hunter.

1. Opportunity Cost

- a) The applicant needs to assess the opportunity cost for the loss of agricultural production over the life of the Dam so that the true cost of the Dam is known.

Commentary

The loss of agricultural production has a direct impact upon the local businesses within the Dungog LGA and whilst it is recognized that there may be significant regional benefits from the Dam there is the likelihood that the Dungog economy will contract even further prior to construction.

There will be a re-distribution of income within the local government area as a consequence of this project. The loss of agricultural production will impact upon a range of businesses that support the industry and the loss of revenue streams could impact upon the viability of certain businesses. The revenue stream from agricultural production will be lost from the local economy and will not be recovered.

2. Economic Impact

- a) The applicant needs to assess the economic impact within our community across the different stages of the Dams development (Planning/ Construction/ Fill Stages) and make a commitment to mitigate these impacts.

Commentary

The three stages generate different levels of economic activity within the local economy; during the current stage the majority of local businesses are experiencing a decline in activity. There is anticipation that such will turn around for a number of businesses during the construction stage. It is further envisaged that during the fill stage of the Dam that the local economy will again experience a contraction in economic activity as the construction and associated supporting services migrate out of the local economy.

3. Road Maintenance Cost Impacts

- a) The applicant be required to undertake an assessment of the road maintenance cost impacts within the Dam area associated with the construction of the new roads.

Commentary

The argument for the assessment relates to the road construction project itself and the significant amounts of cut and fill being required to construct the new roads. The long term maintenance costs should be considered on a whole of life cost basis.

It is Councils experience that cut and fill projects of this nature result in long term maintenance issues aside from exposing the Council to greater risks associated with landslips etc. the Council and the ratepaying community will be exposed to a higher maintenance burden as a consequence of the project.

4. Long Term Financial Costs

- a) The applicant be required to undertake an assessment of the long term financial costs that will be imposed upon the local ratepaying community following the Dams construction and make a commitment to mitigate these impacts.

Commentary

There will be externalities that the Council will incur once the Dam is constructed and filling commences, the potential inflow of tourists/day trippers is likely to impact upon the provision of public amenities within the Shire. Increased demand upon visitor information services, increased usage patterns of facilities results in higher maintenance costs being incurred by the Council.

B. THE RIVER STRUCTURE, PROCESSES AND ECOLOGY

Introductory Statement

Council requires the applicant to provide a detailed assessment of the impacts of Tillegra Dam on the Williams River and how these impacts will be mitigated, with specific reference to the following issues:

- a) What are the proposed environmental flows and how will they be managed from both dams to maintain river structure, processes and ecosystems.

Commentary

Chichester Dam operates with an allowance for environmental flow of 14 megalitres a day or if backend flow to the dam is less than 14 meg, equivalent to that flow. This allowance has not been critical to overall flows in the Williams River as one arm of the Williams system still carried natural flows. If both rivers are dammed in the top end of the catchment the overall flow downstream will be managed and less likely to provide the extent of variation required in the riparian corridor to maintain ecological processes.

- b) How will the change in the flood events and their character effect river structure, processes and ecosystems.

Commentary

Two dams will reduce the number of and change the character of flood events downstream. This may affect many dependent ecosystems further downstream. Estuary fisherman and prawners have expressed concern at the potential impact on commercial and recreational operators further downstream.

- c) What impact will the removal of sediment load from upstream have on the river structure, processes and ecosystems?

Commentary

Much of the sediment in rivers comes from the steeper gradients and high energy flows of the top end of a catchment. Dams will reduce the sediment load in the river bed which in turn will impact on channel style, downstream erosion, stream bank vegetation, benthic flora and fauna etc.

- d) What change will the dam storage and the method of water release cause in water chemistry?

Commentary

Changes in water chemistry, temperature, turbidity, pH, and dissolved oxygen can have significant changes on benthic fauna and the ecology of the river. Scour pipes draw water from the bottom of the dam and are often used to power water turbines or provide environmental flows when the dam is below capacity. Anaerobic conditions at the bottom of the dam will change water chemistry at varying depths.

- e) What is the expected temperature of water in the dam and will it be suitable for recreational use.

Commentary

Low water temperatures or sharp variations in temperatures at different depths could mean that the dam is unsuitable for recreational use.

- f) What flora and fauna may inhabit the dam and will they impact on the ecology of the river?

Commentary

The large water body and deep water habitat may favour non endemic or exotic species that compete with endemic flora and fauna upstream and downstream in the river.

- g) What effect will the construction of a barrier on the river have on the ecology of the river, particularly native fish movements and their breeding cycle in the river?

Commentary

In recent years three fish passage ways have been constructed in the Williams below the proposed dam to facilitate native fish movement upstream. Other species such as fresh water mussels are dependant on native fish for a stage of their life cycle.

- h) What will the release pattern be for environmental flows?

Commentary

Environmental flows through the turbine at Chichester Dam are often release to suit turbine performance and get the best price for power generated. This results in a small tidal effect in the Chichester River. Natural flows need to be maintained and releases from the two dams managed to achieve the best environmental outcomes.

- i) How will the transfer of water from the dam into the weir pool be managed to reduce the impact on the river structure processes and ecosystems?

Commentary

Transferring water through the Williams River to Grahamstown will result in increased flows that are not connected to seasons or weather events and will happen in a regular and more frequent pattern particularly in dry periods. Releases should mimic natural events. There is already considerable concern about the effect of the weir pool on downstream ecology and stream bank erosion.

- j) What impact will both the construction and operation phase have on the level of nutrients in the water and incidence of algal blooms in the weir pool?

Commentary

Submerged organic matter and an increase in disturbed earth due to construction can contribute considerably to the nutrient load in the river, particularly in and soon after the construction phase. The presence of a weir at Seaham, the lack of flushing by floods and recent dry periods have led to an increase in blue green algal blooms during summer in the Weir Pool. Cement stabilised construction of the wall may also effect water chemistry and pH.

- k) What impact will the construction of the dam and the inundation of the area behind it have on the flora and fauna in and around the river?

Commentary

The construction of the dam will have a significant impact on local flora and fauna. The dam wall and the water behind it will create a barrier to the movement of wildlife flooding 2100Ha of land and a considerable length of river. Apart from the flooding, the dam and water behind it will create barriers, disrupt corridors and restrict the movement of wildlife.

- l) What impacts will the construction phase have on the river in relation to potential pollution, sedimentation and interruption of flows?

Commentary

Construction of the dam wall and associated roadwork's will require significant earth moving and building works in close proximity to the river. Construction may also require interruption to flows prior to completion.

- m) What will the evaporation loss from the dam be?

Commentary

The dam will have a large surface area (2100 hectares) with a potential net loss of water during extended dry, hot periods.

C. OTHER WATER USERS IN THE CATCHMENT

Introductory Statement

Council requires the applicant to provide a detailed report on future recreational activities that will be allowed in the dam and how will these be facilitated and managed. This report should include a consideration of the potential impacts on existing water users in the Williams River Catchment area with specific reference to issues raised below.

- a) What will the effect of the dam be on the availability of water upstream and downstream by private users for: domestic use, stock and farm irrigation?

Commentary

Most property owners adjacent to the Williams River have riparian rights to use water for domestic or stock purposes. Other users such as dairy farms and irrigators operate with an approved water licence.

- b) What areas will be covered by Special areas Legislation?

Commentary

Dam catchments are covered by Special Area Legislation This would include the area above the dam and possibly along the Williams River to the Seaham Weir.

- c) What will be the impact on current recreational users?

Commentary

The Williams River is currently utilised for fishing, canoeing, swimming, camping and water skiing.

- d) What uses and activities will be allowed in the dam area and what facilities and management will be put in place?

Commentary

If recreation is allowed in the dam area, infrastructure will be required to facilitate access and this infrastructure will require ongoing management and maintenance.

- e) What limits will be placed on landholder activities and further development in the dam catchment and transfer areas.

Commentary

Special Area Legislation limits activities and some forms of development in the catchment area.

D. GEOLOGY / IS THE DAM SAFE

Introductory Statement

Council requires the applicant to provide a detailed assessment of the geology of the Tillegra Dam site, storage area and associate road infrastructure, with specific reference to issues raised below. The assessment should include details of work to mitigate the risk of failure of the dam wall, associated engineering works and abutments

- a) Is the geology in the dam basin and in the area of the dam wall suitable for the proposed development?

Commentary

Reports indicate that there may be a thrust fault under the proposed dam wall and a further thrust fault extending eight kilometres along the ridge bordering the north eastern rim of the proposed dam.

- b) How do HWC investigations specifically counter geological studies carried out by the No Tillegra Dam Group (NTDG)?

Commentary

NTDG have advised that there are reports indicating that the geology of the dam is not suitable and if constructed there will be significant costs over those originally estimated by HWC.

- c) Will geological conditions identified in the EA add significantly to estimated construction and operation costs?

Commentary

If less than ideal geological conditions are identified in the EA, additional engineering works to stabilise problem areas could add significantly to the estimated cost of construction. If this is the case the dam and alternative proposals may need to be reassessed.

- d) What effect will the geology have on the construction and maintenance cost and the reliability of the new road?

Commentary

The dam bypass road will also be constructed in an area where there are steep slopes and reported faults in the supporting geology. Landslips and road obstructions could add significantly to road maintenance cost for Council. In the event of road closures, what alternative access arrangements are there for residents upstream considering the terrain?

E. NOISE IMPACTS

Introductory Statement

The applicant is to provide a detailed assessment of the expected noise impacts from the construction and operation of the Tillegra Dam and how these impacts will be mitigated, with specific reference to the following issues:

- a) What are the expected noise impacts in the construction phase and how will these be mitigated?

Commentary

Noise in the construction phase will be generated through; traffic movements, clearing, construction activities and blasting. It is anticipated that there will be significant traffic movements through the Shire during construction. The noise generated from heavy vehicles through residential areas will impact upon local

resident amenity. Council will want to see how the applicant proposes to mitigate the noise impacts.

- b) What are the expected noise impacts in the operational phase and how will these be mitigated?

Commentary

Noise in the operation phase will be generated through; maintenance activities, released flows, turbine operation, recreation and additional traffic.

F. JUSTIFICATION FOR THE PROJECT

Introductory Statement

The applicant should be required to provide a revised comparison of the various options for future water supply in the Newcastle / Central Coast region, with specific reference to the following issues.

- a) What is the expected cost of building the dam and how will these costs be passed on to water users?

Commentary

The predicted cost of \$300,000,000 was made prior to the Environmental Assessment process. Issues raised in the assessment (particularly the geology of the area) may add significantly to this cost.

- b) What are the environmental and social costs of the dam and why aren't these considered in the cost comparisons of the various options?

Commentary

The Wentworth Groups National Water Strategy advises that heritage and conservation costs should be considered when assessing various options for water resources. The loss of heritage and conservation values by damming the Williams River are not factored into HWC's report "Why Tillegra Now" (Aug 2007). The losses associated with the loss of 3500 Ha of prime agricultural land, removal of families and farm income, impacts on the local Council and economy are also not included in the cost of the Tillegra option.

- c) Provide a detailed costing of other options (Desalination and Indirect Potable Reuse etc) in comparison with the revised Tillegra Dam option.

Commentary

Reassessment of costs should include consideration of lost heritage and conservation values, lost farm income from the inundation area, climate change implications, benefits associated with independence of resources etc. Desalination operating costs, will they only occur when there is an insufficient supply from existing resources and if there is a significant investment in renewable energy sources, could this provide a return when the desalination plant is not in use.

- d) Provide a review of the effectiveness and costs of implementing changes in water management strategies.

Commentary

In 2006 HWC transferred 47 gigalitres through Balikera Canal in what is described as a relatively dry year in the Hunter. This was made partially possible by transferring during flood periods and spending more on pre treatment of the Grahamstown water. Could a review of the when to pump policy, combined with other strategies to reduce per capita use such as, water tanks, water saving devices, Basix etc, demand management through higher water prices and earlier restrictions on water use provide a viable alternative to the Tillegra Dam.

G ROAD INFRASTRUCTURE

Introductory Statement

A range of comments have been encompassed within the issues to date concerning impacts upon public infrastructure. Access to the site of the Dam is by road transport; during the different stages of the Dam there is the distinct likelihood that different pressures will be placed upon existing public infrastructure.

Those pressures will result in accelerated depreciation impacts upon infrastructure assets.

1. Existing Road & Bridge Infrastructure

- a) The applicant be required to undertake a road impact assessment and bridge structural assessment of the Councils regional road network. That a further road impact assessment be undertaken on the local road network that directly links with the Dam construction site.
- b) The applicant identify mitigation measures and contributions for upgrades to the road network and traffic facilities and proposed contributions for road maintenance.

Commentary

The critical linkages to the Dam site are all reliant upon the regional road and local road networks that are maintained by Council. However, many of the bridges upon the regional road network are not under the control of Council, they are ageing structures and their ability to withstand increased traffic volumes and load burdens is a risk element that needs to be addressed.

Council has also identified under Social impacts the issue of public safety, this element is of serious concern particularly if there is any increase in vehicle movements and will be further exacerbated by increases in heavy vehicle movements as there are limited overtaking opportunities in the Shire. The provision of adequate passing lanes and improvements in line-marking are considered to be matters that need to be addressed prior to construction of the Dam.

The long term cumulative impact of the increases in vehicle movements will result in an accelerated decline of Councils existing infrastructure that will place an increased financial burden on the local ratepaying community.

It is essential that elements of the road network be upgraded prior to construction of the Dam to minimise the risk to our community.