

# Emergency Response Plan

## Water Carting Plan



**Final Report**

**September 2019**

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**WARRUMBUNGLE SHIRE COUNCIL WATER CARTING PLAN**

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## 1. INTRODUCTION

This plan describes the procedures that will be followed in the event that the normal water supply for the Warrumbungle Shire Council water supply systems has failed. Carting of water will be required in the event of an emergency that prevents normal supply across the shire. The plan has been prepared in accordance with the NSW Government publication “*Drought and Emergency Relief for Regional Town Water Supplies*”.

### 1.1 Potable Water Supplies

Warrumbungle Shire is located in central-west NSW and is part of the Orana region. Potable water is supplied to the towns and villages of Baradine, Binnaway, Bugaldie, Coolah, Coonabarabran, Dunedoo, Kenebri and Mendooran.

The potable town water supplies are summarised in Table 1 and shown in Figure 1.

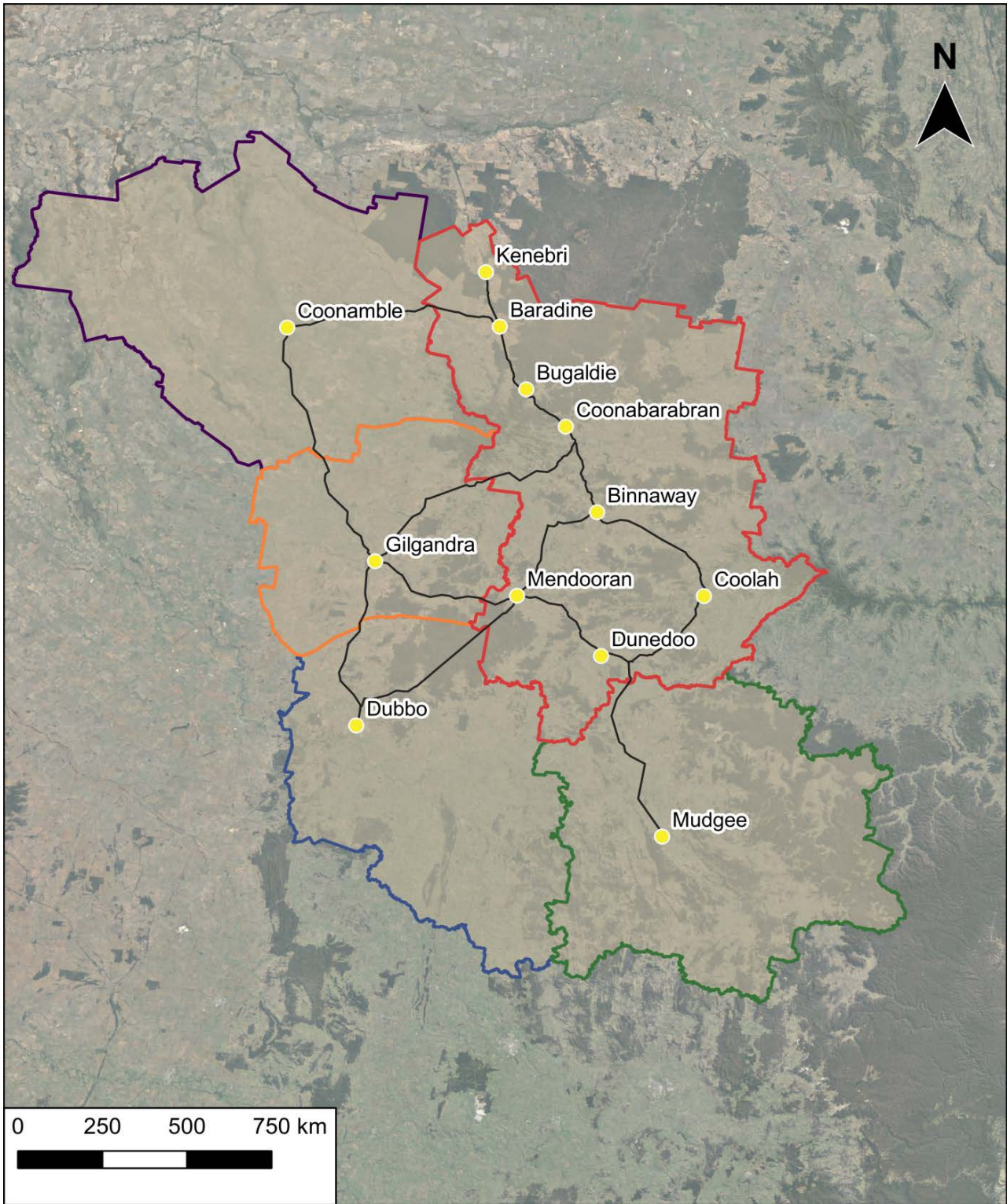
**Table 1: Warrumbungle Shire Council potable water supplies**

Location	Population Served	Water Sources	Treatment
Baradine	626	Two artesian bores	Conventional treatment – filtration and disinfection
Binnaway	425	Castlereagh River well and back-up bore	Conventional treatment – lagoon sedimentation, filtration and disinfection
Bugaldie	30	One artesian bore	Disinfection
Coolah	795	Three bores	Disinfection
Coonabarabran	2,530	Timor dam, Pound Yard weir, 11 bores	Conventional treatment – lagoon sedimentation, filtration and disinfection
Dunedoo	740	Two alluvial bores	Disinfection
Kenebri	30	One sub-artesian bore	Disinfection
Mendooran	265	Castlereagh River well and back-up bore	Conventional treatment – lagoon sedimentation, filtration and disinfection

### 1.2 Other water supplies

There are non-potable supplies at Merrygoen and for users along Timor Road in Coonabarabran. Residents in Merrygoen and other villages in the shire rely on private water supplies for potable purposes and these residents would cart water if their potable supplies failed.

Council also supplies non-potable bulk water from Timor Dam or groundwater bores for treatment by the Australian Astronomical Observatory.



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LEGEND

LOCAL GOVERNMENT AREAS

- COONAMBLE SHIRE COUNCIL
- DUBBO REGIONAL COUNCIL
- GILGANDRA SHIRE COUNCIL

- MID-WESTERN REGIONAL COUNCIL
- WARRUMBUNGL E SHIRE COUNCIL
- TOWNS / VILLAGES
- CONNECTING ROADS

Figure 1: Warrumbungle Shire Council and surrounding areas



### 1.3 Potential Water Supply Failure

Water supplies can fail for a variety of reasons. Drought is one reason, but there are other causes, such as contamination, major equipment failure or Water Treatment Plant (WTP) issues that can result in a failure of the system. A bore water supply may be extracted to the point of unreliable recharge of the aquifer or a bore pump may fail due to a mechanical issue.

There is a need to ensure a reliable emergency supply in times of drought and water scarcity in the region. During these times, water supplies in the region are under stress and water carters are in high demand. Council will ensure there is flexibility in the emergency response approach.

### 1.4 Water Carting

During a drought or emergency situation, if local sources of water or assets have failed, Council may be required to cart water from a different Council water supply or neighbouring Council area. Water cartage is generally only cost effective for small towns due to the volume of water required. Water carting is a temporary measure, for a limited time, until other solutions can be found due to the volume, time, cost and logistical requirements of transporting water. Water carting is useful when a relatively small quantity of water is required for a limited time. The economic feasibility of carting also depends on the distance from potential water supplies and infrastructure requirements (Table 2).

**Table 2: Feasibility of water carting**

Population	Water Carting Feasibility	Advantages/Disadvantages
10	Yes	Low cost, quick to implement
100	Yes	Low cost, quick to implement
1,000	Maybe	
5,000	Probably not	
20,000	No	Very expensive
50,000	No	Very expensive Logistically almost impossible to organise and co-ordinate Long lead times required to prepare

Council's drought management plan addresses restrictions and alternative water supplies that could be used in the event of drought or emergency. This water carting plan describes the requirements for carting of water to supplement or replace existing supplies in the event that the existing supplies cannot provide the basic water requirements for the Warrumbungle Shire region.

## 2. WATER CARTING OPTIONS

### 2.1 Potential Sources of Water for Carting

Potential sources of water for carting to Warrumbungle Shire towns are listed below.

**Table 3: Potential sources of water for carting**

Potential Source	Potable/non-potable	Comments on reliability of supply
<i>Within Warrumbungle Shire</i>		
Baradine town water supply	Potable	Two artesian bores near Baradine Creek (one main bore and one back-up supply). Small supply with limited excess capacity however water carting may be feasible for small quantities. Standpipe at WTP.
Binnaway town water supply	Potable	Relies on shallow well in Castlereagh River (which has the potential to fail in dry times) and back-up bore. Very small supply with limited excess capacity but may be feasible for small quantities.
Coolah town water supply	Potable	Two artesian bores adjacent to Coolaburragundy River. A third bore is available as a back-up supply. Disinfection only (no treatment provided). Drought restrictions have been imposed but supply may be feasible for small quantities.
Coonabarabran town water supply	Potable	No supply from Timor Dam in 2017-19 drought. Level 6 restrictions imposed. Emergency bores provide up to 2.4 ML/d but supply is limited to 50 ML/a by the water extraction licence. Therefore not considered to be a feasible water carting source until licence limit is increased, apart from small quantities.
	Non-potable	Castlereagh River. Council ceased extraction from the Castlereagh River in January 2018 due to low flows. Therefore not considered to be a feasible source for water carting.
Dunedoo town water supply	Potable	Two bores within the Talbragar alluvial aquifer which have the potential to fail in dry times. Disinfection only (no treatment provided). Drought restrictions have been imposed but supply may be feasible for small quantities.
Mendooran town water supply	Potable	Castlereagh River well which failed during the 2019 drought and back-up bore supply which was affected by other water users and contained high nutrients during the 2019 drought. Therefore not considered to be a feasible source for water carting, apart from small quantities.
<i>Outside Warrumbungle Shire</i>		
Coonamble Shire Council standpipe	Potable	No known issues. Water carters currently access the Coonamble Shire Council filling station in Coonamble (Avdata access system, Section 2.3.2). Water availability to be confirmed with Coonamble Shire Council. Although Council may be willing to provide water for a short period, longer term and ongoing water carting may impact on Gilgandra's supplies.
Gilgandra - Council standpipe	Potable	No commercial water carters access this standpipe regularly. Council staff would be required to supervise loading (refer Section 2.3.2). Although Council may be willing to provide water for a short period, longer term and ongoing water carting may impact on Gilgandra's supplies.

Potential Source	Potable/non-potable	Comments on reliability of supply
Semmlers standpipe (Gilgandra)	Potable	Availability of potable water tankers has not been confirmed. Supply from this standpipe may impact Gilgandra's town water supply as discussed above.
Dubbo - Council water filling stations	Potable	No known issues. Water carters currently access the Dubbo Regional Council filling stations in Dubbo (Avdata access system, Section 2.3.2). Water availability to be confirmed with Dubbo Regional Council.
Mudgee - Council standpipes	Potable	No known issues. Water carters currently access the Mid-Western Regional Council standpipe in Mudgee (Avdata access system, Section 2.3.2). Water availability to be confirmed with Mid-Western Regional Council.

## 2.2 Water Carters

Some potable and raw water carters within the region are listed in the following table. Water carters are in high demand during droughts and availability will be confirmed. Other water carters may also be available.

**Table 4: Water carters**

Company	Location	Contact	Tanker Size (kL)	Purpose	Water Source	Number of tankers
Dunn Water	Dubbo	0409 134 019	25	Potable	Dubbo Regional Council standpipe	2
Peter Edwards Water Services	Dubbo	0419 486 929	13	Potable	Dubbo Regional Council standpipe	2
Rogan's Plant hire	Mudgee	0428 639 787	13	Potable	Mid-Western Regional Council standpipe	1
Adrian Ingham Plant Hire	Mudgee	0429 722 131	12	Potable	Mid-Western Regional Council standpipe	1
Coonabarabran Waste	Coonabarabran	0408 236 547 0417 465 475	13	Potable	Warrumbungle Shire Council standpipe	1
McEvoy's Earth Moving	Coonabarabran	0400 977 419	13	Potable	Warrumbungle Shire Council standpipe	1
			25	Stock water	Castlereagh River	2
Semmlers Sand and Gravel	Gilgandra	6847 1222		Potable	Private standpipe on town water.	

## 2.3 Standpipes and Filling Stations

### 2.3.1 Warrumbungle Shire Council Standpipes

#### Baradine

A standpipe is available for filling water carting trucks at the Baradine WTP in Walker Street adjacent to Baradine Road. The standpipe location is shown as a blue star (Figure 2 and Figure 3). There is an adequate turning circle for a tanker adjacent to the standpipe. The empty tanker can approach the standpipe, fill up, do a U-turn, and continue back the way it came. The standpipe has a top feed. The standpipe is locked and is manually operated. The standpipe is normally only available during business hours.



Figure 2: Baradine WTP, Walker Street and Baradine Road

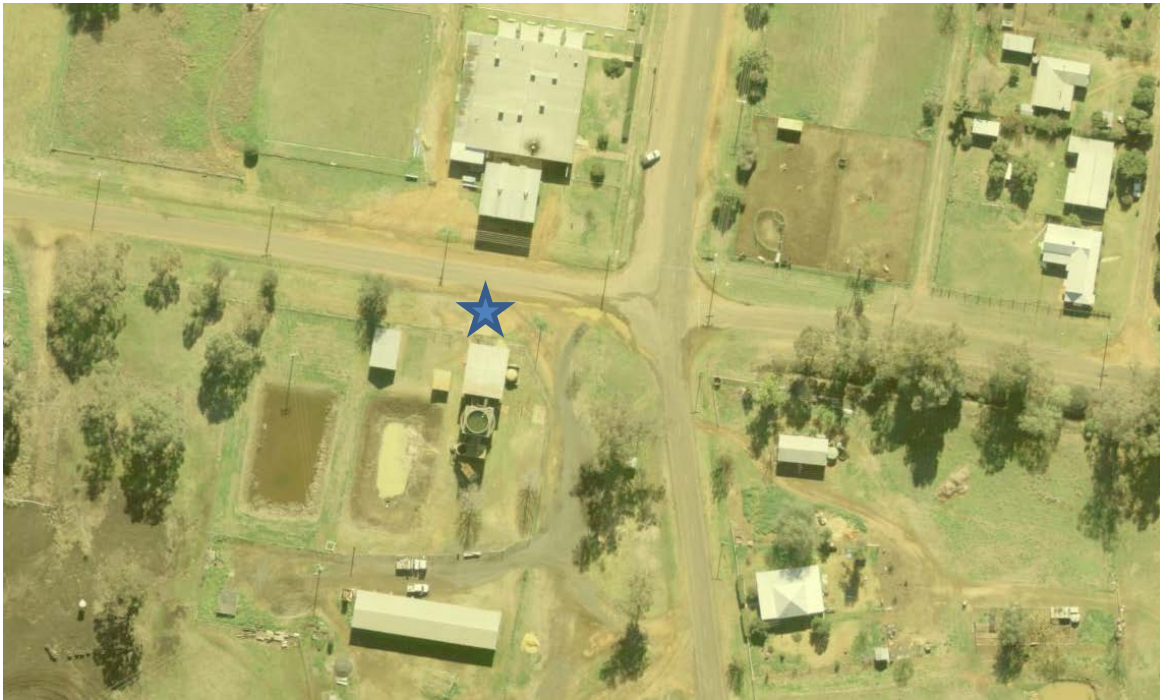
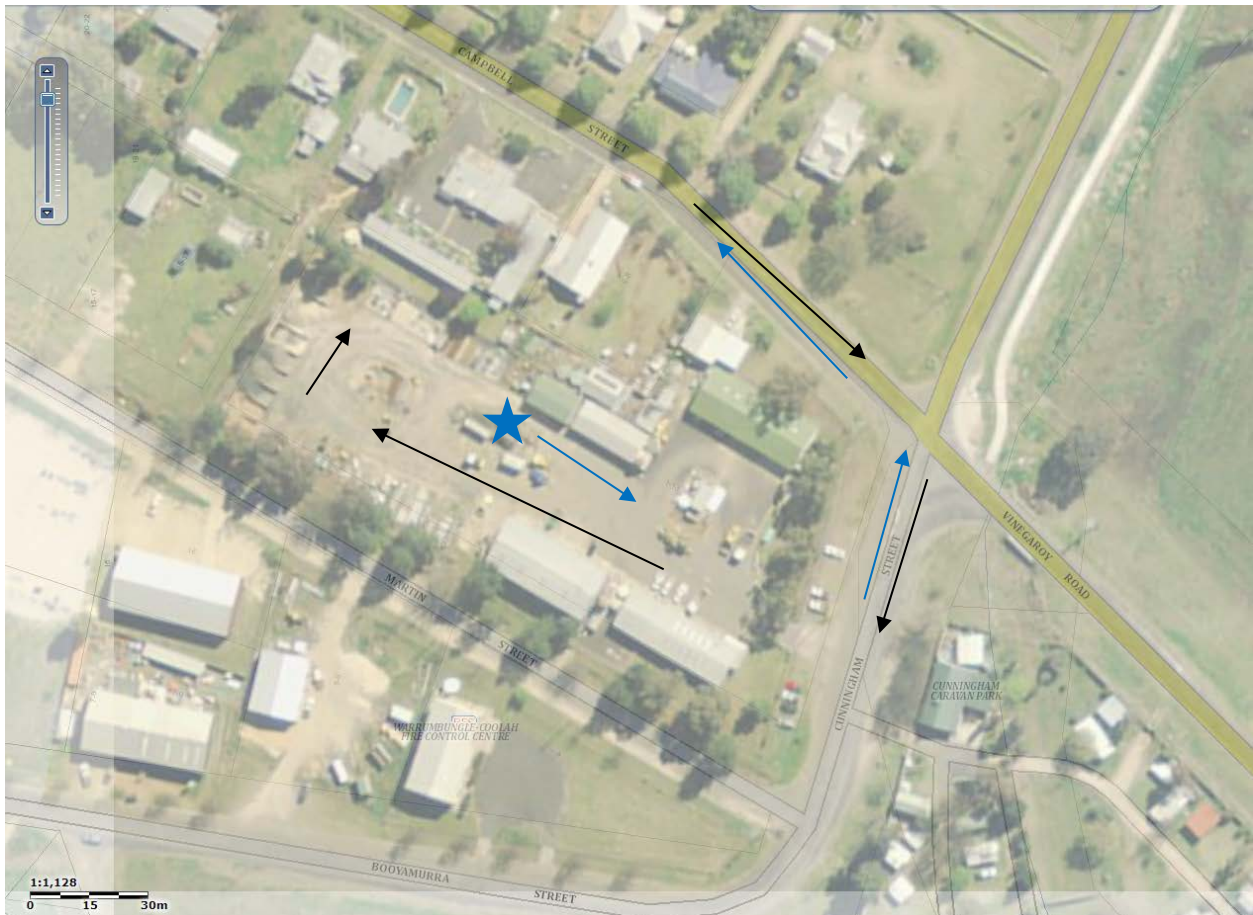


Figure 3: Baradine WTP and standpipe

## Coolah

The standpipe at Coolah is in the Council Depot in Cunningham Street. The approximate location is shown as a blue star in Figure 4. The arrows in Figure 4 show the tanker route. The black arrows are the empty tanker. The blue arrows are the full tanker. The empty tanker turns right off Campbell Street onto Cunningham Street then right into the Council Depot. There is a circular road in the Council depot for a truck to turn around. The tanker fills up at the standpipe. The tanker exits from the Council Depot, turning left into Cunningham Street. The full tanker then turns left into Campbell Street.



**Figure 4: Coolah Standpipe, Campbell Street and Cunningham Street**

## Coonabarabran

The standpipe at Coonabarabran is in the Council Depot in Gardener Street. The approximate location is shown as a blue star in Figure 5. The arrows in Figure 5 show the tanker route. The black arrows are the empty tanker. The blue arrows are the full tanker. The empty tanker turns left off the Newell Highway into Gardener Street. It then turns right into the Council Depot. There is a circular road in the Council depot for a truck to turn around. The tanker fills up at the standpipe. The tanker exits from the Council Depot, turning left into Gardener Street. The full tanker then turns onto the Newell Highway.



**Figure 5: Coonabarabran standpipe - Council depot, Gardener Street**

### Dunedoo

The standpipe at Dunedoo is located between the sales yard and the showground, off Wargundy Street (along the dirt road section of Bullinda Street). The approximate location is shown as a blue star in Figure 6. The arrows in Figure 6 show the tanker route. The black arrows are the empty tanker. The blue arrows are the full tanker. The empty tanker turns east off Wargundy Street into Bullinda Street adjacent to the showgrounds. There is a circular road for a truck to turn around. The tanker fills up at the standpipe. The full tanker exits via Bullinda Street and turns onto Wargundy Street.

The Dunedoo standpipe is locked. It is manually operated. The standpipe is normally only available during business hours. For information about the standpipe contact the Warrumbungle Shire Council by email at [info@warrumbungle.nsw.gov.au](mailto:info@warrumbungle.nsw.gov.au) or telephone (02) 6849 2000.



**Figure 6: Dunedoo standpipe on Bullinda Street (adjacent to showgrounds and sale yards)**

### **Mendooran**

The standpipe at Mendooran is in Cobra Street, adjacent to the steel standpipe reservoir, indicated by the blue star on Figure 7. The arrows in Figure 7 show the tanker route. The black arrows are the empty tanker. The blue arrows are the full tanker. The empty tanker turns left from the Castlereagh Highway (also known as Bandulla Street) into Brambil Street. It then turns left into Cobra Street. The standpipe is located in Cobra Street, about 20 metres from the intersection. The tanker fills up at the standpipe. The full tanker continues along Cobra Street, and turns left at Pampoo Street. It continues down the block until it reaches the Castlereagh Highway (Bandulla Street).



**Figure 7: Mendooran standpipe, Cobra Street and Brambil Street**

### 2.3.2 Neighbouring Shire Council standpipes

#### Coonamble

The Coonamble standpipe has an Avdata control system and can be accessed 24 hours per day, seven days per week. The standpipe at Coonamble is located on Back Gular Road. It is shown as a blue star in Figure 8. The arrows in Figure 8 show the tanker route. An empty tanker drives west along Aberford Street, and turns left into Quambone Road. After 350 metres, the road turns slight left into Back Gular Road. The standpipe is on the eastern side of the road, before the cemetery. When full the tanker proceeds further along Back Gular Road, and turns left into Railway Street. After travelling 1.2 km down Railway Street, the full tanker turns right into Aberford Street towards Baradine and Coonabarabran. For information about the standpipe, contact Coonamble Shire Council on (02) 6827 1900.





**Figure 8: Coonamble standpipe**

### **Gilgandra**

The 100 mm standpipe at Gilgandra is at the corner of Eiraben Street and Byrne Avenue (blue star in Figure 9). The arrows in

Figure 9 show the tanker route. There are reasonable sight lines along the route. The black arrows are the route of the empty tanker. The blue arrows are the route of the full tanker. The tankers drive north along the Castlereagh Highway (Miller Street) and turn right into Byrne Avenue, left at the intersection with Eiraben Street. The tanker pulls off the roadway (Eiraben Street) under the standpipe and fills up. When it is full, the tanker proceeds down Eiraben Street and will turn right into Mavis Street then right into the Castlereagh Highway (Miller Street).

The standpipe has both a bottom feed and a top feed (Figure 10). The standpipe is locked. To access the standpipe, call the Gilgandra Shire Council – Director of Technical Services on (02) 6817 8800 or email to [council@gilgandra.nsw.gov.au](mailto:council@gilgandra.nsw.gov.au). Gilgandra Shire Council staff would supervise loading at the standpipe.



Figure 9: Gilgandra standpipe - location



Figure 10: Gilgandra standpipe

**Dubbo Regional Council water filling stations**

Council’s Water Filling Stations offer a convenient means for contractors, water carters and other customers to access drinking water in a number of locations throughout Dubbo Regional Council Local Government Area, at any time of the day or night.

Customers need to apply to Council for an account and access key. Bulk water charges and a key deposit apply, as per Council’s Revenue Policy.

An application form for an account key can be obtained from Council’s Customer Service Centres in Church Street, Dubbo or Corner Nanima Crescent and Warne Street, Wellington.

To use a water filling station, customers will need a connection suitable to attach to a 75 mm (3”) male camlock fitting.

Water Filling Station Name	Location
Federation Street Ballimore	Opposite Thelma Pelosi Memorial Playground, Ballimore.
Burraway Street Brocklehurst	Burraway Street , Brocklehurst. Eastern side after Newell Highway intersection.
Firgrove Estate Dubbo	Intersection of Eulomogo Road and Railway Lane, Dubbo.
Old Gilgandra Road Dubbo	Old Gilgandra Road, Dubbo. 600m north of Boothenba Road.
Whitewood Road Dubbo East	Whitewood Road, Dubbo. 500m east of South Buninyong Road.
Macquarie Street Dubbo South	Adjacent to John Gilbert Water Treatment Plant, Macquarie Street, Dubbo.

Water Filling Station Name	Location
Obley Road West Dubbo	Corner of Obley & Belowrie Roads, Dubbo.
Cooreena Road Dubbo West	Entry via new section of Cooreena Road, Dubbo.
Bunglegumbie Road Dubbo West	Eastern side of Bunglegumbie Road, north of Spears Drive.
Wellington Street Geurie	Wellington Street, 50 metres north of Chambers Street, Rural Fire Shed, Geurie
Burrandong Way Mumbil	Burrandong Street, 20 metres north of Cudgegong Street, Rural Fire Shed, Mumbil
Charles Street Wellington	Charles Street, Wellington 55 metres north east of Barton Street.
Derribong Street Wongarbron	Derribong Street, Wongarbron.



**Figure 11: Locations of water filling stations in Dubbo**

Council recommends flushing system before use to prevent any foreign objects entering your tank.

Follow these steps to flush:

1. Ensure Gate Valve **OFF** (clockwise direction)
2. Hold Access Key on reader for three (3) seconds. Light will illuminate.
3. Press **ON** button. Light under **ON** button will illuminate.
4. Turn Gate Valve **ON** (anti-clockwise direction). Use Gate Valve to regulate flow of water.
5. Run water for 2-3 seconds
6. Turn Gate Valve **OFF**.



To commence filling your tank:

1. Securely connect one end of your hose to the Water Filling Station 75 mm (3") Camlock coupling and the other end to the inlet on your tank
2. Turn Gate Valve **ON** (anti-clockwise direction)
3. Press **OFF** to stop flow. Light will go out. Water shutdown can take up to 15 seconds.
4. Turn Gate Valve **OFF** (clockwise direction)
5. Disconnect hose from Water Filling Station and tank connection. Take care to avoid excessive water spillage.
6. Take care exiting the Water Filling Station. Pay attention to other vehicles and pedestrians and proceed safely.




[Dubbo.nsw.gov.au](http://Dubbo.nsw.gov.au)

[Fb.com/DubboRegionalCouncil](https://www.facebook.com/DubboRegionalCouncil)

**(02) 6801 4000**

**Figure 12: Dubbo water filling station details**

**Mid-Western Regional Council bulk water filling stations**

Mid-Western Regional Council provides bulk water filling stations (high-flow fill points) at:

- Mudgee – Ulan Road/Moggs Lane;
- Rhylstone – Ilford Road/Coomber Street; and
- Gulgong – Medley Street/Scott Avenue.

Access to water at the 'high flow' points requires an AvData account from Council.

## 2.4 Distances from Water Sources

Potential sources of water for carting from Coonamble, Dubbo and Mudgee and distances to smaller regional towns of the Warrumbungle Shire are listed in Table 5.

## 2.5 Infrastructure and Water Carting Costs

Government assistance towards the cost of water cartage is subject to quantities and cartage arrangements being agreed with Dol Water. The subsidy will only apply to the minimum quantity required for essential domestic, commercial, industrial and institutional purposes in urban areas, calculated according to the guidelines published by Dol Water.

For towns with a reticulated supply, the Government may meet all freight charges in excess of the most recent median step 1 usage charge (% of LWU basis), as reported in the most recent NSW Water Supply and Sewerage Performance Monitoring Report. For 2015/16 the charge was \$1.90/kL. For towns without a reticulated supply this threshold doubles (i.e. currently \$3.80/kL), as these users are not required to pay access charges.

If emergency capital works are identified as the best means of maintaining essential supplies of water, Council may apply for financial assistance.

Table 5: Sources of water for carting to the townships of the Warrumbungle Shire region

Town	Distance from Coonamble (km)	Route of supply from Coonamble	Distance from Dubbo (km)	Route of supply from Dubbo	Distance from Mudgee (km)	Route of supply from Mudgee
Baradine	65	Coonamble Rd	85	Newell Hwy, Coonabarabran Rd, Gwabegar Baradine Rd	107	(B55) Castlereagh Hwy, Leadville Rd, Warrumbungles Way , Coonabarabran Rd
Binnaway	215	Coonamble Rd, Coonabarabran Rd, Warrumbungles Way	108	Newell Hwy, Warrumbungles Way	118	(B55) Castlereagh Hwy, Golden Hwy, Leadville Rd, Mullaley – Coolah Rd, Warrumbungles Way
Bugaldie	105	Coonamble Rd, Coonabarabran Rd	133	Newell Hwy, Coonabarabran Rd	170	(B55) Castlereagh Hwy, Golden Hwy, Leadville Rd, Mullaley – Coolah Rd, Warrumbungles Way, Newell Hwy, Coonabarabran Rd
Coolah	310	Coonamble Rd, Coonabarabran Rd, Warrumbungles Way, Mullaley-Coolah Rd	115	Cobbora Rd, Golden Hwy, Leadville Rd	87	(B55) Castlereagh Hwy, Golden Hwy, Leadville Rd
Coonabarabran	150	Coonamble Rd, Coonabarabran Rd	125	Newell Hwy	151	(B55) Castlereagh Hwy, Golden Hwy, Leadville Rd, Mullaley – Coolah Rd, Warrumbungles Way, Newell Hwy
Dunedoo	333	(B55) Castlereagh Hwy, Castlereagh Hwy	78	Cobbora Rd (B84)	67	(B55) Castlereagh Hwy, Golden Hwy
Kenebri	85	Coonamble Rd, Gwabegar Baradine Rd	169	Newell Hwy, Coonabarabran Rd, Gwabegar Baradine Rd	210	(B55) Castlereagh Hwy, Leadville Rd, Warrumbungles Way , Coonabarabran Rd, Gwabegar Baradine Rd
Mendooran	266	(B55) Castlereagh Hwy, Castlereagh Hwy	68	Newell Hwy, (B55) Castlereagh Hwy	97	(B55) Castlereagh Hwy, Golden Hwy (B55), Castlereagh Hwy,

### 3. WATER CARTING PLAN FOR BARADINE

#### 3.1 Water Supply System

Baradine’s water supply is drawn from two sub-artesian bores near Baradine Creek and treated at the 1.0 ML/d Baradine WTP (Figure 13 and Figure 14). The main bore in use is at the site of the WTP. The second bore is used primarily to water the Baradine sports field (untreated) but can be used as a backup town water supply.



Figure 13: Baradine water supply system

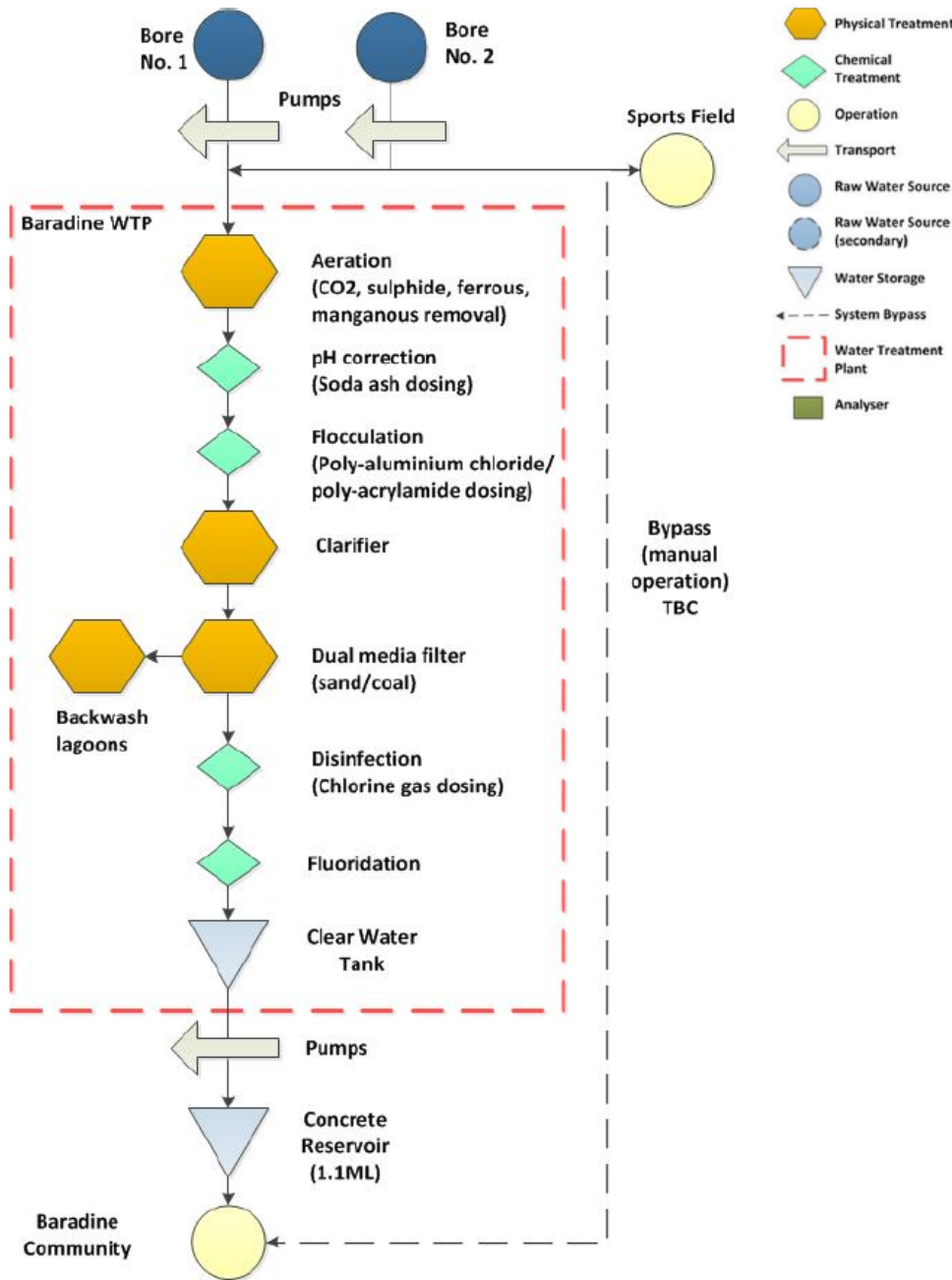


Figure 14: Baradine water supply – schematic diagram

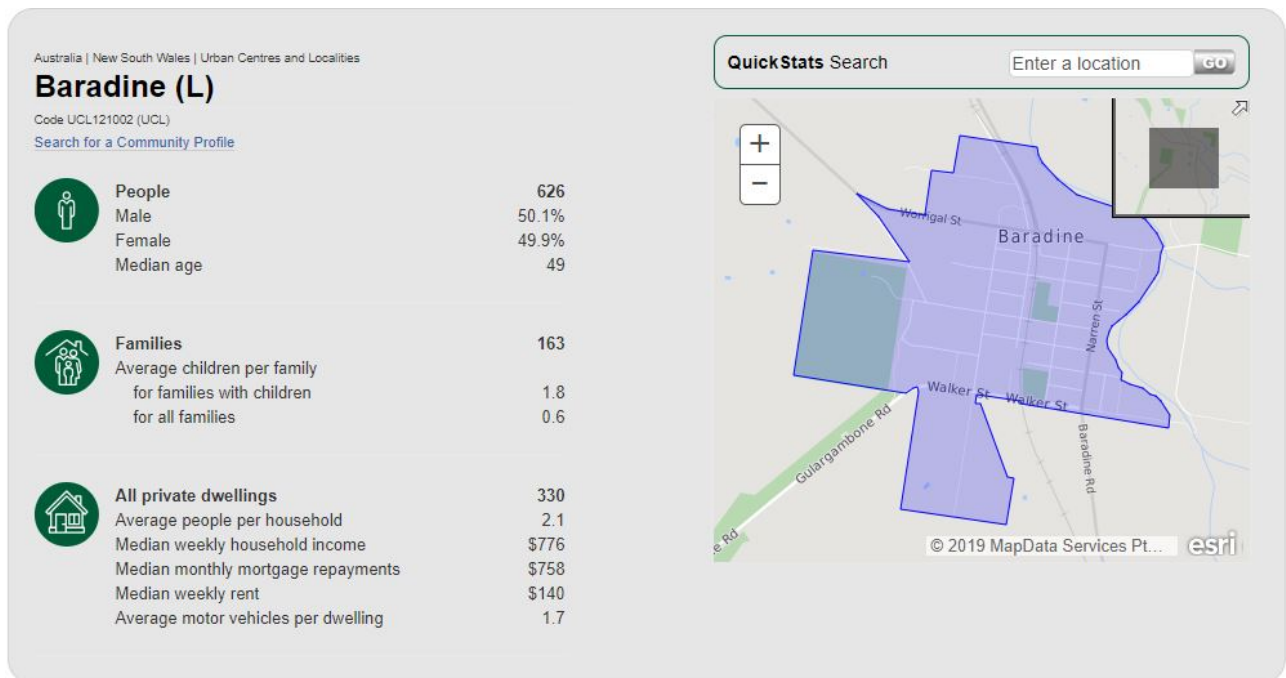
### 3.2 Emergency Water Requirements

Emergency water carting requirements for the Baradine community have been calculated in accordance with the NSW Government publication “*Drought and Emergency Relief for Regional Town Water Supplies*” (Table 6). The resident population of Baradine is estimated to be 626 (from 2016 Census - Figure 15).



**Table 6: Preliminary water carting demand for Baradine**

Component	Allowance (L/p/d)	Demand (kL/d)	Comments
Residential	130	81.4	Sewer system, reticulated water supply
Schools	42	12.6	Baradine Central school – 300 non-resident population
Health multi-purpose service		8.0	Medical Centre
Hotels		8.0	Bed and breakfast and hotels
Cafés/restaurants		7.0	Various
Public toilets		5.0	Estimate
Tourists	130	1.3	Assume 10 per day
Other		2.0	Estimate
<b>Total water carting demand</b>		<b>125.3</b>	



**Figure 15: Population statistics (Census 2016) - Baradine**

### 3.3 Infrastructure Requirements

If both bores failed, Council would cart water to Baradine. Potable carted water would be stored at new tanks to be constructed at the WTP and pumped to the filter discharge pit. The water would then be disinfected prior to distribution to the Baradine community. Five new water storage tanks of 22,500 kL would be required at the WTP site. Costs estimates for water carting infrastructure are given in Table 7.

**Table 7: Infrastructure cost estimates - Baradine**

<b>Component</b>	<b>Cost estimate</b>
<i>Storage and disinfection of carted water</i>	
Tanks - 5 x 22,500 kL	\$35,000
Pump	\$15,000
Connections, fittings etc.	\$15,000
Installation, commissioning etc.	\$10,000
<i>Sub-total</i>	<i>\$75,000</i>
<i>Contingency – 20%</i>	<i>\$15,000</i>
<b>Total cost estimate – infrastructure</b>	<b>\$90,000</b>

### 3.4 Water Carting Plan - Baradine

<b>Interruption to normal supply</b>	Bore supply has failed due to drought or equipment failure.
<b>Alternative source options</b>	Back-up bore available.
<b>Duration of carting</b>	Date of commencement: TBA. Duration: until town supply is re-established.
<b>Volume to be carted</b>	125 kL/d for essential purposes.
<b>Proposed water source</b>	Coonamble Shire Council water filling station (potable).
<b>Water carter</b>	Commercial operator
<b>Carting route/distance</b>	Sealed roads: Coonamble to Baradine via Coonamble Road, 65 km.
<b>Number of trips</b>	5 x 25 kL (or 10 x 13 kL) tanker loads per day
<b>Time required</b>	Loading: 30 mins Transport: 1 hour Unloading: 30 mins Return to Coonamble: 1 hour. Total turnaround time: 3 hours. Time required to supply emergency demand (125 kL): 8 hours using two 25 kL tankers, 15 hours using one 25 kL tanker (five trips), 8.5 hours using four 13 kL tankers.
<b>Unloading procedure</b>	Potable water tanks to be installed at Baradine WTP. There is sufficient space at the WTP site for tanks, tanker unloading and turnaround.
<b>Treatment requirements</b>	Pressure/pump and main from new tanks to filter discharge pit. Disinfection to be provided at the WTP.
<b>Other considerations</b>	While commercial operators have the ability to access the filling stations and supply the required quantities, details will be confirmed through contract with WSC. WSC to advise Coonamble Shire Council of need to access filling stations. Water carters will keep logbooks of water carted and comply with NSW Health guidelines for water carting. WSC will provide logbooks to NSW Government for payment.
<b>Water carting cost</b>	\$650 per load: Five loads per day (25 kL) = \$3,250 per day. Ten loads per day (13 kL) = \$6,500 per day. The Warrumbungle Shire Council share of the water carting cost is \$1.90/kL. \$1.90 kL x 125 kL/day = \$237.50/day, \$1,662.50 /week. The NSW Government share of the water carting is the remainder: Five loads per day = \$3,013 per day. Ten loads per day = \$6,263 per day. Any water carted in excess of 125 kL/d is to be fully paid for by WSC.

## 4. WATER CARTING PLAN FOR BINNAWAY

### 4.1 Water Supply System

The Binnaway water supply is drawn from the Castlereagh River (concrete well) and treated at the 1.3 ML/d Binnaway WTP (Figure 16, Figure 17 and Figure 18). A back-up bore has recently been installed.

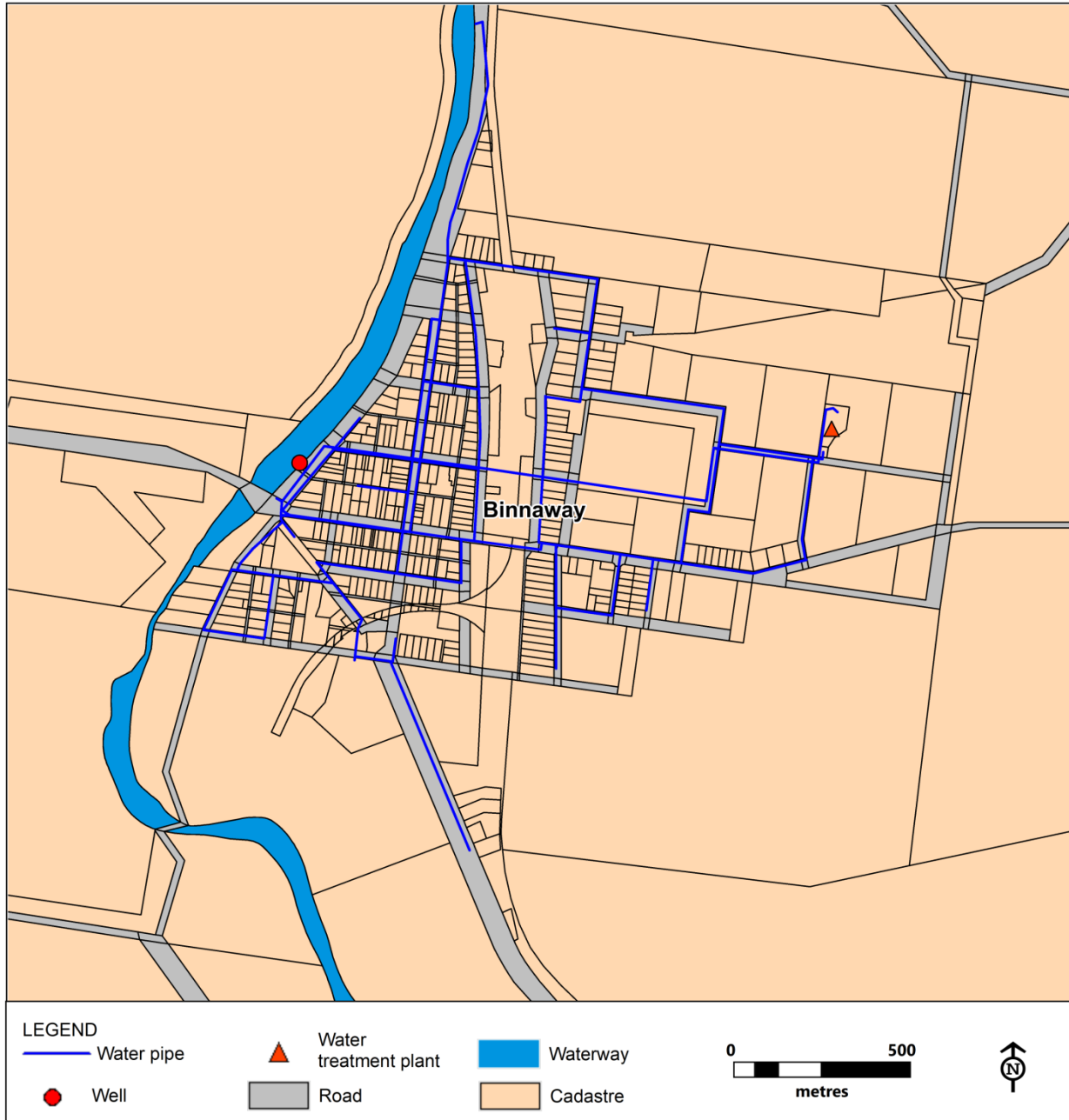


Figure 16: Binnaway water supply

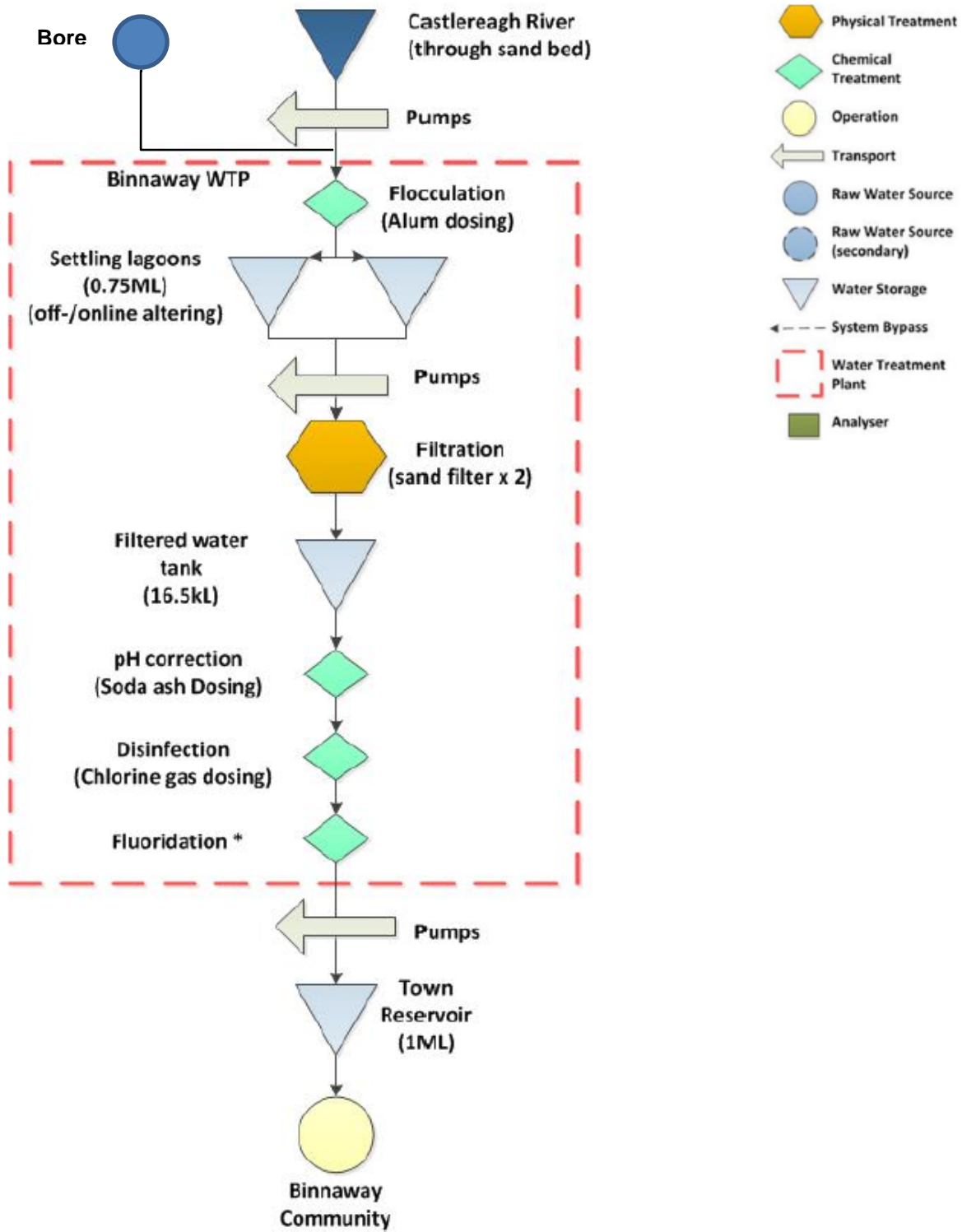


Figure 17: Binnaway water supply system – schematic diagram



Figure 18: Binnaway WTP site

## 4.2 Emergency Water Requirements

Emergency water carting requirements for the Binnaway community have been calculated in accordance with the NSW Government publication “*Drought and Emergency Relief for Regional Town Water Supplies*” (Table 8). The resident population of Binnaway is estimated to be 425 (from 2016 Census - Figure 19).

Table 8: Preliminary water carting demand for Binnaway

Component	Allowance (L/p/d)	Demand (kL/d)	Comments
Residential population	105	44.6	Septic tanks, reticulated water supply
Schools	22	2.2	Central school, preschool – 100 non-resident population
Health facilities		4.0	Community health centre.
Hotels		4.0	Exchange Hotel
Cafés/restaurants		4.0	Various, Bowling club
Public toilets		5.0	Estimate
Tourists	105	0.5	Assume 5 per day
Other		2.0	Estimate
<b>Total water carting demand</b>		<b>66.4</b>	

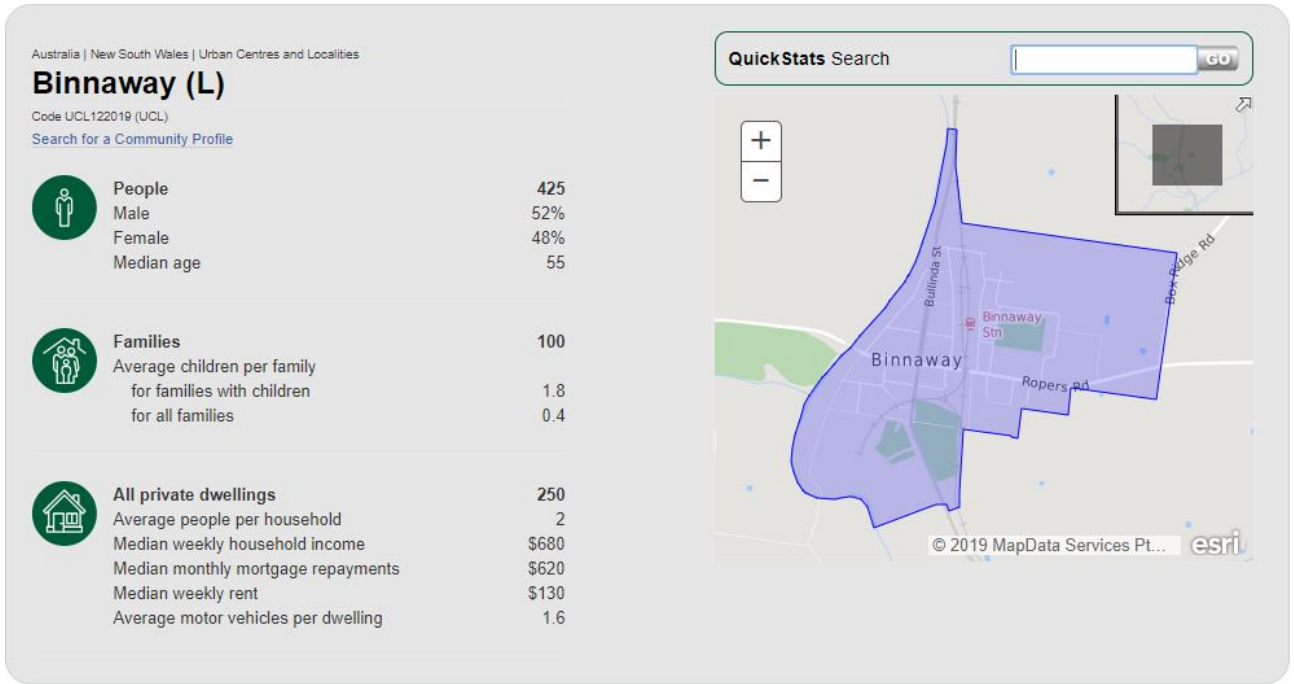


Figure 19: Population statistics (Census 2016) - Binnaway

### 4.3 Infrastructure requirements

If the well and bore both failed, Council would cart water to Binnaway. Potable carted water would be stored in the settling lagoons at the WTP then filtered and disinfected prior to distribution to the Binnaway community.

#### 4.4 Water Carting Plan - Binnaway

<b>Interruption to normal supply</b>	Bore and river supply have failed due to drought or equipment failure.
<b>Alternative source options</b>	Back-up bore available.
<b>Duration of carting</b>	Date of commencement: TBA. Duration: until town supply is re-established.
<b>Volume to be carted</b>	66 kL/d for essential purposes.
<b>Proposed water source</b>	Coolah or Coonabarabran standpipes.
<b>Water carter</b>	Commercial operator
<b>Carting route/distance</b>	Sealed roads: Coonabarabran or Coolah to Binnaway via Warrumbungles Way, 40- 60 km.
<b>Number of trips</b>	3 x 25 kL (or 5 x 13 kL) tanker loads per day
<b>Time required</b>	Loading: 30 mins Transport: 1 hour Unloading: 30 mins Return: 1 hour. Total turnaround time: 3 hours. Time required to supply emergency demand (66 kL): 6.5 hours using two 25 kL tanker, 9 hours using one 25 kL tanker, 5 hours using four 13 kL tankers.
<b>Unloading procedure</b>	Storage in lagoons. There is sufficient space at the WTP site for tanker unloading and turnaround.
<b>Treatment requirements</b>	Filtration and disinfection to be provided at the WTP.
<b>Other considerations</b>	While commercial operators have the ability to access the filling stations and supply the required quantities, details will be confirmed through contract with WSC. Water carters will keep logbooks of water carted and comply with NSW Health guidelines for water carting. WSC will provide logbooks to NSW Government for payment.
<b>Water carting cost</b>	\$650 per load: Three loads per day (25 kL) = \$1,950 per day. Five loads per day (13 kL) = \$3,250 per day. The Warrumbungle Shire Council share of the water carting cost is \$1.90/kL. \$1.90 kL x 66 kL/day = \$125/day, \$878 /week. The NSW Government share of the water carting is the remainder: Three loads per day = \$1,825 per day. Five loads per day = \$3,125 per day. Any water carted in excess of 66 kL/d is to be fully paid for by WSC.



## 5. WATER CARTING PLAN FOR BUGALDIE

### 5.1 Water Supply System

Bugaldie’s water supply is drawn from a sub-artesian bore 100 m deep. Raw water is stored in a poly tank (8.5 kL) and chlorinated then pumped to a 8.5 kL elevated HDPE reservoir (Figure 20).

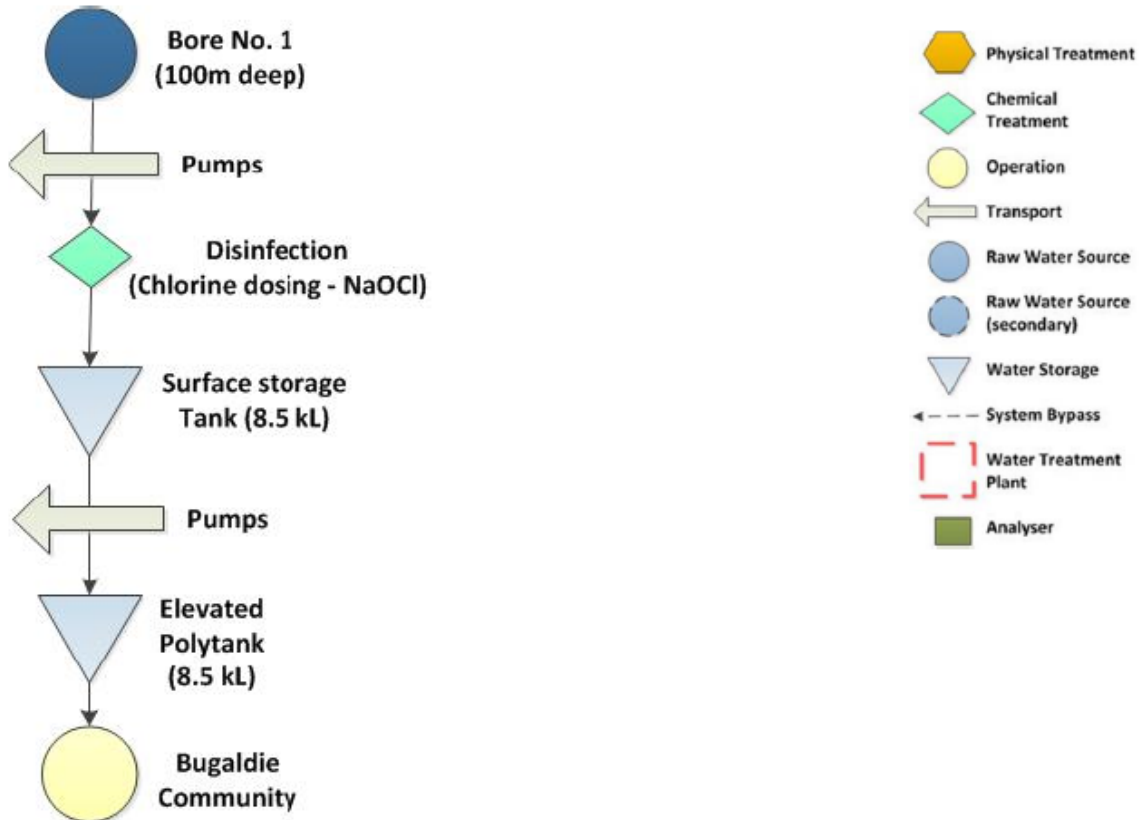


Figure 20: Bugaldie water supply system – schematic diagram

### 5.2 Emergency Water Requirements

Emergency water carting requirements for the Bugaldie community have been calculated in accordance with the NSW Government publication “*Drought and Emergency Relief for Regional Town Water Supplies*” (Table 9). The resident population of Bugaldie served by town water supply is estimated to be 30.

Table 9: Preliminary water carting demand for Bugaldie

Component	Allowance (L/p/d)	Demand (kL/d)	Comments
Residential	105	3.2	Septic tanks, reticulated water supply
Schools	42	-	None
Health multi-purpose service		-	None
Hotels		-	None
Cafés/restaurants		2.0	Various

Component	Allowance (L/p/d)	Demand (kL/d)	Comments
Public toilets		2.0	Estimate
Tourists	105	0.3	Assume 3 per day
Other		2.0	Estimate
<b>Total water carting demand</b>		<b>9.5</b>	

### 5.3 Infrastructure requirements

If the bore failed, Council would cart water to Bugaldie. Potable carted water would be stored at a new 10 kL tank to be constructed at the bore site. The water would then be disinfected prior to distribution to the Bugaldie community

Costs estimates for water carting infrastructure are given in Table 10.

**Table 10: Infrastructure cost estimates - Bugaldie**

Component	Cost estimate
<i>Storage and disinfection of carted water</i>	
Tanks - 1 x 10,000 kL	\$5,000
Pump	\$5,000
Connections, fittings etc.	\$5,000
Installation, commissioning etc.	\$5,000
<i>Sub-total</i>	<i>\$20,000</i>
<i>Contingency – 20%</i>	<i>\$4,000</i>
<b>Total cost estimate – infrastructure</b>	<b>\$24,000</b>

## 5.4 Water Carting Plan - Bugaldie

<b>Interruption to normal supply</b>	Bore supply has failed due to drought or equipment failure.
<b>Alternative source options</b>	None
<b>Duration of carting</b>	Date of commencement: TBA. Duration: until town supply is re-established.
<b>Volume to be carted</b>	9.5 kL/d for essential purposes.
<b>Proposed water source</b>	Coonamble Shire Council water filling station (potable).
<b>Water carter</b>	Commercial operator
<b>Carting route/distance</b>	Sealed roads: Coonamble to Bugaldie via Coonamble Road and Coonabarabran Road, 105 km.
<b>Number of trips</b>	1 x 13 kL tanker load per day
<b>Time required</b>	Loading: 30 mins Transport: 1 hour Unloading: 30 mins Return to Coonamble: 1 hour. Total turnaround time: 3 hours. Time required to supply emergency demand (9.5 kL): 2.0 hours using one 13 kL tanker.
<b>Unloading procedure</b>	Potable water tank to be installed at Bugaldie bore. There is sufficient space at the bore site for the tank, tanker unloading and turnaround.
<b>Treatment requirements</b>	Pressure/pump and main from new tank to disinfection.
<b>Other considerations</b>	While commercial operators have the ability to access the filling stations and supply the required quantities, details will be confirmed through contract with WSC. WSC to advise Coonamble Shire Council of need to access filling stations. Water carters will keep logbooks of water carted and comply with NSW Health guidelines for water carting. WSC will provide logbooks to NSW Government for payment.
<b>Water carting cost</b>	\$650 per load: One load per day (13 kL) = \$650 per day. The Warrumbungle Shire Council share of the water carting cost is \$1.90/kL. $\$1.90 \text{ kL} \times 9.5 \text{ kL/day} = \$18/\text{day}, \$126 /\text{week}.$ The NSW Government share of the water carting is the remainder: \$632 per day. Any water carted in excess of 9.5 kL/d is to be fully paid for by WSC.

## 6. WATER CARTING PLAN FOR COOLAH

### 6.1 Water Supply System

Coolah's water supply is drawn from three flow bores accessing the Coolaburragundy River aquifer. Bore water is dosed with chlorine gas for disinfection. Treated water is stored in three concrete reservoirs, 1.08 ML, 2 x 0.09 ML each) then gravity fed to the town mains (Figure 21, Figure 22 and Figure 23).

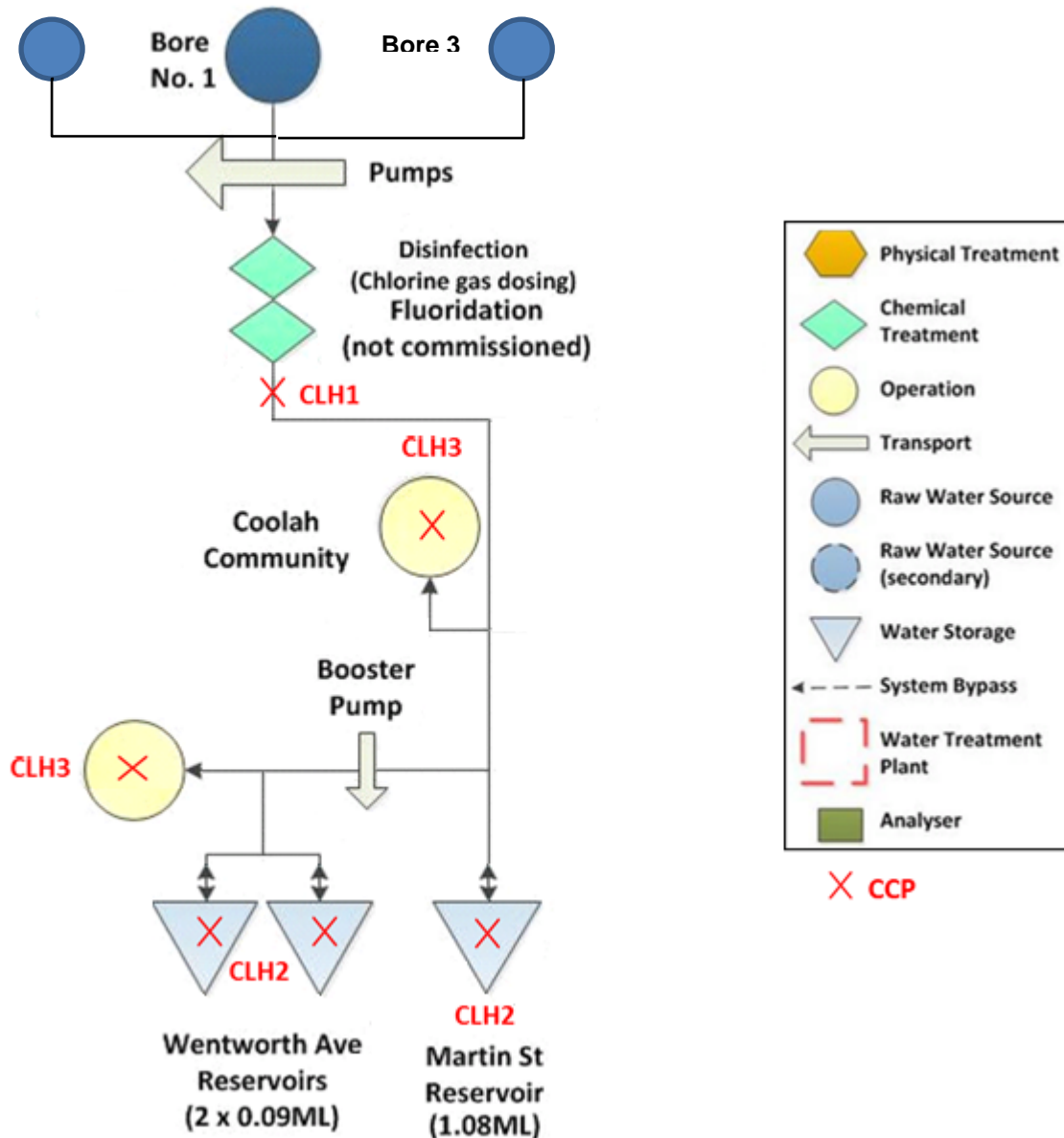


Figure 21: Coolah water supply system – schematic diagram

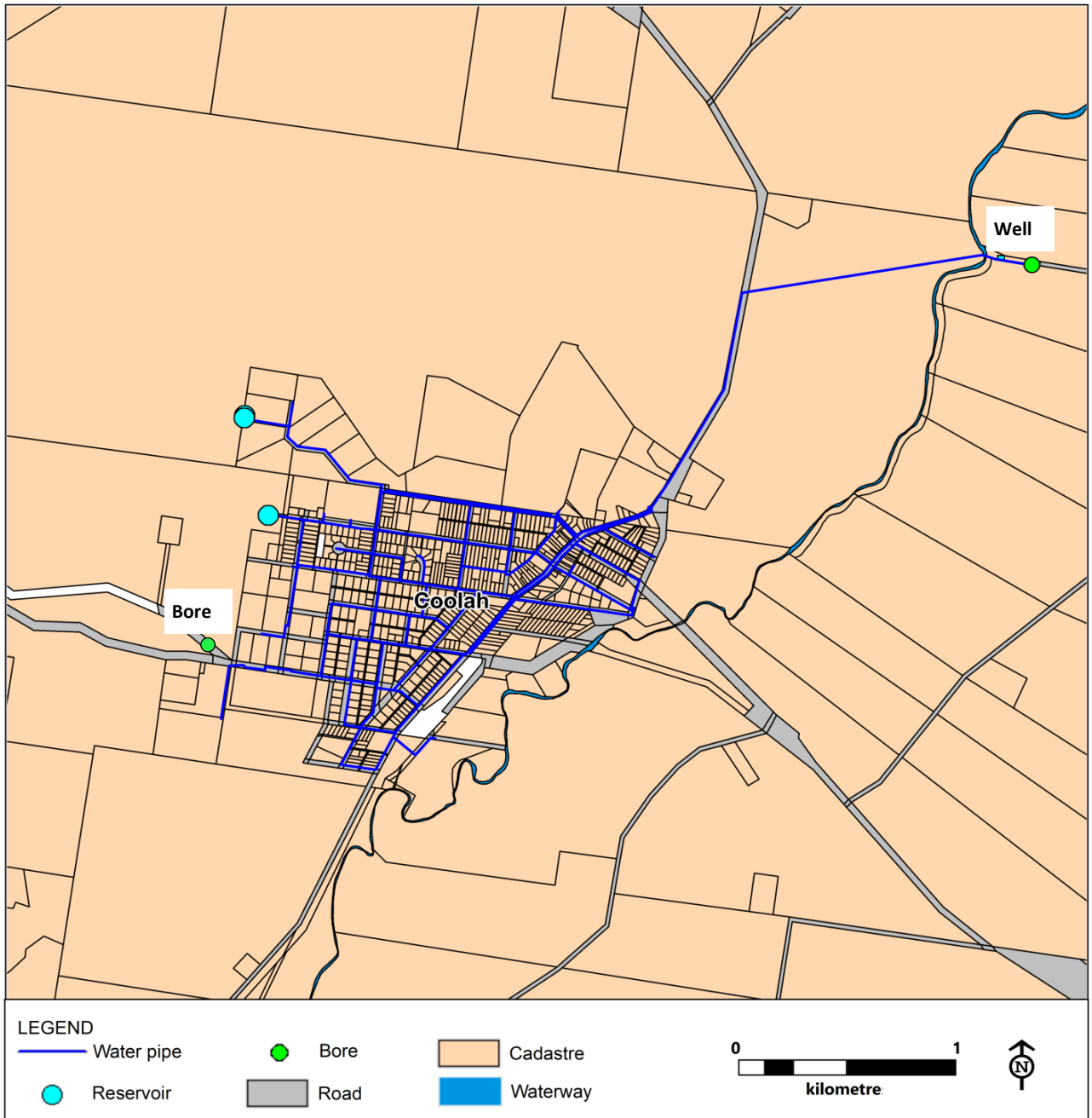


Figure 22: Coolah water supply system



Figure 23: Coolah bore 1, 2 site

## 6.2 Emergency Water Requirements

Emergency water carting requirements for the Coolah community have been calculated in accordance with the NSW Government publication “*Drought and Emergency Relief for Regional Town Water Supplies*” (Table 11). The resident population of Coolah is estimated to be 795 (from 2016 Census - Figure 24).

Table 11: Preliminary water carting demand for Coolah

Component	Allowance (L/p/d)	Demand (kL/d)	Comments
Residential	130	103.4	Sewered system, reticulated water supply
Schools	42	7.1	Public school, preschool – 170 non-resident population.
Health facilities		12.0	Coolah Hospital, Aged care hostel
Hotels		12.0	Coolah Hostel, Motel, caravan park
Cafés/restaurants		7.0	Various
Public toilets		5.0	
Tourists	130	1.3	Assume 10 per day
Other		2.0	Estimate
<b>Total water carting demand</b>		<b>150.0</b>	

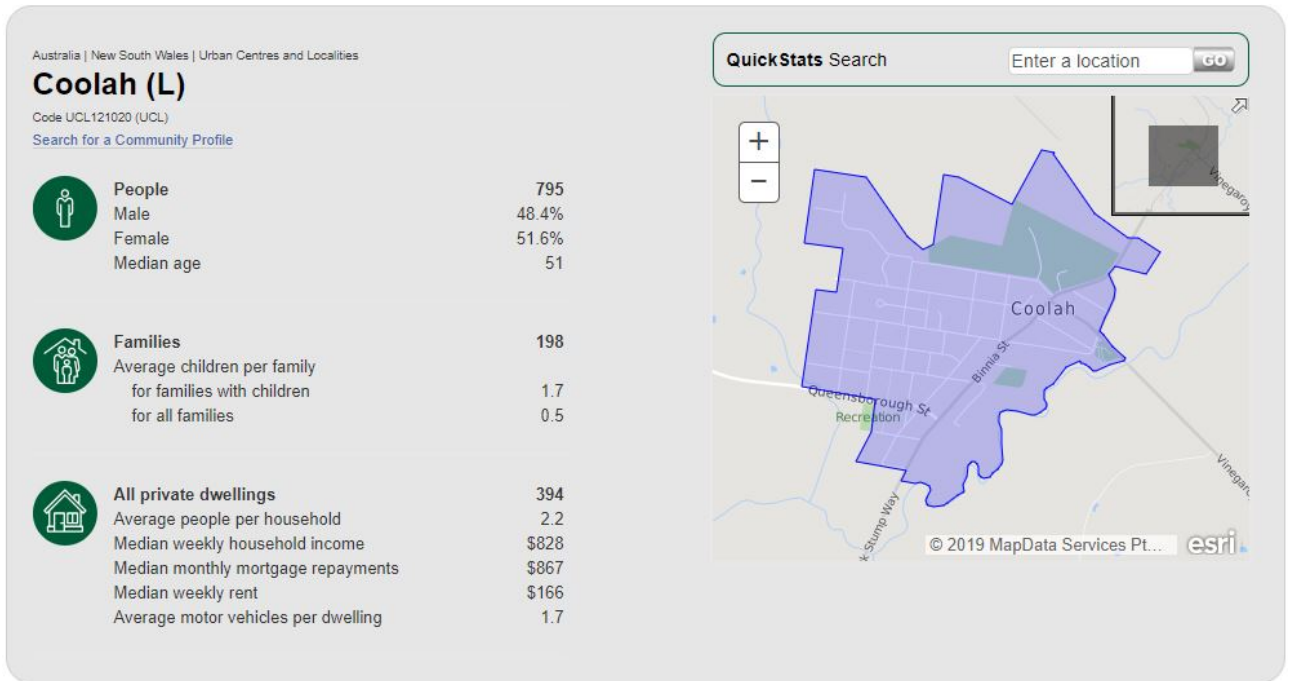


Figure 24: Population statistics (Census 2016) - Coolah

### 6.3 Infrastructure requirements

If both bores failed, Council would cart water to Coolah. Potable carted water would be stored at new tanks to be constructed at the bore site. The water would then be disinfected prior to distribution to the Coolah community. Six new water storage tanks of 22,500 kL would be required at the bore site.

Costs estimates for water carting infrastructure are given in Table 12.

Table 12: Infrastructure cost estimates - Coolah

Component	Cost estimate
<i>Storage and disinfection of carted water</i>	
Tanks - 6 x 22,500 kL	\$40,000
Pump	\$15,000
Connections, fittings etc.	\$15,000
Installation, commissioning etc.	\$10,000
<b>Sub-total</b>	<b>\$80,000</b>
<i>Contingency – 20%</i>	<i>\$16,000</i>
<b>Total cost estimate – infrastructure</b>	<b>\$96,000</b>

## 6.4 Water Carting Plan – Coolah

<b>Interruption to normal supply</b>	Ground water bore supply has failed due to drought.
<b>Alternative source options</b>	Back-up bore available
<b>Duration of carting</b>	Date of commencement: TBA. Duration: until independent town supply is re-established.
<b>Volume to be carted</b>	150 kL/d for essential purposes.
<b>Proposed water source</b>	Dubbo Regional Council water filling station (potable) – various filling stations are available.
<b>Water carter</b>	Commercial operator from Dubbo or as per Table 4.
<b>Carting route/distance</b>	Sealed roads: Dubbo to Coolah via Cobbora Rd, Golden Hwy, Leadville Rd, 115 km.
<b>Number of trips</b>	6 x 25 kL (or 12 x 13 kL) tanker loads per day
<b>Time required</b>	Loading: 30 mins Transport: 1.5 hrs Unloading: 30 mins Return: 1.5 hours. Total turnaround time: 4 hours. Time required to supply emergency demand (150 kL): 10.5 hours using two 25 kL tankers, 10 hours using four 13 kL tankers.
<b>Unloading procedure</b>	Potable water to be delivered to new storage tanks.
<b>Treatment requirements</b>	Pressure / pump and main from new tanks to disinfection.
<b>Other considerations</b>	While commercial operators have the ability to access the filling stations and supply the required quantities, details will be confirmed through contract with WSC. WSC to advise Dubbo Regional Councils of need to access filling stations. Water carters will keep logbooks of water carted and comply with NSW Health guidelines for water carting. WSC will provide logbooks to NSW Government for payment.
<b>Water carting cost</b>	\$650 per load: Six loads per day = \$3,900 per day. Twelve loads per day = \$7,800 per day. The Warrumbungle Shire Council share of the water carting cost is \$1.90/kL. \$1.90 kL x 150 kL/day = \$285/day, \$1,995/week. The NSW Government share of the water carting is the remainder: Six loads per day = \$3,615 per day. Twelve loads per day = \$7,515 per day. Any water carted in excess of 150 kL/d is to be fully paid for by WSC.



## 7. COONABARABRAN WATER SUPPLY

### 7.1 Water Supply System

Coonabarabran’s water supply is drawn from the 1,140 ML Timor Dam on the Castlereagh River or from Pound Yard Weir, 16 km downstream of the dam and 11 groundwater bores. Water from Pound Yard weir and bores 1, 2, 3 and 4 is collected in a well then pumped to the WTP. Bores 6 and 7 supply directly to the WTP. The new bores 5, 8, 10 and 11 feed into the supply main from Timor Dam to the WTP (Figure 25, Figure 26 and Figure 27).

Council can also access the dead storage (20% of the volume) in Timor Dam.

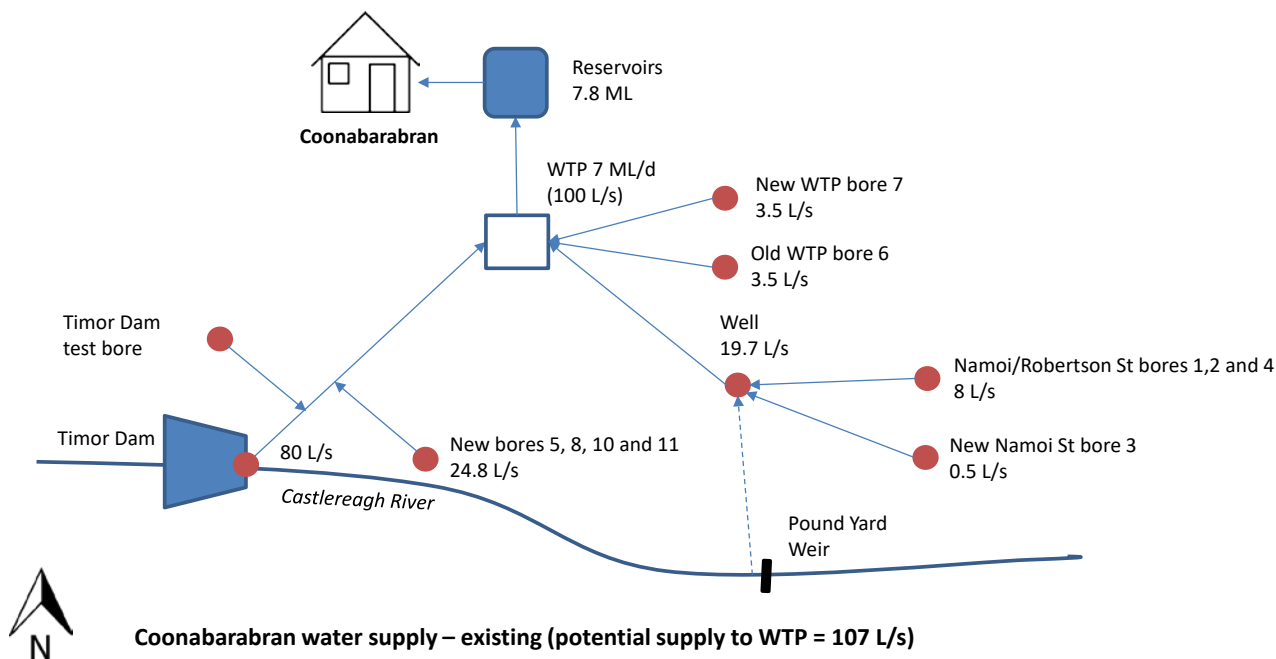


Figure 25: Coonabarabran water supply system – schematic diagram

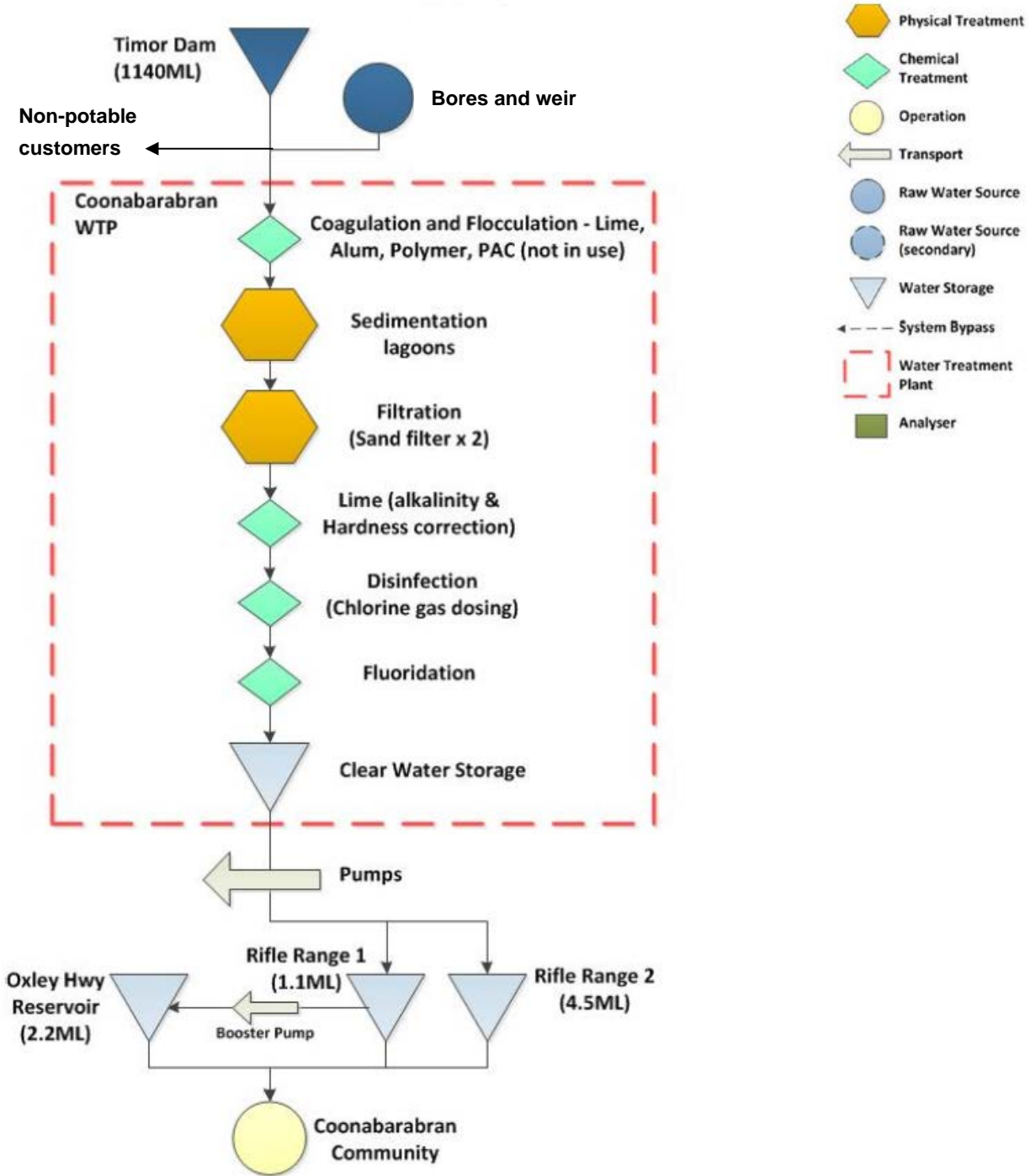


Figure 26: Coonabarabran water supply system

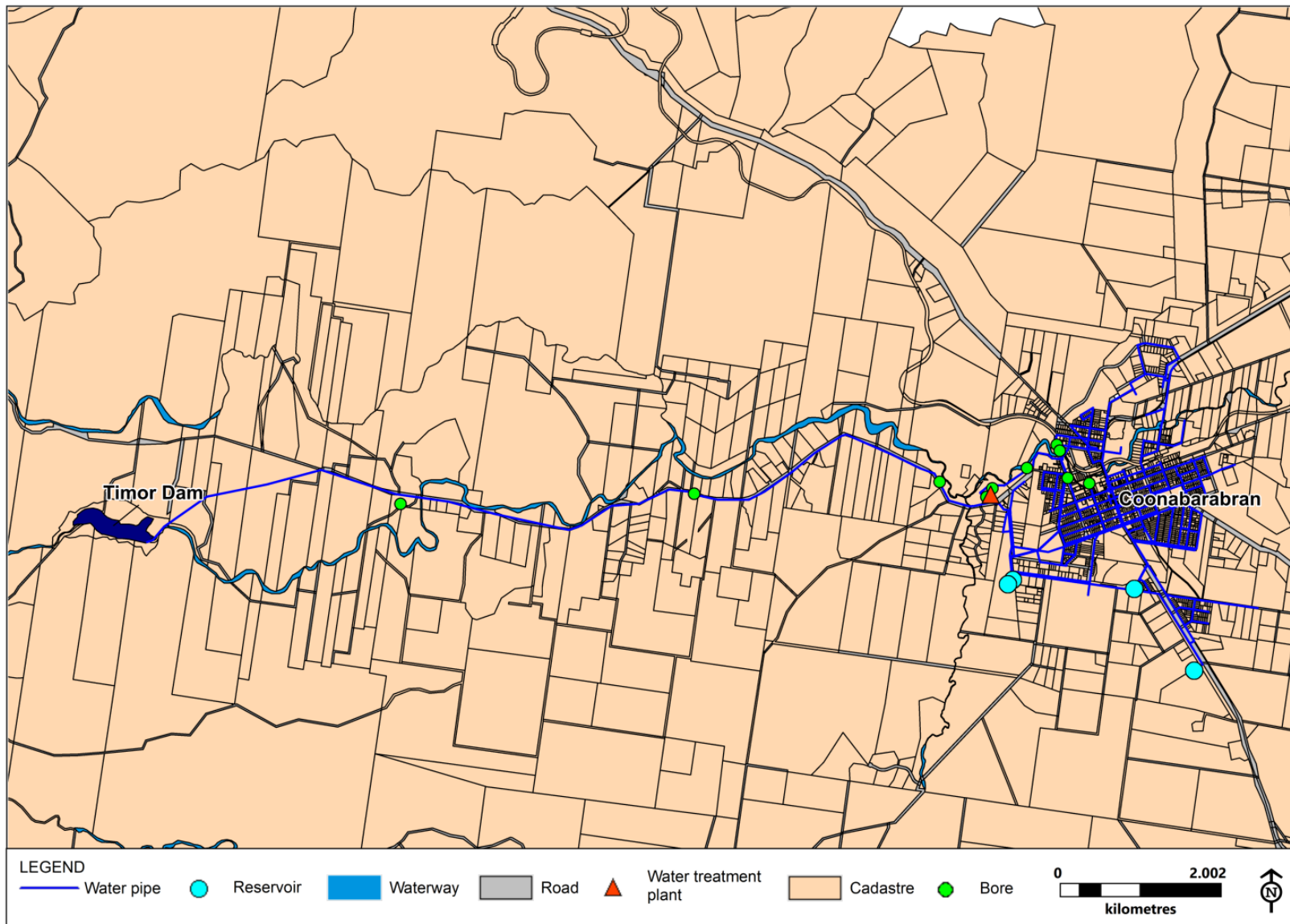


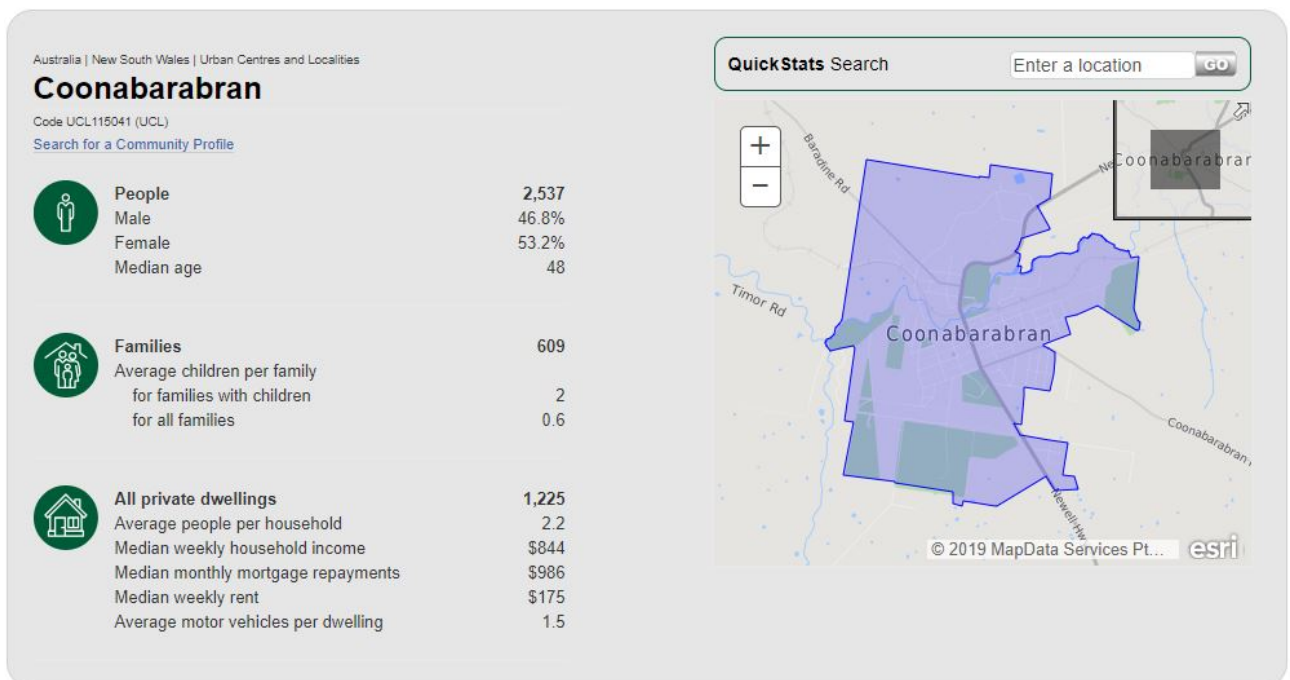
Figure 27: Coonabarabran water supply

## 7.2 Emergency Water Requirements

Emergency water carting requirements for the Coonabarabran community have been calculated in accordance with the NSW Government publication “*Drought and Emergency Relief for Regional Town Water Supplies*” (Table 13). The resident population of Coonabarabran is estimated to be 2,537 (from 2016 Census - Figure 28).

**Table 13: Preliminary water carting demand for Coonabarabran**

Component	Allowance (L/p/d)	Demand (kL/d)	Comments
Residential	130	329.8	Sewered system, reticulated water supply
Schools	42	21.0	Public school, preschool – 500 non-resident population.
Health facilities		40.0	Hospital, Health Service, Nursing Homes
Hotels		40.0	Various
Cafés/restaurants		30.0	Various
Public toilets		10.0	
Tourists	130	6.5	Assume 60 per day
Other		2.0	Estimate
<b>Total water carting demand</b>		<b>440.6</b>	



**Figure 28: Population statistics (Census 2016) - Coonabarabran**

## 7.3 Preferred Emergency Response

Carting the required volume of water to Coonabarabran (440 kL/d) and the storage requirements are not considered feasible. Therefore, Council will rely on the surface and groundwater supplies and dead storage infrastructure at Timor Dam.

## 8. WATER CARTING PLAN FOR DUNEDOO

### 8.1 Water Supply System

Dunedin's water supply is drawn from an alluvial bore near Talbragar River. A secondary source (bore 2) can also supply water for the Dunedin water supply system. Raw water is disinfected with sodium hypochlorite (Figure 29, Figure 30 and Figure 31).

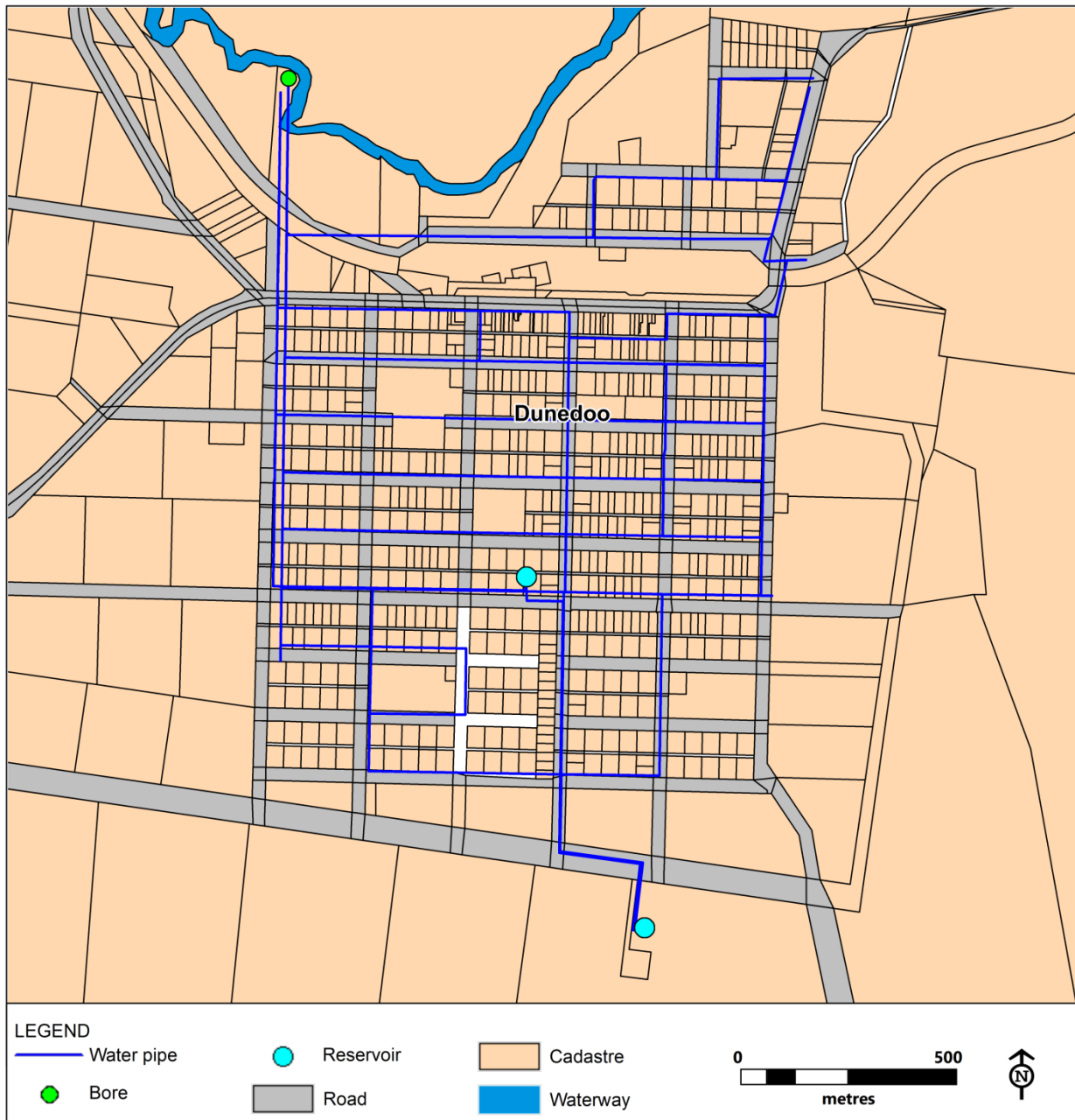


Figure 29: Dunedin water supply system

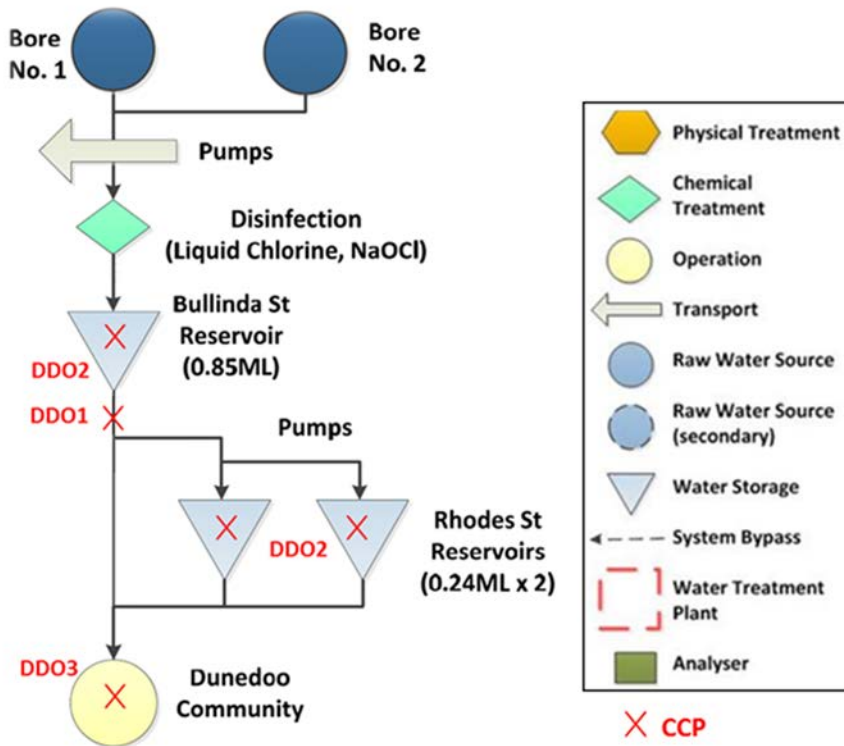


Figure 30: Dunedoo water supply schematic diagram



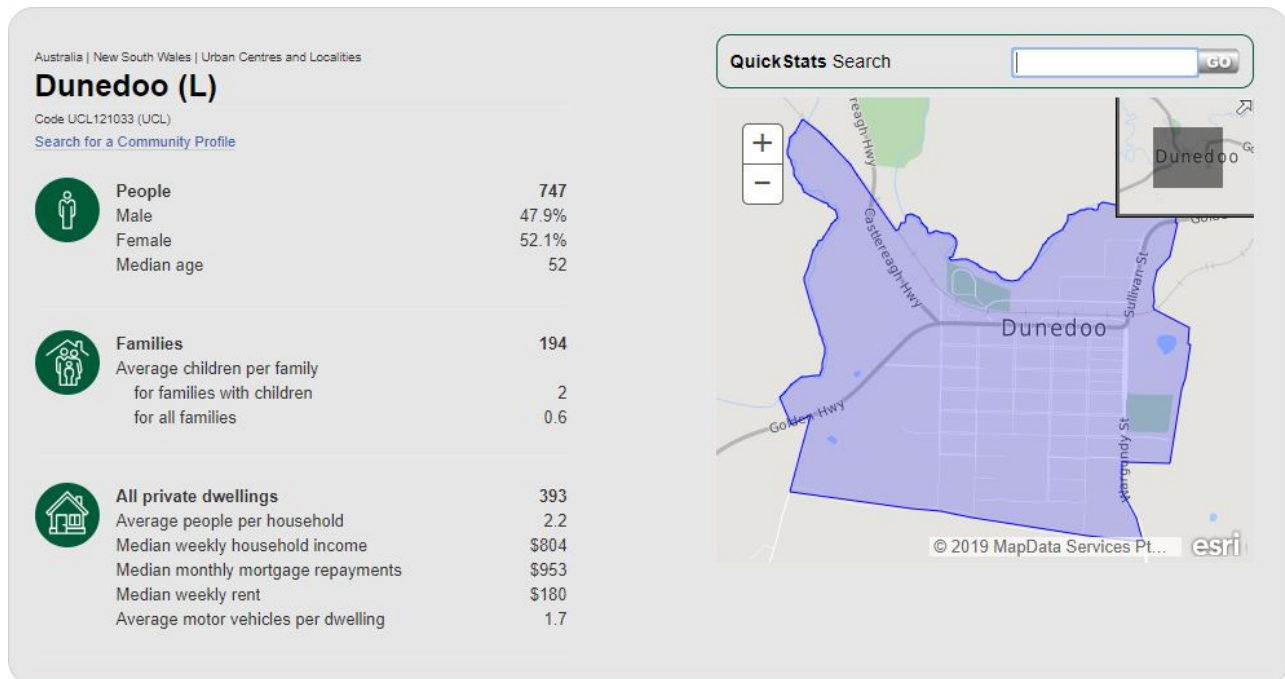
Figure 31: Dunedoo bore site

## 8.2 Emergency Water Requirements

Emergency water carting requirements for the Dunedoo community have been calculated in accordance with the NSW Government publication “Drought and Emergency Relief for Regional Town Water Supplies” (Table 14). The resident population of Dunedoo is estimated to be 747 (from 2016 Census - Figure 32).

**Table 14: Preliminary water carting demand for Dunedoo**

Component	Allowance (L/p/d)	Demand (kL/d)	Comments
Residential	130	97.1	Sewered system, reticulated water supply
Schools	42	7.1	Public school, preschool – 170 non-resident population.
Health facilities		8.0	Community health service
Hotels		12.0	Various
Cafés/restaurants		7.0	Various
Public toilets		5.0	Estimate
Tourists	130	1.3	Assume 10 per day
Other		2.0	Estimate
<b>Total water carting demand</b>		<b>139.6</b>	



**Figure 32: Population statistics (Census 2016) - Dunedoo**

## 8.3 Infrastructure requirements

If both bores failed, Council would cart water to Dunedoo. Potable carted water would be stored at new tanks to be constructed at the bore site. The water would then be disinfected prior to distribution to the Dunedoo community. Six new water storage tanks of 22,500 kL would be required at the bore site.

Costs estimates for water carting infrastructure are given in Table 15.

Table 15: Infrastructure cost estimates - Dunedoo

<b>Component</b>	<b>Cost estimate</b>
<i>Storage and disinfection of carted water</i>	
Tanks - 6 x 22,500 kL	\$40,000
Pump	\$15,000
Connections, fittings etc.	\$15,000
Installation, commissioning etc.	\$10,000
<i>Sub-total</i>	<i>\$80,000</i>
<i>Contingency – 20%</i>	<i>\$16,000</i>
<b>Total cost estimate – infrastructure</b>	<b>\$96,000</b>



## 8.4 Water Carting Plan – Dunedoo

<b>Interruption to normal supply</b>	Ground water bore supply has failed due to drought.
<b>Alternative source options</b>	Back-up bore available
<b>Duration of carting</b>	Date of commencement: TBA. Duration: until independent town supply is re-established.
<b>Volume to be carted</b>	140 kL/d for essential purposes.
<b>Proposed water source</b>	Dubbo Regional Council water filling station (potable) – various filling stations are available.
<b>Water carter</b>	Commercial operator from Dubbo or as per Table 4.
<b>Carting route/distance</b>	Sealed roads: Dubbo to Dunedoo via Cobbora Rd, 78 km.
<b>Number of trips</b>	6 x 25 kL (or 11 x 13 kL) tanker loads per day
<b>Time required</b>	Loading: 30 mins Transport: 1.0 hrs Unloading: 30 mins Return: 1.0 hours. Total turnaround time: 3 hours. Time required to supply emergency demand (150 kL): 9 hours using two 25 kL tankers, 9 hours using four 13 kL tankers.
<b>Unloading procedure</b>	Potable water to be delivered to new storage tanks at the bore site.
<b>Treatment requirements</b>	Pressure / pump and main from new tanks to disinfection.
<b>Other considerations</b>	While commercial operators have the ability to access the filling stations and supply the required quantities, details will be confirmed through contract with WSC. WSC to advise Dubbo Regional Council of need to access filling stations. Water carters will keep logbooks of water carted and comply with NSW Health guidelines for water carting. WSC will provide logbooks to NSW Government for payment.
<b>Water carting cost</b>	\$650 per load: Six loads per day = \$3,900 per day. 11 loads per day = \$7,150 per day. The Warrumbungle Shire Council share of the water carting cost is \$1.90/kL. \$1.90 kL x 140 kL/day = \$266/day, \$1,862 /week. The NSW Government share of the water carting is the remainder: Six loads per day = \$3,634 per day. 11 loads per day = \$6,884 per day. Any water carted in excess of 140 kL/d is to be fully paid for by WSC.

## 9. WATER CARTING PLAN FOR KENEBRI

### 9.1 Water Supply System

Kenebri’s water supply is drawn from one sub-artesian bore 30 m deep (510 kL/d). Raw water is stored in two elevated galvanised iron tanks (2 x 11 kL) and disinfected with sodium hypochlorite (Figure 33).

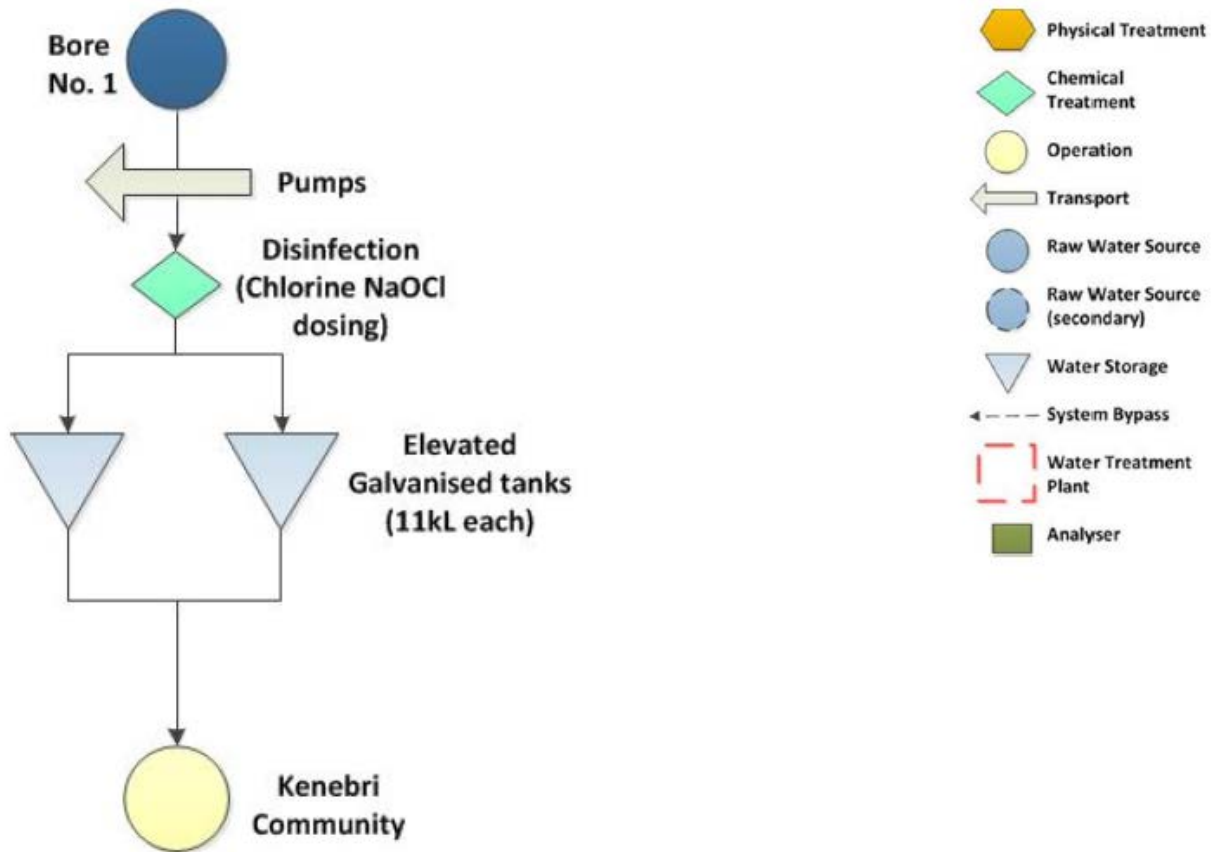


Figure 33: Kenebri water supply system – schematic diagram

### 9.2 Emergency Water Requirements

Emergency water carting requirements for the Kenebri community have been calculated in accordance with the NSW Government publication “*Drought and Emergency Relief for Regional Town Water Supplies*” (Table 16). The resident population of Kenebri served by town water supply is estimated to be 30.

Table 16: Preliminary water carting demand for Kenebri

Component	Allowance (L/p/d)	Demand (kL/d)	Comments
Residential	105	3.2	Septic tanks, reticulated water supply
Schools	42	-	None
Health multi-purpose service		-	None
Hotels		-	None

Component	Allowance (L/p/d)	Demand (kL/d)	Comments
Cafés/restaurants		2.0	Various
Public toilets		2.0	Estimate
Tourists	105	0.3	Assume 3 per day
Other		2.0	Estimate
<b>Total water carting demand</b>		<b>9.5</b>	

### 9.3 Infrastructure requirements

If the bore failed, Council would cart water to Kenebri. Potable carted water would be stored at a new 10 kL tank to be constructed at the bore site. The water would then be disinfected prior to distribution to the Kenebri community.

Costs estimates for water carting infrastructure are given in Table 10.

**Table 17: Infrastructure cost estimates - Kenebri**

Component	Cost estimate
<i>Storage and disinfection of carted water</i>	
Tanks - 1 x 10,000 kL	\$5,000
Pump	\$5,000
Connections, fittings etc.	\$5,000
Installation, commissioning etc.	\$5,000
<i>Sub-total</i>	<i>\$20,000</i>
<i>Contingency – 20%</i>	<i>\$4,000</i>
<b>Total cost estimate – infrastructure</b>	<b>\$24,000</b>

## 9.4 Water Carting Plan - Kenebri

<b>Interruption to normal supply</b>	Bore supply has failed due to drought or equipment failure.
<b>Alternative source options</b>	None
<b>Duration of carting</b>	Date of commencement: TBA. Duration: until town supply is re-established.
<b>Volume to be carted</b>	9.5 kL/d for essential purposes.
<b>Proposed water source</b>	Coonamble Shire Council water filling station (potable).
<b>Water carter</b>	Commercial operator
<b>Carting route/distance</b>	Sealed roads: Coonamble to Kenebri via Coonamble Rd, Gwabegar Baradine Rd, 85 km.
<b>Number of trips</b>	1 x 13 kL tanker load per day
<b>Time required</b>	Loading: 30 mins Transport: 1 hour Unloading: 30 mins Return to Coonamble: 1 hour. Total turnaround time: 3 hours. Time required to supply emergency demand (9.5 kL): 2.0 hours using one 13 kL tanker.
<b>Unloading procedure</b>	Potable water tank to be installed at Kenebri bore site. There is sufficient space at the bore site for the tank, tanker unloading and turnaround.
<b>Treatment requirements</b>	Pressure/pump and main from new tank to disinfection.
<b>Other considerations</b>	While commercial operators have the ability to access the filling stations and supply the required quantities, details will be confirmed through contract with WSC. WSC to advise Coonamble Shire Council of need to access filling stations. Water carters will keep logbooks of water carted and comply with NSW Health guidelines for water carting. WSC will provide logbooks to NSW Government for payment.
<b>Water carting cost</b>	\$650 per load: One load per day (13 kL) = \$650 per day. The Warrumbungle Shire Council share of the water carting cost is \$1.90/kL. $\$1.90 \text{ kL} \times 9.5 \text{ kL/day} = \$18/\text{day}, \$126 /\text{week}.$ The NSW Government share of the water carting is the remainder: \$632 per day. Any water carted in excess of 9.5 kL/d is to be fully paid for by WSC.

## 10. WATER CARTING PLAN FOR MENDOORAN

### 10.1 Water Supply System

Mendooran’s water supply is drawn from the Castlereagh River (concrete well) and treated at the 1.0 ML/d Mendooran WTP. The system can also utilise water from a well located downstream on the Castlereagh River (Figure 34, Figure 35 and Figure 36). A new back-up bore has been installed at the WTP.

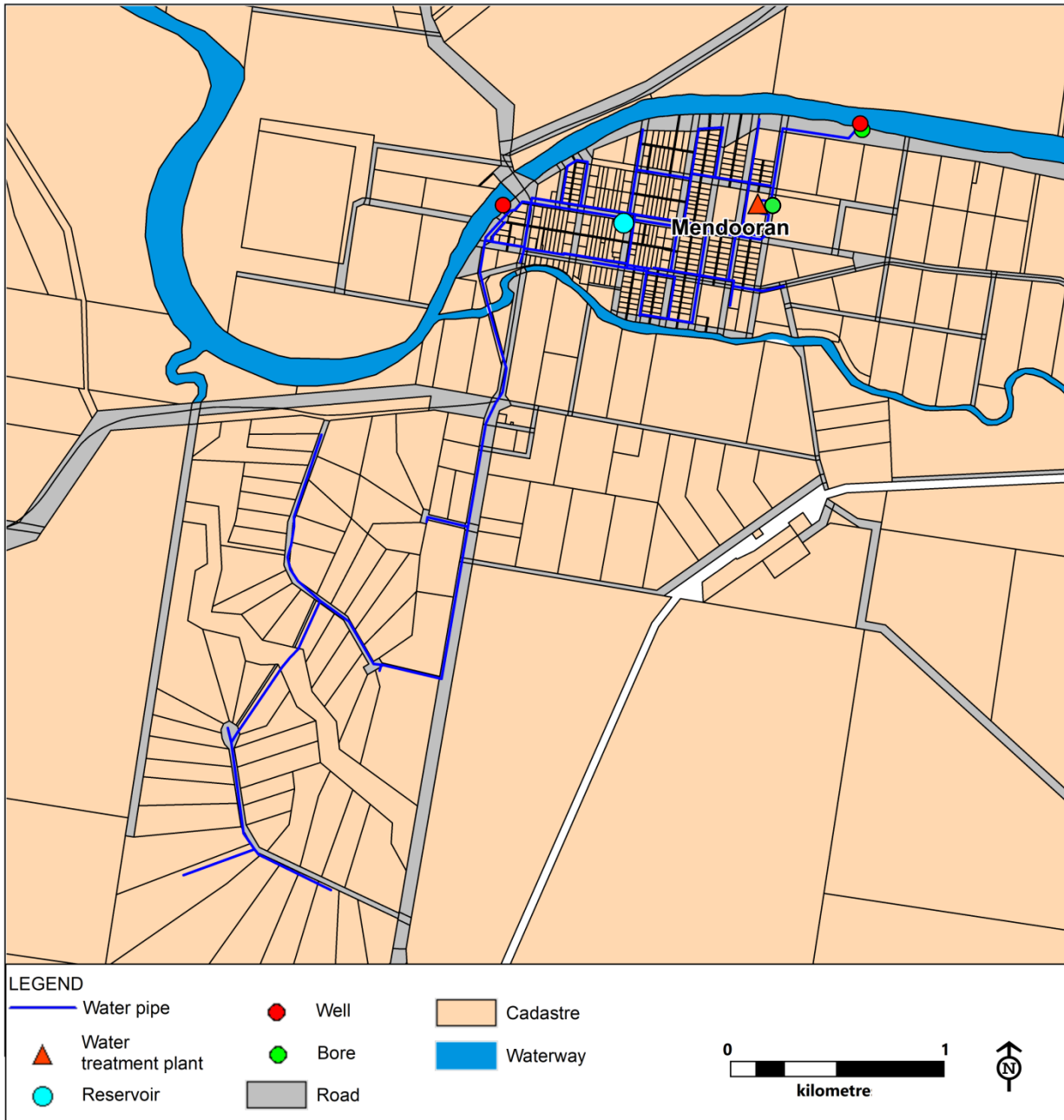


Figure 34: Mendooran water supply system

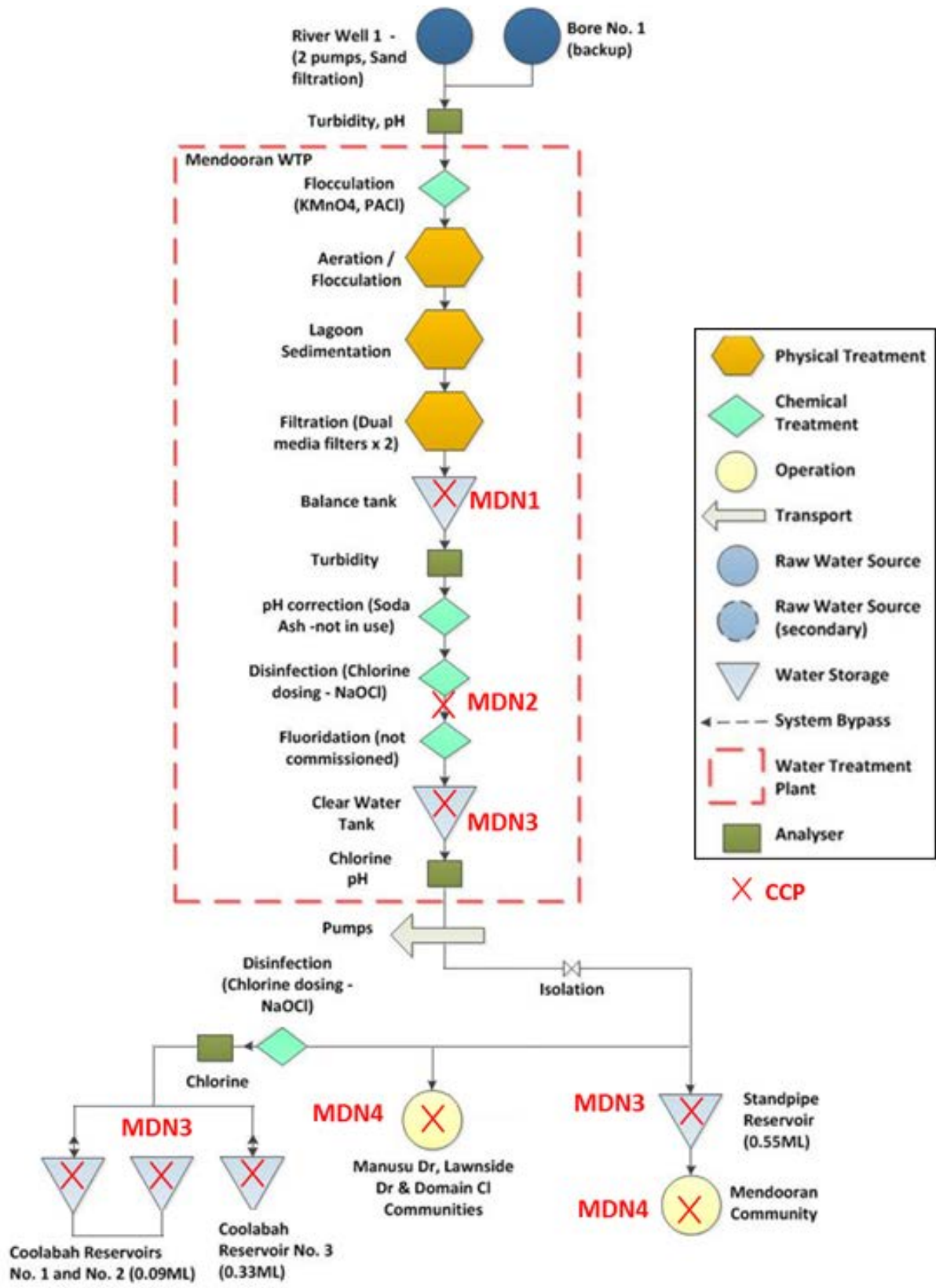


Figure 35: Mendooran water supply system – schematic diagram



Figure 36: Mendooran WTP site

## 10.2 Emergency Water Requirements

Emergency water carting requirements for the Mendooran community have been calculated in accordance with the NSW Government publication “*Drought and Emergency Relief for Regional Town Water Supplies*” (Table 18). The resident population of Mendooran is estimated to be 269 (from 2016 Census - Figure 37).

Table 18: Preliminary water carting demand for Mendooran

Component	Allowance (L/p/d)	Demand (kL/d)	Comments
Residential Population	105	28.2	Septic tanks, reticulated water supply
Schools	22	1.5	Central school + preschool – 70 non-resident population.
Health facilities		4.0	Community health centre.
Hotels		4.0	Mendooran Royal Hotel
Cafés/restaurants		4.0	Various
Public toilets		5.0	
Tourists	105	1.1	Assume 10 per day
Other		1.0	
<b>Total water carting demand</b>		<b>49.8</b>	

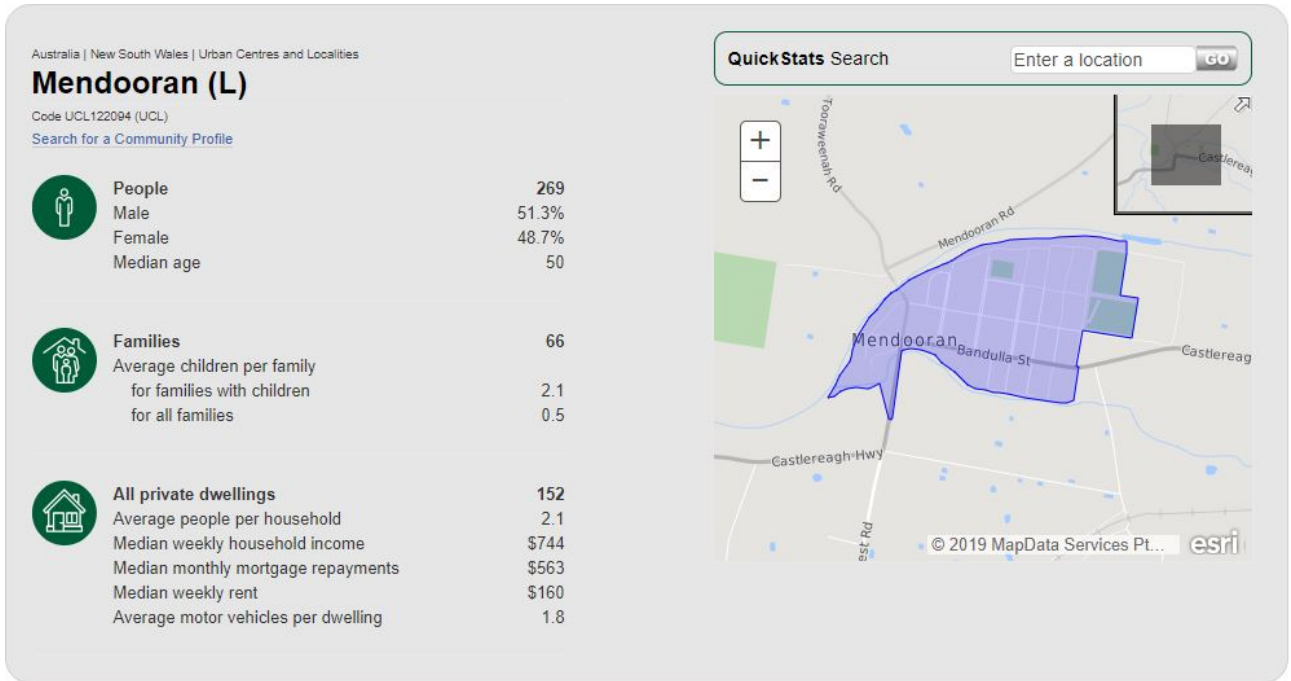


Figure 37: Population statistics (Census 2016) - Mendooran

### 10.3 Infrastructure requirements

Council will utilise the existing river pump station (not in use) to supply raw water to the WTP. In February 2019, there was water in the river at this location but the long-term reliability of the supply is unknown. A new pump and 650 m under bored main to the WTP will be required to connect this supply to the WTP. Council will then extract water from this location as part of its current river licence. This well would be used as a back-up for the town well and the bore near the WTP. Costs estimates for emergency water supply infrastructure are given in Table 19.

If the surface water and groundwater supplies failed, Council would cart water to Mendooran. Potable carted water would be stored in the lagoons at the WTP then filtered and disinfected prior to distribution to the Mendooran community.

Table 19: Infrastructure cost estimates – Mendooran

Component	Details	Cost estimate
<i>Connection of the old river supply to the WTP</i>		
New pump/s	?	\$50,000
Pipeline supply, installation, commissioning etc.	650 m, PVC, underbore	\$100,000
<i>Sub-total</i>		<i>\$150,000</i>
<i>Contingency</i>	20%	<i>\$30,000</i>
<b>Total cost estimate – infrastructure</b>		<b>\$180,000</b>



## 10.4 Water Carting Plan - Mendooran

<b>Interruption to normal supply</b>	River or ground water bore supply has failed due to drought.
<b>Alternative source options</b>	Second surface water supply.
<b>Duration of carting</b>	Date of commencement: TBA. Duration: until independent town supply is re-established.
<b>Volume to be carted</b>	50 kL/d for essential purposes.
<b>Proposed water source</b>	Dubbo Regional Council water filling station (potable) – various filling stations are available.
<b>Water carter</b>	Commercial operator from Dubbo or as per Table 4.
<b>Carting route/distance</b>	Sealed roads: Dubbo to Mendooran via Newell Hwy and Castlereagh Hwy, 68 km.
<b>Number of trips</b>	2 x 25 kL (or 4 x 13 kL) tanker loads per day
<b>Time required</b>	Loading: 30 mins Transport: 1.0 hrs Unloading: 30 mins Return: 1.0 hours. Total turnaround time: 3 hours. Time required to supply emergency demand (50 kL): 3.0 hours using two 25 kL tankers, or four 13 kL tankers.
<b>Unloading procedure</b>	Potable water to be delivered to lagoons at Mendooran WTP.
<b>Treatment requirements</b>	Filtration and disinfection to be provided at the WTP.
<b>Other considerations</b>	While commercial operators have the ability to access the filling stations and supply the required quantities, details will be confirmed through contract with WSC. WSC to advise Dubbo Regional Council of need to access filling stations. Water carters will keep logbooks of water carted and comply with NSW Health guidelines for water carting. WSC will provide logbooks to NSW Government for payment.
<b>Water carting cost</b>	\$650 per load: Two loads per day = \$1,300 per day. Four loads per day = \$2,600 per day. The Warrumbungle Shire Council share of the water carting cost is \$1.90/kL. \$1.90 kL x 50 kL/day = \$95/day, \$665 /week. The NSW Government share of the water carting is the remainder: Two loads per day = \$1,205 per day. Four loads per day = \$2,505 per day. Any water carted in excess of 50 kL/d is to be fully paid for by WSC.

## 11. OTHER VILLAGES

Residents in Merrygoen and other villages in the shire rely on private water supplies for potable purposes and these residents would cart water to fill their rainwater tanks if required. The towns, estimated population and potential water source is shown in the following table. Carted water would be supplied directly to the household rainwater tanks. The water supply cost (\$3.80 per kL, rate to be reviewed each year) would be paid by the residents. The NSW government may meet freight charges in excess of \$3.80 per kL supplied.

**Table 20: Unserviced villages**

Village	Population	Potential water source	Distance from water source (km)	Emergency water demand (kL/d)
Barwon	34	Coonabarabran standpipe	70	6.8
Bomera	31	Coonabarabran standpipe	70	6.5
Box Ridge	42	Coonabarabran standpipe	40	7.6
Dandry	93	Coonabarabran standpipe	30	12.7
Goolhi	84	Coonabarabran standpipe	66	11.8
Goorianawa	28	Coonabarabran standpipe	44	6.2
Gowang	25	Coonabarabran standpipe	44	5.9
Leadville	179	Dunedoo standpipe	34	21.3
Merrygoen	115	Mendooran standpipe	15	14.9
Mollyan	36	Mendooran standpipe	38	7.0
Neilrex	71	Mendooran standpipe	35	10.5
Nombi	39	Coonabarabran standpipe	74	7.3
Purlewaugh	103	Coonabarabran standpipe	54	13.7
Rocky Glen	76	Coonabarabran standpipe	46	11.0
Tannabar	67	Coonabarabran standpipe	26	10.1
Teridgerie	61	Baradine standpipe	4	9.5
Uarbry	49	Dunedoo or Coolah standpipe	48	8.3
Ulamambri	215	Coonabarabran standpipe	20	24.9
Wattle Springs	70	Coonabarabran standpipe	20	10.4
Weetaliba	51	Coolah standpipe	30	8.5
Yarragrין	28	Mendooran standpipe	27	6.2
Remainder of the Shire	2,401	Various	Various	270.7

## 12. PLAN REVIEW

This plan will be reviewed on an annual basis and following each activation of the plan (water carting).