PLAN OF MANAGEMENT FOR
SPRING CREEK RESERVOIR

ORANGE CITY COUNCIL

DATE OF ADOPTION: 3 December 2007

GENERAL MANAGER

D07/15538
1. LAND COVERED UNDER THIS PLAN OF MANAGEMENT

This Plan of Management applies to land comprising Spring Creek Reservoir as indicated on Map 1. Each parcel of land covered by this plan is detailed in Schedule 1 to the plan.

2. CATEGORY AND CLASSIFICATION OF LAND

The land is classified as community land under the Local Government Act 1993 (“the Act”). The following community land categories apply to the land:

- General Community Use
- Natural Area - wetland

The Natural Area category applies to that part of the dam and foreshores identified for the protection of bird habitats and breeding areas in the report prepared by Dr J Beard and Professor D Goldney in April 2000 to assess the potential for recreational activities on Spring Creek Reservoir as indicated in Map 2.

3. LAND OWNERSHIP

The Land is owned by Orange City Council.

4. LOCATION & AREA

The land comprises about 143.5 hectares of land adjacent to Lone Pine Avenue, Calton Road, Louie Lane and Shepherd Road in the locality of Summer Hill. The reservoir is located about 400 metres south of the edge of the Orange urban area defined by the Leewood Industrial Estate.

5. BACKGROUND

Spring Creek Reservoir was constructed in 1931 at the confluence of the Gosling and Spring Creeks as the City’s third water supply reservoir after Gosling and Meadow Creek Reservoirs (Lake Canobolas). The reservoir was located downstream of Gosling Dam. The Spring Creek dam wall was raised in 1947 which increased the full supply level (FSL) by 1.8 metres.
The reservoir has a capacity at FSL of 4,700 ML, a surface area at FSL of about 110 ha and a catchment area of about 63 km².

The reservoir now provides a supplementary water supply to the Suma Park Dam water supply scheme which was commissioned in 1963.

In 1966 a section of the downstream face of the Spring Creek dam embankment slumped which buried the scour outlet. The slump was found to be confined to the material applied during the 1947 dam raising.

In 1994 a surveillance review of the dam embankment and spillway was undertaken by the Department of Public Works and Services to assess compliance with the requirements of the Dam Safety Act. The Dam was assigned a downstream hazard rating of high which required remedial works.

Piezometers were installed in 1998 to measure stresses in the dam embankment. Piezometer readings indicated that water was seeping through the dam embankment. As a consequence the water level was lowered to lessen pressure on the dam embankment and to assess possible causes of the weakened embankment. Proposed upgrading works will rectify the embankment strength issues and allow the FSL of the reservoir to be reinstated.

NOTE: Dam augmentation works under the Dam Safety Act were completed in February 2007.

In 1999 Council received a request to consider the use of Spring Creek Reservoir for rowing training. As a consequence Council commissioned a study by Dr Beard and Professor Goldney to assess the potential for rowing and other recreational activities (sailing fishing, canoeing and power boats) on the Reservoir.

6. CONDITION AND USE OF THE LAND

CONDITION OF THE LAND AND STRUCTURES ON ADOPTION OF THIS PLAN

The main structures comprises the dam embankments, concrete arch spillway, pump building and associated water supply infrastructure. As stated above upgrading is required of the main embankment and spillway to satisfy dam safety requirements (see NOTE above).
Access to the dam works is via a narrow gravel accessway off Lone Pine Avenue along the eastern foreshore of the reservoir. A locked gate prevents unauthorised access to the reservoir.

The Beard and Goldney report identified weed infestations and proliferation of exotic trees particularly willows on the reservoir foreshores and on the banks of the feeding creeks. Radiata pines predominate on the point immediately north of the main dam embankment.

**USE OF THE LAND AND STRUCTURES AT THE DATE OF ADOPTION OF THIS PLAN**

The land and structures are used for water supply purposes. Unauthorised access is denied.

**FUTURE USE OF THE LAND**

This plan specifically provides for the use of the land for public water supply purposes.

The plan also includes specific provisions to permit the commencement of controlled and supervised rowing training and other low impact recreational activities subject to development consents and licensing arrangements. The plan provides for the establishment
of a boat shed with limited amenities at a specified location in association with rowing training.

Access to the reservoir shall be subject to the written authorisation of Council. The use of the reservoir for specific recreational purposes will also be subject to development consent under the Environmental Planning and Assessment Act.

The Plan does not permit recreational swimming, picnics, barbeques, sailing, shooting or speed boats.

7. MANAGEMENT OF THE LAND

Spring Creek Reservoir is managed according to the objectives and measures outlined below.

The principal issues affecting the management of the reservoir relate to:

- Water supply management;
- Recreational use; and
- Habitat Conservation.

7.1 CORE OBJECTIVES

The Core Objectives that apply to the Reservoir land under the Local Government Act are:

**GENERAL COMMUNITY USE**

In relation to the land categorised as General Community Use the Core objectives under the Act are to:

Promote, encourage and provide for the use of the land, and to provide facilities on the land, to meet the current and future needs of the local community and of the wider public:

(a) in relation to public recreation and the physical, cultural, social and intellectual welfare or development of individual members of the public, and

(b) in relation to purposes for which a lease, licence or other estate may be granted in respect to the land (other than the provision of public utilities and works associated with or ancillary to public utilities).

**NATURAL AREA - WETLAND**

In relation to that part of the land categorised as a wetland the following Core objectives apply as a natural area:

(a) To conserve biodiversity and maintain ecosystem function in respect of the land, or the feature or habitat in respect of which the land is categorised as a natural area, and

(b) To maintain the land, or that feature or habitat, in its natural state and setting, and

(c) To provide for the restoration and regeneration of the land, and

(d) To provide for community use of and access to the land in such a manner as will minimise and mitigate any disturbance caused by human intrusion, and
(e) To assist in and facilitate the implementation of any provisions restricting the use and management of the land that are set out in a recovery plan or threat abatement plan prepared under the Threatened Species Conservation Act 1995 or the Fisheries Management Act 1994.

The following additional Core objectives apply for that part of the site identified as a wetland:

(a) To protect the biodiversity and ecological values of wetlands, with particular reference to their hydrological environment (including water quality and water flow), and to the flora, fauna and habitat values of the wetlands, and

(b) To restore and regenerate degraded wetlands, and

(c) To facilitate community education in relation to wetlands, and the community use of wetlands, without compromising the ecological values of wetlands.

These Core objectives are met through this Plan of Management through the following measures.

7.2 WATER SUPPLY MANAGEMENT

OBJECTIVES AND PERFORMANCE TARGETS

Spring Creek Reservoir is required to provide a reliable and quality supplementary water supply for Orange.

The provision of a safe and reliable water supply relates to that part of the core objective pertaining to meeting the current and future needs of the Orange community.

This is achieved in two ways; through supply of treated water direct to the City via the Spring Creek water filtration plant and Leewood treated water reservoir; and through releases to Suma Park reservoir via Gosling Creek.

Since the water supply activities involve the provision of public utilities Core Objective (b) (relating to General Community Use in respect of leases, licences or estates) above does not apply to the water supply function of the land being a public utility).

MEANS OF ACHIEVING OBJECTIVES

Water supply reliability

As stated above Spring Creek Dam was identified in 1994 as requiring remedial works to meet the standards prescribed under the Dam Safety Act.

The following works are proposed to upgrade the Dam to meet acceptable dam safety standards.

- Raising the crest of the main dam;
- Construction of an auxiliary fuse plug spillway;
- Construction of saddle dams on both sides of the new auxiliary spillway;
- Construction of retaining walls on both ends of the existing spillway crest; and
- Extension of the outlet works to accommodate the raising of the main dam.
Council personnel or authorised contractors may enter any part of the reservoir including the use of boats to undertake surveys, inspections, or maintenance or improvement of structures and any related purpose in connection with the operation of Council’s water supply functions.

This plan provides for dam improvement works to meet compliance with Dam Safety requirements. This plan also provides for entry to the site by Council personnel to undertake activities associated with the Council’s water supply functions including the use of boats in all areas of the reservoir as required. (See NOTE re Dam Safety Act augmentation works above.)

**Water quality**

Part 2A of the Public Health Act 1991 provides procedures related to the safety of drinking water. The Act provides for testing of raw water, water during treatment and after treatment. The Act also provides for the closure of water supplies where the Minister has reason to suspect that the water is not fit for human consumption. The Act however does not stipulate safe drinking water parameters.

The National Health and Medical Research Council (NHMRC) 2004 Australian Drinking Water Guidelines are widely applied in Australia. While it is stated in the guidelines that they should not be construed as being legally enforceable standards, the guidelines are normally applied for determining drinking water quality.

The following measures are applied to address water quality associated with Spring Creek Reservoir:

- Public access to the reservoir is restricted. This is achieved through fencing, signage and regular inspections of the site. Fencing needs to be re-established in some locations surrounding the reservoir.

- Water quality testing is undertaken by Council of raw water, water during treatment and water after treatment at various locations within the City. These tests will continue to be used to determine trends in water quality associated with Spring Creek Reservoir. A water quality monitoring program will also be established for the reservoir.

**MANNER OF ASSESSMENT OF PERFORMANCE**

**Water supply reliability**

- Assess compliance with dam safety requirements upon completion of remedial works;
- Assess the successful operation of spillway and fuse plugs;

**Water quality**

- Assess that security arrangements for unauthorised access to the reservoir are adequate by examining trends in unauthorised entry to the reservoir land;
- Establish a monitoring regime of water quality parameters and associated action plan to manage water quality of the reservoir.
- Treated water from Spring Creek Reservoir meets NHMRC Australian Drinking Water Guidelines at all times.
7.3 RECREATIONAL USE

The Beard and Goldney study considered that supervised rowing training may be appropriate in Spring Creek reservoir subject to a number of controls. Uncontrolled recreation activities were considered inappropriate due to the needs to protect habitat values and limit access to protect the integrity of the water supply, considering the likely impacts of a range of activities according to established criteria.

OBJECTIVES AND PERFORMANCE TARGETS

The plan provides for limited, controlled and supervised recreational use of the Spring Creek Reservoir. This is consistent with the Core Objective under section 36I(a) of the Act relating to public recreation and the physical, cultural, social and intellectual welfare or development of individual members of the public.

The provision of facilities of the reservoir will require a lease or license to be granted in respect of the land which is consistent with the Core objective under section 36I(b) of the Act.

A permit system will be introduced to provide for controlled access to the water supply.

MEANS OF ACHIEVING OBJECTIVES

The objective of controlled recreational use of the Reservoir is to be achieved by providing for the establishment of rowing with associated facilities on the land to operate in a controlled manner in order that the habitat values and water supply are not adversely affected. Other low risk aquatic activities shall be subject to Council’s authorisation.

This plan specifically provides for:

- Establishment of a boat shed and associated amenities generally within the location as indicated on Map 2. The amenities shall comprise a portable toilet cubicle located wholly within a bunded area inside the boat shed.
- Rowing training only to be carried out on the reservoir including the use of four-stroke flat bottomed punts. Each punt shall be inspected annually to ensure that the motors are operating according to specification and will not emit pollutants into the waterway.
- No regattas or activities involving spectators are to be held at the Reservoir.
- Rowing to be limited to areas outside that part of the Reservoir categorised as a Natural Area (Refer Map 2) with the northern and southern most ends of the training course being defined by buoys or other suitable markers.
- Access to the Reservoir shall be limited to participating rowers and training personnel only. A maximum of four vehicles per training session shall access the site. Notwithstanding this, access to the Reservoir by no greater than seven vehicles is permitted on no greater than eight occasions per season to enable the transport of boats and rowing equipment to and from regattas, rowing training camps and the like.
- Rowing shall be supervised at all times to ensure that no person deliberately enters or pollutes the reservoir.
- A lease or license shall be effected for the rowing operations including provisions to ensure that rowing is undertaken in accordance with the measures required by this plan.
- Council will restrict or suspend any activity on the reservoir as a consequence of water quality being unlikely to meet health requirements, or upon the water level falling below 4 metres from Full Supply Level (FSL). Council may, however, permit rowing training to be carried out upon the water level falling below 4 metres from FSL only after an
appropriately trained and experienced ornithologist has inspected the Reservoir and has
determined, following consultation with Council and the licensed user, that rowing training
can satisfactorily continue. Rowing Training may be carried out under these
circumstances on a month-by-month basis subject to ongoing monthly assessment and
endorsement by the ornithologist in consultation with Council and the licensed user.

- There shall be no more than eight boats allowed to use the reservoir within the reservoir
  at any one time.

Access to the reservoir for purposes other than rowing shall be subject to the written
authorisation by Council and required development consent, and shall be undertaken in
accordance with any requirements of Council. When considering if approval to use the
reservoir should be given, Council will consider which of the above factors applicable to
rowing should apply to other uses.

Applications to use the reservoir for recreational purposes shall indicate how the use will be
carried out in a manner that will not impact on the integrity of the water supply, or the safety
or convenience of any other approved users or to waterbird habitats.

The entry of boats and use of the reservoir shall be limited to the areas outside the exclusion
areas indicated in Map 2. This provision does not apply to Council personnel undertaking
water supply functions or to persons authorised to undertake specific scientific research, or
for controlled wildlife observation approved by Council.

Due to the primary need to protect the water supply quality and because of the limited area
available within the site this Plan of Management does not permit the use of the reservoir for
picnics, barbeques, camping, swimming, sailing or speed boats.

**MANNER OF ASSESSMENT OF PERFORMANCE**

- Assess compliance with the above measures through incident reporting measures;
- Assess the raw water quality of the Reservoir at regular periods;
- Assess compliance with the terms of the lease or licence.

**7.4 HABITAT CONSERVATION**

Spring Creek is essentially an artificial wetland created through the damming of water at the
confluence of Gosling Creek and Spring Creeks.

As a consequence of the modified environment provided by the reservoir and associated
foreshore vegetation Spring Creek Reservoir “provides high quality habitat for a significant
number of native water birds” (Beard and Goldney, 2000: 14).

Small numbers of the freckled duck, an endangered species, have been recorded at the
reservoir during summer in 1994 (maximum number of birds observed at a sighting was 4),
1995 (2) and 1997 (2). There were also 3 sightings in April 1995.

Foreshore areas have been identified as having habitat values and observed as breeding
areas by Beard and Goldney (2000: 9, 15-17). Beard and Goldney recommended that a
rowing training course be excluded from the northern and southern extremities of the
reservoir and from within 50 metres of the foreshores. The area available for rowing
generally according to these principles as indicated on Map 2 comprises about 40 hectares
which corresponds to less than 40% of the FSL of the reservoir. This area also establishes
the limits for all recreational activities.
OBJECTIVES AND PERFORMANCE TARGETS

The objectives/performance targets of this plan in respect to habitat conservation are to maintain habitats for the use of water birds associated with Spring Creek Reservoir.

MEANS OF ACHIEVING OBJECTIVES

- Exclusion areas for aquatic activities and other uses within adjacent foreshores being established to protect bird habitats and breeding areas generally in accordance with Map 2.
- Protocols for aquatic activities being developed, monitored and reviewed as required to ensure that recreational activities are carried out in a manner that minimises disturbance to waterbird habitats.
- A strategy being developed for weed management at and adjacent to the foreshore to enhance the habitat values of the site.
- Access to the habitat areas being limited to Council water supply operations, scientific research, or for the establishment of a bird hide for controlled observation of wildlife. Scientific research may be undertaken subject to Council authorisation and subject to any data on waterbird distribution and numbers being provided to Council to monitor habitat management. A bird hide may be established subject to development consent and subject to protocols being established to ensure that impacts to the habitats are minimised during construction and controlled use.

8. LEASES, LICENCES AND OTHER ESTATES

This plan authorises the lease, licence or grant of any other estate over the land for the express purpose of permitting a rowing training facility to be established by a non-profit organisation on the land, including associated buildings in accordance with the management measures outlined in part 7 above.

Council may give written authorisation to access the reservoir for activities which are permitted under this plan. Such activities shall be carried out in accordance with Council’s authorisation and issued development consents.

9. CONTROL OF ACTIVITIES

The Spring Creek Dam water supply catchment district was proclaimed in 1931. Under Clause 8 of the Local Government (Water Services) Regulation 1999 Council may erect notices on land within the district as Council considers necessary to direct attention towards prohibitions or restrictions applicable to the district.

Under section 640 of the Act it is an offence to wilfully or negligently act in contravention of a prohibition or restriction in a notice erected in a catchment district by Council.

Notices under this plan of management prohibiting unauthorised entry or unauthorised activities are to be provided in accordance with Clause 8 of the 1999 Water Services regulations.
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