

STAFF REPORT: Financial & Information Services

REPORT TO: COUNCIL
MEETING DATE: January 11, 2010
REPORT NO.: FIS.10.03
SUBJECT: Camperdown Water Capital Charges – Hidden Lake Road & James Street Fire Flow Storage
PREPARED BY: Darcy Chapman, Capital Accountant

A. Recommendations

THAT Council receive Staff Report FIS.10.03 “Camperdown Water Capital Charges – Hidden Lake Road & James Street Fire Flow Storage” for information purposes;

AND THAT Council direct staff to incorporate a schedule in the draft Water Capital Charge By-law to establish a deferral and future repayment of the portion of capital water charges relating to fire flow storage as outlined in this report.

B. Background

At the December 15, 2009 Finance and Administration Committee meeting report FIS.09.77 “Camperdown Water and Wastewater Capital Charges By-laws” was brought forth. The Committee adopted many recommendations regarding the structure of the draft by-laws relating to the Water and Sewer Capital Charges. As part of the recommendation from the Finance and Administration Committee the following was included;

AND THAT Staff in the intervening period review the fire protection service for any property within 100 metres of a fire hydrant.

After a review of the entire service area, it was determined by staff that the only area in which there were properties potentially outside of the 100-meter buffer was in the Hidden Lake Road and James Street area.

A map, outlining the current hydrants and the coverage, has been outlined and is shown in Attachment #1. As can be seen from this map, there are 45 properties that fall outside the buffer zone and are, therefore, currently do not receive fire protection via fire hydrants.

In an effort to ensure our due diligence, the Director of Engineering & Public Works completed a table top exercise using flow data collected by the Water Group in late December 2009. It has been concluded that hydrants can be extended throughout James Street and further along Hidden Lake Road up to the base of the hill to provide fire flows in compliance with the Ontario Building Code (OBC). This has been shown on a map as outlined in Attachment #2. As can be seen, the Town is in a position, based on the flow calculations, to install 6 additional hydrants which will allow those residents

to have OBC fire protection by fire hydrants. Generally the Town designs water distribution systems to provide higher fire flows than that required under the OBC however, the OBC fire flows are considered to provide a municipal level of fire service. Being that Town design criteria for fire flows were higher than the OBC requirements, fire hydrants were not originally installed. A report, including a proposed work plan and budget, will be prepared for the Infrastructure and Recreation Committee for the installation of the fire hydrants as this cost was not originally included in the 2010 Budget. It is anticipated that the funding for this project will not affect the user rates or be borne by the local residents but will be funded from existing reserve funds.

Although the extension of the hydrants will provide fire flow for most of the residents, there are still 16 properties above the hill that will not have adequate pressure for fire flow protection. At the last public meeting, residents asked Council to consider deferring payment of the capital charge for those residents that do not benefit from fire protection.

For those residents that do not receive full benefit from the reservoir and pump station, an option does exist. Staff has provided, as Attachment #3, the excerpt from the Camperdown Reservoir Design Brief from July 2004. As can be seen from this document, the total reservoir capacity of 2662m³ was calculated to provide storage for three distinct components: fire flows (936m³), equalization (1194m³) and emergency storage (532m³). The emergency storage portion is comprised of additional needs for fire protection of 234m³ and equalization of 298m³. We can then assume that 44% of the overall sizing of the reservoir (936+234 / 2,662) was constructed for fire flow demands from which some properties on Hidden Lake Road will not benefit until the remainder of the Alta Subdivision is constructed.

The water Capital Charge of \$2,171 is each benefitting property's share of the total construction works completed for the Camperdown Area. Of the \$3,236,728 in construction costs, \$2,346,628 (72.5%) can be attributed to Reservoir Construction, with the remainder used to construct the pump station and complete other upgrades.

What does this all mean? Of the total costs, 72.5% is attributable to construction and engineering of the storage provided at the reservoir. Further to this, 44% of those costs are directly related to the fire protection function of the reservoir.

If Council were to defer payment of the fire protection portion of the capital charge for those residents that do not currently benefit from that function the calculation would be as follows;

Capital Charge \$2,171 x Reservoir Construction Portion 72.5% = \$1,574

Reservoir Cost \$1,574 x Fire Flow Storage Function 35% = \$692

Therefore those individuals unable to currently receive benefit of the fire storage would be required to pay \$1,479 upon enactment of the water capital charges by-law for the costs relating to equalization and emergency storage and the remaining \$692 would be deferred until the Town has the ability to provide hydrants and adequate fire protection flows.

C. The Blue Mountains' Strategic Plan

Providing a strong, well managed municipal government.

D. Environmental Impacts

N/A

E. Budget Impact

As the billing of local improvements is based on actual construction costs and is to be considered as full cost recovery, there is no adverse impact on the current or future budgets.

F. Attached

1. Existing Fire Protection Map
2. Potential Fire Protection Map
3. Camperdown Reservoir Design Brief Excerpt

Respectfully submitted,

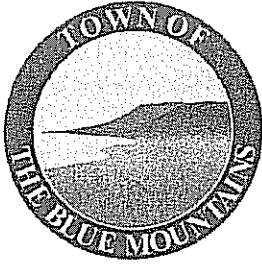
Darcy Chapman

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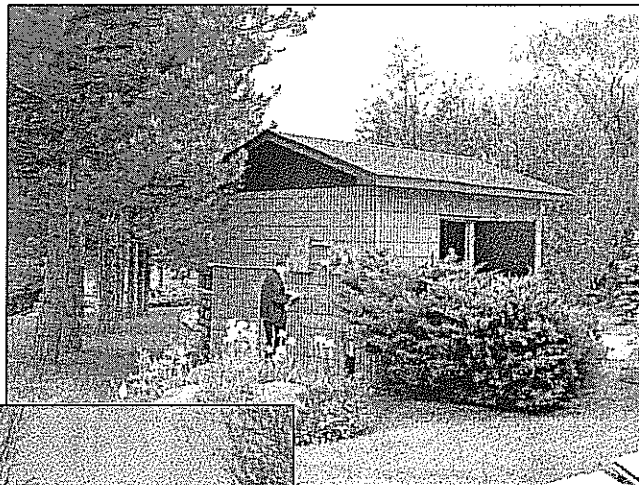
519-599-3131 ext .274



Town of The Blue Mountains

Camperdown Reservoir and Camperdown Court Pump Station Upgrades Design Brief

July 2004



3. Design Objectives

The Camperdown Service Area does not currently have a water storage facility; therefore, a new reservoir is required to provide storage for fire and emergency situations, as well as equalization storage in the distribution system. The lands within the service area range from 179 to 245 m elevation; therefore, it is not possible to supply water to the area with a single pressure zone. A booster pump station will be required to supply water from the reservoir to areas located at a higher elevation. In addition, the reservoir site is located on the escarpment and the elevation of the site ranges from approximately 238 to 264 m. Due to the topography of the site, the top water level of the reservoir must be set at 250 m, and therefore, a booster pump station will be required to fill the reservoir. The existing booster pump station on Camperdown Court will be modified to fill the reservoir, and the new booster pump station at the Reservoir will provide water supply to the residents on Camperdown Court. A PRV will be installed on the 400 mm diameter watermain at Camperdown Court. Figure 3.1 provides an overview of the system configuration.

3.1 Reservoir Capacity

The Ministry of Environment (MOE) Guidelines provides an equation for the calculation of water storage required. The MOE equation for storage is:

$$\text{Storage Volume} = A + B + C$$

Where:

- A = Fire Storage - the storage volume required for fire fighting is determined based on the equivalent population (Table 2 of Appendix N of MOE Design Guideline)
- B = Equalization Storage - the storage volume required to meet the diurnal variation of the maximum day condition, equal to 25% of the Maximum Day demand.
- C = Emergency Storage - the additional storage volume for emergency events (e.g. prolonged power loss, watermain breaks, higher than usual demands, unusual fire demands, etc.), equal to 25% of A + B.

Using the MOE equation the required storage volume is as follows:

Table 3.1 MOE Storage Volume

Camperdown Storage Requirements		Volume, m ³
A – Fire Flow Storage	130 L/s for 2 hours=	936
B – Equalization Storage	4,776 x 25% =	1,194
C – Emergency Storage	(936+1,194) x 25% =	532
	TOTAL	2,662