FACTSHEET

GUIDELINES FOR PREPARING A DAM DEWATERING REPORT

WHAT IS A DAM DEWATERING REPORT AND WHY IS IT REQUIRED?

This guideline provides advice to anyone planning to dewater a dam. The guidelines include actions to be undertaken prior to a development application being submitted to Council for the dam removal.

In order to manage the environmental impacts that may arise from dewatering dams, a range of issues require consideration, including:

- The quality and quantity of the water to be released;
- The fate of the water;
- Any impacts to native, threatened or protected species;
- Relocation of displaced native fauna; and
- The spread of nuisance flora and fauna species.

Ensuring that dams are dewatered in an environmentally sensitive manner is important for the protection of land and water within the Hills Shire.

Development applications that include the dewatering of a dam may require a dam dewatering report. A dam dewatering report is to be submitted with the development application and the information detailed in the guideline is to be addressed.

WHEN IS A DAM DEWATERING REPORT REQUIRED?

Where it is intended to dewater and back fill a dam as part of a development application, a dam dewatering report is required to be submitted if any of the following circumstances apply:

- The dam is in excess of 200m^3;
- The site containing the dam has the potential to be contaminated; eg. previous or current agricultural uses including market gardens, poultry farms and industrial uses;
- The water from the dam is proposed to be discharged into the stormwater drainage system or local creek;
- The dam is within 100m of a road; and/or
- As directed by Council's Manager – Environment and Health.

WHAT SHOULD BE INCLUDED IN A DAM DEWATERING REPORT?

A dam dewatering report must include the following:

1. WATER QUALITY INFORMATION

Water testing for the following parameters is to be included in the dam water sampling program;

- Temperature (°C);
- Turbidity (ntu);
- Dissolved Oxygen (mg/L and % saturation);
- Biochemical Oxygen Demand (BOD);
- pH;
- Salinity (ppt);
- Nutrients (Total Nitrogen and Phosphorous);
- *Escherichia coli*;
- Faecal coliforms;
- Copper;
- Arsenic;
- Cadmium;
- Lead;
- Mercury;

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- Zinc; and
- Any additional parameters as recommended by the Environmental Consultant.

The quality of the dam water is to be assessed against ANZECC Guidelines, specifically freshwater 95% level of protection trigger values and the recreational water faecal coliforms trigger values for secondary contact. The water quality parameters should be measured and reported in the same units expressed in the ANZECC Guidelines in a summary table with any exceedances highlighted.

The number of water quality samples for testing is to be determined by the Environmental Consultant and should be representative of the volume and size of the dam.

2. PROPOSED METHOD OF DAM WATER DISPOSAL

Options for dam water disposal include irrigating onto land, reuse on site, reuse during construction, removal to an authorised waste management facility, and discharge into the stormwater drainage system or local creek.

The preferred method of dewatering a dam is via irrigation within the boundaries of the land containing the dam.

2.1 PROPOSED IRRIGATION AREA

A plan, drawn to scale is to be provided which shows the dam and the proposed irrigation area within the property boundaries.

2.1.1 DEWATERING PROGRAM

A detailed program of the scheduled process to dewater the dam (including a timeline) is to be provided. The timeframe for discharge should take into consideration the absorption capacity of the soils (such as the Design Irrigation Rate (DIR) in Australian Standard 1547:2012). The dewatering program is to also include any contingencies that may be required during the dewatering process.

2.1.2 ENVIRONMENTAL PROTECTION MEASURES

Details including a plan of all sediment and erosion control measures that will be in place during the dewatering of the dam.

2.2 PROPOSED CREEK DISCHARGE

Dewatering into the stormwater drainage system or local creek will only be approved in instances where evidence has been provided confirming that the water meets the requirements of ANZECC Guidelines, specifically freshwater 95% level of protection trigger values and the recreational water faecal coliforms trigger values for secondary contact and there is no other practical option for dam water disposal.

If discharge into the stormwater drainage system or local creek is the proposed method of dam dewatering then the following additional details are to be provided:

- Details of the location of the local creek entry point;
- Method of treatment to reduce suspended solids. That is the use of flocculants and the timing of the use of chemicals with the management of any aquatic fauna (if required);
- Equipment proposed for use in the dewatering process;
- Details regarding monitoring the creek entry point during discharge including but not limited to actions to be taken to minimise pipe movement, prevent bed scour, undercutting and slumping and the monitoring of the sediment levels in the discharged water;
- Proposed water flow rate; and
- Methods proposed to prevent the release of nuisance flora and fauna species, into the catchment and natural waterways. This includes details specifically relating to the mesh that is required to be placed around pump inlets to prevent the uptake and spread of carp eggs, juvenile pest species or eggs, aquatic weeds and algae into the catchment.

SALINITY

Dewatering dams has the potential to exacerbate the impacts of salinity in low lying areas and along creek lines and therefore requires consideration. There are several areas of 'high' to 'moderate' salinity potential mapped along watercourses and low lying land along the western boundary of the Shire including some areas in Box Hill.

To identify if the dam is located in an area of potential salinity applicants can view the Salinity Potential in Western Sydney 2002 map. This map can be viewed at:
www.environment.nsw.gov.au

If the dam is located in an area of known or potential salinity then it must be addressed as part of the dam dewatering report.

SEDIMENT QUALITY

Prior to disturbing the sediment of the dam, the sediment within the dam walls and bed must be assessed against the National Environmental Protection Measure (NEPM) 2013. The number of sediment samples should be determined by an appropriately qualified consultant and should be representative of the size of the dam and the contamination status of the site.

AQUATIC ECOLOGY

1. WHEN IS AN AQUATIC ECOLOGY DAM DEWATERING REPORT REQUIRED?

An Aquatic Ecology Dam Dewatering Report is required when a development proposes the removal of a dam that contains significant habitat for aquatic fauna or is likely to have large numbers of fauna residing within the dam. The dewatering report is required to ensure that appropriate actions are put into place so that fauna is recovered from the dam and either relocated or euthanased in accordance with the relevant legislation. Council staff can provide guidance.

2. WHO CAN PREPARE AN AQUATIC ECOLOGY DAM DEWATERING REPORT?

The report must be prepared by a suitably qualified and experienced ecologist, who has:

- Tertiary qualifications in an ecological field obtained from an accredited institution; and

- Relevant experience in aquatic survey and impact assessment; and
- A current Scientific Licence from the Office of Environment and Heritage (section 132C of the *National Parks and Wildlife Act 1974*); and
- Animal Research Authority (section 25 of the *Animal Research Act 1985*) for handling wildlife; and
- Section 37 Permit under the *Fisheries Management Act 1994*.

3. WHAT SHOULD THE REPORT INCLUDE?

The report is to include the following:

- An aquatic survey prior to dam dewatering and a description of fauna residing within the dam.
- Details of the appropriate timing (season) for dewatering.
- Details on the methods that will be used to capture and rescue fauna residing in and around the dam.
- Details on how fauna will be rescued from dam sediments or allowed to relocate from the dam.
- Proposed relocation sites for native species including details of consultation with local National Parks and Wildlife Service Office regarding location selection.
- Detailed description on the methods for fauna transportation and release eg. Methods to maximise fauna translocation such as acclimatise and timing of release. Note: If large numbers of predatory fish (e.g. Long-finned Eels) are recovered, additional release points must be considered so that the increased risk of predation on exiting fauna at release sites is reduced.
- Methods to prevent injury to fauna during pumping of water from the dam.
- Details on how problems associated with low dissolved oxygen in the final dewatering stage will be managed.
- Protocol for dealing with any injured native fauna.
- Protocol to prevent the spread of diseases (depending on the location of the release site).
- Details on reporting of actions undertaken with tallies of fauna removed from the dam with details of their relocation destination (or destruction).
- Details of how exotic pest species will be humanely euthanased in a manner consistent with the *Prevention of Cruelty to Animals Act, 1979*.
- Methods for disposing of dam water and preventing the spread of carp eggs and juvenile pest species into natural waterways. The *Fisheries Management Act, 1994* under Division 6 20D prevents the release of noxious fish species into natural waterways.
- A full list of qualifications of personnel undertaking the work.

SOLUTIONS TO PROBLEMS THAT MAY BE ENCOUNTERED DURING DEWATERING

The report should outline any contingencies that may be required during the dewatering process. An example of this may be as follows:

1. Unacceptable turbidity levels from discharge pipe.
    a. Rectification measures for unacceptable turbidity levels from discharge pipe would include:
        i. Check excessive sediments are not being extracted at intake, if so take measures to rectify such as reposition the intake or treat the water to settle out the suspended soils. Suspended soils should not exceed 50mg/L; and
        ii. Consider options, such as reduced flow rate.

ADDITIONAL CONSIDERATIONS

Each dam will be assessed depending on size, location, water quality, soil contamination status, site salinity status and possible methods of water disposal.

The dewatering process should be undertaken prior to subdivision or earthworks to allow as much of the site to be utilised for irrigation as possible.

REFERENCE DOCUMENTS

ANZECC Guidelines for fresh and marine water quality–2000 (ANZECC Guidelines)–Volume 1–The Guidelines (Chapters 1-7) **www.environment.gov.au**

The National Environmental Protection Measure (NEPM) 1999 **www.epa.nsw.gov.au**

FURTHER INFORMATION

If you have any specific questions or wish to discuss dam dewatering further please contact Council's Customer Contact Centre, weekdays 8.30am till 4.30pm on (02) 9843 0555 and ask for the Duty Environmental Health Officer.

CHECKLIST: DAM DEWATERING

DO I NEED A DAM DEWATERING REPORT?	Yes	No
Does the site have the potential of being contaminated by any previous use?		
Is the dam over 200m^3 in size?		
Is water from the dam proposed to be discharged into the stormwater drainage system or local creek?		
Is the dam within 100m of a road?		
Has an assessment including a site inspection by Council staff revealed that the dewatering of the dam has the potential to cause environmental harm?		

If you have answered yes to any of the abovementioned questions then a dam dewatering report is required to be submitted with the development application.

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