ANNEXURE 8

Alf Grigg & Associates

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Specialist Engineering Consultants

GREATER HUME SHIRE COUNCIL
VALUATION OF WATER SUPPLY & SEWERAGE ASSETS TO 30TH JUNE, 2007

ALF GRIGG & ASSOCIATES PTY LTD
In association with
Mike Cuthbert – Engineering Consultant
21 September 2007

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EXECUTIVE SUMMARY

Those water supply and sewerage systems within Greater Hume Shire Council that are council responsibilities have been inspected, evaluated, and found with a few notable exceptions to be generally in good condition.

System Type	Current Replacement Cost	Annual Depreciation	Written Down Current Cost	End of life value	Mean Useful Life	Mean Residual Life
Effluent Reuse	$730,000	$12,000	$640,000	$0	67	60
Sewer	$29,000,000	$380,000	$19,000,000	$12,000,000	56	27
Water	$23,000,000	$290,000	$15,000,000	$0	80	52

There are asset management and operational issues that should be addressed by council officers if asset service life is to be optimised and potential regulatory implications avoided. Most of these issues have previously been advised to council officers.

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Introduction

This report presents the valuation of water supply and sewerage assets of Greater Hume Shire Council to the 30th June, 2007.

2.0 Valuation Principles and Calculations

The basis of valuation has been provided in **Attachment A.** Specific notes regarding the valuation calculations are provided in **Attachment B.**

A spreadsheet tabulating the results by asset and asset type also has been provided.

3.0 Project Team

The team consisted of Colin Earnshaw, Mike Cuthbert, and Alf Grigg.

Colin undertook the sewerage system field inspection. Mike was responsible for the CCTV survey implementation and spreadsheet valuations. Alf undertook the water supply system field inspections, and was the project manager.

Valuation Rules

4.1 Water Supply

4.1.1 Culcairn

- Headworks:
    - Production bores rehabilitated and at 30 year reference rates as of 2007;
    - Cooling tower & plant: At reference rates from construction date.
- Elevated Towers:
    - Concrete standpipe structure: life expired, and requiring demolition;
    - Steel elevated tower: At reference rates from 1980;
- Reticulation:
    - Cast iron: At reference rates from commissioning;
    - AC: Rate at 80 years from commissioning;
    - uPVC: Rate at reference rates from commissioning.

4.1.2 Village System (Jinerra, Burrumbuttock, and Gerogery)

- Headworks: None, as supply from Albury CC system.
- Service reservoirs:
    - At reference rates from commissioning;
- Reticulation:
    - AC: At reference rates from commissioning;
    - uPVC: At reference rates from commissioning.

4.2 Sewer

4.2.1 Culcairn

- Reticulation:
  - Vitrified clay:
    The vitrified clay network consists of rubber-ring jointed pipes. CCTV inspection found that the pipes were generally in good condition, however they were at times affected by tree roots penetrating joints and some broken pipe also was found. The valuation has reduced the vitrified clay pipe network useful life by 3-13 years from suggested typical lives.
  - uPVC: The young age of the uPVC pipe means that there is no evidence of damage, and typical lives have been adopted.
- Pump Stations: Pump stations are in generally good condition, with some mechanical and electrical plant approaching the end of their useful life. The assets have been valued on typical asset life.

- Rising Mains: There is no indication of early rising main failures. Mains have been valued on typical asset life.

- Treatment plant:
  For valuation purposes, it has been assumed that this plant can continue to be developed to meet local growth and that effluent reuse will continue to be developed to appropriate standards the solution.

  It has been assumed that the "demand" for effluent quality improvement will occur in the next few years and that a new plant will be commissioned in the 10th year.

4.2.2 Jindera

- Reticulation, Pump Stations and Rising Mains: As the system is relatively young, these assets have been valued based on typical lives for the assets

- Treatment plant:
  The treatment plant is nearing its augmented capacity and will require a significant upgrade in the near future. However it also is quite likely that the majority of the existing infrastructure will be able to be utilized within a new plant. Therefore other than for mechanical and electrical components, this capacity constraint isn't likely to lead to a reduced life.

4.2.3 Burrumbuttock

- Reticulation, Pump Stations and Rising Mains: As the system is relatively young, these assets have been valued based on typical lives for the assets

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- Treatment plant: The treatment plant is unlikely to exceed its capacity during its design life. Given that all effluent is recycled, the plant should achieve typical lives for the assets.

4.2.4 Walla Walla

- Reticulation, Pump Stations and Rising Mains: As the system is relatively young, these assets have been valued based on typical lives for the assets

- Treatment plant: The treatment plant is unlikely to exceed its capacity during its design life. Given that all effluent is recycled, the plant should achieve typical lives for the assets.

4.2.5 Henty

- Reticulation:
  - Vitrified clay:
    The vitrified clay network consists of rubber-ring jointed pipes. CCTV inspection found that the pipes were generally in good condition, however they were at times affected by tree roots penetrating joints and some broken pipe also was found. The valuation has reduced the vitrified clay pipe network useful life by 3-13 years from suggested typical lives.
- Pump Stations: Pump stations are in generally good condition, with some mechanical and electrical plant approaching the end of their useful life. The assets have been valued on typical asset life.

- Rising Mains: There is no indication of early rising main failures. Mains have been valued on typical asset life.

- Treatment plant:
  For valuation purposes, it has been assumed that this plant can continue to be developed to meet local growth and that effluent reuse will continue to be developed to appropriate standards the solution.

  It has been assumed that the "demand" for effluent quality improvement will occur in the next few years and that a new plant will be commissioned in the 10th year.

4.2.6 Holbrook

- Reticulation:
  - Vitrified clay:
    The vitrified clay network consists of rubber-ring jointed pipes. CCTV inspection found that the pipes were generally in good condition, however they were at times affected by tree roots penetrating joints and some broken pipe also was found. The valuation has reduced the

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    vitrified clay pipe network useful life by 3-13 years from suggested typical lives.
  - uPVC: The young age of the uPVC pipe means that there is no evidence of damage, and typical lives have been adopted.
- Pump Stations: Pump stations are in generally good condition, athough the age of some mechanical and electrical plant means they are approaching the end of their useful life. The assets have been valued on typical asset life.

- Rising Mains: There is no indication of early rising main failures. Mains have been valued on typical asset life.

- Treatment plant:
  The treatment plant is showing evidence of overloading. Given the lack of effluent reuse the relatively poor quality of effluent being discharged into Burkes Creek means that this plant is likely to reach end of life in the short term.

  The plant has been valued based on a five year residual life, which allows for the lead time necessary to procure a new plant.

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5.0 Conclusions

The water supply and sewerage systems of Greater Hume Shire Council have been inspected, evaluated, and found to be generally in good condition.

System Type	Current Replacement Cost	Annual Depreciation	Written Down Current Cost	End of life value	Mean Useful Life	Mean Residual Life
Effluent Reuse	$730,000	$12,000	$640,000	$0	67	60
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There are asset management and operational issues that should be addressed by council officers if asset service life is to be optimised and potential regulatory implications avoided. These issues have previously been advised to council officers. Some have been repeated in this report.

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Project:	Valuation of Water and Sewerage Assets According to Fair Value Principles
Subject:	**Attachment A: Notes on Valuation Methods**
Date:	11 July 2007

Purpose

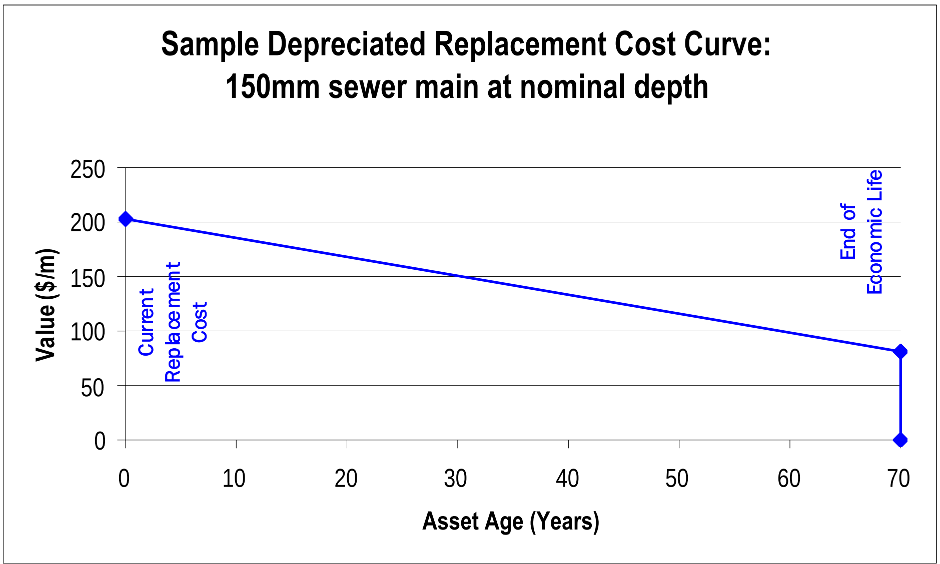
This document outlines how the principles of valuation have been applied under this project.

Disclaimer

This document has been prepared for a particular purpose, using information made available by the client in accordance with the client's instructions. Users of this document should note the assumptions and approximations used. Any use of the document outside of the stated purpose is at the user's risk.

Principles of valuation

Assets have been valued based on the depreciated replacement cost approach. This approach values the asset on the deprival value of the asset, depreciated over the expected useful life of the asset. At the end of the asset's life, a residual value is present, either the return gained from disposing of the asset or the benefit provided by the asset which reduces the cost of future assets.



MEERA

The following characteristics of water and sewerage assets are significant when considering valuation approaches:

1. The assets are *complex* in that they are interdependent to successfully provide the service for which they were intended. A water supply scheme cannot operate without the necessary combination of extraction, storage and transport systems. A sewerage scheme requires the correct combination of pipes, pumps and treatment equipment to effectively meet the service standards expected by the community or required by regulators.
2. The assets are *non-separable* in that they cannot be separated from their network and still be able to gain their highest and best use. Similarly the performance of individual assets will inevitably be suboptimal as their performance is governed by the network surrounding the asset. This means that the assets need to be valued based on their existing use rather than their potential usage.

This leads to a valuation based on the modern engineering equivalent replacement asset, based on the asset which is required to meet the service level required rather than the capacity of the asset actually provided. It also means that the valuation of assets can only be performed at scales where realistic replacement can occur[1]. This is highly significant for a number of regional utilities which have assets sized to accommodate an unrealistic rate of growth.

Particular applications

The following are particular applications of the MEERA principles:

- Small capacity trickling filter sewage treatment plants have been costed as Pasveer Ditch sewage treatment plants, inclusive of a non-mechanical preliminary works in lieu of the mechanical screens and grit chamber required for a trickling filter plant.
- Larger capacity trickling filter sewage treatment plants have been costed as aerated ponds, inclusive of a mechanised preliminary works.
- Disinfection ponds have been costed as ultraviolet disinfection plant (however the longer useful life of ponds is applied to this costing).

End of life

The end of life for an asset is considered to be when the asset can no longer perform the service required of it in an economic manner. End of life can occur through a number of reasons such as:

1. *The reduced integrity of the structure leads to compromised service.* For example aged sewer mains may collapse through loss of structural integrity, or cracks may permit root penetration leading to unmanageable system blockages. Leakage from compromised pipes may also lead to high rates of stormwater infiltration leading to overflows. While techniques exist to manage some of these problems, they are considered to be interim measures pending asset replacement.

[1] For example pumping stations may have replacements for mechanical plant, electrical plant or the structure itself. Rarely will small component replacements affect the value of the plant itself.

2. *The asset no longer meets the service requirements of the community.* As the expectations of the community change, some assets may need to be replaced as they do not meet the service expectations of the day. Typically sewage treatment plants require replacement when environment protection licence conditions are tightened to a standard which the existing asset cannot meet.
3. *The asset no longer has sufficient capacity to provide adequate service.* Growth in demand may lead to an asset becoming too small to meet the standard of performance expected of it. Replacement may occur if it is shown to be more cost effective than augmenting capacity with additional assets.

Determination of residual life

The Local Government Asset Accounting Manual requires the assessment of residual life based on a condition assessment.

"Facility" assets (treatment plants, reservoirs, pump stations) have been individually inspected to provide a basic assessment of condition. Pipe assets have been assessed using a sample CCTV inspection for gravity sewerage mains and breakage history for water mains. The condition of pipe assets has been considered on a class basis. The condition assessment has been used to either express the mean residual life of the asset from 30 June 2007, or revise the mean total life of the asset class.

Where there is an existing maintenance backlog that may lead to reduced life the value of rectification has been deducted from the calculated written down current cost.

End of life value

When considering the residual life of the asset, the impact of possible future rehabilitation has not been considered. Good asset management would programme rehabilitation at the most economic point during the life of the asset, thus extending residual life at that stage.

Some assets retain some value at the end of their useful life. While these assets no longer are capable of providing a satisfactory level of service, the asset can be used as the base for a rehabilitated or renewed asset. Within the water and sewerage sectors renewal or rehabilitation is generally applied to pipes and pump wells.

Pipe rehabilitation

Rehabilitation of sewerage pipes occurs through inserting a structural lining the existing pipe ("relining"), or passing a reaming tool through the pipe and dragging a replacement pipe behind the tool ("pipe cracking"). Both techniques avoid the costs associated with excavation in developed areas, which represents a significant cost saving over laying sewers by conventional means.

The *NSW Reference Rates Manual* notes that a shallow sewer should be valued at 40% of its replacement cost at the end of its economic life, with a this proportion increasing for deeper sewers. In all cases the rehabilitation process effectively replaces the asset.

Pumping stations

Sewage pumping station structures deteriorate through acid attack from sulphides in sewage. Once the deterioration has reached through to the reinforcement, deterioration is rapid and the integrity of the structure is compromised. Modern treatments such as lining with epoxy or polyurea materials prevent corrosive gases coming in contact with the concrete structure, thereby substantially extending the life of the asset.

Comparison of rehabilitation contracts against reference rates suggests pump station structures should be valued at 65% of their replacement cost at the end of their economic life.

In both cases the value at the end of life can only can be realised if the rehabilitation occurs before the asset degradation is too severe. As the asset degrades beyond the economic life, the cost of rehabilitation increases considerably and may exceed the cost of replacement by conventional means.

A table of calculated residual values is provided in **Attachment A**.

Reference Rates

The valuation is based on the Ministry of Energy and Utilities'[2] Reference Rates Manual of 2003. Valuations in the manual have been increased by 17.9% to reflect changes in prices since that time[3].

Where the capacity of an asset does not precisely correspond to the capacity of an asset listed in the reference rates manual, a linearly interpolated value has been used.

On occasions assets are smaller than the minimum capacity of asset provided in the Reference Rates Manual. This particularly is the case for sewage pumping stations and sewage treatment plants. This issue has been managed by extrapolating the reference rate data to a theoretical 'zero' capacity asset. It is considered that this approach is likely to lead to an underestimate of the value of these assets due to the relatively fixed nature of investigation and design costs.

Other values

The reference rates at times do not provide a full listing of all asset types, and customisations to meet particular circumstances. Where customisations need to be considered for MEERA purposes, these have been added or deducted from the reference rate.

Examples of customisations are radio telemetry systems and sophisticated pump controllers.

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[2] The functions of the Ministry of Energy and Utilities are now undertaken by the NSW Department of Water and Energy.
[3] Prices were increased based on changes in the Producer Price Index for the NSW Non-building Construction Industry from June 2003 to March 2007 (ABS Publication 6427.0 ANZIC Code 412).

Calculation of Written Down Current Cost

The written down cost has been calculated according to the following formulas:

Where residual life has been determined by condition assessment

$$\text{WDCC} = (\text{CRC - Residual Value}) \times \frac{\text{Residual Life}}{\text{Age} + \text{Residual Life}} + \text{Residual Value} - \text{Deferred Maintenance}$$

Where total asset life has been revised by condition assessment

$$\text{WDCC} = (\text{CRC} - \text{Residual Value}) \times \frac{\text{Total Life - Age}}{\text{Total Life}} + \text{Residual Value} - \text{Deferred Maintenance}$$

References

NSW Treasury (2007) *Accounting Policy TPP07-1 Valuation of Non-current Assets at Fair Value*, NSW Treasury. Available at http://www.treasury.nsw.gov.au

Department of Local Government (1999) *Local Government Asset Accounting Manual Update No 4*, Department of Local Government. Available at http://www.dlg.nsw.gov.au

Ministry of Energy and Utilities (2003) *NSW Reference Rates Manual: Valuation of Water Supply, Sewerage and Stormwater Assets*, Ministry of Energy and Utilities, Sydney.

Attachment A: Residual Value Rates

All values are expressed in values indexed to March 2007.

Sewerage Gravity Mains

Diameter (mm)	Depth			
	<1.5m	1.5-3m	3-4.5m	>4.5m
100	$65.10	$124.07	$183.04	$247.91
150	$81.14	$146.01	$204.98	$269.85
225	$115.35	$186.11	$256.87	$321.74
300	$161.81	$238.47	$315.14	$385.90
375	$224.09	$300.75	$383.30	$454.07
450	$273.62	$356.18	$444.63	$527.19
500	$318.44	$402.18	$496.53	$579.08
600	$380.71	$463.27	$557.62	$651.97

Sewerage Rising Mains

Diameter (mm)	Depth			
	<1.5m	1.5-3m	3-4.5m	>4.5m
100	$52.84	$88.22	$135.40	$176.67
150	$72.18	$113.46	$160.63	$201.91
225	$94.59	$141.76	$188.94	$230.22
300	$128.79	$175.97	$229.04	$282.11
375	$169.83	$222.91	$281.88	$334.95
450	$210.88	$269.85	$340.61	$399.58
500	$235.88	$294.85	$365.61	$424.58
600	$285.41	$350.28	$432.84	$503.60

Sewage Pumping Stations

Capacity	Residual Value
10 l/s, 25m head	$80,493.99
20 l/s, 25m head	$96,081.72
30 l/s, 25m head	$108,517.82
40 l/s, 25m head	$121,635.36
50 l/s, 25m head	$135,434.33
10 l/s, 50m head	$80,493.99
20 l/s, 50m head	$96,081.72
30 l/s, 50m head	$108,517.82
40 l/s, 50m head	$121,635.36
50 l/s, 50m head	$135,434.33
60 l/s, 50m head	$145,229.90
80 l/s, 50m head	$168,355.95
100 l/s, 50m head	$195,868.71
140 l/s, 50m head	$225,383.18
180 l/s, 50m head	$246,848.24
200 l/s, 50m head	$257,580.77

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Project:	Greater Hume Shire Valuation of Water and Sewerage Assets
Subject:	**Attachment B: Notes Regarding Valuation**
Date:	4 October 2007

Purpose

This document provides notes on the valuation of Greater Hume Shire Council's water supply and sewerage assets as of 30 June 2007. The document summarises the valuation, documenting source information and specific approaches to valuing certain assets. This document should be read in conjunction with the document *Notes on Valuation Methods*.

Disclaimer

This document has been prepared for a particular purpose, using information made available by the client in accordance with the client's instructions. Users of this document should note the assumptions and approximations used. Any use of the document outside of the stated purpose is at the user's risk.

Source data

The following data was used in this valuation:

1. Printed material provided by Greater Hume Shire Council. This included maps of pipe assets and data from previous system valuations.
2. GIS data for sewer mains, and the Villages water supply.
3. Additional material emailed by Mr Tom Plunkett on 4 September 2007.
4. Report on an inspection of sewerage assets conducted by Mr Colin Earnshaw in March 2007.
5. Report on an inspection of water supply assets conducted by Mr Alf Grigg in April 2007.
6. Additional information provided to Mr Alf Grigg regarding the Shire's major water plant.

Condition evaluation

Water supply bores

The Culcairn water bores have been rated at a useful life of 30 years given that numerous bores have needed constructed over the history of the water supply. The disposal cost of life expired bores has not been considered in this valuation as it appears it would be inconsistent with NSW Treasury guidelines (NSW Treasury, 2007). However Council should consider the rehabilitation of life expired bores as a liability.

Water treatment works

The Culcairn Water Treatment Works has been assigned a useful life of 50 years, given the lightweight nature of the structure. As the treatment system consists of a simple aeration and dosing system, the asset has been assigned a replacement cost of $100,000.

Water mains

All water mains have been assigned a useful life of 80 years.

Sewerage gravity mains

The condition of the Greater Hume Shire gravity sewerage networks were assessed using a CCTV sewer inspection programme from 29 May to 31 May 2007, covering the centres of Henty, Culcairn and Holbrook. The mains surveyed were found to be rubber ring jointed vitrified clay lines. In total twenty-three main segments were inspected using a robotic camera inserted into the main. Of these two surveys were incomplete due to debris blockages. Some pipes were affected by roots entering the pipe at roots and junctions.

All mains except one were given a WSAA structural condition rating of 1, indicating that sewers are in good structural condition with no significant defects observed. The remaining pipe was given a grading of 2 due to circumferential and wall cracking. The majority of mains received a WSAA service grading of 1 or 2 indicating a reasonable to good service quality after cleaning. The main issue with main serviceability was root penetration at joints.

For the purposes of estimating the residual life of the vitrified clay network CCTV data for Greater Hume was combined with inspection data for Gundagai, Junee and Cootamundra to increase sample size and thus reliability of results. The amalgamated datasets indicate that rubber ring jointed vitrified clay pipes have a mean useful life of between 57 and 67 years[1], reflecting the susceptibility these pipes to root penetration if the rubber ring is incorrectly installed or degrades.

The following was adopted for other mains materials:

- Asbestos cement sewers were assigned the same useful life as for Lockhart (41 to 50 years). Asbestos cement was used for larger sewers in Henty.
- PVC and HDPE mains were assigned useful lives at the indicative lives of 70 years and 100 years respectively.

Sewage treatment works

Burrumbuttock

The Burrumbuttock treatment works consists of a simple effluent lagoon system designed for a load of 100 ET. This asset has been rated at a total useful life of 50 years.

The effluent reuse storage has been valued as an HDPE lined dam. Excavation has been assumed at $3 per cubic metre and liner at $15 per square metre. It should be noted that liner

[1] 95% confidence interval

costs are highly variable with introduces a significant degree of uncertainty regarding the replacement value of the asset.

Culcairn

The Culcairn treatment works is operating beyond its original design capacity with the assistance of additional aeration. This combined with the quality of effluent has led to the assets being assigned a residual useful life of 10 years, although site amenities etc have been assigned a total life of 50 years, on the assumption these will be useful in a replacement plant.

Henty

The Henty treatment works is operating within its design capacity. The quality of effluent has led to the assets being assigned a residual useful life of 10 years.

The effluent reuse storage has been valued as a clay lined dam. Excavation has been assumed at $5 per cubic metre inclusive of compaction to achieve a clay seal. It should be noted that sealing costs are highly variable with introduces a significant degree of uncertainty regarding the replacement value of the asset.

Holbrook

The Holbrook treatment works is showing the symptoms of significant overloading and requires replacement in the short term. The plant has been assigned a residual life of five years to reflect the time required to procure a new facility.

Jindera

The Jindera treatment works is operating beyond its original design capacity with the assistance of additional aeration. This measure is likely to b effective for up to 10 years. For the purposes of valuation it is assumed that the mechanical and electrical plant will then be replaced, and a new plant installed in front of the effluent lagoons. The effluent lagoons will then be used to the end of their useful life as disinfection ponds or effluent reuse storage.

Walla Walla

The Walla Walla plant has been valued as a 1000 EP Pasveer Ditch system. Structural, mechanical and electrical components have been valued at standard lives.

Sewage pumping stations

As all pump stations were in satisfactory condition for their age, the assets have been assigned standard lives of 50 years for structural components, and 25 years for mechanical and electrical components. Mechanical and electrical components have used the date of the last overhaul as the base year.

Commentary on data

This valuation consists of a composite of data sources, reflecting the incomplete nature of Greater Hume's asset management systems.

The data provided have a number of inconsistencies which have required assumptions to be made to allow the valuations to proceed:

1. Culcairn water mains were valued based on main age and length data summarised in a rehabilitation schedule supplied by Greater Hume Shire Council. This data did not segregate mains by diameter. To allow the valuation to proceed, these water mains were assumed to have a diameter of 100 millimetres.
2. Water pipe assets with a diameter of less than 50 millimetres were not valued as these were considered to be long service lines.
3. Sewer data was extracted from the GIS file “Sewers.TAB”. All objects were valued as mains except where the type was “Fence”, “MH”, “Pump Shed”, “Water” or the field was blank.
4. No depth information was available for sewers. To allow the valuation to proceed, sewers were assumed to be between 1.5 and 3 metres deep.
5. 1969 sewer pipe for Holbrook was assumed to be rubber ring jointed vitrified clay pipe.
6. 88 sewer mains were not provided with a diameter. These were assumed to have a diameter of 150 millimetres.
7. 63 sewer mains were not provided with a year of construction. These were assumed to have a construction year equal to the average for the scheme.
8. 510 sewer mains were not provided with a material. Pre-1985 mains were assumed to be made of vitrified clay. Mains constructed in or after 1985 were assumed to be made of uPVC.
9. The material was not identified for 1971 rising mains in Culcairn. These were assumed to be constructed of cast iron, the material nominated for Holbrook.
10. 1981 rising mains without a material were assumed to be made of asbestos cement.
11. One rising main in Walla Walla was identified as being made of “clay”. This rising main was assumed to be made of asbestos cement.
12. Pressure sewerage mains were valued as rising mains.
13. Four small diameter gravity lines were classed as “poly”, these were assumed to be pressure sewerage or rising mains.
14. Rising mains without a construction year were assumed to be constructed as part of the original scheme.
15. Most effluent reuse mains were not provided with a construction year. These were assumed to be constructed in 2000, and have a diameter of 100 millimetres.
16. Two small diameter effluent reuse lines were identified in Holbrook. These were assumed to be incorrectly attributed and were ignored.
17. The Burrumbuttock effluent reuse pump was not valued as no data was provided for the diesel pump.

There is merit in continuing to develop Council’s GIS representation of water and sewer pipes to reduce data capture time and improve reliability. It is recommended that Council consider integrating facility oriented assets (such as pumping stations) with information about other facility-oriented assets such as buildings.

Summary of valuation

Valuations have been rounded to two significant figures.

Water

Whole of system

Parameter	Value	Comments
Current Replacement Cost	$23m	The estimated cost of a full replacement of the system.
Annual depreciation	$290,000	The annual reduction in asset value from construction to end of life.
Written Down Current Cost	$15m	The estimated current value of the system, taking into account the residual life of assets.
End of life residual value	$0	The value of the assets at the end of their economic life. This value reflects opportunities to rehabilitate or refurbish the assets, provided that investment occurs at the most economic point.
Mean useful life of assets	80 years	This parameter is useful for long-term financial modelling of the sewerage business using packages such as FINMOD. The mean is weighted by current replacement cost.
Mean residual life of assets	52 years	This parameter indicates the level of urgency to reinvest in system assets.

Valuation by System

Villages water supply

Asset Type	Current Replacement Cost	Annual Depreciation	Written Down Current Cost	Mean Useful Life	Mean Residual Life
Water Mains	$18,000,000	$230,000	$12,000,000	80	55
Water Pumping Stations	$220,000	$6,600	$61,000	36	12
Water Reservoirs	$1,700,000	$21,000	$1,200,000	91	67

Culcairn

Asset Type	Current Replacement Cost	Annual Depreciation	Written Down Current Cost	Mean Useful Life	Mean Residual Life
Water Mains	$1,900,000	$24,000	$680,000	80	28
Water Pumping Stations	$280,000	$9,400	$180,000	31	20
Water Reservoirs	$630,000	$7,700	$270,000	91	38
Water Treatment Works	$100,000	$2,000	$66,000	50	33

Sewer

Whole of system

Parameter	Value	Comments
Current Replacement Cost	$30m	The estimated cost of a full replacement of the system.
Annual depreciation	$390,000	The annual reduction in asset value from construction to end of life.
Written Down Current Cost	$20m	The estimated current value of the system, taking into account the residual life of assets.
End of life residual value	$12m	The value of the assets at the end of their economic life. This value reflects opportunities to rehabilitate or refurbish the assets, provided that investment occurs at the most economic point.
Mean useful life of assets	56 years	This parameter is useful for long-term financial modelling of the water business using packages such as FINMOD. The mean is weighted by current replacement cost.
Mean residual life of assets	27 years	This parameter indicates the level of urgency to reinvest in system assets.

Valuation by System

Burrumbuttock

Asset Type	Current Replacement Cost	Annual Depreciation	Written Down Current Cost	Written Down Current Cost (UCL)	End of life value	Mean Useful Life	Mean Residual Life
Effluent Reuse Pumping Stations	$0	$0	$0		$0		
Effluent Storage	$19,000	$370	$13,000		$0	50	34
Sewage Treatment Works	$120,000	$2,400	$80,000		$0	50	34
Sewer Mains	$210,000	$1,400	$190,000	$190,000	$110,000	70	54

Culcairn

Asset Type	Current Replacement Cost	Annual Depreciation	Written Down Current Cost	Written Down Current Cost (UCL)	End of life value	Mean Useful Life	Mean Residual Life
Sewage Pumping Stations	$1,100,000	$22,000	$770,000		$410,000	40	20
Sewage Treatment Works	$1,000,000	$25,000	$280,000		$0	44	11

Asset Type	Current Replacement Cost	Annual Depreciation	Written Down Current Cost	Written Down Current Cost (UCL)	End of life value	Mean Useful Life	Mean Residual Life
Sewer Mains	$4,000,000	$32,000	$2,900,000	$3,000,000	$2,100,000	62	30

Henty

Asset Type	Current Replacement Cost	Annual Depreciation	Written Down Current Cost	Written Down Current Cost (UCL)	End of life value	Mean Useful Life	Mean Residual Life
Effluent Reuse Mains	$280,000	$3,600	$260,000		$0	80	73
Effluent Reuse Pumping Stations	$81,000	$2,700	$62,000		$0	33	26
Effluent Storage	$170,000	$3,300	$140,000		$0	50	43
Sewage Pumping Stations	$240,000	$4,800	$110,000		$96,000	40	9
Sewage Treatment Works	$1,300,000	$33,000	$330,000		$0	44	10
Sewer Mains	$3,300,000	$26,000	$2,200,000	$2,400,000	$1,800,000	59	23

Holbrook

Asset Type	Current Replacement Cost	Annual Depreciation	Written Down Current Cost	Written Down Current Cost (UCL)	End of life value	Mean Useful Life	Mean Residual Life
Sewage Pumping Stations	$740,000	$13,000	$540,000		$330,000	42	19
Sewage Treatment Works	$1,800,000	$45,000	$220,000		$0	41	5
Sewer Mains	$6,200,000	$47,000	$4,400,000	$4,700,000	$3,300,000	62	28

Jindera

Asset Type	Current Replacement Cost	Annual Depreciation	Written Down Current Cost	Written Down Current Cost (UCL)	End of life value	Mean Useful Life	Mean Residual Life
Sewage Pumping Stations	$960,000	$19,000	$610,000		$380,000	40	22

Asset Type	Current Replacement Cost	Annual Depreciation	Written Down Current Cost	Written Down Current Cost (UCL)	End of life value	Mean Useful Life	Mean Residual Life
Sewage Treatment Works	$360,000	$16,000	$180,000		$0	42	23
Sewer Mains	$3,300,000	$22,000	$2,800,000	$2,800,000	$1,700,000	70	50

Walla Walla

Asset Type	Current Replacement Cost	Annual Depreciation	Written Down Current Cost	Written Down Current Cost (UCL)	End of life value	Mean Useful Life	Mean Residual Life
Effluent Reuse Mains	$180,000	$2,200	$160,000		$0	80	73
Sewage Pumping Stations	$600,000	$12,000	$400,000		$240,000	40	21
Sewage Treatment Works	$1,300,000	$38,000	$370,000		$0	39	14
Sewer Mains	$2,400,000	$18,000	$1,900,000	$2,000,000	$1,300,000	62	36

References

NSW Treasury (2007) *Accounting Policy TPP07-1 Valuation of Non-current Assets at Fair Value*, NSW Treasury. Available at http://www.treasury.nsw.gov.au

ANNEXURE 8

Greater Hume Shire Council

Valuation of Water Supply and Sewerage Assets to 30 June 2012

Final Report 1.2

July 2012

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A	0.2	CR	12/6	AAG	MJC	
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D	1.1	GHSC	2/7	AAG	MJC	JTR
E	1.2	GHSC	3/7	AAG	JTR	JTR

Executive Summary

This report documents the valuation of the water supply and sewerage assets under the custodianship of Council and used to provide water supply and sewerage services to its community. This revaluation of assets has been completed based on the recognised assets associated with water supply and sewerage as of 30 June 2012.

The valuation has been completed in accordance with "Fair Valuation" principles. For these classes of assets, the principles lead to valuations being made on the basis of a depreciated replacement cost, using standard unit rates.

The valuation considers:

- The nature of the assets;
- The current condition of the assets; and
- Strategic considerations which could influence asset life.

Summary of assets by service

System Type	Current Replacement Cost	Annual Depreciation	Written Down Current Cost	End of life value	Mean Useful Life	Mean Residual Life
Water	$30,000,000	$370,000	$21,000,000	$4,000,000	79	50
Sewer	$41,000,000	$460,000	$28,000,000	$17,000,000	64	31
Recycled Water	$2,400,000	$56,000	$1,900,000	$180,000	56	46

Key recommendations for improvement

- Continue to monitor and fully implement the preservation and rehabilitation of the Culcairn reinforced concrete standpipe;
- Develop forward replacement programs for all pre-1960 AC, cast iron, and cast iron cement-lined water reticulation pipelines in Culcairn to optimise the total cost of system renewal and minimise unplanned system repair costs;
- Rehabilitation of minor water storages in the Jindera water supply system.

Disclaimer

This document has been prepared for a particular purpose, using information made available by the client in accordance with the client's instructions. Users of this document should note the assumptions and approximations used. Any use of the document outside of the stated purpose is at the user's risk.

Glossary

Term	Meaning
ADWF	Average Dry Weather Flow
Annual depreciation	The incremental change in accumulated depreciation from year to year.
CPI	Consumer Price Index
CRC	Current Replacement Cost. The cost of replacing an existing asset with the equivalent modern day asset providing the same level of service.
DECCW	Department of Environment, Climate Change and Water (defunct- the environmental regulatory functions are now administered by the Environment Protection Authority, the environmental policy functions are regulated by the Office of Environment and Heritage, and the water and sewerage functions of DLWC are now administered by the Office of Water, Department of Primary Industries).
Depreciation	The wearing out, consumption or other loss of value of an asset whether arising from use, passing of time, or obsolescence through technological and market changes.
DEUS	Department of Energy, Utilities and Sustainability (defunct- the water and sewerage functions of DEUS are now administered by the Office of Water, Department of Primary Industries)
DLWC	Department of Land and Water Conservation (defunct- the water and sewerage functions of DLWC are now administered by the Office of Water, Department of Primary Industries)
DPWS	Department of Public Works and Services (defunct- the water and sewerage functions of DWPS are now administered by the Office of Water, Department of Primary Industries)
DWE	Department of Water and Energy (defunct- the water and sewerage functions of DWPS are now administered by the Office of Water, Department of Primary Industries)
End of life value	The residual value of an asset at the end of its economic life
EP	Equivalent Person
EPA	Environment Protection Authority of New South Wales.
ET	Equivalent Tenement (ie the equivalent load deemed to be imposed by a typical household)
IWCM	Integrated water cycle management
kL/d	Kilolitres per day (thousands of litres per day)
MEERA	Modern Equivalent Engineering Replacement Asset (the equivalent modern asset which provides the same level of service as an existing older asset)
ML/d	Megalitres per day (millions of litres per day)
NHMRC	National Health and Medical Research Council
NOW	NSW Office of Water, Department of Primary Industries.
OEH	Office of Environment and Heritage
OMA	Operation, maintenance and administration (costs)
Peak Day Demand	Highest water consumption on one day in a year.
PS	Pumping Station
PWWF	Peak Wet Weather Flow
Residual life	The remaining useful life of an asset.
Residual value	The value remaining in the asset at the point in time when the asset has deteriorated to a point that it must either be closed or renewed.
SR	Service Reservoir
SS	Suspended solids, or the concentration of particles in sewage. Used as one measure of the 'strength' of sewage.
STP	Sewage Treatment Plant
Useful life	The period of time that it will be economically feasible to use an asset
WDCC	Written down current cost. The current replacement cost of the asset less accumulated depreciation.
WTP	Water Treatment Plant

Contents

Tables

1. Introduction

1.1 Purpose of Report

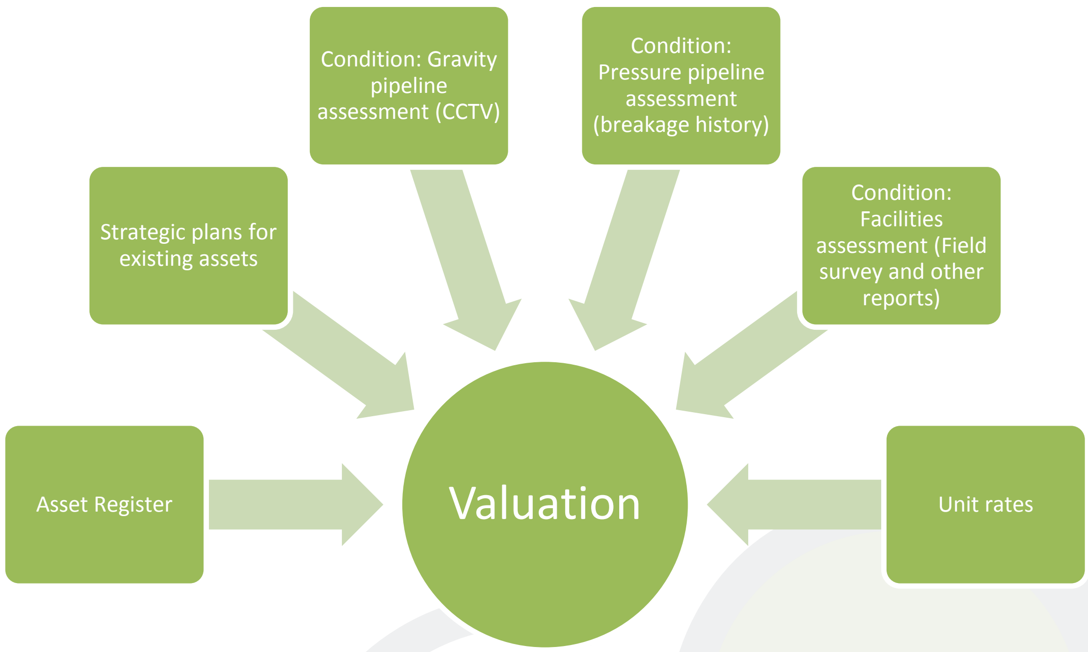
The valuation report addresses the following:

- Valuation of the system(s), and disaggregated by asset class;
- Justification for the adoption of total/residual lives, based on inspection outcomes;
- Commentary on any approximations/assumptions made;
- Recommendations for improvements; and
- Warnings on condition, recognising the limited nature of the survey.

1.2 Overview of the valuation process

Assets are valued based on the depreciated replacement cost approach. This approach values the asset on the deprival value of the asset, depreciated over the expected useful life of the asset. At the end of the asset's life, a residual value is present, either the return gained from disposing of the asset or the benefit provided by the asset which reduces the cost of future assets.

Figure 1: Illustration of elements used in valuation process



1.3 MEERA

The following characteristics of water supply and sewerage assets are significant when considering valuation approaches:

1. The assets are *complex* in that they are interdependent to successfully provide the service for which they were intended. A sewerage network requires the correct

combination of pipes and treatment equipment to effectively meet the service standards expected by the community or required by regulators.

2. The assets are *non-separable* in that they cannot be separated from their network and still be able to gain their highest and best use. Similarly the performance of individual assets will inevitably be suboptimal as their performance is governed by the network surrounding the asset. This means that the assets need to be valued based on their existing use rather than their potential usage.

This leads to a valuation based on the modern engineering equivalent replacement asset (MEERA), based on the asset which is required to meet the service level required rather than the capacity of the asset actually provided. It also means that the valuation of assets can only be performed at scales where realistic replacement can occur. This is highly significant for a number of regional utilities which have assets sized to accommodate an unrealistic rate of growth.

1.4 End of life

The end of life for an asset is considered to be when the asset can no longer perform the service required of it in an economic manner. End of life can occur through a number of reasons such as:

1. *The reduced integrity of the structure leads to compromised service*. For example aged sewer mains have a high risk of collapse through loss of structural integrity, or cracks may permit root penetration leading to unmanageable system blockages. Leakage from compromised pipes may also lead to high rates of sewerage infiltration leading to overflows. Similarly water mains may fail, leading to reduced pressure, the risk of damage to other assets and increase the risk of contamination. While techniques exist to manage some of these problems, Council will eventually need to rehabilitate or replace its assets to achieve its target levels of service.
2. *The asset condition has reached a state which is economically optimal for refurbishment*. For example sewage pumping station wells can have a lining material applied to prevent further corrosion. However once aggregate and/or reinforcing are exposed, the costs of preparing the well for this lining increase substantially. This is long before the condition of the well leads to compromised levels of service.
3. *Changed community expectations are unable to be met by the asset in service*. As the expectations of the community change, some assets may need to be replaced as they do not meet the service expectations of the day. Typically treatment plants require replacement when environment protection licence conditions or health standards are tightened to a standard which the existing asset cannot achieve.
4. *The asset no longer has sufficient capacity to provide adequate service*. Growth in demand may lead to an asset becoming too small to meet the standard of performance expected of it. Replacement may occur if it is shown to be more cost effective than augmenting capacity with additional assets.

1.5 Determination of residual life

The Local Government Asset Accounting Manual requires the assessment of residual life based on a condition assessment. Condition assessment is examined in **Section 3.**

Where there is an existing maintenance backlog that may lead to reduced life the value of rectification has been deducted from the calculated written down current cost.

1.6 End of life value

When considering the residual life of the asset, the impact of possible future rehabilitation has not been considered. Good asset management would programme rehabilitation at the most economic point during the life of the asset, thus extending residual life at that stage.

Some assets retain some value at the end of their useful life. While these assets no longer are capable of providing a satisfactory level of service, the asset can be used as the base for a rehabilitated or renewed asset. Within the water supply and sewerage sectors renewal or rehabilitation is generally applied to some pipes and pump wells.

1.7 Reference Rates

The valuation is based on the NSW Office of Water's *Reference Rates Manual FOR Water Supply, Sewerage and Stormwater Assets* of 2003. Valuations in the manual have been indexed to reflect changes in prices from 2003 to 2012 in accordance with Attachment 1 released in May 2012.

Where the capacity of an asset does not precisely correspond to the capacity of an asset listed in the reference rates manual, a linearly interpolated value has been used.

On occasions assets are smaller than the minimum capacity of asset provided in the Reference Rates Manual. This issue has been managed by extrapolating the reference rate data to a theoretical 'zero' capacity asset. It is considered that this approach is likely to lead to an underestimate of the value of these assets due to the relatively fixed nature of investigation and design costs.

1.7.1 Other values

The reference rates at times do not provide a full listing of all asset types, and customisations to meet particular circumstances. Where customisations need to be considered for MEERA purposes, these have been added or deducted from the reference rate.

1.8 Calculation of Written Down Current Cost

The written down cost has been calculated according to the following formulas:

Where residual life has been determined by condition assessment

$$\text{WDCC} = (\text{CRC - Residual Value}) \times \frac{\text{Residual Life}}{\text{Age} + \text{Residual Life}} + \text{Residual Value} - \text{Deferred Maintenance}$$

Where total asset life has been revised by condition assessment

$$\text{WDCC} = (\text{CRC} - \text{Residual Value}) \times \frac{\text{Total Life - Age}}{\text{Total Life}} + \text{Residual Value} - \text{Deferred Maintenance}$$

2. Asset Register

2.1.1 Dataset quality

The datasets prepared by Council were of a good quality. Some modifications were made to the sheets to achieve the correct level of componentisation or collect additional details regarding the capacity of the asset.

The pumps associated with the Culcairn Pressure Sewerage scheme have been excluded from the asset register as Greater Hume Shire Council has advised that these pumps are owned by the individual property owners and not the council.

Duplicated effluent reuse lines have been deleted.

The source of data for the register is provided in the valuation spreadsheet.

2.1.2 Issues arising/items of concern

No significant items of concern were identified with the asset register.

2.2 Validation with GIS

No GIS data was available to confirm the completeness of the asset register.

2.3 Implications of strategic planning

Council provided a capital works plan and integrated water cycle management plan strategy study for the water supply and sewerage systems. These documents identified that the following assets were planned for replacement in the near future for strategic reasons:

- Jindera Sewage Treatment Works, scheduled for replacement in 2020 due to capacity limitations.
- Holbrook Sewage Treatment Works, scheduled reconstruction/replacement for 2019 due to financial limitations.

These scheduled asset replacements have been considered in the valuation through the application of residual lives consistent with works planning.

2.4 Issues arising/items of concern

The asset registers are in reasonably good condition. It is important that as Council acquires, disposes and replaces assets within its network that sufficient engineering data is captured to allow these assets to be revalued according to a replacement cost approach.

3. Condition assessment

3.1 Facilities assessment

CPEa conducted a field survey, involving a physical inspection of the ground-level facility assets in the system such as treatment plants, pumping stations and reservoir exteriors. CPEa did not inspect dams or the interior of reservoirs given the highly specialised nature of this work, and instead relied on reports as provided by Council.

The object of the survey was to uncover any evidence that will challenge the default useful life for that asset class such as corrosion (or lack of), obvious mechanical/electrical defects or structural damage. Field survey sheets were completed and a photographic record also was made.

Field surveyors used this information to determine a grading of condition according to the criteria in Table 1.

Table 1: Description of condition gradings

Grade	Condition	Description[1]
1	Very Good	Some wear or discolouration but no evidence of damage. Can include repaired assets where the repair is as good as the original. New or near new condition
2	Good	Deterioration or minor damage that may affect performance. Includes most repaired assets.
3	Moderate	Includes repaired where the repair is deteriorated. Clearly needs some attention but is still working. Structure in need of repair.
4	Poor	Either not working or is working poorly because of damage or deterioration. Condition or structure is poor or structural integrity in question.
5	Very Poor	Replace or repair. Needs urgent attention.

Condition gradings and comments for assets are available in the valuation spreadsheet. If a grading of zero (0) appears in the sheet, this indicates that the condition of the asset was not determined.

3.1.1 Issues arising/items of concern

The facilities assessment assigned poor gradings to the following assets:

- Henty STP maturation pond condition due to inundation
- Jindera STP oxidation ponds due to wall condition (this plant is scheduled for replacement in 2020)
- Little Brocklesby Reservoir due to horizontal cracking
- Culcairn Bore #1 due to evidence of bore failure (drawing sand)

[1] Based on New Zealand Water & Wastes Association (2008) *Visual Assessment of Utility Assets*. The terminology used in the International Infrastructure Management Manual is unhelpful as it refers to 'repairs' while many water supply and sewerage assets are not subject to any maintenance until they are near end of life.

The condition of the Holbrook Sewage Treatment Plant had improved significantly since 2007, however non-compliant walkways were noted.

Since the 2010 Report for the Henty St Culcairn Reservoir, Council has carried out some remediation work and it is understood that $200,000 is proposed to be allocated to complete the remediation

No significant issues were noted for the other centres.

Figure 2: Active cracking, Little Brocklesby Reservoir

Figure 3: Displacement and minor crack repairs, Henty STP

Figure 4: Corroded and non-compliant walkways, Holbrook STP (safety)

3.2 Pressure pipelines

For pressure pipelines, CPEa reviewed useful life in terms of pipe media and their breakage history. The breakage history of the various material/age/sizes of pipe in the network was used to challenge the default useful lives provided in the Local Government Asset Accounting Manual, and considering the experience of other comparable utilities.

3.2.1 Water

Jindera

The Jindera potable water supply system derives its water supply from the Albury City Council water supply system.

The trunk pipeline system is of AC pipe that displays limited failures due to tree roots either lifting the pipe or penetrating joining collars. It is condition graded at 3.

The village reticulation systems are generally of AC and uPVC pipe and are generally performing satisfactorily. Small diameter AC may begin to suffer increased breakages in the coming years as the pipe progressively softens. They are currently condition graded at 3.

Culcairn

Culcairn derives its supply from bores south of the urban area, where the supply is cooled, aerated, chlorinated, and pumped to an elevated steel tank and a reinforced concrete standpipe located in the urban area.

The key reticulation pipe media that are life expired are pre-1960 asbestos cement (AC), cast iron (CI), and cast iron, cement-lined pipe that are at or less that 150 mm diameter. These asset classes are condition graded at 4.

A very limited number of older sections of the water reticulation system are within 10 - 15 years of reaching a life expired status, and must be progressively replaced if Council is to avoid extensive responses to pipeline bursts. The task of replacing life-expired pipeline assets is manageable and limited.

3.2.2 Sewerage

All sewer rising mains are of recent construction in uPVC, and have no history of failures.

All are condition graded at 2.

3.3 Gravity pipelines

The condition of gravity pipelines was determined using a CCTV style survey, consisting of cleaning the main and inspecting it using a camera device. Surveys were randomised to obtain a realistic profile of the network.

Survey design

Council chose lines for CCTV inspection based on the following criteria:

- *Line chosen*

That the lines chosen had not been previously inspected by CCTV

- *Age of line*

All sewer mains selected are lines that were installed when the sewerage schemes were first built.

- *Catchment area*

Selected sewer lines in different catchment areas and tried to space them evenly throughout each Town

- *Depth of line*

50/50 Depth range 0m-2m & 2m to 4.5m

- *Location of line*

Lines chosen based on able to find sewer access manholes, location of sewer access manholes, access for vehicles, Inconvenience to the ratepayers, OH&S requirements and traffic control planning.

Also taken into consideration was the short lead time we had to prepare for Veolia Water Net Work to commence work. An email from Grant Wade (VWNS) stated that there time is critical and they had to work strictly to the allocated times as not to inconvenience the next Councils time frame. So he said to maximise CCTV coverage was to prepare before they arrive."

Sample size

The sample size varied between the towns within the Shire as follows:

Table 2: Gravity sewer sample sizes by town

Town	# mains	Sample
Culcairn	6	1.96%
Henty	5	2.47%
Holbrook	10	2.89%

The low number of discrete samples resulted in a reasonably large confidence interval (ie low confidence). To improve the sample size CPEa incorporated the condition gradings from the 2007 revaluation.

Results

The results of the condition assessment were analysed to determine the typical condition grading for groups of sewer mains. These groupings are generally made based on age and material. The reliability of the typical (mean) condition score was found using confidence interval of 95% (in 95% of cases the true result should lie within the stated range).

The size of the confidence interval varies depending on the variability of results and the number of samples.

For gravity pipelines, the WSAA *Conduit Inspection Reporting Code* provides two condition gradings- a structural score rating pure structural condition issues, and a service score rating the ability of the asset provide a reasonable level of service. For the purposes of valuation the structural score is dominant, however in some circumstances authorities may conduct early main replacements due to service performance issues.

Table 3: Condition grading of gravity sewers

Material group	Age group	Structural grading (95% confidence interval)	Service grading (95% confidence interval)	Comments
VC	1975	1-2	3-3	2007 CCTV results were included to expand the sample size. The median condition of this asset group is assessed at Condition Grade 3
Other	-	-	-	No representative samples obtained so Local Government Asset Account Manual typical lives will be applied

Issues arising/items of concern

The pipe network is showing good condition for its age with most defects of a minor nature which can be addressed through minor programmed maintenance.

Future revaluations should include a greater inspection sample size to better capture representative condition and range of pipe materials and ages.

4. Valuation calculations

4.1 Key assumptions

4.1.1 Complex assets with no unit rate

The following assets were valued based on historical costings instead of a unit rate basis:

- 2008 Effluent Reuse System polishing plant (sand filtration, disc filtration, chemical dosing and analysis systems).

This is because unit rates are not generally available, and the nature of the asset means a replacement asset could be configured quite differently to the asset being valued.

For these assets, the current replacement cost was estimated by indexing the historical cost to 2012 values.

4.2 Valuation of water supply assets

The spreadsheet provided with this report provides detail of the valuation at asset level. The spreadsheet also contains commentary on asset condition and/or assumptions used in the valuation.

Table 4: Valuation of water supply assets by system

Asset Class	Asset Type	Current Replacement Cost	Annual Depreciation	Written Down Current Cost	End of life value	Mean Useful Life	Mean Residual Life
Water Mains	Reticulation	$11,000,000	$120,000	$7,200,000	$1,400,000	79	49
Water Mains	Trunk	$15,000,000	$170,000	$11,000,000	$2,000,000	80	53
Water Pumping Stations	Bores	$170,000	$6,300	$96,000	$28,000	15	11
Water Pumping Stations	Distribution	$720,000	$34,000	$460,000	$30,000	29	18
Water Reservoirs	Concrete	$2,700,000	$28,000	$1,800,000	$450,000	90	53
Water Reservoirs	Standpipe	$450,000	$3,500	$330,000	$74,000	107	75
Water Reservoirs	Tanks	$7,900	$160	$2,900	$0	50	18
Water Treatment Works		$160,000	$5,200	$100,000	$0	30	20

4.3 Valuation of sewerage assets

Table 5: Valuation of sewerage assets by system

Asset Class	Asset Type	Current Replacement Cost	Annual Depreciation	Written Down Current Cost	End of life value	Mean Useful Life	Mean Residual Life
Sewage Pumping Stations	Domestic Grinder	$0	$0	$0	$0	0	0
Sewage Pumping Stations	Submersible 25m head	$5,600,000	$120,000	$3,700,000	$2,200,000	46	23
Sewage Treatment Works	Disinfection UV	$680,000	$13,000	$32,000	$5,600	42	2
Sewage Treatment Works	Effluent lagoons	$270,000	$7,800	$86,000	$42,000	29	6
Sewage Treatment Works	Pasveer P1000	$5,200,000	$110,000	$1,600,000	$540,000	47	10
Sewage Treatment Works	Preliminary	$500,000	$9,300	$190,000	$68,000	47	13
Sewage Treatment Works	Siteworks	$1,200,000	$12,000	$770,000	$0	99	65
Sewage Treatment Works	Sludge Lagoons	$280,000	$4,800	$82,000	$0	59	18
Sewer Mains	Gravity Reticulation	$25,000,000	$160,000	$20,000,000	$14,000,000	70	36
Sewer Mains	Pressure reticulation	$60,000	$600	$55,000	$0	100	93
Sewer Mains	Rising mains	$1,700,000	$19,000	$1,100,000	$280,000	76	44
Recycled Water Mains	Reticulation	$1,200,000	$16,000	$980,000	$160,000	73	60
Recycled Water Pumping Stations	Distribution	$410,000	$23,000	$300,000	$22,000	24	19
Recycled Water Reservoirs	Dams	$700,000	$14,000	$580,000	$0	50	41
Recycled Water Reservoirs	Steel	$0	$0	$0	$0		0
Recycled Water Treatment Works		$81,000	$3,800	$64,000	$0	23	18

4.4 Issues arising/items of concern

The valuation is considered reasonably robust with no significant matters of concern identified regarding data quality.

Appendix A: Calculation processes

Reference rates – Reference Rates Manual

Reference rates were largely based on the document *NSW Reference Rates Manual for Water Supply, Sewerage and Stormwater*, published by the Ministry of Energy and Utilities[2] in 2003. The NSW Office of Water issued and update of Attachment 1 of this manual in May 2012.

The reference rates used are based on the "Reference Rate" provided in the Manual. This is based on known contract rates, plus an allowance for survey, investigation and design, plus a contingency allowance. In addition, pipeline rates have carried an additional rate for suburban intensity construction difficulty. Where registers are sufficiently detailed to identify pipelines laid in rock, the rock rates have been applied.

The valuation has also considered the end-of-life or 'disposal' value of the asset at the end of economic life. This has been considered as follows:

- For gravity sewers, the end-of-life value is based on the benefit gained from having a conduit to allow for rehabilitation using relining or pipe cracking.
- For pressurised water supply and sewerage mains, the end-of-life value is based on the retained survey, investigation and design value of a like-for-like replacement.
- For sewage pumping stations, the end-of-life value for the structure is based on the opportunity to line the station well.
- For the mechanical and electrical components of treatment works and pumping stations, the end-of-life value is based on the retained survey, investigation and design value of a like-for-like replacement.
- Additional rock costs are retained at 99% of their original value
- Other items such as treatment works structures have not been assigned an end-of-life value as their replacement triggers a new cycle of survey, investigation and design.

Reference Rates – other sources

The *Reference Rates Manual* does not provide rates for all assets which form part of local government water supply and sewerage systems. The following assets have been valued using alternate approaches:

- Low pressure sewerage systems – rates quoted in *Rawlinson's Construction Cost Guide,* 29th ed. Depending on the ownership status of the on-site pumping units, these may or may not be considered assets of the sewerage business.

[2] The relevant functions of the Ministry of Energy and Utilities are now undertaken by the NSW Office of Water, Department of Primary Industries.

- Vacuum sewerage systems – the rates used are based on a conversation with Flowvac Pty Ltd, a supplier and maintainer of these systems.
- Diesel generators – rates quoted in *Rawlinson's Construction Cost Guide,* 29th ed.
- Radio telemetry – based on a rate of $5000 per station (2005 price) which includes an allowance for a central control station and related infrastructure.
- Ground tanks (clay water storage structures similar to farm dams) – Based on excavation and compaction rates for *Rawlinson's Construction Cost Guide,* 29th ed.
- Small water tanks as used in hamlet water supplies – based on 2007 retail prices for farm tanks plus a 32% SIDC loading
- Tank stands (used for pressurising small hamlet water supplies) – based on a regression analysis of construction costs for Bogan Shire Council in 2007.
- Aeration towers – Based on a cost estimate provided by Carrathool Shire Council for a 3 kW cooling tower installation.

Except where stated, prices are for Sydney to maintain consistency with the *NSW Reference Rates Manual*.

Condition life relationships

The assessment of remaining life for an asset is based on a condition grading approach. The *Local Government Asset Accounting Manual* provides some suggested useful lives for assets, to be used in the absence of other information.

The total life of an asset can vary markedly, due to factors such as construction methods, manufacturing defects, the host environment and the maintenance regime applied. Condition grading seeks to adjust the life of the asset based on its observed condition.

In the first instance the suggested total life of an asset is applied which, if no condition grading is made, will determine the residual life of the asset. However, if a condition grading or residual life is applied to a particular asset, this will adjust the calculated residual life.

Examples:

a) An asset has 30 years residual life based on a total life calculation. The field team has assigned the asset a condition grade of 3. If the minimum residual for a condition 2 asset is 20 years and for a condition 3 asset is 10 years, the residual life will be forced to fit within these boundaries, i.e. it will be given a residual life of 20 years.
b) Say the same asset had 5 years residual life based on a total life calculation. This time residual life is increased to 10 years.

c) Finally, say the same asset had 15 years residual life based on a total life calculation. The residual life remains unchanged as it already falls in the bounds for a condition 3 asset.

The condition-life relationship used in this valuation is provided below:

Table 6: Condition life relationships

Asset Class	Asset Type	Asset Component	Min Total Life	Grade 1-2 transition	Grade 2-3 transition	Grade 3-4 transition	Grade 4-5 transition	Grade 5 minimum	Notes
Ancillary	Generator	All	15	90%	75%	10%	2%	1%	
Ancillary	Monitoring	Radio telemetry	15	90%	75%	10%	2%	1%	
Sewage Pumping Stations	Submersible 25m head	Mechanical /Electrical	15	90%	75%	10%	2%	1%	
Sewage Pumping Stations	Submersible 25m head	Structural	50	90%	75%	10%	2%	1%	
Sewage Pumping Stations	Submersible 50m head	Mechanical /Electrical	15	90%	75%	10%	2%	1%	
Sewage Pumping Stations	Submersible 50m head	Structural	50	90%	75%	10%	2%	1%	
Sewage Treatment Works	Aeration Tank Double Stream	Electrical	15	90%	75%	10%	2%	1%	
Sewage Treatment Works	Aeration Tank Double Stream	Mechanical	25	90%	75%	10%	2%	1%	
Sewage Treatment Works	Aeration Tank Double Stream	Structural	50	90%	75%	10%	2%	1%	
Sewage Treatment Works	Aeration Tank Single Stream	Electrical	15	90%	75%	10%	2%	1%	
Sewage Treatment Works	Aeration Tank Single Stream	Mechanical	25	90%	75%	10%	2%	1%	
Sewage Treatment Works	Aeration Tank Single Stream	Structural	50	90%	75%	10%	2%	1%	
Sewage Treatment Works	Bathurst B4000	Electrical	15	90%	75%	10%	2%	1%	
Sewage Treatment Works	Bathurst B4000	Mechanical	25	90%	75%	10%	2%	1%	

Asset Class	Asset Type	Asset Component	Min Total Life	Grade 1-2 transition	Grade 2-3 transition	Grade 3-4 transition	Grade 4-5 transition	Grade 5 minimum	Notes
Sewage Treatment Works	Bathurst B4000	Structural	50	90%	75%	10%	2%	1%	
Sewage Treatment Works	Disinfection UV	Civil Works	50	90%	75%	10%	2%	1%	
Sewage Treatment Works	Disinfection UV	Plant	15	90%	75%	10%	2%	1%	
Sewage Treatment Works	Effluent lagoons	All	25	90%	75%	10%	2%	1%	
Sewage Treatment Works	Effluent lagoons	All	25	90%	75%	10%	2%	1%	
Sewage Treatment Works	Pasveer P1000	Electrical	15	90%	75%	10%	2%	1%	
Sewage Treatment Works	Pasveer P1000	Mechanical	25	90%	75%	10%	2%	1%	
Sewage Treatment Works	Pasveer P1000	Structural	50	90%	75%	50%	25%	1%	Structure can degrade considerably before end of life
Sewage Treatment Works	Pasveer P2000	Electrical	15	90%	75%	10%	2%	1%	
Sewage Treatment Works	Pasveer P2000	Mechanical	25	90%	75%	10%	2%	1%	
Sewage Treatment Works	Pasveer P2000	Structural	50	90%	75%	50%	25%	1%	Structure can degrade considerably before end of life
Sewage Treatment Works	Preliminary	Mechanised	25	90%	75%	10%	2%	1%	
Sewage Treatment Works	Preliminary	Non-mechanised	50	90%	75%	10%	2%	1%	
Sewage Treatment Works	Siteworks	All	100	90%	75%	10%	2%	1%	
Sewage	Siteworks	All	100	90%	75%	10%	2%	1%	

Asset Class	Asset Type	Asset Component	Min Total Life	Grade 1-2 transition	Grade 2-3 transition	Grade 3-4 transition	Grade 4-5 transition	Grade 5 minimum	Notes
Treatment Works									
Sewage Treatment Works	Sludge lagoons	No mechanical dewatering	50	90%	75%	50%	25%	1%	Structure can degrade considerably before end of life
Sewage Treatment Works	Sludge lagoons	Mechanical dewatering	50	90%	75%	10%	2%	1%	
Sewer Mains	Gravity Reticulation	<1.5m	70	90%	75%	10%	2%	1%	
Sewer Mains	Gravity Reticulation	>4.5m	70	90%	75%	10%	2%	1%	
Sewer Mains	Gravity Reticulation	1.5-3m	70	90%	75%	10%	2%	1%	
Sewer Mains	Gravity Reticulation	3-4.5m	70	90%	75%	10%	2%	1%	
Sewer Mains	Rising mains	<1.5m	70	90%	75%	10%	2%	1%	
Sewer Mains	Rising mains	>4.5m	70	90%	75%	10%	2%	1%	
Sewer Mains	Rising mains	1.5-3m	70	90%	75%	10%	2%	1%	
Sewer Mains	Rising mains	3-4.5m	70	90%	75%	10%	2%	1%	
Sewer Mains	Rock Additional	<1.5m	9999	100%	100%	100%	100%	2%	
Sewer Mains	Rock Additional	>4.5m	9999	100%	100%	100%	100%	2%	
Sewer Mains	Rock Additional	1.5-3m	9999	100%	100%	100%	100%	2%	
Sewer Mains	Rock Additional	3-4.5m	9999	100%	100%	100%	100%	2%	
Sewer Mains	Trunk	<1.5m	70	90%	75%	10%	2%	1%	
Sewer Mains	Trunk	>4.5m	70	90%	75%	10%	2%	1%	
Sewer Mains	Trunk	1.5-3m	70	90%	75%	10%	2%	1%	
Sewer Mains	Trunk	3-4.5m	70	90%	75%	10%	2%	1%	
Water Mains	Reticulation	<1.5m	80	90%	75%	10%	2%	1%	
Water Mains	Trunk	<1.5m	80	90%	75%	10%	2%	1%	
Water	Bores	All	30	90%	75%	10%	2%	1%	

Asset Class	Asset Type	Asset Component	Min Total Life	Grade 1-2 transition	Grade 2-3 transition	Grade 3-4 transition	Grade 4-5 transition	Grade 5 minimum	Notes
Pumping Stations									
Water Pumping Stations	Distribution	Civil Works	50	90%	75%	10%	2%	1%	
Water Pumping Stations	Distribution	Mechanical /Electrical	15	90%	75%	10%	2%	1%	
Water Reservoirs	Concrete	Roof	40	90%	75%	10%	2%	1%	
Water Reservoirs	Concrete	Structure	100	90%	75%	10%	2%	1%	
Water Reservoirs	Concrete	All	100	90%	75%	10%	2%	1%	
Water Reservoirs	Dams	Clay	50	90%	75%	10%	2%	1%	
Water Reservoirs	Standpipe	Structure	100	90%	75%	10%	2%	1%	
Water Reservoirs	Standpipe	Roof	40	90%	75%	10%	2%	1%	
Water Reservoirs	Standpipe	All	100	90%	75%	10%	2%	1%	
Water Reservoirs	Steel	Roof	40	90%	75%	10%	2%	1%	
Water Reservoirs	Steel	Structure	80	90%	75%	10%	2%	1%	
Water Reservoirs	Tanks	Stand	50	90%	75%	10%	2%	1%	
Water Reservoirs	Tanks	Storage	25	90%	75%	10%	2%	1%	
Water Treatment Works	Conventional	Mechanical	30	90%	75%	10%	2%	1%	
Water Treatment Works	Conventional	Electrical	15	90%	75%	10%	2%	1%	
Water Treatment Works	Conventional	Structural	70	90%	75%	10%	2%	1%	
Water Treatment Works	Conventional	Mechanical /Electrical	30	90%	75%	10%	2%	1%	
Water Treatment Works	Lagoon	All	50	90%	75%	10%	2%	1%	
Sewer Mains	Pressure reticulation	All	100	90%	75%	10%	2%	1%	

Asset Class	Asset Type	Asset Component	Min Total Life	Grade 1-2 transition	Grade 2-3 transition	Grade 3-4 transition	Grade 4-5 transition	Grade 5 minimum	Notes
Water Treatment Works	Aeration Tower	All	25	90%	75%	10%	2%	1%	
Sewer Mains	Vacuum Reticulation	All	50	90%	75%	10%	2%	1%	Based on nominated design life
Sewage Pumping Stations	Domestic grinder	Mechanical /Electrical	8	90%	75%	10%	2%	1%	Based on MTBSC
Sewage Pumping Stations	Domestic grinder	Structural	25	90%	75%	10%	2%	1%	
Sewage Pumping Stations	Vacuum Pumping Station	All	50	90%	75%	10%	2%	1%	Based on nominated design life
Sewage Pumping Stations	Vacuum Collection Pot & Valve	All	50	90%	75%	10%	2%	1%	Based on nominated design life

GREATER HUME SHIRE COUNCIL WATER & SEWERAGE
ASSET REGISTER

ANNEXURE 8

Revised **3/07/2012**

WATER SUPPLY ASSETS

WATER SUPPLY ASSETS

DSP Area Serviced	Type	Asset type	Construction date	Size & Capacity	Date Inspected	2012 Condition Assessment	Revised Condition Assessment April 2015	Cost to Bring to Satisfactory	Budgetted Y/N in 2015/2016	Comments	Amount included as Backlog	Annual Depreciation	Other comments
Culcairn Water Supply	Bore	Headworks Bore 1	1981	2.2 ml/d	Apr-15	5	5	197000	197000	Bore renewal		$3,384	Tenders to be presented to June 2015 Council meeting
	Bore	Headworks Bore 2	2004	2.7 ml/d	Apr-15	3	3	5000	5000	Install security fence		$2,961	
	Bore Total											**$6,344**	
	Treatment Works	Water Treatment Plant (Aeration Tower, Relift Tank & Dosing Equipment)	1981	2.7 ml	Apr-15	3	3	7000	7000	Renew chlorine dosing shed		$5,352	
	Treatment Works Total											**$5,352**	
	Pump Station	Pump Station	1981	2.7 ml	Apr-15	3	3					$10,056	
	Pump Station Total											**$10,056**	
	Reservoirs	Reservoirs Black St	1932	1000 kl	Apr-15	3	3	300000	300000	Reline internal walls & repair external concrete surface		$5,967	
	Reservoirs	Reservoirs Gordon St	1980	378 kl	Apr-15	2	2					$3,468	
	Reservoirs Total											**$9,435**	
	Water Mains	Water Trunk Mains	1932-2012	4 km	Apr-15	4	4					$10,545	
	Water Mains	Water Reticulation Mains	1932-2012	17.4 km	Apr-15	4	4	60000	60000	Replace old AC mains. Also renew services connected to these mains		$27,149	Note - of 17.4 km of water reticulation mains 3.9 km are AC and 1.2km of PVC (pre 1980) are high risk. Sections are being replaced 2015/2016 Financial year, as adequate reserves are held within the water fund. Council does not believe this represents a backlog.
	Water Mains Total											**$37,694**	
	Culcairn Water Supply Total			Culcairn WS Total								**$68,880**	

DSP Area Serviced	Type	Asset type	Construction date	Size & Capacity								Annual Depreciation	
Village Water Supply	Pump Station	Headworks Pump Station	1983	4.5ML	Apr-15	2	2	30000	30000	Renew & upgrade access covers at pump station (WH'S)		$23,656	
	Pump Station Total											**$23,656**	
	Reservoir	Reservoirs Jindera Gap	1983	2850 kl	Apr-15	3	3					$10,300	
	Reservoir	Reservoirs Burrumbuttock	1983	600 kl	Apr-15	3	3					$3,739	
	Reservoir	Reservoirs Big Brock	1983	600 kl	Apr-15	3	3					$3,739	
	Reservoir	Reservoirs Little Brock	1983	100 kl	Apr-15	4	4	25000	25000	Repair minor horizontal cracking in reservoir		$1,161	
	Reservoir	Reservoirs Gerogery	1983	600 kl	Apr-15	3	3					$3,371	
	Reservoir Total											**$22,310**	
	Water Mains	Water Trunk Mains	1983-2012	71 km	Apr-15	3	3	25000	25000	Cut in and install additional SV on trunk mains		$166,694	
	Water Mains	Water Reticulation Mains	1983-2012	54 km	Apr-15	3	3	45000	45000	Renew old AC mains		$84,343	Rolling program based on age as a preventive measure. No backlog.
	Water Mains Total											**$251,037**	
	Villages Water Supply			VWS Total								**$297,002**	
	Grand Total			**Water Total**								**$365,883**	

SEWERAGE ASSETS

SEWERAGE ASSETS

DSP Area Serviced	Type	Asset type	Construction date	Size & Capacity								Annual Depreciation	
Burrumbuttock Sewerage	Treatment Works	Sewerage Treatment Plant & SPS	1991	100 EP	Apr-15	3	3	10000	10000	New pump & controller		$7,792	
	Treatment Works Total											**$7,792**	
	Sewer Mains	Sewer Mains	1991	765m	Apr-15	0	2			Usefull life est for PVC mains 70 yrs. Residual life is 45 yrs-rating 2 as per GHSC		$1,335	No CCTV condition assessment for these mains as per 2012 valuation zero rating. See comments in column
	Sewer Mains Total											**$1,335**	
	Burrum Sewer Total											**$9,126**	

ANNEXURE 8

DSP Area Serviced	Type	Asset type	Construction date	Size & Capacity	Date Inspected	2012 Condition Assessment	Revised Condition Assessment April 2015	Cost to Bring to Satisfactory	Budgetted Y/N in 2015/2016	Comments	Amount included as Backlog	Annual Depreciation	Other comments
DSP Area Serviced	Type	Asset type	Construction date	Size & Capacity								Annual Depreciation	
Jindera Sewerage	Treatment Works	Sewerage Treatment Plant	1985	1200 EP	Apr-15	4	3	10000	10000	Renew irrigation valves on evaporation ponds		$7,198	2012 valuation ass (4) major repairs carried out on ponds in 2013/2014. New condition ass (3) as per GHSC
	Treatment Works Total											**$7,198**	
	Pump Station	SPS 1	1985	13.5kw	Apr-15	**3**	2			New pumps installed 2013/2014		$5,605	2012 valuation ass (3) New pumps installed 2013/2014. New condition ass (2) as per GHSC
	Pump Station	SPS 2	1985	2kw	Apr-15	**3**	2			New pumps installed 2013/2014		$3,912	2012 valuation ass (3) New pumps installed 2013/2014. New condition ass (2) as per GHSC
	Pump Station	SPS 3	1985	2kw	Apr-15	**3**	2			New pumps installed 2013/2014		$4,411	2012 valuation ass (3) New pumps installed 2013/2014. New condition ass (2) as per GHSC
	Pump Station	SPS 4	1985	2kw	Apr-15	**3**	2			New pumps installed 2013/2014		$4,495	2012 valuation ass (3) New pumps installed 2013/2014. New condition ass (2) as per GHSC
	Pump Station	SPS 5	2006	1.7kw	Apr-15	2						$5,181	
	Pump Station	SPS 6	2011	1.7kw	Apr-15	1						$5,565	
	Pump Station Total											**$29,168**	
	Sewer Mains	Sewer Mains	1985-2012	12233m	Apr-15	0	2			Usefull life est for PVC mains 70 yrs. Residual life is 40 yrs-rating 2 as per GHSC		$28,185	No CCTV condition assessment for these mains as per 2012 valuation zero rating. See comments in column
	Sewer Mains	Sewer Rising Mains SPS 1-STW	1985	2073m	Apr-15	0	2			Usefull life est for PVC mains 70 yrs. Residual life is 40 yrs-rating 2 as per GHSC		$4,876	No CCTV condition assessment for these mains as per 2012 valuation zero rating. See comments in column
	Sewer Mains	Sewer Rising Mains SPS 2-F7	1985	181m	Apr-15	0	2			Usefull life est for PVC mains 70 yrs. Residual life is 40 yrs-rating 2 as per GHSC		$311	No CCTV condition assessment for these mains as per 2012 valuation zero rating. See comments in column
	Sewer Mains	Sewer Rising Mains SPS 5-BA5	2006	114m	Apr-15	1	1					$143	As per 2012 valuation
	Sewer Mains	Sewer Rising Mains SPS 6-BB4A	2011	2353m	Apr-15	1	1					$203	As per 2012 valuation
	Sewer Mains Total											**$33,718**	
	Jindera Sewerage Total											**$70,084**	
DSP Area Serviced	Type	Asset type	Construction date	Size & Capacity								Annual Depreciation	
Culcairn Sewerage	Treatment Works	Sewerage Treatment Plant	1971	1200 EP	Apr-15	3	3	63000	63000	Airstone replacement, sludge pump renewal & additional handrails		$35,420	
	Treatment Works Total											**$35,420**	
	Pump Station	SPS 1	1971	12kw	Apr-15	2	2	30000	30000	Renew pump		$4,505	
	Pump Station	SPS 2	1971	2.4kw	Apr-15	2	2					$6,854	
	Pump Station	SPS 3	1976	3.1kw	Apr-15	3	3					$4,775	
	Pump Station	SPS 4	1976	2kw	Apr-15	2	2					$5,672	
	Pump Station	SPS 5	1994	4.4kw	Apr-15	3	2					$5,356	2012 valuation ass (3) New pumps installed in 2014. New condition ass (2) as per GHSC
	Pump Station	SPS 6	1998	0.9kw	Apr-15	3	2					$5,334	2012 valuation ass (3) New pumps installed in 2014. New condition ass (2) as per GHSC
	Pump Station Total											**$32,496**	
	Sewer Mains	Sewer Mains (Gravity)	1971-2012	12232m	Apr-15	3	3					$27,880	
	Sewer Mains	Sewer Mains (Pressure System)	2004-2012	1392m	Apr-15	3	3					$596	
	Sewer Mains	Sewer Rising Mains SPS 1-STW	1971	1278m	Apr-15	3	3					$3,436	
	Sewer Mains	Sewer Rising Mains SPS 2-A28	1971	535m	Apr-15	3	3					$1,053	
	Sewer Mains	Sewer Rising Mains SPS 3-AR1	1976	181m	Apr-15	3	3					$283	
	Sewer Mains	Sewer Rising Mains SPS 4-M5	1976	270m	Apr-15	3	3					$423	
	Sewer Mains	Sewer Rising Mains SPS 5-SRM1	1994	65m	Apr-15	3	3					$102	
	Sewer Mains	Sewer Rising Mains SPS 6-BD5	1998	250m	Apr-15	3	3					$246	
	Sewer Mains Total											**$34,019**	
	Culcairn Sewerage Total											**$101,935**	

ANNEXURE 8

DSP Area Serviced	Type	Asset type	Construction date	Size & Capacity	Date Inspected	2012 Condition Assessment	Revised Condition Assessment April 2015	Cost to Bring to Satisfactory	Budgetted Y/N in 2015/2016	Comments	Amount included as Backlog	Annual Depreciation	Other comments
DSP Area Serviced	Type	Asset type	Construction date	Size & Capacity								Annual Depreciation	
Henty Sewerage	Treatment Works	Sewerage Treatment Plant	1971	1000 EP	Apr-15	4	3	36000	21000	Renew & upgrade bearings and additional handrails (WH'S)		$32,099	2012 valuation ass (4) major repairs carried out on ponds in 2014. New condition ass (3) as per GHSC
	Treatment Works Total											**$32,099**	
	Pump Station	SPS 1	1971	3.1kw	Apr-15	2	2					$5,499	
	Pump Station Total											**$5,499**	
	Sewer Mains	Sewer Mains	1971-2012	12159m	Apr-15	3	3	20000	20000	Sewer main relining		$28,590	
	Sewer Mains	Sewer Rising Mains	2009 replaced	10m	Apr-15	3	3					$25	
	Sewer Mains Total											**$28,614**	
	Henty Sewerage Total											**$66,212**	
DSP Area Serviced	Type	Asset type	Construction date	Size & Capacity								Annual Depreciation	
Holbrook Sewerage	Treatment Works	Sewerage Treatment Plant	1969	1600 EP	Apr-15	3	3	30500	30500	Install digester drop pipe,repair leaking effluent pond, renew small pumps and level sensor		$43,670	
	Treatment Works Total											**$43,670**	
	Pump Station	SPS 1	1969	13.5kw	Apr-15	3	3	12000	12000	Renew switch controller for pumps		$8,007	
	Pump Station	SPS 2	1969	2kw	Apr-15	2	2					$8,269	
	Pump Station	SPS 3	1978	2kw	Apr-15	2	2					$3,912	
	Pump Station	SPS 4	2011	2kw	Apr-15	1	1					$7,481	
	Pump Station	SPS 5	2003	0.9kw	Apr-15	2	2					$4,196	
	Pump Station	SPS 6	1985	0.9kw	Apr-15	3	3					$5,085	
	Pump Station Total											**$36,949**	
	Sewer Mains	Sewer Mains	1969-2012	21481m	Apr-15	3	3	20000	20000	Sewer main relining		$49,988	
	Sewer Mains	Sewer Rising Mains SPS 1-STW	1969	1242m	Apr-15	3	3					$3,339	
	Sewer Mains	Sewer Rising Mains SPS 3-W2	1978	102m	Apr-15	2	2					$131	
	Sewer Mains	Sewer Rising Mains SPS 4-STW	2012	560m	Apr-15	1	1					$1,224	
	Sewer Mains	Sewer Rising Mains SPS 5-AM1	2003	179m	Apr-15	2	2					$176	
	Sewer Mains	Sewer Rising Mains SPS 6-V2	1985	80m	Apr-15	2	2					$69	
	Sewer Mains Total											**$54,928**	
	Treatment Works	Effluent Out Fall Line STW-ADP	1980	1848m	Apr-15	0	3			Usefull life est for AC mains 70 yrs. Residual life is 34 yrs-rating 3 as per GHSC		$2,229	No CCTV condition assessment for these mains as per 2012 valuation zero rating.
	Treatment Works Total											**$2,229**	
	Holbrook Sewerage Total											**$137,776**	

DSP Area Serviced	Type	Asset type	Construction date	Size & Capacity	Date Inspected	2012 Condition Assessment	Revised Condition Assessment April 2015	Cost to Bring to Satisfactory	Budgetted Y/N in 2015/2016	Comments	Amount included as Backlog	Annual Depreciation	Other comments
DSP Area Serviced	Type	Asset type	Construction date	Size & Capacity								Annual Depreciation	
Walla Walla Sewerage	Treatment Works	Sewerage Treatment Plant	1981	1000 EP	Apr-15	3	3	3000	3000	Additional handrails (WH'S)		$33,843	
	Treatment Works Total											**$33,843**	
	Pump Station	SPS 1	1981	6kw	Apr-15	2	2			New pumps installed 2013/2014		$3,905	
	Pump Station	SPS 2	1981	2.5kw	Apr-15	2	2			New pumps installed 2013/2014		$3,618	
	Pump Station	SPS 3	1995	3.1kw	Apr-15	2	2			New pumps installed 2013/2014		$4,576	
	Pump Station	SPS 4	1981	3.1kw	Apr-15	2	2			New pumps installed 2013/2014		$4,653	
	Pump Station Total											**$16,752**	
	Sewer Mains	Sewer Mains	1981-2012	8468m	Apr-15	3	3			Usefull life est for VC mains 70 yrs. Residual life is 36 yrs-rating 3 as per GHSC		$19,534	No CCTV condition assessment for these mains as per 2012 valuation zero rating.
	Sewer Mains	Sewer Rising Mains SPS 1-STW	1981	600m	Apr-15	2	2					$2,399	
	Sewer Mains	Sewer Rising Mains SPS 2-A16	1981	107m	Apr-15	2	2					$240	
	Sewer Mains	Sewer Rising Mains SPS 3-EB1	1997	12.3m	Apr-15	2	2					$24	
	Sewer Mains Total											**$22,197**	
	Walla Walla Sewer Total											**$72,792**	
	Grand Total											**$457,926**	
EFFLUENT REUSE ASSETS												**EFFLUENT REUSE**	
		Asset type	Construction date	Size & Capacity								Annual Depreciation	
Culcairn Reuse Sheme		Effluent Reuse Treatment Plant	2008	10 L/sec	Apr-15	2	2					$18,542	
		Effluent Reuse mains	2008	2536m	Apr-15	1	1					$4,722	
				Culcairn ReuseTotal								**$23,263**	
Henty Reuse Sheme		Effluent Reuse Treatment Plant	2008	10 L/sec	Apr-15	3	3	15000	15000	Renew acid shed		$19,949	
		Effluent Reuse mains	2008	3250m	Apr-15	3	3					$5,862	
				Henty ReuseTotal								**$25,810**	
Holbrook Reuse Sheme		Effluent Reuse Pump	1980	2.5 L/sec	Apr-15	3	3					$1,988	
		Effluent Reuse mains	1980	2488m	Apr-15	3	3					$5,264	
				Holbrook ReuseTotal								**$7,252**	
				Total Reuse								**$56,325**	
				Grand Total Water, Sewer & Reuse								**$880,134**	

Sewerage 30 years Capital Works Program

Revised 7/5/205

					Financial year ending	Current F/Y 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Burrumbuttock Sewerage Scheme	Improve LOS	Growth	Renewals	Check	Total estimate	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
Desludge tanks	100%			100%	50000				10000						10000						10000						10000						10000			
Install underground power at STW	100%			100%	35000	35000																														
Install new pump & controls at STW	100%			100%	10000		10000																													
Pump Replacement			100%	100%	20000																10000															10000
					0																															
				Sub Total	$115,000	$35,000	$10,000	$0	$10,000	$0	$0	$0	$0	$0	$10,000	$0	$0	$0	$0	$0	$20,000	$0	$0	$0	$0	$0	$10,000	$0	$0	$0	$0	$0	$10,000	$0	$0	$10,000
Culcairn Sewerage Scheme																																				
Replace PLC & Switch Board Upgrade (2011-20yrs)	25%	25%	50%	100%	40000																	40000														
Air Stones upgrade STW pasveer channel		25%	75%	100%	50000		50000																													
Additional Handrails on Walkways & Rotors (WH&S)	100%			100%	3000		3000																													
Sewer Main Relining/Replacement (1971-60yrs)			100%	100%	777500	7500		20000	20000													40000	40000	50000	50000	50000	50000	50000	50000	50000	50000	50000	50000	50000	50000	50000
Switchboard Upgrade/Replacement (SPS 1,2,3,4,5,6) 2011-30yrs	50%		50%	100%	60000																											60000				
SPS 1,2,3,4,5,6 Backflow Prevention	100%			100%	13000	13000																														
Upgrade SPS valve pit lids to comply with WHS			100%	100%	15000	15000																														
Replace tanks on aerators STW pasveer channel			100%	100%	25000			25000																												
STP Overhaul/Renewals (1971-50yrs)			100%	100%	290000							290000																								
SPS Pump Replacement PS No 1 - Pump 1 (1991-25yrs)			100%	100%	30000		15000																									15000				
SPS Pump Replacement PS No 1 - Pump 2 (1991-25yrs)			100%	100%	30000		15000																									15000				
SPS Pump Replacement PS No 2 - Pump 1 (2011-25yrs)			100%	100%	10000																						10000									
SPS Pump Replacement PS No 2 - Pump 2 (2011-25yrs)			100%	100%	16000	6000																					10000									
SPS Pump Replacement PS No 3 - Pump 1 (1997-25yrs)			100%	100%	8000								8000																							
SPS Pump Replacement PS No 3 - Pump 2 (1997-25yrs)			100%	100%	8000								8000																							
SPS Pump Replacement PS No 4 - Pump 1 (2003-25yrs)			100%	100%	6000														6000																	
SPS Pump Replacement PS No 4 - Pump 2 (2007-25yrs)			100%	100%	6000																		6000													
SPS Pump Replacement PS No 5 - Pump 2 (2014-20yrs)			100%	100%	6000																				6000											
SPS Pump Replacement PS No 5 - Pump 1 (2014-20yrs)			100%	100%	6000																				6000											
SPS Pump Replacement PS No 6 - Pump 1 (2013-15yrs)			100%	100%	6000														3000															3000		
SPS Pump Replacement PS No 6 - Pump 2 (2013-15yrs)			100%	100%	6000														3000															3000		
Extend Reuse Scheme supply main - Culcairn Golf Club 100mm x 300m	100%			100%	20000		20000																													
Re-use Scheme Delivery Pumps Replacement (2008-25yrs)			100%	100%	30000																			30000												
Re-use Scheme Dosing Pumps Replacement (2008-10yrs)			100%	100%	18000				6000										6000										6000							
Re-use Scheme Storage Dam Rock Beaching	100%			100%	25000	25000																														
Re-use Scheme Analyser Replacement (2008-15yrs)			100%	100%	16000									8000															8000							
STP Sludge Dam Mono Pump Replacement (1971-45yrs) then every 25yrs			100%	100%	20000		10000																									10000				
STP Blower Replacement (1996-25yrs)			100%	100%	5000							5000																								
Telemetry	100%			100%	50000						50000																									
Other Minor Works					0																															
					0																															
				Sub Total	$1,595,500	$66,500	$113,000	$45,000	$26,000	$0	$50,000	$295,000	$16,000	$8,000	$0	$0	$0	$0	$18,000	$0	$0	$80,000	$46,000	$80,000	$62,000	$50,000	$70,000	$50,000	$64,000	$50,000	$50,000	$150,000	$50,000	$56,000	$50,000	$50,000
Henty Sewerage Scheme																																				
STW replace chain mesh security fence damaged by flooding			100%	100%	10000	10000																														
SPS 1 Pump Station Replacements (ladder & discharge bends)			100%	100%	12000	12000																														
New sewer point Crn Lyne & Comer St Henty		100%		100%	1000	1000																														
Henty STW -replace badly corroded acid dosing shed			100%	100%	15000		15000																													
Henty STW -replace bearing assembly on rotors			100%	100%	18000		18000																													
Additional Handrails on Walkways & Rotors (WH&S)	100%			100%	3000		3000																													
Replace tanks on aerators STW pasveer channel			100%	100%	25000			25000																												
Switchboard Upgrade/Replacement (SPS 1) 2010-30yrs	50%		50%	100%	10000																										10000					
Replace PLC & Switch Board Upgrade (2003-20yrs)	50%		50%	100%	40000									40000																						
STP Overhaul/Renewals (1971-50yrs)			100%	100%	264000							264000																								
Sewer Main Relining/Replacement (1971-60yrs)			100%	100%	814000	24000	20000	20000														50000	50000	50000	50000	50000	50000	50000	50000	50000	50000	50000	50000	50000	50000	50000
SPS Pump Replacement PS No 1 - Pump 1 (1996-25yrs)			100%	100%	10000							10000																								
SPS Pump Replacement PS No 1 - Pump 2 (1996-25yrs)			100%	100%	10000							10000																								
Re-use Scheme Delivery Pumps Replacement (2000-25yrs)			100%	100%	15000											15000																				
Re-use Scheme Dosing Pumps Replacement (2008-10yrs)			100%	100%	18000				6000										6000										6000							
Re-use Scheme Analyser Replacement (2008-15yrs)			100%	100%	16000									8000															8000							
STP Sludge Dam Mono Pump Replacement (2008-25yrs)			100%	100%	10000																			10000												
Telemetry	100%			100%	20000						20000																									
Other Minor Works					0																															
					0																															
				Sub Total	$1,311,000	$47,000	$56,000	$45,000	$6,000	$0	$20,000	$284,000	$0	$48,000	$0	$15,000	$0	$0	$6,000	$0	$0	$50,000	$50,000	$60,000	$50,000	$50,000	$50,000	$50,000	$64,000	$50,000	$60,000	$50,000	$50,000	$50,000	$50,000	$50,000
Holbrook Sewerage Scheme																																				
Sewer Main Relining/Replacement (1969-60yrs)			100%	100%	880000	20000	20000	20000	20000												50000	50000	50000	50000	50000	50000	50000	50000	50000	50000	50000	50000	50000	50000	50000	50000
STW outfall line install manholes for rodding purposes.	100%			100%	25000	25000																														
Spray pump for inlet screens	100%			100%	18000	18000																														
SPS 1 Pump Refurbishment for pump 1,2,3			100%	100%	12000	12000																														
Holbrook STW - Install white water drop pipe from digester	100%			100%	6000		6000																													
Holbrook SPS 1- Replace old switch controller for pumps			100%	100%	12000		12000																													
Holbrook STW- repair leaking effluent pond			100%	100%	20000		20000																													
Holbrook STW- install new level sensor on mono pump	100%			100%	2500		2500																													
Switchboard Upgrade (SPS 1,2,3,) 2003/2009/2011-30yrs	50%		50%	100%	30000																			10000						10000		10000				
STP Overhaul/Renewals (1969-50yrs)			100%	100%	257500					257500																										
SPS Pump Replacement PS No 1 - Pump 1 (1993-25yrs)			100%	100%	36000				18000																									18000		
SPS Pump Replacement PS No 1 - Pump 2 (1993-25yrs)			100%	100%	36000				18000																									18000		
SPS Pump Replacement PS No 2 - Pump 1 (2011-25yrs)			100%	100%	6000																						6000									
SPS Pump Replacement PS No 2 - Pump 2 (2003-25yrs) BF 2017			100%	100%	12000			6000																									6000			
SPS Pump Replacement PS No 3 - Pump 1 (2013-25yrs)			100%	100%	6000																								6000							
SPS Pump Replacement PS No 3 - Pump 2 (1995-25yrs) BF 2017			100%	100%	12000			6000																									6000			
SPS Pump Replacement PS No 4 - Pump 1 (2012-25yrs)			100%	100%	6000																							6000								
SPS Pump Replacement PS No 4 - Pump 2 (2012-25yrs)			100%	100%	6000																							6000								
Sludge Digester Mixer Replacement (2010-10yrs)			100%	100%	42000						14000										14000										14000					
Sludge Dam Pump Replacement (2006-10yrs)			100%	100%	6000		2000										2000										2000									
Humas Tank Mono Pump Replacement (2013-25yrs)			100%	100%	10000																								10000							
Humas Tank Submersible Pump Replacement (2013-15yrs)			100%	100%	4000														2000															2000		
Upgrade/Replacement Trickling Filter Central Column Assembly	50%		50%	100%	24000											8000										8000										8000
Telemetry	100%			100%	40000						40000																									
Other Minor Works					0																															
					0																															
				Sub Total	$1,509,000	$75,000	$62,500	$32,000	$56,000	$257,500	$54,000	$0	$0	$0	$0	$8,000	$2,000	$0	$2,000	$0	$64,000	$50,000	$50,000	$60,000	$50,000	$58,000	$58,000	$62,000	$66,000	$60,000	$64,000	$60,000	$62,000	$88,000	$50,000	$58,000

Revised 7/5/205						1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Burrumbuttock Sewerage Scheme	**Improve LOS**	**Growth**	**Renewals**	**Check**	**Total estimate**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**	**2036**	**2037**	**2038**	**2039**	**2040**	**2041**	**2042**	**2043**	**2044**	**2045**
Jindera Sewerage Scheme																																				
Install New Inlet Works (screening & fencing)	100%			100%	**110000**	110000																														
Distribution pit modifications at STW ponds			100%	100%	**15000**	15000																														
Stock proof fence replacement western side STW			100%	100%	**8000**	8000																														
Extend sewer main to Jindera Preschool		100%		100%	**15000**	15000																														
Supply & install MH Adjacent Jindera Preschool		100%		100%	**4000**		4000																													
Jindera STW - replace irrigation valves on evaporation ponds			100%	100%	**10000**		10000																													
Option 4-Build New 1700 EP Activated Sludge Plant/Effluent Reuse Scheme	25%	75%		100%	**4175000**						4175000																									
SPS Pump Replacement PS No 1 - Pump 1 (2014-25yrs)			100%	100%	**18000**																									18000						
SPS Pump Replacement PS No 1 - Pump 2 (2014-25yrs)			100%	100%	**18000**																									18000						
SPS Pump Replacement PS No 2 - Pump 1 (2014-25yrs)			100%	100%	**6000**																									6000						
SPS Pump Replacement PS No 2 - Pump 2 (2014-25yrs)			100%	100%	**6000**																									6000						
SPS Pump Replacement PS No 3 - Pump 1 (2014-25yrs)			100%	100%	**6000**																									6000						
SPS Pump Replacement PS No 3 - Pump 2 (2014-25yrs)			100%	100%	**6000**																									6000						
SPS Pump Replacement PS No 4 - Pump 1 (2014-25yrs)			100%	100%	**6000**																									6000						
SPS Pump Replacement PS No 4 - Pump 2 (2014-25yrs)			100%	100%	**6000**																									6000						
SPS Pump Replacement PS No 5 - Pump 1 (2006-15yrs)			100%	100%	**6000**							3000															3000									
SPS Pump Replacement PS No 5 - Pump 2 (2006-15yrs)			100%	100%	**6000**							3000															3000									
SPS Pump Replacement PS No 6 - Pump 1 (2011-15yrs)			100%	100%	**6000**												3000															3000				
SPS Pump Replacement PS No 6 - Pump 2 (2011-15yrs)			100%	100%	**6000**												3000															3000				
Switchboard Upgrade/Replacement (SPS 1,2,3,4) 1986-40yrs	50%		50%	100%	**40000**												40000																			
Switchboard Upgrade/Replacement (SPS 5,6) 2006/2011-30yrs	50%		50%	100%	**20000**																						10000					10000				
Telemetry	100%			100%	**40000**						40000																									
Other Minor Works					**0**																															
					0																															
				Sub Total	$4,533,000	$148,000	$14,000	$0	$0	$0	$4,215,000	$6,000	$0	$0	$0	$0	$46,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$16,000	$0	$0	$72,000	$0	$16,000	$0	$0	$0	$0
Walla Sewerage Scheme																																				
SPS 1,2,3,4 &STW Backflow Prevention	100%			100%	**11000**	11000																														
Upgrade SPS valve pit lids to comply with WHS	20%		80%	100%	**15000**	15000																														
Replace PLC & Switch Board Upgrade (2003-20yrs)	50%		50%	100%	**40000**									40000																						
Additional Handrails on Walkways & Rotors (WH&S)	100%			100%	**3000**		3000																													
STP Overhaul/Renewals (1981-50yrs)			100%	100%	**300000**																	300000														
Sewer Main Relining/Replacement (1981-60yrs)			100%	100%	**280000**	10000		20000	20000																							30000	50000	50000	50000	50000
SPS Pump Replacement PS No 1 - Pump 1 (2014-25yrs)			100%	100%	**11000**																									11000						
SPS Pump Replacement PS No 1 - Pump 2 (2014-25yrs)			100%	100%	**11000**																									11000						
SPS Pump Replacement PS No 2 - Pump 1 (2014-25yrs)			100%	100%	**6000**																									6000						
SPS Pump Replacement PS No 2 - Pump 2 (2014-25yrs)			100%	100%	**6000**																									6000						
SPS Pump Replacement PS No 3 - Pump 1 (1995-25yrs)			100%	100%	**8000**						8000																									
SPS Pump Replacement PS No 3 - Pump 2 (1995-25yrs)			100%	100%	**8000**						8000																									
SPS Pump Replacement PS No 4 - Pump 1 (2003-25yrs)			100%	100%	**8000**														8000																	
SPS Pump Replacement PS No 4 - Pump 2 (2014-25yrs)			100%	100%	**8000**																									8000						
Switchboard Upgrade/Replacement (SPS 1,2,4) 1981-40yrs	50%		50%	100%	**30000**							30000																								
Switchboard Upgrade/Replacement (SPS 3) 1995-30yrs	50%		50%	100%	**10000**											10000																				
STP Sludge Dam Mono Pump Replacement (1981-45yrs)			100%	100%	**10000**												10000																			
Telemetry	100%			100%	**40000**						40000																									
Other Minor Works					**0**																															
					0																															
				Sub Total	$805,000	$36,000	$3,000	$20,000	$20,000	$0	$56,000	$30,000	$0	$40,000	$0	$10,000	$10,000	$0	$8,000	$0	$0	$300,000	$0	$0	$0	$0	$0	$0	$0	$42,000	$0	$30,000	$50,000	$50,000	$50,000	$50,000
				Total Improved LOS	**1733250**	240000	47500	0	10000	0	1233750	15000	0	40000	10000	9000	20000	0	0	0	10000	10000	0	5000	0	4000	15000	0	0	5000	5000	40000	10000	0	0	4000
				Total Growth	**3173750**	16000	16500	0	0	0	3131250	0	0	0	0	0	0	0	0	0	0	10000	0	0	0	0	0	0	0	0	0	0	0	0	0	0
				Total Renewals	**4961500**	151500	194500	142000	108000	257500	30000	600000	16000	56000	0	24000	38000	0	34000	0	74000	460000	146000	195000	162000	154000	189000	162000	194000	269000	169000	266000	212000	244000	200000	214000
				Total	$ 9,868,500.00	$407,500	$258,500	$142,000	$118,000	$257,500	$4,395,000	$615,000	$16,000	$96,000	$10,000	$33,000	$58,000	$0	$34,000	$0	$84,000	$480,000	$146,000	$200,000	$162,000	$158,000	$204,000	$162,000	$194,000	$274,000	$174,000	$306,000	$222,000	$244,000	$200,000	$218,000

Water Supply 30 years Capital Works Program

Revised 7/5/2015

Financial year ending

						Current F/Y 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Culcairn Water Supply Scheme	**Improve LOS**	**Growth**	**Renewals**	**Check**	**Total estimate**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**	**2036**	**2037**	**2038**	**2039**	**2040**	**2041**	**2042**	**2043**	**2044**	**2045**
Watermain Replacement			100%	100%	**1509500**	29500	30000	50000	50000	50000	50000	50000	50000	50000	50000	50000	50000	50000	50000	50000	50000	50000	50000	50000	50000	50000	50000	50000	50000	50000	50000	50000	50000	50000	50000	50000
Watermain Extension/Loop Mains	75%	25%		100%	**40000**		10000		10000		10000		10000																							
Reservoir Black St Upgrade			100%	100%	**300000**		300000																													
Water Meter Replacement (25 yrs.)			100%	100%	**120000**	10000	10000	10000																				10000	10000	10000	10000	10000	10000	10000	10000	10000
Replacement Bore for bore 1			100%	100%	**197000**	197000																														
New Variable Speed Drive & Switch Gear for Bore 1 Replacement			100%	100%	**13200**	13200																														
1 x Filling station displays & software upgrade	25%		75%	100%	**4000**	4000																														
Old Artesian well condition assessment report & disconnect water main from main supply			100%	100%	**10000**	10000																														
Investigate pressure system for Culcairn WS	100%			100%	**30000**	30000																														
New meter readers for new water billing software			100%	100%	**2000**	2000																														
Culcairn WTP- replace chlorine dosing shed			100%	100%	**7000**		7000																													
Culcairn -drink station	100%			100%	**5000**		5000																													
Water Treatment Plant Building Upgrade	25%		75%	100%	**10000**	10000																														
Bore 2 - install security fence	100%			100%	**5000**		5000																													
Culcairn recreation ground upgrade water mains & irrigation wiring	25%		75%	100%	**20000**		20000																													
Feasibility study - connect to RWCC	100%			100%	**5000**		5000																													
Bore 2 Pump Replacement (2011- 6 yrs.)			100%	100%	**60000**			12000						12000						12000						12000						12000				
Lift Pump Replacement (2004 - 25 yrs.)			100%	100%	**13000**															13000																
Aerator Tower Replacement (30 yrs.)			100%	100%	**70000**																		70000													
Chlorine Dosing Pump (2007 - 8 yrs.)			100%	100%	**16000**	4000								4000								4000								4000						
Switch Board Upgrade (2006 - 20 yrs.)	100%			100%	**30000**												30000																			
Telemetry	100%			100%	**30000**						30000																									
Steel Reservoir Painting			100%	100%	**70000**											70000																				
Water Service Replacement in conjunction with water main replacement			100%	100%	**320000**	20000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000
					0																															
					0																															
				Sub Total	$2,886,700	$329,700	$402,000	$82,000	$70,000	$60,000	$100,000	$60,000	$70,000	$76,000	$60,000	$130,000	$90,000	$60,000	$60,000	$85,000	$60,000	$64,000	$130,000	$60,000	$60,000	$72,000	$60,000	$70,000	$70,000	$74,000	$70,000	$82,000	$70,000	$70,000	$70,000	$70,000
Villages Water Supply Scheme																																				
Loop Main Bungowannh Road	75%	25%		100%	**18000**	18000																														
Flow Meter Jindera Gap PS	100%			100%	**15000**	15000																														
Logger for Dights Forest Road Meter	100%			100%	**6000**	6000																														
4 x Filling stations displays & software upgrade	25%		75%	100%	**18000**	18000																														
Hueske Rd contribution to upgrade WM to 150mm X 1130m	25%	75%		100%	**40000**	40000																														
Goulburn St Jindera water main replacement 100mm x 220m			100%	100%	**25000**	25000																														
Ortlip Rd Glenellen water main replacement 50mm to 100mm x 340m		25%	75%	100%	**25000**	25000																														
New meter readers for new water billing software			100%	100%	**4000**	4000																														
VWS Pump 1 replacement (1994 - 25 yrs.)			100%	100%	**25000**					25000																										
VWS Pump 2 replacement (2002 - 25 yrs.)			100%	100%	**25000**													25000																		
Switch Board Jindera Gap Upgrade (2006 - 20 yrs.)	50%		50%	100%	**30000**												30000																			
Telemetry	100%			100%	**100000**						100000																									
Luther's Road Loop Main (to Colonial Drive)	75%	25%		100%	**150000**	150000																														
Molkentin Loop Main	75%	25%		100%	**80000**			80000																												
Other Watermain Extension/Loop Mains/Replacements	50%	25%	25%	100%	**95000**		45000			50000																										
Investigate Chlorine Dosing System	100%			100%	**20000**	20000																														
Chlorine Booster Station Jindera Gap Reservoir	100%			100%	**60000**	60000																														
Chlorine Booster Station Other Reservoir (3)	100%			100%	**40000**			40000																												
Cut in New Valves (Trunk Mains)	100%			100%	**25000**		25000																													
VWS reservoirs - replace faded water level indicators on all reservoirs			100%	100%	**5000**		5000																													
Little Brock Reservoir - Relocate gate entrance (WH&S)			100%	100%	**3000**		3000																													
Water Meter Replacement (25 yrs.)			100%	100%	**170000**	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000															10000	10000	10000	10000	10000	10000	10000
Upgrade Access Covers VWS PS (OH&S)			100%	100%	**30000**		30000																													
5 - VWS Reservoir Upgrades/Replacements Roofs (1983-50yrs)			100%	100%	**100000**																			100000												
VWS PS Building Upgrade (1983-35yrs)	25%		75%	100%	**5000**				5000																											
Other Minor Works					**0**																															
Little Brock Reservoir Repair Horizontal Cracking			100%	100%	**25000**	25000																														
Feasibility study - connect to RWCC	100%			100%	**20000**		20000																													
					0																															
				Sub Total	$1,159,000	$416,000	$138,000	$130,000	$15,000	$85,000	$110,000	$10,000	$10,000	$10,000	$10,000	$0	$30,000	$25,000	$0	$0	$0	$0	$0	$100,000	$0	$0	$0	$0	$0	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000
				Total Improved LOS	**693750**	275000	95000	100000	8750	25000	137500	0	7500	0	0	0	45000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
				Total Growth	**132000**	78250	13750	20000	2500	12500	2500	0	2500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
				Total Renewals	**2979950**	392450	431250	92000	73750	107500	70000	70000	70000	86000	70000	130000	75000	85000	60000	85000	60000	64000	130000	160000	60000	72000	60000	70000	70000	84000	80000	92000	80000	80000	80000	80000
				Total	3,805,700	$745,700	$540,000	$212,000	$85,000	$145,000	$210,000	$70,000	$80,000	$86,000	$70,000	$130,000	$120,000	$85,000	$60,000	$85,000	$60,000	$64,000	$130,000	$160,000	$60,000	$72,000	$60,000	$70,000	$70,000	$84,000	$80,000	$92,000	$80,000	$80,000	$80,000	$80,000