Local Planning Policy

POL-C-089 Dams

1. OBJECTIVE

The objective of this policy is to provide guidance to Councillors, City staff and applicants with regard to proposals for the construction of dams. This policy applies to all applications for the construction of dams excluding those constructed for the purpose of urban drainage management. The policy will also:

a) ensure that dams do not have a significant negative impact on the environment;

b) ensure that dams are properly designed and constructed; and

c) ensure that dam sizes relate to the capability and catchment of the site and the intended use.

2. LEGISLATIVE FRAMEWORK

This policy has been endorsed as a Local Planning Policy under clause 2.4 of Local Planning Scheme 17.

3. POLICY STATEMENT

The City of Swan incorporates a variety of natural environmental features including areas of high conservation value, areas within public drinking water source areas and significant watercourses.

The City recognises the important role it plays in relation to protecting and enhancing our natural environment, by ensuring that development activities are conducted in a responsible manner. This Policy has been developed as a guide to landowners and as an aide to assessing development applications.

The City recognises that the appropriate siting, design and construction of dams is important from a safety, equitable water supply and sustainable catchment management perspective. This policy deals only with applications for approval to commence development required pursuant to the City of Swan *Local Planning Scheme 17*.

Approval may also be required for the construction of a dam under the *Rights in Water and Irrigation Act 1914*, the Department of Environment should be contacted in this regard.

4. DEFINITIONS

"**Dam**" means a man-made structure and/or excavation for the purposes of water storage.

"**On Steam Dam**" means a dam located across a watercourse.

"**Off Steam Dam**" means a dam not located across a watercourse but into which water is fed from a watercourse.

"**Catchment Dam**" means a dam not located across a watercourse which receives rainfall runoff and/or groundwater seepage only.

"**Watercourse**" means any river, stream or creek as depicted on a plan attached to or associated with the 'Interpretation of Watercourses Policy'.

5. ASSESSMENT CRITERIA

The following information is intended to guide applicants in their proposal for the development of dams within rural areas.

5.1 Siting Considerations

5.1.1 The positioning of dams is one of the most important consideration when minimising negative impacts on waterways. Dams built within a watercourse will impede the natural flow of water and may also have a tendency to cause erosion resulting in movement of sediment downstream.

5.1.2 On-stream dams may also cause disturbance to fringing vegetation and fauna habitat and potentially deprive downstream users of water. Dams constructed within watercourses impede natural base flows and capture out of season rain events.

5.1.3 For the reasons outlined above, dams should be constructed away from watercourses where impacts on the environment are more likely to be reduced.

5.1.4 Catchment dams are the most favourable form of dam, as they have minimal impacts on other water users and environmental impacts are reduced due to negligible impedance to natural flow patterns.

5.1.5 During construction of dams earthworks may cause soil to be transported into a watercourse. Appropriate sediment and erosion control methods should be installed to protect riparian eco-systems and downstream users.

5.2 Cumulative Impact

5.2.1 As well as the direct impact that dams may have on the natural environment when they are constructed on a watercourse, dams also have a cumulative impact. A number of dams constructed on the same watercourse can limit the amount of water flow available for downstream users. The increased storage of water within certain areas and decreased flows in a watercourse, may also impact upon environmental attributes of riparian habitats.

5.2.2 Catchment dams located ‘off-stream’ can also have a cumulative impact upon a water catchment area due to reduced run-off to watercourses.

5.2.3 The capacity of proposed and existing dams located within the same water catchment area, should not negatively impact upon an adequate amount of water being able to reach the watercourses or recharge groundwater.

5.3 Design Considerations

5.3.1 The foundations of a dam must be structurally sound. The clay content, water holding capacity, wall design and spillway and summer flow bypass design are also important factors requiring consideration as part of dam construction proposals. An application for a large dam should be accompanied by a report from a suitably qualified professional demonstrating that the design considerations outlined in this policy have been properly addressed.

5.3.2 Dam design, safety and construction are the responsibility of the landowner. Once the dam is constructed the landowner may be required to submit a structural engineering certification undertaken by a suitably qualified engineer, certifying that the dam has been constructed to an acceptable standard.

5.3.3 On completion of the construction of a dam, an applicant may be required to provide confirmation by a surveyor that the capacity of the dam is consistent with that approved.

5.3.4 Dams should incorporate design features to ensure that natural flow patterns, particularly in summer are not compromised. A reduction in summer flows is likely to

cause greater environmental stress downstream when compared to a minor reduction in peak flows during peak rainfall months.

6. POLICY

The City's policy with respect to the development of dams within rural areas is outlined as follows.

6.1 Purpose of Dam/s

6.1.1 The construction of dams will generally only be supported where there is a demonstrated need for water storage associated with an agricultural use or for domestic purposes.

6.1.2 Dams will generally not be supported where they are solely for aesthetic purposes or on lots with an area of less than 2 hectares, where the scale of rural activities does not normally warrant the provision of a dam.

6.1.3 Where an application is made for a new dam on a lot that contains an existing dam, consideration shall be given to whether the additional dam is justified in order to support the use of the land. Where the existing capacity or the combined capacity of the dams exceeds that necessary to support the existing or proposed land use, the proposed dam will not be supported as it does not reflect sustainable water management.

6.2 Environmental Considerations

6.2.1 The City recognises the potential negative environmental impacts associated with the siting and construction of dams.

6.2.2 Consideration should be given to natural flow patterns when designing a dam, dams should be designed so that natural flow patterns, particularly summer flows, are not significantly diminished. Off-stream dams should only divert water from watercourses during peak flow periods.

6.2.3 Placement of a dam within a watercourse should be avoided if possible.

6.2.4 Dams should be located so as to reduce the potential risk of erosion associated with both the construction and ongoing operation of the dam. Erosion risk is determined by a combination of soil types, vegetation cover and topography.

6.2.5 Dams should be constructed in a manner which minimises the potential for erosion and rehabilitation of any exposed soils should be undertaken in a timely manner to minimise erosion risk.

6.2.6 The potential presence of acid sulphate soils should be considered when assessing an application for the construction of a dam.

6.3 Vegetation Management

6.3.1 Dams should be sited so as not to require the removal of remnant vegetation or to keep any such removal to a minimum.

6.3.2 Revegetation and/or additional planting of appropriate native species shall be required where a dam is considered to have a moderate to high impact or where a dam is visually prominent on the external landscape.

6.3.3 Topsoil is to be spread on any exposed batters and exposed soils are to be revegetated with perennial grasses and appropriate native species as soon as possible after construction.

6.3.4 Where landscaping is required, it should comprise local native species with consideration of shade planting to reduce water lost by evaporation and the planting of sedges and reeds to enhance the water quality and biodiversity.

6.3.5 The vegetation, however, should not negatively impact upon the structural integrity of the dam.

6.4 Impact Assessment Criteria

6.4.1 The potential level of impact of a proposed dam is determined by estimating the potential environmental impact of each characteristic of a proposed dam. This is detailed in Table 1.

6.4.2 A scoring method is provided to assist in determining the potential overall environmental impact of a proposed dam.

6.4.3 The potential impact of a dam is classified as follows:

i. **High Impact** – where the total score is greater than 10 points;

ii. **Moderate Impact** - where the total score is between 5 – 10 points;

iii. **Low Impact** - where the total score is less than 5 points.

6.5 Requirement for Supporting Information

6.5.1 The applicant is to supply detailed information in support of an application for a dam. The information required to be submitted is commensurate with the potential impact of the dam (as defined in Table 1, and is outlined in Table 2.

6.5.2 Notwithstanding the requirements detailed in Table 2, further information may be required where deemed necessary in order to address any of the issues raised in this policy.

6.6 Setback Requirements

6.6.1 Dams must be setback an appropriate distance to ensure that neighbouring landowners are not detrimentally affected by a dam, taking into consideration the standard setback requirements for the respective zone as specified in the relevant 'Building & Development Standards' policy.

6.6.2 Under no circumstances should a dam be located so as to result in land being inundated outside the boundary of the lot on which the dam is to be located.

6.7 Advertising

6.7.1 High & Moderate Impact Dams

a) Prior to determining an application for a dam, comments shall be sought from adjoining landowners for a period of 21 days. Advertising is to be in the form of letters to property owners located within 200 metres of the subject property boundary, through a notice in a newspaper circulating throughout the City of Swan and a sign on site.

i. As well as formal advertising being undertaken it is suggested that the applicant/landowner discuss their proposal, prior to lodging an application, with any potentially impacted neighbouring property owners.

ii. In addition to the proposal being referred to nearby landowners, the City will refer the application to the local catchment group, Land Conservation District Committee or other relevant interest group.

iii. Where a proposed dam is determined to have a potentially high impact, is located within a public drinking water source area, within a proclaimed surface water area, or is located within 200 metres of a Conservation Category Wetland, it shall be referred to the Department of Environment and other relevant State Government agencies prior to consideration by Council.

6.7.2 Low Impact Dams

a) Consultation with neighbouring property owners will occur as detailed above for high and moderate impact dams, however consultation will not normally be required with the Department of Environment or other State Government agencies.

6.8 Dam Assessment

6.8.1 When assessing an application to construct or excavate a dam consideration shall be given to:

i. The potential level of impact of the dam, as determined in Table 1;

ii. the supporting information provided in accordance with Table 2;

iii. the setback requirements of the relevant zone as specified in the relevant 'Building & Development Standards' policy;

iv. comments received from other government agencies (where applicable);

v. submissions received during the advertising process (where applicable); and

vi. any other matter deemed relevant by the Council.

Appendix I: Dam Construction Assessment based on Potential Impact

DAM CHARACTERISTICS	POTENTIAL IMPACTS			
	HIGH (3 points each)	**MODERATE (2 points each)**	**LOW (1 point each)**	**NEGLIGIBLE (0 points)**
Dam Locations	On-stream, within a public water supply catchment, within a proclaimed surface water area, or within 200 metres of a conservation category wetland	Adjacent to a watercourse but outside of the seasonal flow path.	Greater than 50 metres distance from a watercourse	Greater than 100 metres from the watercourse
Dam Size	Storage capacity exceeding: • $500m^3$, within a watercourse; • $2,500m^3$, outside of a watercourse; • $5,000m^3$, greater than 100 metres from a watercourse; or • Greater than 25% of the catchment yield based on an average annual rainfall of 500mm.	Dam storage capacity no greater than: • $500m^3$, within a watercourse; • $2,500m^3$, outside of a watercourse; or • $5,000m^3$, greater than 100 metres from a watercourse	Dams with storage capacity less than those specified for moderate.	Not applicable.
Maintenance of Natural Flow	Watercourse dam (on-stream) with limited devices to maintain summer and winter flows downstream.	Watercourse dam with comprehensive measures to maintain summer and winter flows downstream.	Off-stream dam that only receives flow from a watercourse during a storm event.	Catchment dam which does not receive any water from the watercourse.
Cumulative Impact (upstream, downstream and catchment)	Greater than 25% of the catchment yield based on an average annual rainfall of 500mm.	Greater than 1 dam within a one kilometre radius and within the same catchment.	1 dam within a one kilometre radius of the proposed dam location.	No dams within a one kilometre radius of the proposed dam location.
Vegetation Clearing	Requires extensive clearing of remnant trees, shrubs and sedges to construct the dam.	Requires some clearing of remnant vegetation.	Requires minimal clearing of remnant vegetation.	Does not require any vegetation clearing.

Appendix II: Supporting Information Required

Impact Significance	Supporting Information Required to Accompany an Application for a Dam
High	a) A comprehensive hydrological report prepared by a suitably qualified hydrologist or engineer providing an assessment of how the structure will affect the summer and winter flow patterns and describe summer and winter flow management provisions; b) A certified report on dam structure by a suitably qualified engineer; c) A revegetation/landscaping plan; d) Detailed plans including a cross-section, site feature survey and locality plan; e) The maximum capacity of the dam; and f) A report addressing issues outlined within this policy.
Moderate	a) A brief report of hydrological and/or structural aspects; b) A certified report on dam structure by a qualified engineer; c) A revegetation/landscaping plan; d) Detailed plans including a cross-section, site feature survey and locality plan; e) The maximum capacity of the dam; and f) A report addressing issues outlined within this policy.
Low	a) Detailed plans including a cross-section, site feature survey and locality plan; b) The maximum capacity of the dam; and c) A report addressing issues outlined within this policy.

Document Control

Document Approvals:			
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