GLADSTONE REGIONAL COUNCIL

DROUGHT MANAGEMENT PLAN

October 2009

INFRASTRUCTURE SERVICES – WATER & SEWERAGE

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Certification:

CERTIFICATION OF DROUGHT MANAGEMENT PLAN

Water Service Provider's Name: **Gladstone Regional Council**

Water Service Provider's Registered Number: **SP 483**

The attached document has been prepared as the Drought Management Plan for Gladstone Regional Council.

I certify that this Drought Management Plan is appropriate for the infrastructure and the registered services of Gladstone Regional Council.

In determining the appropriateness of the Drought Management Plan, Council has taken the following matters into account:

1. The Drought Management Plan complies with, and addresses, all requirements of Water Supply (Safety and Reliability) Act 2008 Chapter 2 Part 4 and the Guidelines for the Preparation of a Drought Management Plan;

2. That the proposed financial arrangements put in place by Gladstone Regional Council should be sufficient to implement the Drought Management Plan as presented; and

3. That the strategies, processes, procedures and actions in this plan have been designed to minimise the economic and social impacts on our customers.

Certified by[1]:

……..
Cale Dendle
Acting Chief Executive Officer
GLADSTONE REGIONAL COUNCIL

1 Section 429D of the Water Act 2000 (as amended) requires the Drought Management Plan to be certified by the Water Service Provider's Executive Officer.)

1. Introduction

The overall objective of Council as a water service provider is to ensure that water resources are managed effectively and efficiently for the long term. Council is not only obliged under the Water Supply (Safety and Reliability) Act 2008 to prepare a Drought Management Plan but see it as an important management tool to ensure the ongoing economic, social and environmental wellbeing of the region.

The water services within Gladstone Regional Council are separated into Lake Awoonga, Miriam Vale, Agnes Water/Seventeen Seventy and Bororen Schemes. Gladstone Area Water Board (GAWB) is the bulk water service provider for the Lake Awoonga Scheme and this policy has been developed to reflect the objectives of GAWB's Drought Management Plan.

Council is in the process of collating the historical data from the three previous Councils. Some of the historical information is based on calendar years and others on financial years. There are also some contradictory data in historical reports and spreadsheets. Not all the information in this plan has been verified. The volumetric figures used in this plan are generally based on water supplied and not consumed unless assumptions had to be made due to insufficient data.

2. Purpose of the Plan

The purpose of this plan is:

- To ensure that Gladstone Regional Council as a service provider have strategies and management plans in place to minimise the impact of water shortages caused by drought.
- To encourage customers and the wider community within the Gladstone Regional Council area to conserve water; and
- Meet Councils obligations under the Water Supply (Safety and Reliability) Act 2008 for the development of a Drought Management Plan.

3. Policy Framework

This Drought Management Plan is part of Council's overall Total Management Plan/Strategic Asset Management Plan (TMP/SAMP). The broader TMP/SAMP document contains a wide range of strategies and initiatives which are designed to ensure long term sustainability. In this sense, the Drought Management Plan has been integrated into the Council's TMP/SAMP and, in particular, has been taken into consideration in the development of the financial management, infrastructure planning, asset renewal, risk management and customer service components of the TMP/SAMP.

4. Systems and Services Overview:

4.1 Registered Water Services

Gladstone Regional Council provides retail services to various communities within the region. The communities and associated scope of services provided are summarised in Table 1 below. Table 2 indicates the existing and projected demand of each scheme. The extent of the water supply areas are illustrated in Annexure B.

TABLE 1 : Overview of Schemes and Associated Scope of Services Provided

Scheme Name	Community Served	No of connections	Potable/Non-potable	Pressurised on demand	Constant flow
Lake Awoonga	Mt Larcom	17 684 (07/08)	Potable	✔	
	Benaraby		Potable	✔	
	Calliope		Potable	✔	
	Boyne Island		Potable	✔	
	Gladstone		Potable	✔	
	Wurdong Heights		Potable	✔	
	Beecher/Burua		Potable		✔
	Tannum Sands		Potable	✔	
Miriam Vale	Miriam Vale	361	Potable	✔	
Agnes Water - Seventeen Seventy	Agnes Water	1750	Potable	✔	
	Seventeen Seventy		Potable	✔	
Bororen	Bororen	144	Non-potable	✔	

TABLE 2 : Existing and Projected Supply

Scheme Name	Water supply ML/annum		
	07/08	5 Years	10 Years
Lake Awoonga	7 642	10 850[a]	12 190[a]
Miriam Vale	40	41	41
Agnes Water - Seventeen Seventy	86[c]	313[b]	380[b]
Bororen	14	17	17

[a] Source - *Central Queensland Urban Centre Water Use Target Study*, MWH, July 2009

[b] Source - *Agnes Water & Town of 1770 – Integrated Water Strategy Report*, Cardno, July 2006

[c] Not verified, more likely to be in the order of 100ML/annum

4.2 Infrastructure Detail

The Gladstone Area Water Board supply Council with bulk potable water for the Lake Awoonga Scheme. The infrastructure from the source, including the treatment plant and storages, to the various delivery points belong to GAWB. Council owns the reticulation system required to service Council's customers for the Lake Awoonga Scheme and the entire infrastructure systems for the other schemes.

Key components of the water supply network are summarised in Table 3 and the schematics of each scheme are shown in Attachment C.

TABLE 3(a) : Summary of Water Supply Infrastructure – Lake Awoonga

Scheme Name		Lake Awoonga Scheme
Source (GAWB)		Name: Awoonga Dam Capacity: 770,400ML
Treatment Plant (GAWB)		Refer to GAWB DMP
Reservoirs	**Name and Capacity**	Round Hill 13.6ML Clinton Park 13.6ML N.R.G. 13.6ML Paterson St 4.5ML Ferris Hill 9.1ML Radar Hill 2.27ML Fisher St 2.27ML Broadacres 6ML Mt Elizabeth 6ML Silverdale 2.3ML Wurdong 3ML Mt Larcom 2 x 0.23ML
	Total capacity	= 76.67 Megalitres
Pump Stations		Auckland Pump Station Coronation Drive Booster Station Wilmot Pump Station
Length of Mains		546 km (as at June 2009)
Population Serviced		44 200
Annual Water Supplied		8 750 ML(2007/08)
Water Consumption/Capita		198 kL/annum (2007/08)

TABLE 3(b) : Summary of Water Supply Infrastructure – Miriam Vale

Scheme Name		Miriam Vale Scheme
Source		Baffle Creek Allocation: 77ML Thorne's Road Bore
Treatment Plant		Process: Coagulation, Flocculation, Sedimentation, Filtration, pH correction and Disinfection Capacity = 3L/s
Reservoirs	**Name and Capacity**	Elevated Tower 250kL
Length of Mains		13 km (as at June 2009)
Population Serviced		375
Annual Water Supplied		40 ML(2007/2008)
Water Consumption/Capita		106 kL/annum (2007/2008)

TABLE 3(c) : Summary of Water Supply Infrastructure – Agnes Water/Seventeen Seventy

Scheme Name	Agnes Water/Seventeen Seventy Scheme
Source	Springs Road Bores (4 bores) Red Pit Bores (2 bores)
Treatment Plants **Springs Road** **Red Pit**	 Process: Coagulation, Flocculation, Sedimentation, Filtration, pH correction and Disinfection Capacity = 4.5L/s Process: pH correction and disinfection Capacity = 2.5L/s
Reservoirs Name and Capacity	Reservoir Hill 1 x 4ML, 2 x 0.45ML
Length of Mains	29 km (as at June 2009)
Population Serviced	1750
Annual Water Consumption	86.1 ML(2007/08) [a]
Water Consumption/Capita	49.2 kL/annum (2007/08)

[a] Not verified, more likely to be in the order of 100ML/annum

TABLE 3(d) : Summary of Water Supply Infrastructure – Bororen

Scheme Name	Bororen Scheme
Source	Three operational Bores
Treatment Plant	Process: disinfection Capacity = 2L/s
Reservoirs Name and Capacity	186 kL
Pump Stations	Bororen WPS
Length of Mains	5 km (as at June 2009)
Population Serviced	147
Annual Water Consumption	13.66 ML (2007/08)
Water Consumption/Capita	92.93 kL/annum (2007/08)

5. Water Sources Assessment:

5.1 Lake Awoonga Scheme

5.1.1 Source/s

The principal water source for the scheme is Awoonga Dam on the Boyne River. The dam has an estimated total capacity of 770,400ML (to FSL) with an annual safe yield of 78,000ML.

The majority of water provided from Awoonga is supplied to industrial users around Yarwun Industrial Area, Gladstone City and Boyne Island. There is also provision for inter-basin transfer of raw water to the Callide Power Stations in the event of failure of the Callide Creek Dam.

GAWB has developed a hydrologic model which it uses to determine the volume of water that would be prospectively available from the Awoonga Dam under a variety of scenarios. The model has been used to identify "trigger levels" that represent a prediction of remaining volume in storage over a predetermined period. The Department of Environment and Resource Management (DERM) is in the process of further modelling to determine reliability of the available sources. Refer to GAWB's Drought Management Plan, September 2009 for detailed information.

5.1.2 Past Performance

Figure 1 shows the rainfall for the Gladstone Region and Figure 2 the corresponding dam levels. The region suffered a very significant drought between 1996 and 2003 where inflows to the dam were less than the driest 25% of years since rainfall records began in 1891. This event resulted in the implementation of water restrictions for the first time in the region's history. During this period, the water level in the Awoonga Dam fell to around 7.6% of the capacity of the current 40m dam.

In February 2003, rainfall events following cyclone Beni led to a significant increase in the water level at Awoonga Dam and the dam reached 62% of its full supply capacity. Subsequent inflows in the 2003/04 wet season resulted in further increases of the water level to 75% capacity.

The full assessment of Lake Awoonga can be found in Section 4 of Gladstone Area Water Board, Drought Management Plan September 2009. The GAWB DMP is attached as Annexure D

Figure 1 : Historical Rainfall events since 1938

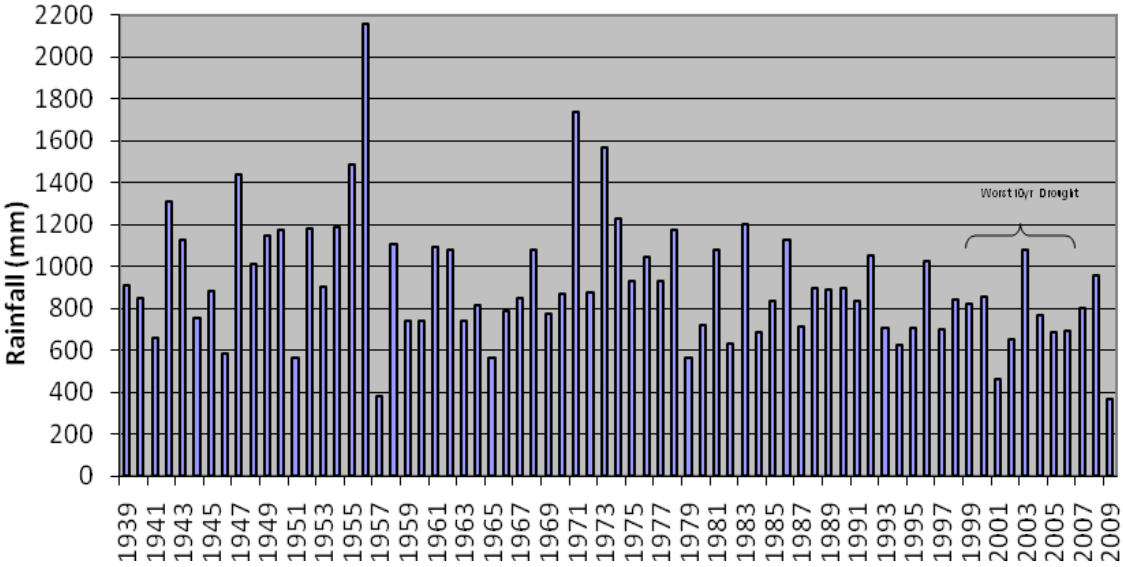
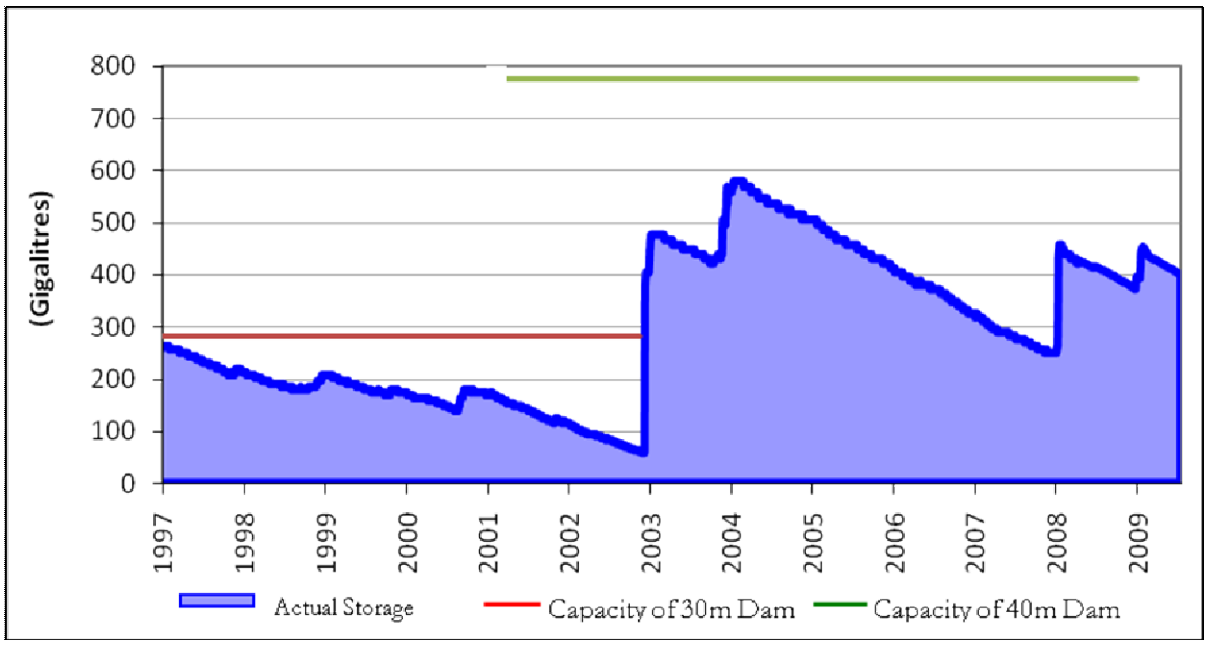


Figure 2 : Historical Storage at Awoonga Dam (1996-2009)



5.1.3 Alternative Supply

In the event of a prolonged drought, the following asset and non-asset options have been identified as potential solutions to ensure that the region not only have a sufficient supply but also maximises the use of its existing water resources.

Non-asset Solutions

The following management options have been developed by Council and feature in the Council's Total Management Plan (Demand Management Sub plan). These include:

- **Effluent Reuse:** Beneficial reuse of wastewater can reduce the demand for potable water supplies. Council has established long term contracts for beneficial reuse with Queensland Alumina and NRG's Gladstone Power Plant. These agreements maximise the beneficial usage of water resources (100% beneficial reuse) and minimise demand from existing surface water sources:
- Development of a **Pressure Reduction/Leak detection Strategy**: At present, losses (Non Revenue Water) in the different schemes varies between 5 and 20%. Council intend to develop a plan for management of system leakage to minimise the volume of saleable water lost from the system.

Asset Solution

Recognising the relevance of the region to the state economy, GAWB has undertaken a review of options which it may adopt in the event of severe water shortages. The regional supply option preferred by GAWB is to construct a pipeline to connect the Gladstone Region to the Fitzroy River. More information is available in the GAWB Drought Management Plan.

5.2 Miriam Vale

5.2.1 Sources

Council has a surface water licence for 72.74ML of water from Baffle Creek. This is the main source of water and is drawn through a well in the gravel bank of the creek. This is supplemented by approximately 10% bore water from Thorne's Rd bore.

The water from Baffle Creek contains high levels of Iron and Manganese with low alkalinity and conductivity whereas the water from Thorne's Road bore has high alkalinity and conductivity. Council blends the water from the two sources to improve the final water quality. The alkalinity and hardness levels of each source determine the blending ratio.

5.2.2 Past Performance

Yield analyses carried out by the Department of Natural Resources in August 1999, probably using the Rustic Runoff Model, indicate that this surface water supply has a reliability of about 90%.

Current usage is about half of the licensed capacity and Miriam Vale has not experienced any supply problems to date. This performance agrees with comments about the yield analyses, that for "a small storage on a large catchment, it is only small flows that are required to fill it".

There are no facilities to measure the water levels at Baffle Creek or Thorne's Road Bore. Council will install the required equipment in order to monitor the source.

The area has received above average rainfall for the last three years.

Year	Rainfall at Miriam Vale
2004	786mm
2005	772mm
2006	912mm
2007	974mm
2008	1147mm

5.2.3 Alternative Supply

Council is required to flush the mains on a regularly basis due to the precipitation of the iron in the mains. Council is investigating alternative treatment options to reduce the iron content in the water and reduce the amount of flushing required.

Carting water from either Gladstone or the proposed desalination plant at Agnes Water is the recommended emergency option should the Baffle Creek and Thorne's Road bore fail. The estimated cost to cart water from Gladstone is $30/kL.

5.3 Agnes Water/Seventeen Seventy

5.3.1 Sources

The current sources of water supply for Agnes Water and Seventeen Seventy are

- four operational bores in Springs Road
- one trench at Springs Road that is not being used at present.
- two operational bores at Red Pit.

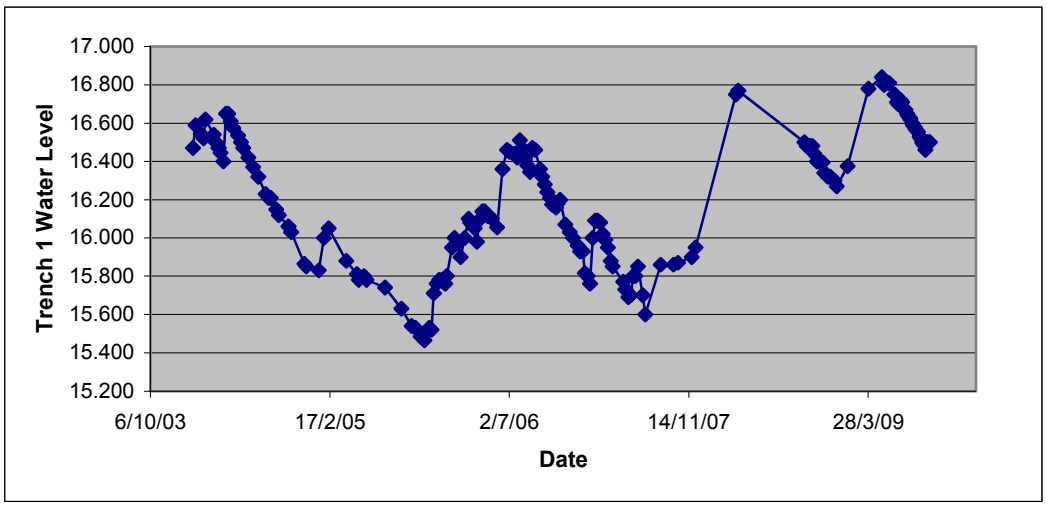
Work by Coleridge Water Engineers in 1994 estimated that the reliable yield of the trenches was 100 ML/yr, and a 100 hour pump tests indicated that the safe yield of the bores was 163ML/yr.

Various studies done by the previous Miriam Vale Shire Council indicated that the existing sources would not be sufficient for future demand and that alternative sources are required.

5.3.2 Past Performance

The bores are shallow (average 12m) and rainfall depend. The water levels of the bores are not measured at this stage, however Council is measuring the water levels in the trench which is an indication of the water table level. The trench levels shown in Figure 3 are based on raw data and is not converted to Australian Height Datum (AHD). The area received above average rainfall in 2008 and the current water table levels are high.

Figure 3 : Trench 1 Surface Water Level



5.3.3 Alternative supply

In 2005, Council adopted the Integrated Water Supply Strategy for Agnes Water and Seventeen Seventy. This strategy allows for the construction of a desalination plant as an additional source. The planning of this project is progressing well

5.4 Bororen

5.4.1 Source

The original source of water was a surface source form a weir on Lagoon Creek, about 500m south-east of the township. It is reportedly dated back to the 1900's and was used to supply water for steam locomotives.

The current water supply is obtained from four bores, one immediately south-east of the weir and three about 300m south-east of the weir. Each bore has a 150mm diameter casing with a capacity of 4L/sec.

Previous advice from the Department of Environment and Resource Management is that the area is underlain by granites and the aquifers basically consist of decomposed granite and sand. The groundwater in the Koorawatha area is known to be recharged by the creek. Council is not aware of any hydrologic model of the aquifer.

There is an irrigator within 1 km of the bores who has pumped in the order of 1ML/d of groundwater for the last five years.

5.4.2 Past Performance

The area experienced above average rainfall in 2008 which recharged the aquifer.

Year	Rainfall at Bororen	Depth to Ground Water
2003	1105mm	Not available
2004	653mm	Not available
2005	624mm	4.5m
2006	887mm	5.2m
2007	638mm	Not available
2008	1108mm	Not available

Council is in the process to improve monitoring of the water levels in the bores.

Council is not aware of any hydrologic model of the aquifer and there is concern about the long term security of these bores. The Central Queensland Regional Water Supply Strategy notes that the performance of this supply is "of concern". The proposed strategy is to keep a watching brief on the situation. However, there has not been any history of problems with the bore water supply.

The salinity of the groundwater will probably increase as the water level in the aquifer lowers. However it is expected to only reach marginal levels. The Bororen water supply is a non-potable scheme and the increased salinity is not expected to cause any concern to the residents.

5.4.3 Alternative Water Source

Council does not envisage the depletion of the source at current demand levels. Carting water from either Gladstone or the proposed desalination plant at Agnes Water is the recommended emergency option should the aquifer fail. As the supply is not a potable supply, Council will first consult with customers for the need as well as affordability of carting water to Bororen. The estimated cost to cart water from Gladstone is $30/kL.

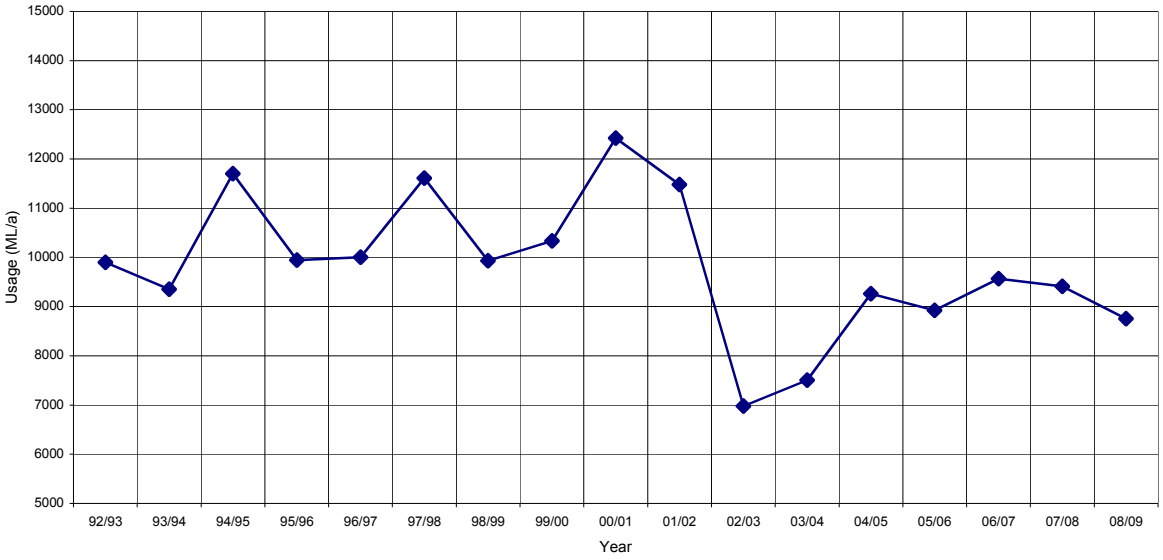
6. Water Supply

6.1 Lake Awoonga Scheme

6.1.1 Historical Supply

The following figure indicates the total usage for the Lake Awoonga Scheme. The effect of the restrictions applied in 2002/03 is very noticeable. The figures are obtained from various sources. Some of the sources have contradictory values and Council is in the process of reviewing some of the information.

Figure 4 : Total Water Supply for Lake Awoonga Scheme.



6.1.2 Projected Supply

The Department of Environment and Resource Management commissioned the services of MWH to develop a report, *Central Queensland Urban Centre Water Use Target Study*, MWH, July 2009, to address demand management in Central Queensland. The following information is an extract from the report.

TABLE 4 : Baseline Supply Forecast (ML/annum)

	2007	2026	2056
Lake Awoonga Scheme	9 528	14 588	26 126

6.2 Miriam Vale

6.2.1 Historical Supply

The data is based on the flow meter situated at Miriam Vale WTP measuring the treated water.

TABLE 5 : Water Supplied – Miriam Vale.

Year	Usage (ML/a)
98/99	32.1
99/00	30.9
00/01	45.5
01/02	51.9
02/03	45.2
03/04	44.7
04/05	40.3
05/06	36.5
06/07	37.4
07/08	40.4

6.2.2 Projected Supply

The growth rate in Miriam Vale is very low and the projected supply is assumed to be the same as the current supply, i.e. 41 ML/a

6.3 Agnes Water/Seventeen Seventy

6.3.1 Historical Supply

TABLE 6 : Water Supplied – Agnes Water/Seventeen Seventy

Year	Usage (ML/a)
98/99	53.8
99/00	65.6
00/01	82.3
01/02	85.1
02/03	87.9
03/04	97.4
04/05	111.4
05/06	105.6
06/07	110.8

07/08	-
08/09	106.2

6.3.2 Projected Supply

Various studies were commissioned by the previous Miriam Vale Shire Council. Following in Table 7 is the projected daily water requirements as stated in the report *Agnes Water & Town of 1770 – Integrated Water Strategy Report*, Cardno, July 2006.

TABLE 7 : Water Supply Forecast – Agnes Water/Seventeen Seventy

Year	Average Day (kL)
2006	375
2011	824
2016	1004
2021	1201
2026	1405
2031	1569
2036	1756
2046	2220
2056	2830
2066	3635
2076	4695
2086	5300

6.4 Bororen

6.4.1 Historical Supply

TABLE 8 : Water Supplied – Bororen

Year	Usage (ML/a)
99/00	14.5
00/01	16.5
01/02	15.4
02/03	17.1
03/04	18.5
04/05	18.1
05/06	17.9

06/07	17.0
07/08	16.2

6.4.2 Projected supply

There is no growth predicted for Bororen and the projected supply is 17 ML/a

7. Drought Management Plan

7.1 General

This Drought Management Plan addresses both Gladstone Regional Council's ongoing water conservation strategy and drought response plan. However the objective of this plan is more aligned as a drought response plan with the conservation strategies addressed as part of Council's Total Management Plan. This plan uses the GAWB DMP as the basis for the Lake Awoonga Scheme.

7.2 Restriction Trigger Levels

The most effective way to reduce water consumption is to introduce water restrictions. Under the Water Supply (Reliability and Safety) Act 2008, Section 41, Gladstone Regional Council has the legal power to determine, implement and enforce water restrictions.

The different Schemes will have different trigger levels. Lake Awoonga Scheme will use the GAWB trigger levels as the basis. The trigger levels for Miriam Vale will be based on the surface water level at Baffle Creek and the levels for Bororen based on the sub-surface levels at the bores. The previous trigger levels for Agnes Water/Seventeen Seventy area were based on the failure of the different sources. Although the desalination plant in theory drought proof Agnes Water/Seventeen Seventy, the permeate from the desalination plant will be blended with water from the bores. For this reason the trigger levels will be based on the sub-surface water levels of the bores.

Council does not have sufficient information to establish a correlation between the different trigger levels, available supply left and depletion rates. Monitoring of the sources will be improved to give Council a better understanding of the sources. Due to the insufficient information Council will not specify levels at which restrictions levels will be lifted. The Drought Management Team will make the decision to increase/reduce the restriction level based on various factors such as;

- Moisture available within the catchments
- Water levels of the source at the time of decision
- The usage at the time and the projected timeframe before next trigger is reached.
- Time of year, e.g. at the end of wet season.

TABLE 9 : Trigger Levels

Restriction Level	Lake Awoonga	Miriam Vale	Agnes Water/ Seventeen Seventy	Bororen
Trigger	Surface water level Lake Awoonga (AHD)	Surface water level below overflow at Baffle Creek	Standing Water Level at Trench 2	Standing Water Level at Bore 1 (AHD)
1	28.8	0 < d < 0.5	d < 16.75	52
2	25.2	0.5 < d < 1	16.5 < d < 16.0	49.5
3	23	1 < d < 1.5	16.0 < d < 15.8	47
4	22	d < 1.5	d < 15.8	46

7.3 Restriction Levels.

In order to avoid contradictory restriction levels across the region, the restrictions associated with each level will be the same for the whole region. The restrictions are attached as Annexure A.

8. Implementation

8.1 Drought Management Team

A Drought Management Team to be convened by the Chairman on an "as needs" basis to oversee the implementation of restrictions, review performance, conduct post event reviews and recommend any changes to the Drought Management Plan.

Chairperson: Chief Executive Officer

Team Members: Director Infrastructure Services
Manager Water and Sewerage
Demand Management Officer
Manager Community Relations

8.2 Authorisation Provision

Council has the authority under Section 41 of the Water Supply (Safety and Reliability) Act 2008 to restrict

- The volume of water taken by or supplied to a customer or type of customer; or
- The hours when water may be used on premises for stated purposes; or
- The way water may be used on premises.

Council will delegate the authority to the Chief Executive Officer to impose or vary the level of restriction and the Director of Infrastructure Services to approve exemptions.

8.3 Enforcement and Monitoring

Councils will adopt a philosophy of working with the community in implementing restrictions. Extensive education and communication will be utilised to ensure that the community is aware of the importance of water conservation, not only during droughts but as a lifestyle issue. Council will apply the following levels of enforcements;

a. Level 1 and Level 2 Restrictions
   - This level of enforcement is based on the fact that the customers in Gladstone Regional Council are already conserving water. The main purpose of this level of enforcement is to ensure that customers are not disadvantaged by doing the right thing.
   - Council will not conduct any patrols and will encourage the public to report offenders. Council will visit alleged offenders, investigate and issue a written warning if the offence is substantiated.
   - Repeat offenders may be issued an infringement notice.
   - High users will be notified with the objective to either investigate possible leaks or ways to reduce usage.

b. Level 3 Restrictions
   - The implementation of Level 3 indicates that the region is experiencing very dry conditions and water conservation will be the main objective.
   - The Drought Management Team will evaluate the reduction in demand as well as number of complaints received and develop an appropriate monitoring regime.
   - Offenders will be issued with on the spot infringement notices.

c. Level 4 Restrictions
   - Due to the seriousness of the situation which will require Level 4 restrictions, Council will conduct patrols to increase visible presence.
   - The Drought Management Team will evaluate compliance and based on the outcome make a decision in terms of the number of patrols and the time of day patrols will take place.
   - Offenders will be issued with on the spot infringement notices.
   - Council will consider the reduction in supply for repeat offenders or instigate legal action under the Water supply (Safety and Reliability) Act 2008.

8.4 Exemption

Exemptions to restrictions at each Level may be granted in writing by Gladstone Regional Council if it considers that reasonable grounds for such exemptions have been presented to it in writing. Any exemptions granted may be unconditionally or specific conditions and exemptions may be granted either totally or in part to the extent specified in GRC's approval notification letter.

Exemptions granted will be for a specified period of time not exceeding the term of the particular level of restrictions for which the exemption is granted. When restrictions are granted, unless otherwise specifically stated in the letter of approval, all approved exemptions will automatically be withdrawn when the level of restriction change and customers seeking further exemptions must re-apply. Customers granted exemptions will be provided with a letter of approval specifying details of the exemption, the reason for the exemption and the duration of the exemption. The approval notice must be available at all times on the site where the exemption is applicable.

8.5 Communications Plan

In addition to the regular strategies for communication of water related issues routinely implemented by Council, a more detailed communication strategy will be developed during drought periods. The scope of the communications strategy will include (but is not limited to) the following:

- Advertising the water restrictions in the local media.
- Distribute notices and educational material through "letter box drop" to all affected properties for Level 3 and Level 4 restrictions.
- Publishing daily and weekly consumption vs. targets in the local media and on Council's webpage for the duration of the restrictions

- Water awareness program for schools
- Contacting high users to make them aware of their high usage.

The ultimate strategy will be developed by the Drought Management Team.

8.6 External Agencies

The Drought Management Team will consult with external agencies as required for the different restriction levels. Following are some of the agencies Council will consult.

- Department of Environment and Resource Management
- Department of Infrastructure and Planning
- Gladstone Area Water Board

9. Review

Council will review the plan in totality at intervals as specified by the regulator. Council will further review the technical aspects, such as trigger levels, on an annual basis to incorporate monitoring information obtained through the year.

10. Definitions

alternative supply - means water sourced from other than the reticulated supply system such as bores, treated effluent or rainwater tanks.

approved water efficiency management plan - means a water efficiency management plan approved under chapter 2, part 3, division 6 of the *Water Act Supply (Safety and Reliability) Act 2008*.

garden - means any ground used for the cultivation of, or in which there are situated trees, shrubs, flowers, plants, vegetables, or vegetation of any kind including plants in pots or tubs and excluding lawn.

hand held hose - means a hose fitted with a trigger nozzle that is held by hand when it is used, including a high pressure water cleaning unit.

high pressure water cleaning unit - means a machine that operates a pump to increase the pressure of the water delivered from a trigger nozzle forming part of the machine.

lawn - means an expanse of grass-covered land that is usually associated with a garden, but does not include active playing surfaces.

Non-Residential Premises means premises that are not residential premises including business premises, industrial premises, factory premises, commercial office premises, Commonwealth, State and Local government premises, hotels, private training centres, nursing homes, hostels, public and private hospitals, caravan parks, Retirement Villages, churches and convents, halls and show grounds, neighbourhood centres, shopping centres, sporting clubs, medical and dental clinics, transport depots, nurseries, market gardens, turf farms, farms, education facilities (including universities, State and private schools), conference centres, childcare centres, kindergartens, parks and gardens of significance (as determined by a Council), heritage gardens and sportsgrounds, public beaches and the common property of a community title scheme under the *Body Corporate and Community Management Act 1997* or under the *Building Units and Group Titles Act 1980*.

paved surfaces - means areas such as streets, paths, driveways, patios, courtyards, verandas, decks or similar areas with surface areas of bitumen, concrete, rock, timber, masonry, metal or other hard material.

rainwater tank - means a covered tank with a minimum capacity of 1000 litres designed and installed specifically for the purpose of collecting rainwater from a building and any stand or other structure that supports the tank.

Residential Premises - means a house (single dwelling), townhouse, unit, block of flats, boarding house or any other form of permanent residential accommodation but does not include nursing homes, caravan parks, hostels or Retirement Villages.

reticulated (town) supply system - means a system of water distribution infrastructure operated by a service provider delivering water to premises in the local government area of the service provider, directly to the premises through the distribution system or indirectly to the premises in a water tank or other container containing water that has been sourced from the reticulated supply system; the system also includes a rainwater tank which contains any water sourced from the reticulated water supply system including rainwater tanks employing a trickle top-up system. However, the system does not include a rainwater tank that is connected to a house via an automatic switching valve for the purpose of maintaining supply to internal toilet cisterns, washing machine cold water taps or other fixtures specified in a local planning instrument where stored rainwater is sourced directly from an outlet from a tank or upstream from the automatic switching valve.

trigger nozzle - means a nozzle, controlled by a trigger, button, or similar mechanism which must be controlled by hand for the water to flow.

vehicle - means a conveyance that is designed to be propelled or drawn by any means and includes a motor vehicle, motorbike, trailer, caravan, boat or aircraft whether registered for use on roads or not.

watering can means a watering can or other similar vessel with a volume capacity of 20 litres or less.

water efficiency management plan (WEMP) means a plan:

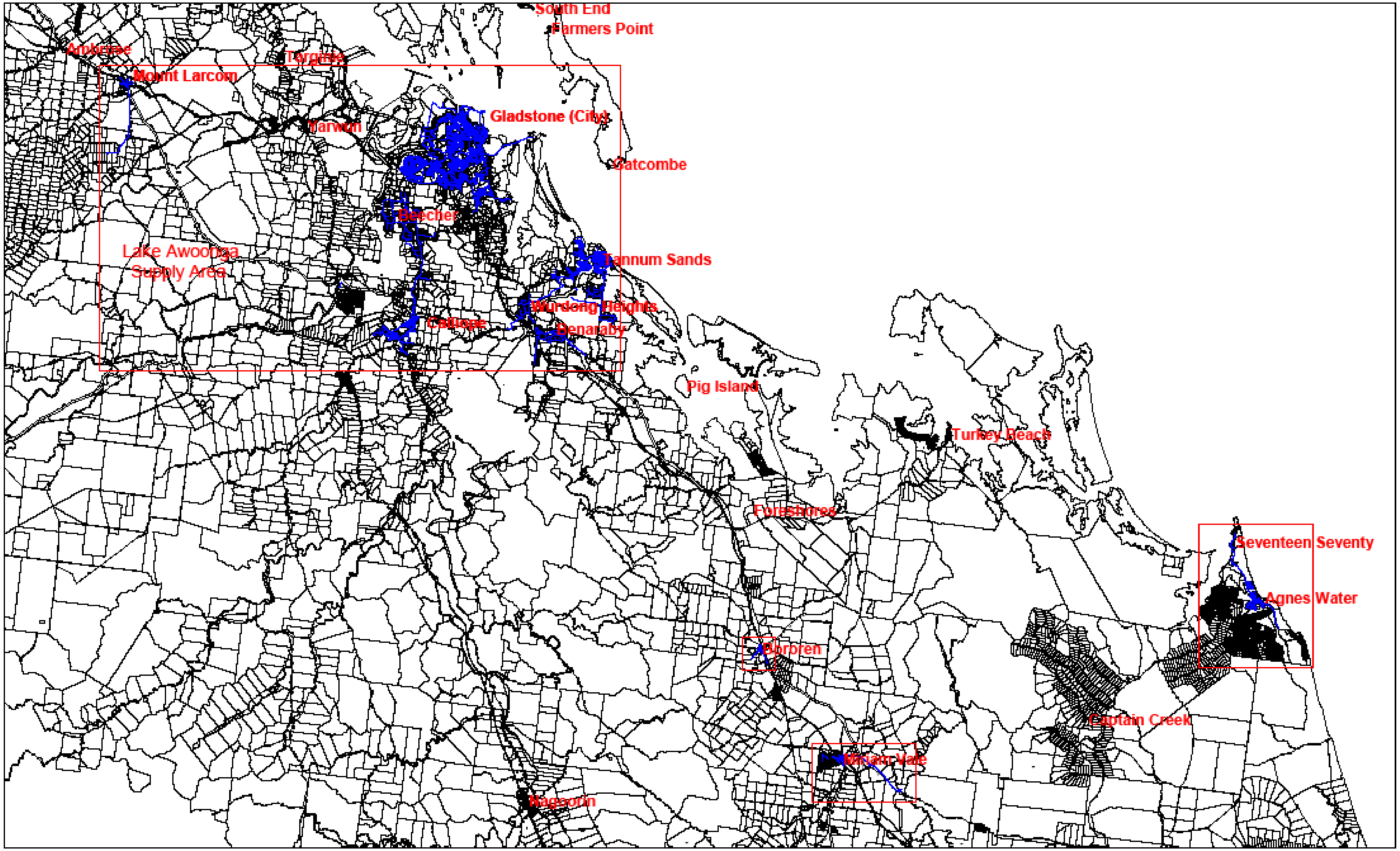
prepared in accordance with WEMP Guidelines published from time to time by the Commission; which has been submitted to the relevant service provider for approval in accordance with the requirements of the Water Supply Act; is capable of third party certification; contains details of how either a water consumption reduction or best practice water consumption efficiency is being achieved.

Appendix A – Water Restriction Levels

	Level 1	Level 2	Level 3	Level 4
Reduction Target	**5%**	**10%**	**35%**	**50%**
Activity	**Restriction on Residential Use of Water**			
RESIDENTIAL GARDENS AND LAWNS	Gardens and lawns can only be watered by means of: a) Sprinklers b) micro spray drip system c) hand held hoses, before 9am and after 5pm Watering cans or buckets can be used at any time	Gardens and lawns can only be watered by means of: a) hand held hoses, before 9am and after 5pm Watering cans or buckets can be used at any time Only one hand held hose allowed at any one time.	Gardens can only be watered by means of watering cans or buckets and only before 9am and after 5pm. Watering of lawns is not allowed.	No external watering of gardens or lawns.
SWIMMING POOLS - EXISTING	No restrictions	Swimming Pools and Spas can only be topped up by means of a hand held hose within water hours identified for residential gardens	Swimming Pools, wading pools and Spas must not be topped up unless from an alternative supply.	Swimming Pools, wading pools and Spas must not be topped up unless from an alternative supply.
SWIMMING POOLS - NEW	No restrictions	No restrictions	Newly constructed swimming pools or spas must not be filled unless from an alternative source	Newly constructed swimming pools or spas must not be filled unless from an alternative source
PAVED SURFACES	No restrictions	Paved surfaces can only be cleaned using high pressure water cleaning unit	Water must not be used to clean paved surfaces unless cleaning is required as a result of an accident, fire, health and safety reason or some other emergency	Water must not be used to clean paved surfaces unless cleaning is required as a result of an accident, fire, health and safety reason or some other emergency

	Level 1	Level 2	Level 3	Level 4
Reduction Target	**5%**	**10%**	**35%**	**50%**
Activity	**Restriction on Residential Use of Water**			
VEHICLE WASHING	Vehicle Washing by hand held hose or high pressure water cleaning unit.	Vehicle Washing by hand held hose or high pressure water cleaning unit.	No Vehicle Washing permitted except by a Commercial Vehicle washing facility with an approved WEMP except: where the water is used from a bucket filled directly from a tap to: a) clean only vehicle mirrors, vehicle lights, glass and number plates to maintain safe operation and satisfy number plate visibility requirements; or b) clean such other parts of a vehicle as required to comply with statutory or regulatory obligations; or c) spot clean the body of a vehicle to remove potentially paint	No Vehicle Washing permitted except by a Commercial Vehicle washing facility with an approved WEMP except: where the water is used from a bucket filled directly from a tap to: a) clean only vehicle mirrors, vehicle lights, glass and number plates to maintain safe operation and satisfy number plate visibility requirements; or b) clean such other parts of a vehicle as required to comply with statutory or regulatory obligations; or c) spot clean the body of a vehicle to remove potentially paint

	Level 1	Level 2	Level 3	Level 4
Reduction Target	**5%**	**10%**	**35%**	**50%**
Activity	**Restriction on Non Residential Premises**			
COMMERCIAL BUSINESS	Must investigate measures to reduce water usage and pro- actively reduce consumption Residential restriction will apply for all external activities.	Must reduce water consumption with 10% unless an approved WEMP indicates reduction is not feasible. Residential restriction will apply for all external activities.	Must reduce water consumption with 35% unless an approved WEMP indicates reduction is not feasible. Residential restriction will apply for all external activities.	Must reduce water consumption with 50% unless an approved WEMP indicates reduction is not feasible. Council might restrict externals usage of certain facilities such as sport clubs. Residential restriction will apply for all external activities.
COUNCIL PARKS AND GARDENS AND SPORTS GROUNDS	No restrictions	As approved by Council	As approved by Council	As approved by Council
PUBLIC HEALTH PURPOSES	No restrictions	No restrictions	No restrictions	As approved by Council
DEVELOPMENT SITES	No restrictions	No restrictions	An alternative supply must be used	An alternative supply must be used
WATER TANKERS	No restrictions	No restrictions	Water only to be used for domestic purposes.	Water only to be used for domestic purposes.
OTHER OUTDOOR USAGE. **Builders, concreters, building cleaners, landscaping, pet wash etc.**	No restrictions	No restrictions	Council approval required	Council approval required.



Gladstone Regional Council

Originally A3 Size

Annexure B
Gladstone Regional Council
Water Supply Schemes

MAP SCALE

Scale 1:300,000

2 0 2 4 6 8 10 12 14 16 km

Map Produced On: 26/10/2009

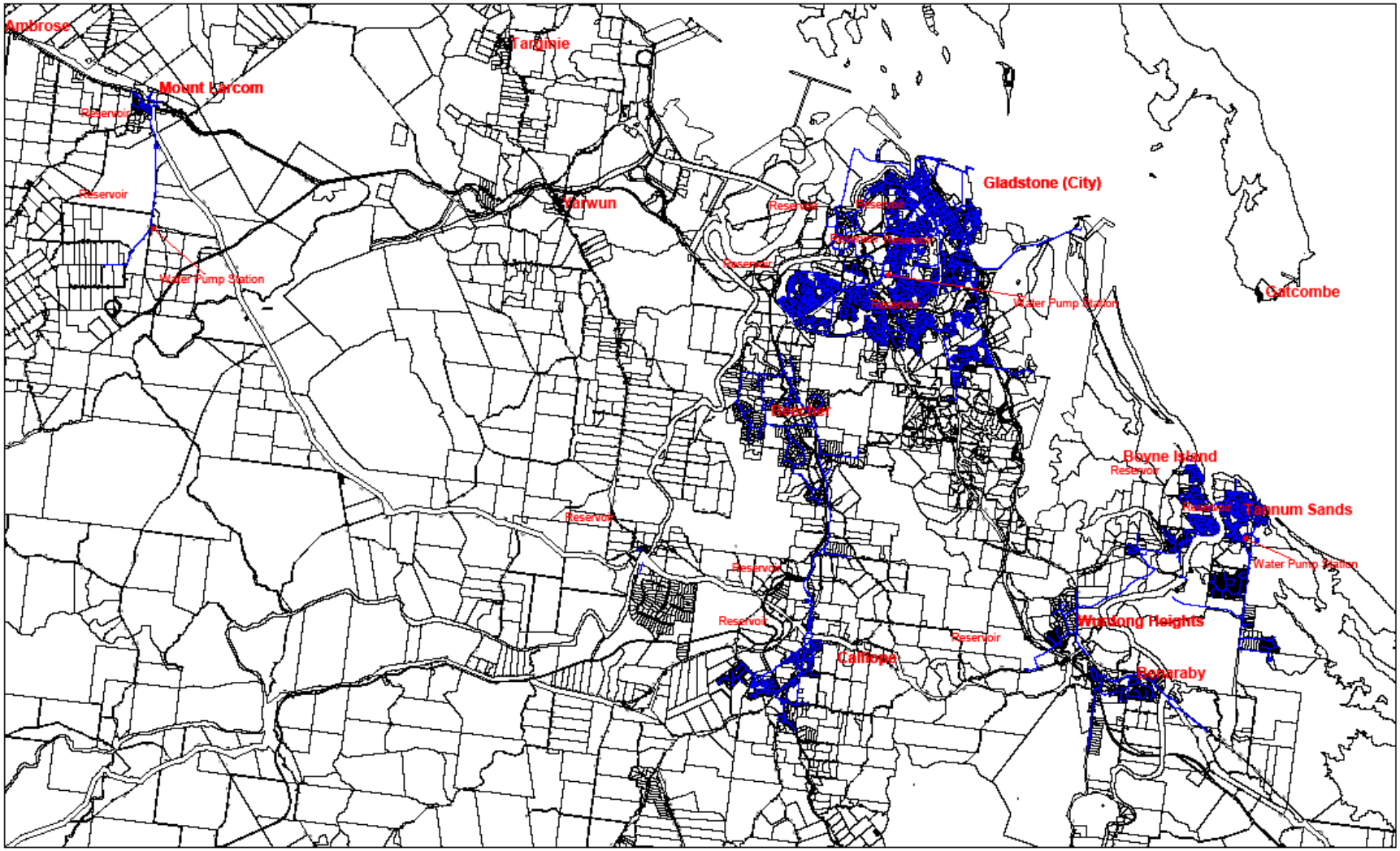
NORTH

GDA

Calliope Office

PO Box 231
Calliope Q 4680

Phone: 07 4975 8100
Fax: 07 4975 7106


Ambrose
Targnie
Mount Larcom
Reservoir
Reservoir
Water Pump Station
Yarwun
Gladstone (City)
Reservoir
Reservoir
Reservoir
Reservoir
Reservoir
Water Pump Station
Calcombe
Clinton
Boyne Island
Reservoir
Reservoir
Tannum Sands
Water Pump Station
Reservoir
Reservoir
Reservoir
Reservoir
Wurdong Heights
Calliope
Boyne Island
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Gladstone Regional Council
Originally A3 Size
Annexure C1
Lake Awoonga Scheme
MAP SCALE
Scale 1:130,000
1 0 1 2 3 4 5 6 km
Map Produced On: 26/10/2009
NORTH
GDA
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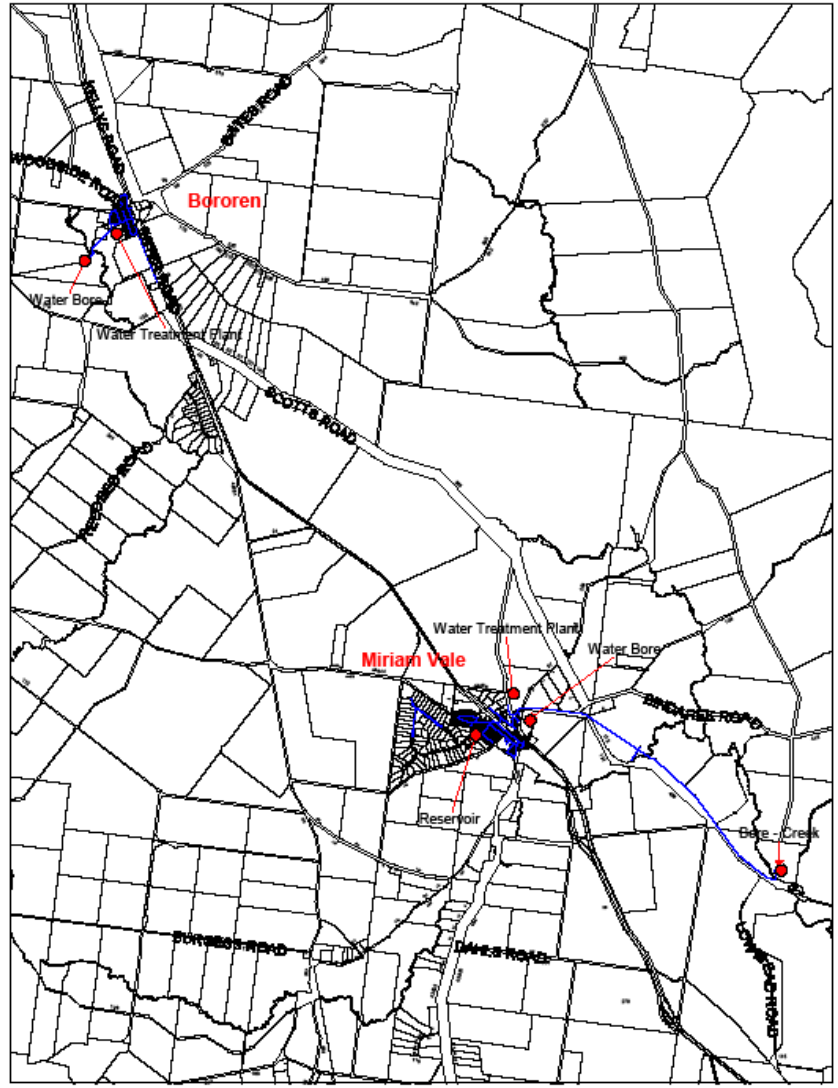
Calliope Q 4680
Phone: 07 4975 8100
Fax: 07 4975 7106


Bororen
Water Bore
Water Treatment Plant
SCOTTS ROAD
Miriam Vale
Water Treatment Plant
Water Bore
Reservoir
Bore - Creek
BURGESS ROAD
DAVIES ROAD
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Annexure C2
Miriam Vale - Bororen
1000 0 1000 m
NORTH
Scale Scale 1:80,000
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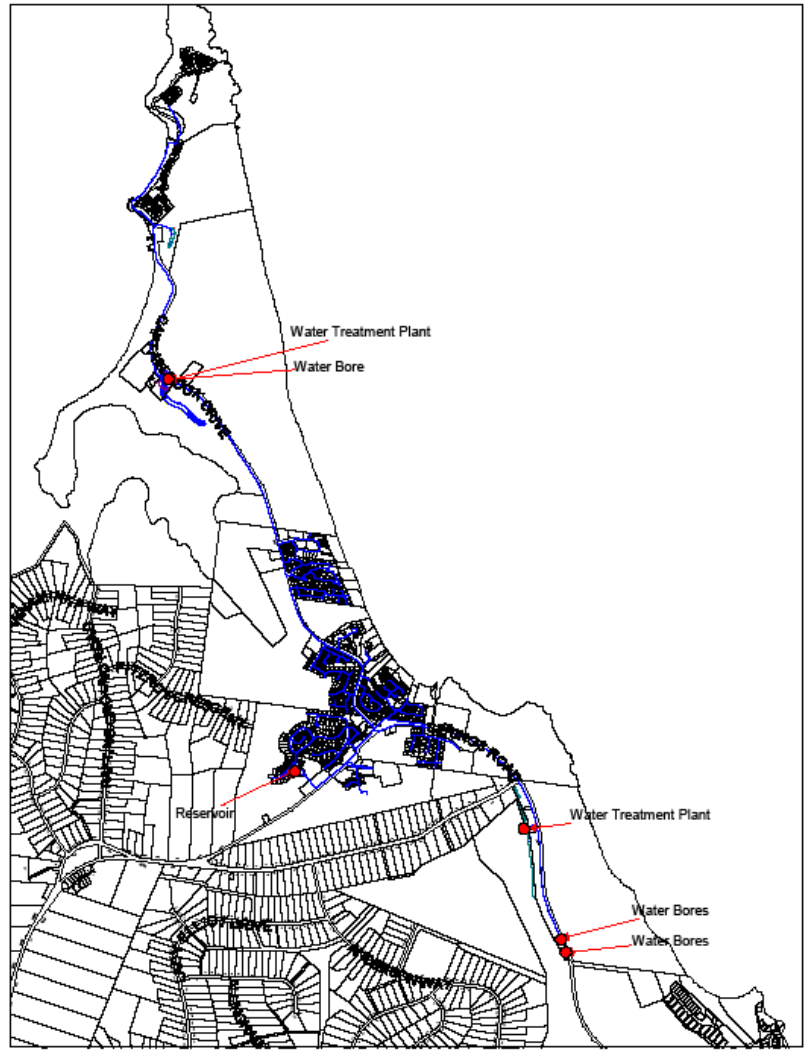
Originally A4 Size


Water Treatment Plant
Water Bore
Reservoir
Water Treatment Plant
Water Bores
Water Bores
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Annexure C3
Agnes Water - Seventeen Seventy
GDA
NORTH
1000
0 m
Scale Scale 1:40,000
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Originally A4 Size