Prepared for:

Surat Basin Rail Joint Venture c/o AECOM Australia Pty Ltd 12 Cribb Street Milton Qld 4064

Groundwater Impact Assessment

Surat Basin Rail Joint Venture

Final

AECOM 16 December 2009 Document No.: B1015902_RPTFinal_16Dec09.doc

Environment

Distribution

Groundwater Impact Assessment Surat Basin Rail Joint Venture

16 December 2009

Copies	Recipient	Copies	Recipient	
1	Rouven Lau AECOM 12 Cribb Street Milton Qld 4064	1	AECOM Project File 57 Berwick Street Fortitude Valley QLD 4006	

© AECOM

* AECOM Australia Pty Ltd (hereafter referred to as AECOM) has prepared this document for the limited purpose which is described in the Scope of Works section, and was based on information provided by the client, AECOM's understanding of the site conditions, and AECOM's experience, having regard to the assumptions that AECOM can reasonably be expected to make in accordance with sound professional principles.

* This document was prepared for the sole use of the party identified on the cover sheet, and that party is the only intended beneficiary of AECOM's work.

* No other party should rely on the document without the prior written consent of AECOM, and AECOM undertakes no duty to, nor accepts any responsibility to, any third party who may rely upon this document.

* All rights reserved. No section or element of this document may be removed from this document, extracted, reproduced, electronically stored or transmitted in any form without the prior written permission of AECOM.

By AECOM

ABN: 20 093 846 925 Level 1, 57 Berwick Street Fortitude Valley QLD 4006 PO Box 720 Fortitude Valley QLD 4006 Ph: +61 7 3606 8900 Fax: +61 7 3606 8999

Jason Perry Professional Scientist

Technical Peer Reviewer:

reration

Date: 16 2009

Willy Van Vaerenbergh Technical Director/Group Leader - Environment QLD

Use or disclosure of data contained on this sheet is subject to the restriction on the distribution page of this document.

Commercial in Confidence

Groundwater Impact Assessment B1015902_RPTFinal_16Dec09.doc

"This page has been left blank intentionally"



Contents

1.0 INTRODUCTION				1
	1.1	Scope of	f Works	1
2.0	CONS	TRUCTION	WATER	3
	2.1	Water St	upply Options	3
		2.1.1	Surface Water	3
		2.1.2	Groundwater	4
		2.1.3	Coal Seam Gas	4
3.0	LEGIS	LATIVE FR	AMEWORK	5
	3.1	Queensl	and Water Act 2000	5
	3.2	Water R	esources (Great Artesian Basin) Plan 2006	5
	3.3	Great Ar	tesian Basin Resource Operations Plan 2006	6
	3.4	Water Ro Operatio	esources (Fitzroy Basin) Plan and Fitzroy Basin Resource n Plan	6
	3.5	Water A	ccess Options	6
		3.5.1	State Water Reserve	6
		3.5.2	Water Allocations	7
		3.5.3	Water Licenses	7
		3.5.4	Water Permits	7
4.0	DESC		F THE EXISTING GROUNDWATER ENVIRONMENT	9
	4.1	Regiona	I Geology and Stratigraphy	9
	4.2	Regiona	I Hydrogeology	11
		4.2.1	Great Artesian Basin Aquifers	11
		4.2.2	Unconfined Aquifer	12
	4.3	Groundv	vater Bore Searches	12
	4.4	Descript	ion of Environmental Values	13
		4.4.1	Groundwater Levels	13
		4.4.2	Groundwater Quality	
		4.4.3	Springs	14
		4.4.4	Existing Groundwater Uses	15
5.0	ANAL	YTICAL GR		17
	5.1	Analytica	al Model	17
	5.2	Model D	esign	17
		5.2.1	Hydrogeological Parameters	19
		5.2.2	Assumptions	
	5.3	Model R	esults	
		5.3.1	0 – 9 km Construction Area	
		5.3.2	9 – 19.28 km Construction Area	21
		5.3.3	19.28 – 63 km Construction Area	
		5.3.4	63 – 90 km Construction Area	
	5.4	Summar	y of Results	25
6.0	IMPAC	CT ASSESS	MENT	27
	6.1	Potentia	I Groundwater Impacts	27
		6.1.1	Construction Phase	27

		6.1.2	Operational Phase	
	6.2	Manag	ement and Mitigation	
		6.2.1	Construction Phase	
		6.2.2	Operational Phase	
7.0	CONC	LUSIONS	AND RECOMMENDATIONS	
8.0	LIMITA	TION ST	ATEMENT	
9.0	REFEF	RENCES		

List of Tables

Body Report

Table 1: Estimated Water Volume Requirements for Construction	3
Table 2: Summary of Groundwater Quality (Hutton and Precipice Sandstone)	14
Table 3: Southern Project Area Water Demand	18
Table 4: Water Demand by Use	18
Table 5: Construction Phase Management/Mitigation Measures	28
Table 6: Operation Phase Management/Mitigation Measures	30

Tables Section

Table T1: Groundwater Bore Water Licenses

Table T2: Water Level Measurements

Table T3: Groundwater Quality

Table T4: Recharge and Watercourse Springs

Table T5: Distances to 5-metre Drawdown

List of Figures

Body Report

Figure 1: Generalised Stratigraphy of the Bowen and Surat Basins (Adapted from Geobyte, 1997).....10

Figures Section

Figure F1: Generalised Geological Map Figure F2: Licensed Groundwater Bores in the Project Area Figure F3: Aquifer Screen Intervals Figure F4: Total Dissolved Solids Figure F5: Groundwater Bore Suitability Map Figure F6: Model Results (1,800 ML and 2,700 ML Scenarios) Figure F7: Model Results (3,500 ML Scenario)

List of Appendices

Appendix A Groundwater Demand Schedules Appendix B Groundwater Model Results (1,800 ML) Appendix C Groundwater Model Results (2,700 ML) Appendix D Groundwater Model Results (3,500 ML)

Glossary of Terms

BGS	Below Ground Surface
CSG	Coal Seam Gas
DVWSS	Dawson Valley Water Supply Scheme
DERM	Department of Environment and Resource Management
DO	Dissolved Oxygen
EC	Electrical Conductivity
EIS	Environmental Impact Statement
EMP	Environmental Management Plan
ESA	Environmental Site Assessment
GAB	Great Artesian Basin
IPA	Integrated Planning Act
km	kilometres
km ²	square kilometres
ML	megalitres
ML/yr	megalitres per year
m	metres
m/day	metres per day
m²/day	square metres per day
m³/day	cubic metres per day
µg/L	micrograms per litre
µS/cm	MicroSiemens per centimetre
mg/kg	milligrams per kilogram
mg/L	milligrams per litre
ppm	parts per million
ROP	Resource Operations Plan
SWL	Standing Water Level
SBRJV	Surat Basin Rail Joint Venture
TIA	Theodore Irrigation Area
TDS	Total Dissolved Solids
WRP	Water Resources Plan

Artesian Bore – includes a shaft, well, gallery, spear or excavation, and any works constructed in connection with the shaft, well, gallery, spear or excavation, that taps an aquifer and the water flows, or has flowed, naturally to the surface

Subartesian Bore – includes a shaft, well, gallery, spear or excavation, and any works constructed in connection with the shaft, well, gallery, spear or excavation, that taps an aquifer and the water does not flow and never has flowed naturally to the surface

Unallocated General Reserve Water – water reserved by the state available for those eligible to be granted a water license

Unallocated State Reserve Water – unallocated water reserved by the state for projects of state significance, regional significance or for town water supply purposes

Water Allocations – an entitlement to be supplied with a volumetric share of water by the operator of a water supply scheme

Water Entitlement - means a water allocation, interim water allocation or water license

Water Licence – authority of owner of a parcel of land to take and use water on that land and to interfere with the flow of water on, under or adjoining any of the land

Water Permit – authority to take water for an activity, including, for example, the construction of a road and must have a foreseeable conclusion date

"This page has been left blank intentionally"

1.0 Introduction

AECOM Australia Pty Ltd (AECOM) has undertaken a groundwater impact assessment as part of a supplementary environmental impact statement (EIS) for the Surat Basin Rail Joint Venture (SBRJV). The purpose of the joint venture is to construct a 210-km railway that connects the existing western railway system at Wandoan, Queensland and the Moura railway system at Banana, Queensland.

The SEIS, and in particular, the groundwater impact assessment, were designed to supplement the EIS that was completed in February 2009. Since the initial submittal, additional information was made available to provide a more detailed assessment of the water supply options as well as an assessment of the potential impacts to groundwater.

The objective of the groundwater impact assessment is to:

- Assess the availability and potential yield of existing groundwater resources in the project area for water supply.
- Evaluate the potential impacts of the project on the existing groundwater resources and environment.
- Identify management and mitigation measure to address such potential impact.

1.1 Scope of Works

In order to meet the objectives of this assessment, AECOM undertook the following:

- Desktop review of the hydrogeological environment, including:
 - The occurrence, characteristics and interconnectivity of aquifers in the project area.
 - Groundwater levels and water quality characteristics.
 - Recharge / discharge mechanisms.
 - Groundwater usage.
 - Environmental values associated with the aquifers.
- Assessment of different water supply options, using a combination of surface water and groundwater supply sources, including, but not limited to Great Artesian Basin (GAB) groundwater, coal seam gas (CSG) production water and surface water.
- Assessment of current water licences to identify potential groundwater resources available to the project.
- Development of water demand schedule for the project in terms of potential water sources, water demand, water quality, location and timeframe along the railway line.
- Analytical modelling to assess the impacts of the groundwater demand on the aquifers, in terms of extent and level of drawdown on current groundwater users. The results of the model assisted in evaluating potential groundwater sources for the project.
- Evaluation of the potential groundwater sources, with respect to viability, impact assessment and identification of management / mitigation measures of identified impacts. In addition, the regulatory requirements for obtaining groundwater were identified.

Use or disclosure of data contained on this sheet is subject to the restriction on the distribution page of this document.

"This page has been left blank intentionally"

Use or disclosure of data contained on this sheet is subject to the restriction on the distribution page of this document.

Commercial in Confidence

2.0 Construction Water

A detailed water supply study was undertaken as part of the EIS and SEIS (Aurecon Hatch, 2009a). Three potential water supply sources to meet the water demand of the project have been identified, i.e. surface water, groundwater and Coal Seam Gas produced water. Aurecon Hatch (2009a) provides a detailed description and assessment of the surface water and CSG water supplies in the construction water supply portion of the EIS.

Table 1 provides a summary of the proposed water use and volume required to complete the project based on an analysis by Aurecon Hatch (2009a). The construction phase of the project is expected to last for 33 months.

Description	Minimum Water Required (ML)	Maximum Water Required (ML)
Bulk Earthworks	1,420	1,662
Concrete	18	18
Pavement	246	246
Dust Suppression	810	910
Miscellaneous	130	465
Construction Camps	80	80
Contingency	650	800
Total	3,300	4,200

Table 1: Estimated Water Volume Requirements for Construction

2.1 Water Supply Options

A summary of the water supply options available to the project is provided below.

2.1.1 Surface Water

Surface water is managed by DERM and SunWater. DERM is responsible for authorising works, water licences, unsupplemented water allocations and water permits, while SunWater manages the water allocations in the Dawson Valley Water Supply Scheme (DVWSS) in the Fitzroy Basin Resource Operations Plan (ROP).

The primary source of surface water within the project area is the Dawson River, managed under the DVWSS. The Dawson River is a major tributary of the Fitzroy River and originates in the Carnarvon Gorges, north of Injune, approximately 640 km in length. The catchment area of the Dawson River is approximately 50,800 km², and is bounded to the west by the Lynd and Exhibition Ranges, the Great Dividing Range to the south, and the Auburn, Calliope, Ulam and Dee Ranges to the east. The Dawson River combines with the Mackenzie River to form the Fitzroy River, which discharges into Keppel Bay near Rockhampton.

The project is reasonably close to the Dawson River from Cracow to Banana, so surface water could potentially be collected from a number or weirs, including Glebe, Gyranda and Isla Delusion along the river. Although there is no unallocated water in the DVWSS, water is available through short term water permits or trading of existing water allocations. This water source is not as reliable as other options because its availability is dependent on precipitation and catchment runoff.



According to the Construction Water Supply Report (Aurecon Hatch, 2009a), approximately 1,500 ML of water would be required for the northern portion of the project. Given the absence of viable groundwater resources in this area, this water demand is proposed to be primarily obtained from the Dawson River. The Construction Water Supply Report and Surface Water Impact Assessment reports (Aurecon Hatch, 2009a) provide more detail on the surface water supply option and impacts.

2.1.2 Groundwater

The major source of groundwater for this project is the Great Artesian Basin (GAB) in the southern portion of the project area. The GAB is managed under the Water Resource (Great Artesian Basin) Plan and the Great Artesian Basin ROP. The legislative framework permits groundwater within the GAB to be extracted through a number of options (discussed in more detail in **Section 1.1**). Groundwater is the preferred water source in the southern portion of the project due to its reliability as a water source and its quality.

Another potential groundwater source in the project area is the Dawson River Alluvium, located in the southern and northern portions of the project. Although the sub-artesian aquifers can locally have high yields and groundwater is shallow, this water supply source is not considered reliable for the project because it is dependent on rainfall, and the water quality is significantly less than groundwater in the GAB.

Based on the estimated surface water demand (1,500 ML), approximately 1,800 ML to 2,700 ML of groundwater would be required to meet the project's water demands.

2.1.3 Coal Seam Gas

A potential water supply source for the project is the produced water from existing CSG operations. The major gas fields in the vicinity of the project area are in the Bowen Basin (northern portion of the project) and in the Surat Basin(southern portion of the project). These fields include the Dawson Valley near Banana, and the Peat and Scotia fields near Wandoan.

The Dawson Valley field produced 29.1 ML of water in 2007-2008 whilst the Peat field produced 20.1 ML. The Scotia field did not produce any water in 2007/08 according to DME reports. The low water production from these bores is due to the age and location of the fields. All fields have been established for some time and therefore water production has decreased substantially.

CSG fields outside the Project such as the Fairview and Spring Gully fields near Injune and the Berwyndale South located south of Miles produce higher quantities of water, with production of 2,007 ML/a, 1,976 ML/a and 1,955 ML/a respectively (DME, 2008). Fairview and Spring Gully are located over 85 km to the west of the Project whilst Berwyndale South is 80 km to the south of the Project.

CSG-derived water is a minor source of water compared to surface water and groundwater, and the water quality is poor with respect to the project requirements. Electrical conductivity values for water in coal seams can range from $2,000 - 5,000 \ \mu\text{S/m}$, with pH values ranging from 8 - 9. Use of typical water from SCG field could require treatment prior to construction use, so it is unlikely that this is a viable source for water.

Aurecon Hatch (2009b) provides more detail in the surface water impact assessment portion of the EIS.

Use or disclosure of data contained on this sheet is subject to the restriction on the distribution page of this document.

3.0 Legislative Framework

As part of this groundwater impact assessment, a brief review of applicable legislation has been undertaken, with the purpose to identify any regulatory constraints/requirements or approval processes. The relevant legislation with respect to the groundwater resources for the project includes:

- The Queensland Water Act 2000
- Water Resources (Great Artesian Basin) Plan 2006
- The Great Artesian Basin Resource Operations Plan 2006
- The Water Resources (Fitzroy Basin) Plan 1999
- The Fitzroy Basin Resource Operation Plan 1999

3.1 Queensland Water Act 2000

The *Queensland Water Act* (2000) was drafted to govern all surface water and groundwater in the state. The state is divided into 22 catchments that are individually managed. This project falls within two catchments: the Great Artesian Basin in the southern part of the project, and the Fitzroy Basin in the northern part of the project. A Water Resources Plan (WRP) has been developed for each of these catchments to define the government's goals for achieving a balance between the allocation and sustainable use of water to meet human needs and meeting the needs of the environment. A Resource Operations Plan (ROP) has also been developed for these catchments to detail how the government will achieve the goals specified in the WRP.

Under the water act, there are a number of options for accessing surface water and groundwater within the GAB. The legislative means of access to this water are:

- Unallocated state reserve water.
- Unallocated general reserve water.
- Water allocations.
- Water licence.
- Water permit.

These options are discussed in more detail is Section 3.5.

3.2 Water Resources (Great Artesian Basin) Plan 2006

The Water Resources (Great Artesian Basin) Plan was released in 2006 under the Queensland Water Act (2000). The plan states that its purpose is to define the availability of water in the GAB, provide a framework for sustainably managing water and the taking of water and to identify priorities and mechanisms for dealing with future water requirements.

The WRP subdivides the GAB into 25 management area, and are further subdivided into management units. The southern portion of the project falls within management units Surat North 2 and Surat North 3 of the Surat North management area, and management unit Mimosa 1 of the Mimosa management area. For the purposes of this project, only the Surat North management area is considered to have groundwater accessible to meet the demands of the project.



3.3 Great Artesian Basin Resource Operations Plan 2006

The Surat North management area is governed under the GAB ROP, and implements the goals outlined in the WRP. The GAB ROP applies to the following water within their respective management areas:

- Artesian water.
- Subartesian water connected to artesian water.
- Water springs connected to artesian water or subartesian water connected to artesian water.

This plan provides a sustainable management of water by protecting environmentally and culturally significant springs and waterways and ensuring that water resources are properly allocated.

3.4 Water Resources (Fitzroy Basin) Plan and Fitzroy Basin Resource Operation Plan

The purpose of the WRP and ROP for the Fitzroy Basin is similar to the GAB WRP, but it applies to:

- Water in a watercourse or lake.
- Water in springs not connected to artesian water or subartesian water connected to artesian water.
- Overland flow water, other than water in springs connected to artesian water or subartesian water connected to artesian water.

For the purposes of this groundwater impact assessment, groundwater in the Fitzroy Basin is not considered a viable option to meet the water demands of the project because of unreliable yields and decreasing water quality.

Water legislation, with respect to groundwater, is only considered for the GAB in this assessment because only surface water resources in the northern part of the project can sustain the construction activities within the Fitzroy Basin. Groundwater can be accessed in the GAB through water permitting and private agreements with local property owners.

3.5 Water Access Options

3.5.1 State Water Reserve

According to the Water Act 2000, there is approximately 10,000 ML of groundwater that is unallocated at any given time within the GAB. This groundwater is declared to be reserved for:

- A project of state significance.
- A project of regional significance.
- For water granted to a local government town water supply purposes.

Although this project is classified as a project of state significance, the state is not releasing unallocated water at this time, according to DERM. Therefore, unallocated state reserved water is not considered a viable source for groundwater for this project.

Use or disclosure of data contained on this sheet is subject to the restriction on the distribution page of this document.



3.5.2 Water Allocations

Water allocations are assigned to land, much like a title is assigned to land, and grant that land a volumetric limit of water per water year (1 July – 30 June). Water not utilised during the water year can be traded between two parties. DERM has defined water allocations as being associated with surface water, so groundwater cannot be obtained or traded through water allocations.

3.5.3 Water Licenses

According to DERM, water licenses are the equivalent to water allocations for groundwater within the GAB. Therefore, under the GAB ROP, the groundwater could be traded between parties within the water year. This can be done through a seasonal water assignment, which is defined as:

"A temporary assignment of all or part of the volumetric limit, under a water licence, from the licensee to another person (the assignee) within a water year."

The license from which the assignment can be obtained from must state a volumetric limit or have a *'metered entitlement'*. Under rules set forth by the GAB ROP:

- The assigned water cannot be taken outside the groundwater management area or management unit from which it is drawn.
- The maximum water volume that can be taken under the assignment during a water year is 100 ML.
- More water can be assigned if it is shown that the impact to the aquifer can be managed.
- A hydrogeological assessment may be required to demonstrate the impacts on the aquifer by increasing the assignment.

Results of correspondence and license data obtained from DERM indicate that water licenses designated for stock purposes (approximately 75% of wells in search area) do not state a volumetric limit. Wells in the GAB with volumetric limits stated on the licenses are not yet '*metered entitlements*'. Therefore, groundwater through water licenses cannot be traded at this time.

3.5.4 Water Permits

A party may apply for a water permit for taking water for an activity (e.g. construction, mineral exploration, petroleum exploration). In order to qualify for a water permit, the activity must have a reasonably foreseeable conclusion date. In order to obtain a water permit, the proposed use must be in compliance with the applicable WRP and ROP and consideration must be given to the impact on existing water entitlements and natural ecosystems.

A water permit may be granted on new and existing groundwater bores, regardless of the license or allocation attached to that bore and/or land. DERM has indicated that this is the most suitable option for acquiring groundwater within the GAB.

"This page has been left blank intentionally"

Use or disclosure of data contained on this sheet is subject to the restriction on the distribution page of this document.

Commercial in Confidence

4.0 Description of the Existing Groundwater Environment

4.1 Regional Geology and Stratigraphy

The following is a summary of the regional geologic setting at and in the vicinity of the project area as described by Anulka N.L. (1996). A generalised statigraphic column is provided as **Figure 1**. A geology map of the southern portion of the project area is provided in **Figure F1**.

The basement rocks are composed of the Palaeozoic Kuttung Formation consisting of metasediments and metavolcanics. The basement units are unconformably overlain by formations within the Bowen Basin. These include the Early Permian Back Creek Group in the basal part, and consist of marine to paralic clastic and volcaniclastic sediments. This formation is known as a good source for oil. The Late Permian Kianga Formation conformably overlies the Back Creek Group. The Kianga formation is composed of a sequence of coal, siltstone, shale and sandstone. Many regard this formation as being the major oil source in the region.

The Early Triassic Rewan Group unconformably overlies the Kianga Formation. The Rewan Group is a volcanogenically-derived conglomerate, sandstone and siltstone. The Mid-Triassic Showgrounds Sandstone comformably overlies the Rewan Group consisting of a quartzose sanstone sequence. The Showgrounds Sandstone is considered equivalent to the Clemantis Sanstone, located north and west of the project area. The Moolayember Formation, including the Snake Creek Member, conformably overlies the Showgrounds and Clemantis Sandstone. The Snake Creek Member of the Moolayember is a dark grey-black shale, providing a good seal for the underlying sandstone formations. The remaining sequences of the Moolayember Formation consist of progradational deltaic deposits of shales through to siltstones and sandstones overlain by a siltstone / sandstone sequence.

A major unconformity exists between the Bowen Basin and overlying Surat Basin, where much of the Triassic sediments were eroded. The basal formation of the Surat Basin is the Early to Mid-Jurassic Bundamba Group, including the Precipice Sandstone, Evergreen Formation and Hutton Sandstone. The Precipice Sandstone is a thick quartzose braided stream sandstone sequence. Most parts of the basin have an upper sandstone sequence separated by a tight siltstone / shale unit, which acts as a seal of the lower sandstone sequence. The Precipice is known as a major reservoir for groundwater. The Evergreen Formation acts as a seal for the upper sandstone sequence of the Precipice Sandstone. Within the Evergreen Formation is the Boxvale Sandstone, which consists of reservoir quality sandstone. The Mid-Jurassic Hutton Sandstone conformably overlies the Evergreen Formation, and consists of a thick sequence of quartzose braided stream sandstones. This formation can include siltstone and shale in the basal sequences. The formations within the Bundamba Group are part of the GAB, and are the focus of this assessment. The overlying Walloon Coal Measures provides a good seal over the Hutton Sandstone, which is considered a reliable source groundwater in the region.

The Bundamba Group is conformably overlain by the Mid to Late Jurassic Injune Creek Group, including the Walloon Coal Measures, Springbok Sandstone, Birkhead Formation and Westbourne Formation. The Walloon Coal Measures is comprised of a sequence of coal, shale, siltstone and generally tight sandstone. Comformably overlying the Walloon Coal Measures is the Springbok Formation, consisting of quartzose sandstone. This is overlain by siltstone, mudstone and minor sandstone of the Westbourne Formation.

The Late Jurassic to Early Cretaceous Blythesdale Group comfortably overlies the Injune Creek Group, and includes the Gubberamunda Sandstone, the Orallo Formation, the Mooga Sandstone and Bungil Formation. The Gubberamunda Sandstone and Orallo Formation consist of lacustrine to fluvial depositional environments, while the Mooga Sandstone and Bungil Formation consist of fluvial and paralic deposits, respectively.

Use or disclosure of data contained on this sheet is subject to the restriction on the distribution page of this document.



Conformably overlying the Blythesdale Group is the Early Cretaceous Rolling Downs Group, including the Doncaster Member, Coreena Member, Surat Siltstone and Griman Creek Formation. These sequences consist of fluctuating marine and coastal / alluvial depositional environments. The Rolling Downs Group completes the stratigraphic sequence within the Surat Basin.

Basin	A	lge		Unit	Environment												
			g Downs roup	Griman Creek Formation	Shallow marine coastal plain												
	s			Surat Siltstone													
	etaceou	Early	Rolling G	Coreena Member Doncaster Member	Shallow marine coastal plain												
	Cre		dno.	Bungil Formation	Coastal plain, deltaic shoreline, shallow marine												
			lle Gr	Mooga Sandstone	Fluvial												
Ē			hesda	Orallo Formation	Fluvial, lacustrine, possibly brackish coastal environments												
t Bas		Late	Blyt	Gubberamunda Sandstone	Fluvial												
Sura			ek	Westbourne Formation	Shallow marine shoreline and coastal plain												
	sic		e Cre roup	Springbok Sandstone	Fluvial, paludal, deltaic												
	Jurras	Jurrass Middle	Middle Injune Gi	Walloon Coal Measures & Birkhead Formation	Paludal, lacustrine, fluvial												
			Bundamba Group	Hutton Sandstone	Fluvial												
		Early		Evergreen Formation	Fluvial, deltaic, minor marine												
				Precipice Sandstone	Fluvial												
		0		Moolayember Formation	Fluvial, deltaic												
۲ ۲	Triassic	Triassic	Triassic	Triassic	Triassic	ssic	ssic	ssic	ssic	ssic	ssic	ssic	ssic	Aiddle		Snake Creek Mudstone	Lacustrine
1 Basi						~		Showgrounds Sandstone	Fluvial								
Bowen		Early	F	Rewan Group	Terrestrial, fluvial												
	Permian	Late	Kia	anga Formation	Mainly fluvial, lacustrine, paludal												
		Early	Ba	ck Creek Group	Shallow marine coastal plain												
Tasman Geosyncline	Carhoniferous	- Devonian	Kut Timbu F	tung Formation rry Hills Formation Roma Granite	Shallow marine, intrusive, terrestrial												

Figure 1: Generalised Stratigraphy of the Bowen and Surat Basins (Adapte
--

Use or disclosure of data contained on this sheet is subject to the restriction on the distribution page of this document.



4.2 Regional Hydrogeology

As stated in **Section 2.0**, there are two primary groundwater supply aquifer in the vicinity of the project. These are the GAB aquifer in the southern portion of the project (i.e. the "southern water supply area"), and the unconfined aquifers that are located within the GAB catchment and the Fitzroy Basin (i.e. the "northern water supply area").

4.2.1 Great Artesian Basin Aquifers

The southern water supply area encompasses approximately 90 km of the proposed railway, and is within the GAB catchment. The GAB covers an area of approximately 1.7 square kilometres, extending from Cape York to the north to Dubbo in the south. It is estimated that the GAB stores approximately 64,900 million megalitres (Department of Natural Resource and Water, 2006). It is estimated that there is approximately 1 million ML of recharge in the GAB per year. Confined aquifers within the GAB are the primary source for groundwater in the region. The confined aquifers in the GAB produce either artesian or subartesian groundwater.

Historical groundwater measurements show that groundwater within the eastern part of the GAB flows in a southerly direction, while groundwater within the northern part of the GAB flows north towards the Gulf of Carpentaria. The groundwater velocity is considered slow, ranging from 1 to 5 m per year based on available regional hydraulic parameter data (Great Artesian Basin Consultative Council, 1998). The youngest water is found near the recharge zones and has been dated to thousands of years old. The oldest groundwater in the GAB has been dated close to two million years old.

The majority of groundwater in the southern portion of the GAB discharges through mound springs to the southwest. There are mound springs local to the project area that discharge water as a result of geological structures such as folds, faults, monoclines and intersecting lineaments, or because the confining layers are thin. The majority of springs in the vicinity of the project area are classified as recharge springs, where groundwater flows to the surface because the rate of precipitation exceeds the rate at which the aquifer can accept water.

The GAB catchment is divided into 25 management areas in order to better govern groundwater resources. The project specifically falls within the Surat North management area and the Mimosa management area.

Within the Surat North management area, there are four management units:

- Surat North 1 (Westbourne Formation, Springbok Sandstone, Walloon Coal Measures, Eurombah Formation).
- Surat North 2 (Hutton Sandstone, Evergreen Formation).
- Surat North 3 (Precipice Formation).
- Surat North 4 (Moolayember Formation, Clemantis Sandstone).

According to the GAB ROP, only groundwater within the Hutton Sandstone, Evergreen Formation and Precipice Sandstone is accessible. Therefore, groundwater from management units Surat North 1 and Surat North 4, as well as the Mimosa management area is not available.

Groundwater within the Precipice Formation is generally preferred because of its high yields, while the Hutton Sandstone is heavily utilised because of its shallowness compared to other aquifers.

Use or disclosure of data contained on this sheet is subject to the restriction on the distribution page of this document.



4.2.2 Unconfined Aquifer

The principal unconfined aquifer in the project area is the Dawson River alluvium, which is present in the southern and northern water supply areas. Bores screened within the unconfined aquifers produce subartesian water. The Dawson River alluvium is typically composed of soils ranging from unconsolidated clays, silts, sands and gravels. Until 1985, Theodore obtained town water supplies from bores screened in the Dawson River alluvium at a rate of approximately 150 ML/yr, but due to deteriorating water quality over time, the town has become reliant on the Dawson River for its water source.

Although there are a number bores screened in the unconfined aquifers, they are not considered a feasible source for water due to unreliable yields and deteriorating water quality.

4.3 Groundwater Bore Searches

AECOM obtained two groundwater bore databases from DERM. The first database (herein referred to as the groundwater database) includes borehole registration information, borehole logs, well construction details and hydrogeologic data (e.g. water level, yield, water quality, etc.). The second database (herein referred to as the license database) includes a list of groundwater bores that have water license information (e.g. license status, management area, purpose, etc.). Correspondence with DERM confirmed that there is some conflict between some of the data in the databases with more bores listed in the groundwater database than in the license database. The wells in the groundwater database no longer exist, were unintentionally omitted from the license database or have not been licensed since the license database was constructed.

It must be recognised that the DERM groundwater database contains data that has not been validated or verified. However, the data is considered of sufficient quality for the purpose of this groundwater impact assessment study.

The groundwater database identified 1,888 bores in the Surat North management area, while the license database identified 552 existing, licensed groundwater bores (**Figure F2**). It is assumed that only the bores listed in the license database are accessible. Groundwater bores in the license database include:

- 272 groundwater bores are screened across the Hutton Sandstone.
- 165 bores are screened across the Precipice.
- 89 of these bores are screened in the Evergreen Formation.
- 11 are screened in Quaternary alluvial deposits.
- The formation from which water is drawn from is not known for 15 of the bores, but because the licenses state they are managed within Surat North 2 and Surat North 3, it is assumed that water can be drawn from these bores.

According to the databases, 440 of these bores are classified as subartesian, and 106 are considered artesian. The remaining six bores are not classified.

These wells are privately owned as their registered numbers are six digits or below. A list of the groundwater bores identified in the license database are provided in **Table T1** and a map showing which aquifers the well are screened across is provided in **Figure F3**.

The following sections summarise data obtained from the groundwater database. Although some of the data was taken from bores not included in the license database, the data are still useful for understanding the hydrogeological conditions of the project area.



4.4 Description of Environmental Values

The following provides a description of the environmental values associated with the groundwater resources. Groundwater resources in the project area, particularly the southern portion, are an integral part of the overall existing water resource system that are utilised by a number of existing users. Groundwater will be a significant resource for the construction and operation of the project, therefore, the protection and monitoring of this resource is relevant.

4.4.1 Groundwater Levels

There are very few recent groundwater level measurements (within the last six years) reported in the groundwater database. From available data, groundwater levels in the last six years has ranged from approximately 12 m below ground surface (BGS) to approximately 42 m BGS. Although the database states some of these groundwater bores are subartesian, borehole log data indicate they are screened in GAB artesian aquifers. A summary of the water levels for these wells are provided in **Table T2**.

The database included 125 historical water level records, dating from 1938 to 2007, for bores screened within the Hutton Sandstone. Depth to groundwater measured during this period of time has ranged from 0.1 m to 140.2 m below the measured reference point. Although groundwater levels vary depending on the bore location within the GAB, the levels appear to have remained stable over time. There were only 41 records for water levels in bores screened within the Precipice Sandstone, dating from 1954 to 1997. Groundwater levels ranged from 0.44 m to 61.6 m below the measured reference point.

Many of the wells identified in the groundwater bore search contain historical groundwater data. This data can be used to assess historical groundwater fluctuation due to seasonal variations and / or groundwater extraction. Unfortunately, much data is restricted to wells screened in the subartesian aquifers outside the study area. Groundwater level data within the study area are sparse and generally 30 to 40 years old. It can be assumed, however, that groundwater bores screened across the GAB will not exhibit the magnitude of variations that might be observed in subartesian groundwater bores.

4.4.2 Groundwater Quality

Numerous groundwater quality parameters were reported in the groundwater database for artesian and subartesian water. The parameters of interest to this project included the following:

- pH
- Total Dissolved Solids
- Sodium
- Sulphate
- Chloride.

The parameters were compared to the following:

- Drinking Water 2004 Australian Drinking Water Guidelines (ADWG) from the National Health and Medical Research Council and Agriculture and Resource Management Council of Australia and New Zealand (NHMRC)
- Concrete AS1379
- Dust Suppression / Earthworks Queensland Environmental Protection Agency, Decision to approve a resource for beneficial use – Associated water.

Based on the data provided by DERM, groundwater in the unconfined aquifers (e.g. Dawson River alluvium) is considered to have poor water quality, and is generally not suitable for the purposes of this project.

Table 2 provides a summary of the groundwater quality requirements for the project water uses, as well as the number of licensed bores in the Hutton Sandstone and Precipice Sandstone that meet the water quality requirements.

	Units	Use			
		Earthworks / Dust Suppression (EPA)	Concrete (AS1379)	Drinking Water (ADWG)	Not Suitable
рН	pH units	6.0 - 9.0	>5	6.5 – 8.5	-
Total Dissolved Solids	mg/L	<2,000	<1,000	<500	-
Sodium	mg/L	-	-	<180	-
Chloride	mg/L	-	<1,000	-	-
Sulphate	mg/L	-	-	<250	-
Hutton Sandstone	No. Suitable	89	89	83	0
Precipice Sandstone	No. Suitable	70	69	68	0

Table 2: Summary of Groundwater Quality (Hutton and Precipice Sandstone)

Notes:

Earthworks/Dust Suppression – Queensland Environmental Protection Agency, Decision to approve a resource for beneficial use – Associated water

Concrete – Australian Standard AS1379

Drinking Water – 2004 ADWG from the NHMRC

The majority of bores near the proposed railway that are screened in the Hutton Sandstone appear to only be suitable for construction activities because TDS concentrations are above 1,500 mg/L and sodium concentrations are above 180 mg/L. Groundwater within the Precipice Sandstone is considered suitable for most uses for the project.

Groundwater quality data for groundwater bores identified in the database search are provided in **Table T3**. A map showing the TDS concentrations of groundwater in bores is provided as **Figure F4**. A map showing the suitability of bores in the vicinity of the project area based on the water quality parameters discuss above is provided as **Figure F5**. **Figure F4** and **Figure F5**. In general, groundwater quality is poorest in the southern part of the project area and increases towards the 90 km chainage.

4.4.3 Springs

There are more than 600 spring complexes (Herczeg and Love, 2007) in 12 major spring groups (Fensham, 2006) around the margins of the GAB. Most of the springs located on the eastern margin of the GAB are considered surface expressions of recharged 'overflow', where the rate of recharge exceeds the hydraulic conductivity of the aquifers. Flora and fauna are diverse and plentiful in the vicinity of the springs, and are of cultural value to indigenous people.

A review of the spring register provided by DERM showed that there are recharge springs in the vicinity of the project. There are 64 recharge springs and two watercourse springs derived from the Hutton Sandstone, and 11 recharge springs and two watercourse springs derived from the Precipice Sandstone **Table T4:** Recharge and Watercourse Springs **Figure F3.**

According to the Australian Wetlands Database provided by Department of Environment, Water, Heritage and the Arts, Boggomoss springs are located near the project as well. (**Figure F3**). The springs are derived from the GAB, where the Dawson River has eroded overlying soil and rock, exposing the aquifers. Based on the geological map, the spring water appears to be derived from groundwater in the Precipice Sandstone. It has been documented that snail species, endemic to Boggomoss springs, exist in these springs.

The nearest springs are recharge springs derived from the Hutton Sandstone (**Figure F3**). It is considered unlikely that the project would adversely affect these springs because the wells in this area draw water from the Precipice Sandstone. The nearest springs that could be impacted by groundwater extraction are recharged springs derived from the Precipice Sandstone located approximately 10 km northwest of the proposed railway.

The Boggomoss Springs are located near the Dawson River, approximately 10 km from the nearest point of the proposed rail and approximately 7.5 km from the nearest groundwater bores screened in the Precipice Sandstone. Given the springs' location relative to the groundwater bores, and the likelihood that the springs are derived from the Precipice Sandstone, there is potential that the springs could be impacted by long-term extraction from the nearby groundwater bores.

According to DERM, there is no predefined acceptable impact threshold for a spring due to groundwater extraction when applying for a water permit. DERM still requires that those impacts be assessed as part of the application process, and the SBRJV would work with DERM to evaluate the impacts on a case by case basis.

4.4.4 Existing Groundwater Uses

Groundwater in the project area is primarily used for stock and domestic purposes. The source of groundwater is either the GAB aquifers or unconfined aquifers. The townships of Wandoan and Taroom depend on the GAB for their water resources, while townships between Cracow and Banana rely primarily on surface water (e.g. Dawson River) and, to a limited extent, groundwater from the Theodore Irrigation Area (TIA). Most of the groundwater derived from the TIA is used to irrigate crops, such as wheat and cotton.

Use or disclosure of data contained on this sheet is subject to the restriction on the distribution page of this document.

"This page has been left blank intentionally"

Use or disclosure of data contained on this sheet is subject to the restriction on the distribution page of this document.

Commercial in Confidence

5.0 Analytical Groundwater Model

The section describes an analytical groundwater model that has been developed to quantify the potential adverse impacts from extraction of GAB groundwater for the project. The objectives of the model are:

- To estimate the drawdown of groundwater in a well over a given period of time.
- To define the region of influence from the groundwater extraction.
- To identify any impacts that the project may have on surrounding land uses and/or ecosystems.

At the request of DERM, the model intends to show that groundwater can be extracted from multiple locations along the project area in order to minimise adverse impacts to groundwater levels in the region while satisfying the demands of the project.

5.1 Analytical Model

According to the GAB ROP, groundwater can be extracted from a bore as long as surrounding bores are not drawn down more than 5 meters during the extraction period. The Theis equation is a tool that can conservatively estimate the impacts to aquifers within the project area, by estimating the drawdown of groundwater in a bore and the extent of the area of influence. The Theis equation is:

 $s = (QW(u)) / (4\pi T)$

where:

- s = drawdown (meters)
- Q = extraction rate (m^3/day)

W(u) = well function

 $u = (r^2 S) / (4Tt)$

- T = transmissivity (assumed to be 150 m^2/day)
- r = distance from bore to observation bore or spring (meters)
- S = storage coefficient (assumed to be 5×10^{-4})
- t = time (days).

The use of an analytical model such as the Theis equation is preferred over numerical models in this case because the available groundwater data are generally sparse or outdated. The GAB ROP recommends the use of the Theis equation to assess impacts to springs and groundwater bores. The developed analytical model has been used to assess the drawdown associated with potential increased water extraction, above current allocations.

5.2 Model Design

The model is based on groundwater data obtained from DERM and procedures outlined in the GAB ROP. AECOM used the water demand schedule provided by Aurecon Hatch (2009) as well as the proposed construction schedule provided by the SBRJV to derive the groundwater extraction estimates.

Use or disclosure of data contained on this sheet is subject to the restriction on the distribution page of this document.



Three scenarios were chosen for the model. The first scenario was the minimum groundwater demand proposed in the water demand schedule and the second scenario was the maximum groundwater demand proposed in the water demand schedule. The third scenario was used as a conservative measure for groundwater demand to evaluate the sensitivity of the model. The water demand schedules for each scenario, including potential licensed bores that could be used for the project, are provided in **Appendix A**. **Charts A1** through **A3** in **Appendix A** show the average daily water demand by chainage over the length of the project.

It must be noted that the existing wells used as extraction bores in the model, are only "hypothetical example bores", and that no negations have been finalised with land/well owners and DEM regarding the accessibility and/or use of these wells for the project.

The model was used to model the impact in the GAB part of the project, being the southern 90-km section of the proposed railway. Based on the information discussed in the previous sections, groundwater is not considered a viable source of water outside the GAB. The proposed construction schedule nominates the following four major construction areas/chainages in the southern section:

- 0 9 km
- 9 19.28 km
- 19.28 63 km
- 63 90 km.

Construction within these chainages is expected to take approximately 33 months to complete. The following tables (**Table 3** and **Table 4**) show the groundwater demands for the three scenarios assessed with the model.

Table 3: Southern Project Area	a water Demand	

Table 0. Oscillare Desites (Area Mister Demonst

Chainage	Proposed Minimum Water Demand (ML)	Proposed Maximum Water Demand (ML)	Conservative Water Demand (ML)
0 – 9 km	117.63	177.03	235.26
9 – 19.28 km	140.26	211.08	280.52
19.28 – 63 km	613.19	922.83	1,226.38
63 – 90 km	520.26	835.17	1,109.89
Contingency (25%)	397.84	553.89	647.98
Total	1,800	2,700	3,500

Table 4: Water Demand by Use

Use	Minimum Water Demand (ML) (incl. contingency)	Maximum Water Demand (ML) (incl. contingency)	Conservative Water Demand (ML) (incl. contingency)
Bulk Earthworks	1,093.53	1,640.35	2,125.89
Concrete	16.45	24.62	31.95
Pavement	142.26	213.39	276.59
Dust Suppression	428.96	643.44	833.90
Construction Camps	118.80	178.20	230.95

Use or disclosure of data contained on this sheet is subject to the restriction on the distribution page of this document.

Commercial in Confidence

Groundwater bores were identified in each of these chainage groups based on databases provided by DERM. The bores in the databases were filtered to only include groundwater that had water quality (outlined in **Section 4.4.2**) suitable for the proposed construction activities. Once suitable bores were identified in each chainage group, the model calculated the drawdown for all licensed bores included in the databases.

According to the GAB ROP, existing groundwater bores in the vicinity of a proposed extraction bore cannot be drawn down more than five metres when applying for a new water license or changing the conditions of an existing license. This gives assurance to neighbouring water license holders that their groundwater is protected. Although it is anticipated that the SBRJV will not apply for new water licenses (or attempt to change existing licenses) for this project, the model utilises the 'five-metre threshold' to demonstrate that the proposed water demand will not adversely affect surrounding groundwater bores.

5.2.1 Hydrogeological Parameters

There are little hydrogeological data (e.g. hydraulic conductivity, transmissivity and storage coefficient) available for the GAB. Hennig (2005) reports these parameters in their desktop study of the GAB. Given the size and variability of the GAB, the values reported by Hennig should be considered indicative only of the aquifers in the project area.

Transmissivity

Transmissivity measurements have ranged from 1 to 2,000 m²/day based on systematic tests by the State Water Authorities (Hennig, 2005). Based on the GAB ROP, transmissivity in the GAB can be categorised into three groups:

- 1 TG-50 median transmissivity less than 50 m²/day and taken to have a transmissivity of 50 m²/day.
- 2 TG-150 median transmissivity between 50 and 150 m²/day, and taken to have a transmissivity of 150 m²/day.
- 3 TG-250 median transmissivity greater than 150 m²/day and taken to have a transmissivity of 250 m²/day.

According to DERM, these median transmissivities are considered appropriate and are indicative of the regional scale aquifer properties.

As stated in **Section 4.2.1**, the southern portion of the Site is within the Surat North 2 and Surat North 3 management units, which are designated as TG-150 in the GAB ROP. Therefore, the transmissivity for the purposes of this report is assumed to be 150 m²/day.

Storativity

The storativity can range from 1×10^{-4} to 1×10^{-5} (Hennig 2005). For the purposes of this report, the GAB ROP states that the storativity coefficient for a confined aquifer is 5×10^{-4} .

Yield

Yield estimates for the Hutton Sandstone, Precipice Sandstone and Dawson River Alluvium have been provided by Connell Hatch et al. (2009) because yield data provided by DERM is scarce and considered outdated. The yields for the Hutton Sandstone are generally moderate and range from 6 to 13 L/s (200 to 400 ML/year) per bore. The deeper Precipice Sandstone has a higher permeability relative to the Hutton Sandstone and has yields from 20 to 30 L/s (630 to 945 ML/year) per bore. Groundwater bores screened in the Dawson River Alluvium can yield 10 to 60 L/s (315 to 1,900 ML/year) per bore.



5.2.2 Assumptions

The key assumptions for this model are as follows:

- The Hutton Sandstone and Precipice Sandstone are hydrogeologically separated units, where groundwater extracted from one aquifer would not impact the other aquifer. Additionally, recharge or watercourse springs associated with those aquifers are also hydrogeologically separated.
- The water demand used in the model is inclusive of the 25% contingency as a conservative measure.
- Individual bores are not identified in this model because arrangements with landowners have not been confirmed. However, individual bores are used as "hypothetical, example" extraction bores.
- The transmissivity value and storage coefficient provided in the GAB ROP is assumed to be constant throughout the GAB in the Hutton Sandstone and Precipice Sandstone.
- The wells used in this model will be accessible during the construction phase of the project.
- The potential impacts to groundwater for stock purposes is not considered because the model only evaluates the effect of additional drawdown on other bores as a result of the proposed construction activities.
- The model does not account for potential faults or other geological structures that could affect the predicted drawdown measurements.
- The model calculates the cumulative effects of drawdown in the bores, and does not take into account recharge if a bore is impacted for more than one time interval. This results in a conservative estimate for drawdown in that bore.
- The model does not take into account the effect on water quality due to groundwater extraction. It is therefore assumed that water quality would remain constant.
- The indicative zone of influence calculations developed from the model (**Table A1**) were compared against the look-up tables (**Tables A3** through **A7**) to assess the number of bores that could be used within the chainage that would not result in greater than a 5 metre drawdown.

5.3 Model Results

The following sections provide results of the model for each chainage groups in the three scenarios shown in **Table 3**. The results for each scenario are summarised in **Appendix B** through **Appendix D**. **Figure F6** and **Figure F7** provide a hypothetical configuration of bores that could be used for the project.

5.3.1 0 – 9 km Construction Area

There are three bores screened in the Hutton Sandstone:

- RN 13856
- RN 22117
- RN 58409.



Although RN 58323 is located in the 9 - 19.28 km chainage group, it was included in the model due to its proximity to the 0 - 9 km chainage group. Two bores are screened in the Precipice Sandstone:

- RN 15793
- RN 58700.

It should be noted that these bores are currently licensed for town water supply and are not available for this project.

Scenario 1 – Groundwater Demand: 1,800 ML

One groundwater bore is required for groundwater extraction (**Table B1**). The maximum extraction rate in this chainage would be 1.109 ML/day for 150 days.

Given the water demand for this chainage group, 5 metre drawdown would be expected to occur at a distance of approximately 0.144 km from the extraction point. The minimum distance between bores screened in the Hutton Sandstone is approximately 4.9 km, so the proposed water demand would be unlikely to draw down groundwater more than 5 metres in the adjacent bores.

Scenario 2 – Groundwater Demand: 2,700 ML

One groundwater bore is required for groundwater extraction (**Table C1**). The maximum extraction rate in this chainage would be 1.669 ML/day for 150 days.

Given the water demand for this chainage group, 5 metre drawdown would be expected to occur at a distance of approximately 0.598 km from the extraction point. The proposed water demand would be unlikely to draw down groundwater more than 5 metres in the adjacent bores.

Scenario 3 – Groundwater Demand: 3,500 ML

One groundwater bore is required for groundwater extraction (**Table D1**). The maximum extraction rate in this chainage would be 2.580 ML/day for 150 days.

Given the water demand for this chainage group, 5 metre drawdown would be expected to occur at a distance of approximately 1.245 km from the extraction point. The proposed water demand would be unlikely to draw down groundwater more than 5 metres in the adjacent bores.

5.3.2 9 – 19.28 km Construction Area

There are two licensed bores screened in the Hutton Sandstone within the 9 – 19.28 km chainage group:

- RN 16312
- RN 58232.

RN 13856 is located within the 0 - 9 km chainage group. There are also two licensed bores screened in the Precipice Sandstone:

- RN 16752
- RN 30681.



Scenario 1 – Groundwater Demand: 1,800 ML

A total of three bores were used in the model to minimise the extraction rate per bore. The 5 metre drawdown would occur at a distance 0.027 km from the extraction bores in the Hutton Sandstone and 0.022 km in the Precipice Sandstone. The minimum distance between the licensed bores screened in the Hutton Sandstone is approximately 4.6 km, and approximately 11.5 km for the bores screened in the Precipice Sandstone, so the bores would not be significantly impacted by the project.

Scenario 2 – Groundwater Demand: 2,700 ML

A total of three bores were used in the model to minimise the extraction rate per bore. The 5 metre drawdown would occur at a distance 0.179 km from the extraction bores in the Hutton Sandstone and 0.175 km in the Precipice Sandstone. The minimum distance between the licensed bores screened in the Hutton Sandstone is approximately 4.6 km, and approximately 11.5 km for the bores screened in the Precipice Sandstone, so the bores would not be significantly impacted by the project.

Scenario 3 – Groundwater Demand: 3,500 ML

A total of three bores were used in the model to minimise the extraction rate per bore. The 5 metre drawdown would occur at a distance 0.377 km from the extraction bores in the Hutton Sandstone and 0.447 km in the Precipice Sandstone. The minimum distance between the licensed bores screened in the Hutton Sandstone is approximately 4.6 km, and approximately 11.5 km for the bores screened in the Precipice Sandstone, so the bores would not be significantly impacted by the project.

5.3.3 19.28 – 63 km Construction Area

The 19.28 – 63 km chainage group is much larger than the preceding chainage groups, and as a consequence requires more water over a longer period of time. This chainage group was broken into four sub groups to more easily manage groundwater:

- 19.28 30 km
- 30 41 km
- 41 52 km
- 52 63 km.

By taking into consideration costs and logistics associated with water transportation, a minimum of one bore was included for each sub group.

There are 23 bores screened in the Hutton Sandstone and 24 bores screened in the Precipice Sandstone that could be considered for water supply in this chainage group.

Scenario 1 – Groundwater Demand: 1,800ML

A total of five bores were chosen to meet the water demands in this chainage. Two bores were chosen in the 19.28 – 30 km sub group (one bore screened in the Hutton Sandstone and one in the Precipice Sandstone) to minimise drawdown.

The five metre drawdown in the Hutton Sandstone would occur at a maximum distance of approximately 0.411 km in the 52 – 63 km sub group. There are two bores (RN 14538 and RN 23147) that are 0.349 km apart in the Hutton Sandstone (**Table B5**). Therefore, these wells could be impacted by the groundwater extraction from the Hutton Sandstone; however, further, detailed studies could be undertaken as part of the approvals process to better determine the potential impacts.



The maximum distance to five metre drawdown in the Precipice would be approximately 0.022 km. The minimum distance between bores screened in the Precipice Sandstone is approximately 0.221 km, so the bores would not be significantly impacted by the project.

Scenario 2 – Groundwater Demand: 2,700 ML

A total of five bores were chosen in this scenario to meet the water demands in this chainage. The five metre drawdown in the Hutton Sandstone would occur at a maximum distance of approximately 1.160 km in the 52 – 63 km sub group. There are still two bores (RN 14538 and RN 23147) that would be adversely impacted like the 1,800 ML scenario (**Table C5**). Therefore, these wells could be impacted by the groundwater extraction from the Hutton Sandstone; however, further, detailed studies could be undertaken as part of the approvals process to better determine the potential impacts.

The maximum distance to five metre drawdown in the Precipice would be approximately 0.215 km. The minimum distance between bores screened in the Precipice Sandstone is approximately 0.221 km, so the bores would not be unacceptably impacted by the project.

Scenario 3 – Groundwater Demand: 3,500 ML

A total of seven bores were chosen to meet the water demands in this chainage. Three bores were chosen in the 19.28 - 30 km sub group and two bores were chosen in the 52 - 63 km sub group to minimise drawdown.

The five metre drawdown in the Hutton Sandstone would occur at a maximum distance of approximately 0.410 km in the 52 - 63 km sub group. Two bores are 0.349 km apart in the Hutton Sandstone in this chainage (**Table D5**). Therefore, these wells could be impacted by the groundwater extraction from the Hutton Sandstone; however, further, detailed studies could be undertaken as part of the approvals process to better determine the potential impacts.

The maximum distance to five metre drawdown in the Precipice would be approximately 1.540 km. There are six bores that are separated by a distance less that 1.540 km:

- RN 16065
- RN 18207
- RN 38658
- RN 62077
- RN 67229
- RN 123167.

Due to their vicinity to one another, these bores were not used in the proposed water demand schedule in **Table A11**.



5.3.4 63 – 90 km Construction Area

The 63 - 90 km chainage group is also larger than preceding groups. There are 37 bores screened within the Precipice Sandstone and are situated in a larger density relative to bores in other chainage groups. This chainage group was also broken into four sub groups:

- 63 70 km
- 70 77 km
- 77 83 km
- 83 90 km.

A minimum of one bore was selected in each sub group except from 83 – 90 km due to the length of the chainage.

Scenario 1 – Groundwater Demand: 1,800 ML

A total of five bores were chosen to meet the water demands in this section of the project. Due to the high density of bores in the vicinity of the 83 - 90 km sub group (**Table B7**), two bores were used in the model for this sub group to limit drawdown.

Based on the water demands, the five metre drawdown would occur at a maximum of approximately 0.496 km in the 63 - 70 sub group. Five bores in the chainage group are separated by a distance less than 0.496 km:

- RN 14583
- RN 89504
- RN 89510
- RN 89540
- RN 89763.

Although these wells are located near the 90 km chainage, the proposed water demand schedule avoids these bores (**Table A4**).

Scenario 2 – Groundwater Demand: 2,700 ML

Five bores were chosen for this chainage. Based on the water demands, the five metre drawdown would occur at a maximum of approximately 1.262 km in the 83 – 90 sub group. Seven bores in the chainage group are separated by a distance less than 0.1.262 km:

- RN 14582
- RN 14583
- RN 89504
- RN 89510
- RN 89540
- RN 89763
- RN 89855.



RN 14582 was included in the proposed water demand schedule. Although RN 14582 is approximately 0.962 km from RN 89855, the proposed groundwater to be extracted form this bore in **Table A8** would be significantly less that the rate required to result in 5-meter drawdown. Additional bores proposed in the 1,800 ML scenario could used to assist in limiting drawdown.

Scenario 3 – Groundwater Demand: 3,500 ML

A total of 10 bores were chosen to meet the water demands in this section of the project. Due to the high density of bores in this chainage, three bores were chosen for the 63 - 70 km sub group and 8 bores were chosen for the 83 - 90 km sub group.

Based on the water demands, the five metre drawdown would occur at a maximum of approximately 0.127 km in the 63 – 70 sub group (**Table D1**). There are no bores in this sub group that are within this distance (**Table D7**). It should be noted, however, the given the close proximity of these bores, there is a cumulative effect to drawdown that should be taken into consideration when groundwater is extracted from multiple points.

5.4 Summary of Results

The following provides a summary of the results of this model.

- The 0 90 km chainage/portion of the railway was broken down into four construction areas.
- The 0 9 km construction chainage would only require one bore for each scenario to meet the demands of the project and would not significantly impact adjacent bores.
- Three bores could be used in each scenario to meet the project demands in the 9 19.28 km construction chainage to maintain drawdown within acceptable limits.
- Given the length of the 19 63 km construction chainage, it was further divided into four subgroups to manage drawdown and minimise transportation costs. Five bores were used in the 1,800 ML and 2,700 ML scenarios, while seven bores were required in the 3,500 ML scenario.
- The 63 90 km construction chainage was also broken down into four sub groups. Five bores could be used to reduce to impact to adjacent bores in the 1,800 ML and 2,700 ML scenarios. Ten bores would be required in the 3,500 ML scenario.
- The 0 63 km construction chainage would rely primarily on water from the Hutton Sandstone, while the remaining chainages could utilise water primarily from the Precipice Sandstone.
- The model shows that drawdown can be managed appropriately if a minimum of 14 bores were used across the 0 -90 km construction area for the 1,800 ML and 2,700 ML scenarios. Figure F6 shows a hypothetical extraction bore configuration for these scenarios. A total of 22 bores would be required for the 3,500 ML scenario. Figure F7 shows a hypothetical extraction bore configuration for this scenario. Figure F6 and Figure F7 do not show the radius of influence for the hypothetical extraction bores because the
- **Table T5** has been included in this report as a reference tool to show the radius of influence for the 5-metre drawdown threshold, assuming different extraction rates over various times.
- There are wells that could be drawn down by marginally more than 5 meters as a result of a cumulative effect of pumping from multiple wells.

Use or disclosure of data contained on this sheet is subject to the restriction on the distribution page of this document.



• Impacts to recharge springs and the Boggomoss Springs in the proximity of the project area should be at a minimum, although a more detailed hydrogeological assessment should be performed once bores have been chosen for extraction.



6.0 Impact Assessment

6.1 Potential Groundwater Impacts

6.1.1 Construction Phase

Potential impacts to groundwater during the construction phase include:

- Decreased water levels or pressure due to groundwater extraction.
- Decreased water quality.
- Groundwater contamination as a result of:
 - Chemical or petroleum hydrocarbon use and storage
 - Surface spills and leaks from equipment used during construction
 - Infiltration of impacts in stockpiled soil in the project area.

Water Levels and Pressure

The greatest potential groundwater impacts associated with the project is a decrease in groundwater levels in subartesian bores and in pressure in artesian bores in the Hutton Sandstone and Precipice Sandstone during groundwater extraction. Excessive pumping from a single bore could potentially decrease the performance of neighbouring bores and threaten the natural recharge and watercourse springs located in the vicinity of the project area.

The analytical modelling has indicated that it is possible to minimise the drawdown associated with groundwater extraction to less than 5 metres, by spreading the water demand over different bores where necessary.

Although the model shows that there would be minimal impact to bores surrounding potential extraction bores, additional detailed hydrogeological assessments should be performed when specific bores are selected for pumping. The detailed assessment would include pump tests to calculate the hydraulic conductivity (used to calculate transmissivity) for the extraction bores and monitoring of surrounding bores and/or springs to evaluate the region of influence. These additional data would allow for bore-specific groundwater modelling.

Upon commencement of groundwater extraction, the groundwater level or pressure should be continuously monitored in the bore, and surrounding bores and / or springs should be monitored daily to assess the impact of the groundwater extraction.

Water Quality

Groundwater quality can decrease over time as a result of excessive groundwater pumping. Evidence of this can be observed in subartesian aquifers located near Theodore in the Dawson River alluvium. Although the proposed pumping durations are relatively short and it is unlikely that groundwater quality will be impacted from the proposed activities, groundwater quality should be monitored.

Baseline groundwater quality data should be collected as part of the hydrogeological assessment discussed above. The monitoring program should consist of a minimum of three monitoring events of selected wells prior to construction and include the following analytes: pH, EC, temperature, major ions and TPH for shallow wells. During the construction activities, groundwater quality should be regularly monitored in the extraction bore.

Use or disclosure of data contained on this sheet is subject to the restriction on the distribution page of this document.



Groundwater Contamination

Contamination (e.g. petroleum hydrocarbon) could potentially impact groundwater during the construction activities. The likelihood of surface spills from construction vehicles or storage areas directly impacting the Hutton Sandstone and Precipice Sandstone is considered low since these aquifers are greater than 100 m below the ground surface and are capped by low permeable aquitards. Nonetheless, samples should be collected from bores in the vicinity of the project before, during and after construction activities to confirm groundwater is not impacted, as described in the previous section.

6.1.2 Operational Phase

Potential impacts to groundwater during the operational phase include:

- Groundwater contamination as a result of:
 - Surface spills and leaks from the railway during operation.
 - Groundwater contamination from chemicals used for land maintenance.
 - Groundwater contamination from chemicals used to clean the railway or trains.

Upon completion of the construction phase of the project, it is assumed that groundwater would no longer be required. Therefore, the primary potential impacts to groundwater during the operational phase would be contamination (e.g. petroleum hydrocarbon, pesticides) as part of normal railway operations. As discussed in **Section 6.1.1**, it is considered unlikely that contamination would migrate directly to the Hutton Sandstone or Precipice Sandstone although an annual monitoring program should be implemented to verify that contamination is not occurring.

6.2 Management and Mitigation

6.2.1 Construction Phase

Table 5: Construction Phase Management/Mitigation Measures

Potential Impact	Management/Mitigation Measure
Chemicals and Petroleum Hydrocarbons	• All fuels and chemicals used during the construction phase of the project would be stored in bunded facilities that prevent spills, leakage, or over topping of the facility. The facility should prevent any migration of fuels or chemicals to surface water bodies or the underlying groundwater.
	• Construction vehicles would be maintained in accordance with the manufacturer's specifications and would be checked daily for leaks prior to the start of work.
	• Construction areas would be regularly checked to confirm that construction equipment is not leaking fluids onto the ground surface. If there is evidence of a spill in the construction zone, the impacts would be contained and the impacted soil would be removed.
Impacted Stockpile Infiltration	Sample surface water and groundwater in the vicinity of the project area to confirm these receptors are not adversely impacted by leachate from stockpiles.


Potential Impact	Management/Mitigation Measure
Decreased Water Levels	• The flow rate of groundwater bores used for water extraction would be monitored, and controlled in a manner that will minimise drawdown.
	• Additional wells in the vicinity of the extraction bores would be monitored weekly to ensure that extraction activities are not impacting other groundwater users.
	• If the extraction activities are shown to drawdown groundwater greater than 5 m in neighbouring wells then DERM would be notified, the cause would be investigated and an appropriate course of action would be agreed.
Decreased Groundwater Quality	• Groundwater within the extraction bores would be sampled weekly for physico-chemical indicators (e.g. pH, EC, temperature) to confirm water quality is stable.
	• Bores in the vicinity of the extraction wells will be sampled at the commencement and completion of water extraction to confirm construction activities have not affected groundwater quality. The analysis would include pH, EC, temperature and major ions.
	• Water extraction will cease if results show that the groundwater quality is degrading DERM would be notified, the cause would be investigated and an appropriate course of action would be agreed.



6.2.2 Operational Phase

Table 6: Operation Phase Management/Mitigation Measures

Potential Impact	Management/Mitigation Measures
Spills/Leaks	Monitor groundwater bores in the vicinity of the project area on an annual basis to ensure operations are not impacting groundwater.
Pesticides/Herbicides	Adopt weed management strategies which have a minimal impact on groundwater.

Use or disclosure of data contained on this sheet is subject to the restriction on the distribution page of this document.

Commercial in Confidence

7.0 Conclusions and Recommendations

Based on the results of a review of the available water sources and groundwater impact assessment, the following conclusions and recommendations can be made:

- Water for construction activities in the southern water supply area (0 90 km chainage) could be obtained from groundwater in the GAB.
- Based on the construction water supply study by Aurecon Hatch (2009a), water in the northern water supply area (90 – 210 km chainage) can be obtained from numerous surface water sources, including the Dawson River, ephemeral watercourses, overland flow and water collected in old mining voids.
- The northern project area would require approximately 1,500 ML of water from surface water sources, primarily the Dawson River.
- Based on a reliability analysis by Aurecon Hatch (2009a), groundwater from the GAB and surface water from the Dawson River are considered the most reliable sources of water for the project both in yield and in water quality. Alternative sources of water, such as CSG water, either do not yield as much water or have poor water quality.
- CSG water in the northern project area may be obtained from the Dawson Valley field, located near Moura.
- If groundwater is not accessible in the southern portion of the southern water supply area, the SBRJV may consider CSG water from the Scotia and / or Peat fields. This water would likely only be appropriate for dust suppression, earthworks and concrete because CSG water typically has high TDS concentrations.
- The Water Act (2000), GAB WRP and GAB ROP indicate that groundwater is available through numerous options. According to DERM, the most viable options are temporary water permits to extract additional water from existing, licensed bores.
- Water from the 0 63 km chainages would be obtained primarily from groundwater in the Hutton Sandstone, while groundwater would be obtained from the Precipice Sandstone in the 63 – 90 km chainage.
- Historical groundwater quality analytical results provided by DERM indicate there are 375 licensed groundwater bores screened in the Hutton Sandstone and Precipice Sandstone with historical water quality data. In general, groundwater in the Hutton Sandstone has poorer water quality than groundwater derived from the Precipice Sandstone. There are, however, no bores, that reported groundwater quality above the nominated guidelines. Baseline data should be collected from specific bores prior to commencement of construction activities to confirm groundwater quality.
- The density of bores is considered low from the 0 19.28 km chainages relative to bores in the other chainages, which reduces the likelihood of unacceptable impacts to neighbouring bores. The groundwater quality ranges from potable to suitable for dust suppression and earthworks only, which could reduce the number of potential extraction bores.
- While the groundwater quality is higher in the 19.28 90 km chainages relative to the bores to the south, the densities of the bores also increase. Therefore, more wells are available for groundwater extraction, but the potential for impacts to neighbouring bores increase.

Use or disclosure of data contained on this sheet is subject to the restriction on the distribution page of this document.



- Based on the model results for the 1800 ML and 2,700 ML scenarios, utilising numerous bores (i.e. 14 bores), screened across the Hutton Sandstone and Precipice Sandstone, can provide the required volume of water whilst limiting potential drawdown in neighbouring bores and reducing water transportation costs. Additional wells could be considered for extraction wells, which would likely further reduce groundwater drawdown across the project area.
- A total of 22 bores would be required to meet the demands of the conservative third scenario (3,500 ML).
- Although it appears there could be cumulative effects of drawdown from extraction from multiple bores, the model results are considered conservative, and given the short span of the project, draw down in the bores are not considered permanent.
- A groundwater monitoring program could be used to ensure that neighbouring groundwater bores and springs would not be impacted at an unacceptable level.

8.0 Limitation Statement

AECOM has chosen an appropriate level of effort for delivering this Groundwater Impact Assessment. The activities performed, constitute all activities, appropriate and necessary under the circumstances, to produce the report. Based on available historical records of the project area and groundwater bore data, it is AECOM's opinion that the potential environmental impacts associated with the project are discussed in this report.

We do not assume any liability for misrepresentation of facts that were provided in historical records. We also do not assume any liability for updates to historical records or groundwater databases undertaken following the assessment.

Furthermore, to completely understand the conclusions and recommendations outlined in the report, the document must be read in its entirety. This is because this report is site-specific with relevant information contained in the body of the reports as well as supporting tables and documentation.

Opinions and judgements expressed herein, which are based on our understanding and interpretation of current regulatory standards, should not be construed as legal opinions. Conclusions contained in this report are based upon information, data and reports provided by others. Where assessments of the works conducted to reduce or mitigate any environmental liability identified in this report are made, such assessments are based upon the information available at the time.

AECOM has prepared this report solely for the benefit of the Surat Basin Rail Joint Venture in accordance with generally accepted consulting practices and for the intended purposes. This report may not be relied upon by any other party, except the Queensland Environmental Protection Agency, without the explicit written agreement of AECOM. No other warranty, expressed or implied, is made as to the professional advice included in this report.

"This page has been left blank intentionally"

Use or disclosure of data contained on this sheet is subject to the restriction on the distribution page of this document.

Commercial in Confidence 34

Environment

9.0 References

Anulka N.L., December 1996, Surrender Report, ATP 604P, Eastern Surat Basin, Queensland.

Aurecon Hatch, September 2009a, Supplementary Environmental Impact Statement, Construction Water Response, Surat Basin Rail Project.

Aurecon Hatch, September 2009b, Supplementary Environmental Impact Statement, Surface Water Response, Surat Basin Rail Project.

Australian Department of the Environment, Water, Heritage and the Arts, June 2004, Australian Wetlands Database, http://www.environment.gov.au/cgi-bin/wetlands/search.pl?smode-DOIW.

Connell Hatch, Maunsell, Parsons Brinkerhoff, February 2009, Surat Basin Rail Project Environmental Impact Statement.

Connell Hatch, Maunsell, Parsons Brinkerhoff, May 2008, Surat Basin Rail Project Desktop Assessment of Water Supply Options During Construction.

Fensham R, 2006, Spring wetlands of the Great Artesian Basin, paper for the 2006 Australian State of the Environment Committee, Department of Environment and Heritage, Canberra, http://www.deh.gov.au/soe/2006/emerging/wetlands/index.html.

Geobyte Consulting Group, January 1997, Final Relinquishment Report, ATP 568P, Surat Basin, Queensland.

Great Artesian Basin Consultative Council, November 1998, Great Artesian Basin, Resource Study Summary.

Hennig, A, 2005, A Summary of the Hydrogeology of the Southern Eromanga and Surat Basins of the Great artesian Basin. CO2CRC/CSIRO Petroleum, Australia, June 2005. CO2CRC Report Number RTP05-0024.

Herczeg, Andrew and Andrew Love, November 2007, Review of Recharge Mechanisms for the Great Artesian Basin, prepared for the Great Artesian Basin Consultative Council.

Queensland Department of Infrastructure and Planning, 1997, Integrated Planning Act.

Queensland Department of Natural Resources and Water, 2007, Great Artesian Basin Resource Operations Plan.

Queensland Department of Natural Resources and Water, 2006, Water Resources (Great Artesian Basin) Plan.

Queensland Department of Natural Resources and Water, 2003, Fitzroy Basin Resource Operations Plan.

Queensland Department of Natural Resources and Water, 2000, Water Act.

Queensland Department of Natural Resources and Water, 1999 (reprinted 2008), Water Resources (Fitzroy River) Plan.

Queensland Environmental Protection Agency, 2008, Statuary Notice, Decision to approve a resource for beneficial use - Associated water.

Use or disclosure of data contained on this sheet is subject to the restriction on the distribution page of this document.

Groundwater Impact Assessment

B1015902 RPTFinal 16Dec09.doc

"This page has been left blank intentionally"

Use or disclosure of data contained on this sheet is subject to the restriction on the distribution page of this document.

Commercial in Confidence



Tables

RN	Works Status	Authorisation Number	Authorisation Type	Authorisation Status	Management Unit	Aquifer	Aquifer Type	Nominal Allocation (ML/water year)	Purpose
8356	Installed	08356N	Licence to Take Water	Issued	Surat North 2 Management Unit	Formation Name not Specified	Artesian-Ceased Flow	(internation your)	Stock
8357	Installed	08357N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Artesian-Ceased Flow		Stock
8440	Installed	48816S	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian		Stock, Domestic Supply
8445	Installed	08445S	Licence to Take Water	Issued	Surat North 2 Management Unit	Evergreen Formation	Subartesian		Stock
8449	Installed	26388N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
10463	Installed	58213N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
10475	Installed	14188S	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
10578	Installed	58456N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
10583	Installed	57304S	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian		Domestic Supply, Stock
10584	Installed	10584S	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
10592	Installed	10592S	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian		Stock
10594	Installed	16270S	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian		Stock, Domestic Supply
10690	Installed	10690N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
10875	Installed	16270S	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Artesian-Controlled Flow		Stock, Domestic Supply
10876	Installed	89695S	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Artesian-Controlled Flow		Stock
10886	Installed	10886N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
10918	Installed	67274S	Licence to Take Water	Issued	Surat North 2 Management Unit	Evergreen Formation	Subartesian		Stock
10929	Installed	89772S	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
10930	Installed	10930N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
10980	Installed	15669S	Licence to Take Water	Issued	Surat North 2 Management Unit	Evergreen Formation	Subartesian		Stock
10981	Installed	15669S	Licence to Take Water	Issued	Surat North 2 Management Unit	Evergreen Formation	Subartesian		Stock
10989	Installed	10989S	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian		Stock
10990	Installed	47466S	Licence to Take Water	Issued	Surat North 2 Management Unit	Evergreen Formation	Subartesian		Stock
10992	Installed	47467S	Licence to Take Water	Issued	Surat North 2 Management Unit	Evergreen Formation	Subartesian		Stock
11007	Installed	89728S	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
11009	Installed	406752	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Artesian-Ceased Flow		Stock
11104	Installed	11104S	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Artesian-Controlled Flow		Stock
11140	Installed	37781S	Licence to Take Water	Issued	Surat North 2 Management Unit	Evergreen Formation	Subartesian		Stock
11175	Installed	11176N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
11176	Installed	11176N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
11306	Installed	57790S	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Artesian-Controlled Flow		Stock
11501	Installed	11501N	Licence to Take Water	Issued	Surat North 2 Management Unit	Evergreen Formation	Subartesian		Stock
11558	Installed	11558S	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Artesian-Controlled Flow		Domestic Supply, Stock
11560	Installed	11560N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Artesian-Controlled Flow		Stock
11647	Installed	11647S	Licence to Take Water	Issued	Surat North 2 Management Unit	Evergreen Formation	Subartesian		Stock
11648	Installed	14206S	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
11692	Installed	11692S	Licence to Take Water	Issued	The Not Assigned	Evergreen Formation	Subartesian		Stock
11694	Installed	11694N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
11739	Installed	11739N	Licence to Take Water	Issued	Surat North 3 Management Unit	Hutton Sandstone	Subartesian		Stock
11758	Installed	26062S	Licence to Take Water	Issued	Surat North 2 Management Unit	Evergreen Formation	Subartesian		Domestic Supply, Stock
11764	Installed	11764S	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
11765	Installed	11765S	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
11766	Installed	11766S	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
11850	Installed	11850S	Licence to Take Water	Issued	Surat North 2 Management Unit	Evergreen Formation	Subartesian		Stock
11878	Installed	17197S	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian		Stock, Domestic Supply
11882	Installed	11882N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
11892	Installed	68097S	Licence to Take Water	Issued	Surat North 2 Management Unit	Evergreen Formation	Subartesian		Stock
12118	Installed	12118N	Licence to Take Water	Issued	Surat North 2 Management Unit	Evergreen Formation	Subartesian		Stock
12221	Installed	12221N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
12236	Installed	89604S	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock, Domestic Supply
12238	Installed	122385	Licence to Take Water	Issued	Surat North 2 Management Unit	Evergreen Formation	Artesian-Controlled Flow		Stock
12372	Installed	12372N	Licence to Take Water	Issued	Surat North 1 Management Unit	Hutton Sandstone	Artesian-Ceased Flow		Stock
12627	Installed	12627N	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian		Stock
12651	Installed	12651N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
12753	Installed	12753N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Artesian-Ceased Flow		Stock
12838	Installed	12838N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock

RN	Works Status	Authorisation Number	Authorisation Type	Authorisation Status	Management Unit	Aquifer	Aquifer Type	Nominal Allocation (ML/water year)	Purpose
12882	Installed	12882S	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Artesian-Controlled Flow		Domestic Supply, Stock
13060	Installed	13060N	Licence to Take Water	Issued	Surat North 1 Management Unit	Hutton Sandstone	Artesian-Controlled Flow		Stock
13073	Installed	13073S	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Artesian-Uncontrolled Flow		Stock
13180	Installed	48816S	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian		Stock, Domestic Supply
13521	Installed	89565S	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock, Domestic Supply
13791	Installed	13791S	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
13856	Installed	13856N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Artesian-Ceased Flow		Stock
13881	Installed	13881S	Licence to Take Water	Issued	Surat North 4 Management Unit	Precipice Sandstone	Artesian-Ceased Flow		Domestic Supply, Stock
13882	Installed	13881S	Licence to Take Water	Issued	Surat North 4 Management Unit	Precipice Sandstone	Subartesian		Domestic Supply, Stock
13945	Installed	48973N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Artesian-Controlled Flow		Stock
14133	Installed	47214S	Licence to Take Water	Issued	Surat North 3 Management Unit	Hutton Sandstone	Subartesian		Stock, Domestic Supply
14179	Installed	14179S	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
14180	Installed	30587S	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Artesian-Controlled Flow		Stock
14184	Installed	16836S	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock, Domestic Supply
14185	Installed	16836S	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock, Domestic Supply
14187	Installed	89670S	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
14188	Installed	14188S	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
14189	Installed	31194S	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
14190	Installed	31194S	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
14191	Installed	141915	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
14204	Installed	14204S	Licence to Take Water	Issued	Surat North 2 Management Unit	Evergreen Formation	Subartesian		Stock
14205	Installed	14205S	Licence to Take Water	Issued	Surat North 2 Management Unit	Evergreen Formation	Subartesian		Stock
14206	Installed	14206S	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Artesian-Uncontrolled Flow		Stock
14228	Installed	89604S	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock, Domestic Supply
14229	Installed	89604S	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock, Domestic Supply
14231	Installed	14231S	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Domestic Supply, Stock
14247	Installed	14249N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
14248	Installed	14249N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
14249	Installed	14249N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
14250	Installed	14249N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
14270	Installed	47214S	Licence to Take Water	Issued	Surat North 3 Management Unit	Hutton Sandstone	Artesian-Controlled Flow		Stock, Domestic Supply
14273	Installed	14277S	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Artesian-Controlled Flow		Stock
14276	Installed	14277S	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
14277	Installed	14277S	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Artesian-Ceased Flow		Stock
14344	Installed	58456N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
14350	Installed	14350S	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
14352	Installed	14352S	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
14358	Installed	14358N	Licence to Take Water	Issued	Surat 6 Management Unit	Hutton Sandstone	Subartesian	3	Stock, Stock Intensive
14388	Installed	47214S	Licence to Take Water	Issued	Surat North 3 Management Unit	Hutton Sandstone	Subartesian		Stock, Domestic Supply
14453	Installed	14453S	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
14459	Installed	14459S	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
14460	Installed	162295	Licence to Take Water	Issued	Surat North 2 Management Unit	Precipice Sandstone	Subartesian		Stock
14461	Installed	14461N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
14461	Installed	32502N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
14535	Installed	15744N	Licence to Take Water	Issued	Surat North 1 Management Unit	Hutton Sandstone	Subartesian		Stock
14538	Installed	58608N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
14561	Installed	14561S	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock. Domestic Supply
14562	Installed	14562S	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian	20	Group Domestic, Stock
14562	Installed	145628	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian	20	Group Domestic, Stock
14573	Installed	14573N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
14574	Installed	14576N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
14575	Installed	14575N	Licence to Take Water	Issued	Surat North 2 Management Unit	Evergreen Formation	Subartesian		Stock
14577	Installed	14575N	Licence to Take Water	Issued	Surat North 2 Management Unit	Evergreen Formation	Subartesian		Stock
14578	Installed	14576N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
14582	Installed	162705	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian		Stock, Domestic Supply
14583	Installed	162705	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian		Stock, Domestic Supply
14584	Installed	162705	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian		Stock, Domestic Supply
14004	matalicu	102100	LIGGINGE TO TAKE WALET	133050	ouractivorar o manayement onit		Gubailesian		otook, Domestic Supply

Image: Process of the standing of the s	RN	Works Status	Authorisation	Authorisation Type	Authorisation Status	Management Unit	Aquifer	Aquifer Type	Nominal	Purpose
Install Provide Provide <t< th=""><th></th><th></th><th>Number</th><th></th><th></th><th></th><th></th><th></th><th>Allocation</th><th></th></t<>			Number						Allocation	
1400 restands filterios Battor Battor Battor Battor 1401 restands 177338 Licerco Ta Re Warr Board Biolance Biolance <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th>(ML/water year)</th> <th></th>									(ML/water year)	
Hotella Installad Fordinger South Nerror 2 Margagement Use Hubble and the south Nerror 2 Margagement Use Hubble	14590	Installed	57733S	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
Holdsom Hondbar Hondbar <t< td=""><td>14591</td><td>Installed</td><td>57733S</td><td>Licence to Take Water</td><td>Issued</td><td>Surat North 2 Management Unit</td><td>Hutton Sandstone</td><td>Subartesian</td><td></td><td>Stock</td></t<>	14591	Installed	57733S	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
Uder Windle User and Park Locked York Name Sourd Work Sourd Wo	14593	Installed	102157	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
Heads Installed Heads Installed Substrate Substrate Substrate Heads Installed High	14597	Installed	14597S	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian	74	Domestic Supply, Irrigation, Stock
1410 Installed 15505 Lence 1s are Water Start Neth 2 Maragement Unit Hutch Smithlene Substream Substream 14616 Intellist 14604 Maragement Unit Hutch Smithlene Substream Substream 1464 Intellist 14604 Maragement Unit Hutch Smithlene Substream Composition 1464 Intellist 14604 Maragement Unit Hutch Smithlene Substream Composition Substream 1464 Intellist 14641 Maragement Unit Hutch Smithlene Substream Substream 14647 Intellist 14641 14751 Lonce 15 ark Wate Substream	14609	Installed	14609S	Licence to Take Water	Issued	Surat North 2 Management Unit	Evergreen Formation	Subartesian		Stock
10161 Installed 14115 Lectors 5 has Water Based Subartson Subartson Subartson Subartson Subartson 1417 Installed 14617 Lectors 5 has Water Issued Subart Sont Attendes and Sont Subart Sont Su	14610	Installed	15580S	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
14017 Lenes to Tax Water Board Surat North 2 Mangement Units Hatters Sandotsome Anterins Costed Frow Image Sunat North 2 Mangement Units Hatters Sandotsome Antern Sandotsome <th< td=""><td>14616</td><td>Installed</td><td>14616S</td><td>Licence to Take Water</td><td>Issued</td><td>Surat North 2 Management Unit</td><td>Hutton Sandstone</td><td>Subartesian</td><td></td><td>Stock</td></th<>	14616	Installed	14616S	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
Instate Instate Loten to Fak Yang Housd Surr North Lution Sandoute Antion Sandoute Antion Sandoute Antion Sandoute Subartisian Subartisian <td>14617</td> <td>Installed</td> <td>14617N</td> <td>Licence to Take Water</td> <td>Issued</td> <td>Surat North 2 Management Unit</td> <td>Hutton Sandstone</td> <td>Artesian-Ceased Flow</td> <td></td> <td>Stock</td>	14617	Installed	14617N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Artesian-Ceased Flow		Stock
Headed Installed Headed Installed Headed Installed Subartesian Essext 14607 Installed 15884 Locento Tate Water Headed Sural Not? Sural Not? <td>14654</td> <td>Installed</td> <td>14654N</td> <td>Licence to Take Water</td> <td>Issued</td> <td>Surat North 2 Management Unit</td> <td>Hutton Sandstone</td> <td>Artesian-Ceased Flow</td> <td></td> <td>Stock</td>	14654	Installed	14654N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Artesian-Ceased Flow		Stock
Instance Instance Learners to Take Water Issuard South 2 Assegment Luni Hutto Standstome Studartesian	14680	Installed	14680N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
Instance Instance Learne to Taxe Water Issued Surul Norh 2 Kanagement Lutal Perceptice Sandtoon Standtression Standtression Standtression 14871 Installed 17277 Learne to Take Water Issued Startin Norh 7 Kanagement Lutal Perceptice Sandtoon Assandtoon Astartace <td< td=""><td>14697</td><td>Installed</td><td>58443N</td><td>Licence to Take Water</td><td>Issued</td><td>Surat North 2 Management Unit</td><td>Hutton Sandstone</td><td>Subartesian</td><td></td><td>Stock</td></td<>	14697	Installed	58443N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
14972 Instaled 14973 Lence to Tak Water Issued Surt North 2 Margament Int Procipie Sandatione Afresin-Controlled Fow Stock 14827 Instaled 80005 Lence to Tak Water Issued Surt North 2 Margament Unit Evergreen Formation Subartesian Stock 2 14887 Instaled 14897 Lence to Tak Water Issued Surt North 2 Margament Unit Evergreen Formation Subartesian Stock 2 14887 Instaled 14897 Lence to Tak Water Issued Surt North 2 Margament Unit Hutton 5 Markation Statartesian Statartesia	14861	Installed	15386N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
Installod Installod Installod Installod Installod Start North 2 Management Unit Hutten Sandstone Subartesian 14883 Installed 168075 Leone to Take Veter Issued Start North 2 Management Unit Everymen Formation Subartesian Stock Actional Stock 14883 Installed 168075 Leone to Take Veter Issued Start North 2 Management Unit Precipics Sandstone Start North 2 Management Unit North 2 Manag	14871	Installed	148715	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Artesian-Controlled Flow		Stock
Installed Bootops Licence to Take Water Issued Sural North 2 Management Unit Evergreen Formation Subartesian Stock 14887 Installed 14888.0 Licence to Take Water Issued Sural North 2 Management Unit Precipics Sandstoree Subartesian Stock 14988 Installed 14888.0 Licence to Take Water Issued Sural North 2 Management Unit Hutton Sandstoree Subartesian Dock Dock <tdd< td=""><td>14872</td><td>Installed</td><td>17247S</td><td>Licence to Take Water</td><td>Issued</td><td>Surat North 2 Management Unit</td><td>Hutton Sandstone</td><td>Subartesian</td><td></td><td>Stock</td></tdd<>	14872	Installed	17247S	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
Instaled	14883	Installed	896095	Licence to Take Water	Issued	Surat North 2 Management Unit	Evergreen Formation	Subartesian		Stock Domestic Supply
instaled instaled instaled instaled instaled instaled instaled instaled instaled issuer Stork 1970 Instaled 15503 Licence to Take Water Issued Surat North Management Unit Precipics Sandatome Mesin Controlled Flow Ostenetic Supply 15710 Instaled 15750 Licence to Take Water Issued Surat North Management Unit Precipics Sandatome Subartesian Stock 15717 Instaled 157171 Licence to Take Water Issued Surat North Management Unit Precipics Sandatome Subartesian Stock 1584 Instaled 15717 Licence to Take Water Issued Surat North Management Unit Precipics Sandatome Subartesian Domestic Supply 1586 Instaled 15973 Licence to Take Water Issued Surat North Management Unit Precipics Sandatome Subartesian Subartesian Stock 1586 Instaled 15978 Licence to Take Water Issued Surat North Management Unit Precipics Sandatome Subartesi	14887	Installed	148875	Licence to Take Water	bauea	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
14970 Installed 149705 Lonce to Take Water Issued Strat North 2 Management Unit Hutton Sandatore Antesian-Controller Prov Domeste Supply Stock 15705 Installed 15706 Lonce to Take Water Issued Strat North 2 Management Unit Precipice Sandstore Stock Consettic Supply 15717 Installed 15718 Leane to Take Water Issued Strat North 2 Management Unit Precipice Sandstore Stock Consettic Supply Stock 15736 Installed 15178 Installed 15178 Installed Stock Water Stock 15368 Installed 15178 Leone to Take Water Issued Start North 2 Management Unit Precipice Sandstore Stock Stock Stock 15487 Installed 15050 Leone to Take Water Issued Start North 2 Management Unit Huton Sandstore Stock Stock Stock 15481 Installed 15050 Leone to Take Water Issued Stock Management Unit Huton Sandstore Stock Stock Stock 15565 Installed 155500 <td>14888</td> <td>Installed</td> <td>14888N</td> <td>Licence to Take Water</td> <td>lesued</td> <td>Surat North 3 Management Unit</td> <td>Precipice Sandstone</td> <td>Subartesian</td> <td></td> <td>Stock</td>	14888	Installed	14888N	Licence to Take Water	lesued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian		Stock
1955 Installed 15595 Licence Taxe Valuer Stand Norm Stand Norm Stand Norm 1970 Installed 1570 Installed 1571 Installed 15711 Installed 1571 Installed 1571 Installed 15711 Instal	14000	Installed	140705	Licence to Take Water	lesued	Surat North 2 Management Unit	Hutton Sandstone	Artesian-Controlled Flow		Domestic Supply Stock
19170 Installed 19178 Licence to Take Water Issued Sunt North 2 Management Unit Precipes Sandatone Subartesian Stock, Domestic Supply 19171 Installed 19174 Installed 19174 Installed Subartesian Stock 19386 Installed 19174 Installed 19174 Installed Subartesian Domestic Supply, Stock 19471 Installed 19174 Installed 19174 Installed 19174 Installed 19174 Installed 19174 Installed 19004 Stock Domestic Supply, Stock 19586 Installed 19608 Licence to Take Water Issued Surat Noft 2 Management Unit Hutton Sandstone Subartesian Stock 19586 Installed 19508 Licence to Take Water Issued Surat Noft 2 Management Unit Hutton Sandstone Subartesian Domestic Supply, Stock 19586 Installed 19569 Licence to Take Water Issued Surat Noft 2 Management Unit Hutton Sandstone Subartesian Domestic Supply,	15053	Installed	155805	Licence to Take Water	lesued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
District District District Standard Standard District Antion Constant from District 1936 Installed 11538 Installed 11538 Standard Standard <t< td=""><td>15055</td><td>Installed</td><td>151709</td><td>Licence to Take Water</td><td>logued</td><td>Surat North 2 Management Unit</td><td>Proginico Sandatono</td><td>Subartosian</td><td></td><td>Stock Domostic Supply</td></t<>	15055	Installed	151709	Licence to Take Water	logued	Surat North 2 Management Unit	Proginico Sandatono	Subartosian		Stock Domostic Supply
19 Tot Instantion 19 Tot Instantion 19 Tot Provide State State State State 19 Tot Instantion 19 Tot Instantion 19 Tot Name State	15170	Installed	151703	Licence to Take Water	Issued	Surat North 2 Management Unit	Frecipice Salidstone	Artagian Cagood Flow		Stock, Dolliestic Supply
Installed Total Not Source of Note Note Source of Note Note Domestic Supply, Stock 19477 Installed 11903 Licence to Take Water Source Note Subartesian Domestic Supply, Stock 19508 Installed 11908 Licence to Take Water Issued Sural Note Subartesian Subartesian Stock 19508 Installed 19508. Licence to Take Water Issued Sural Note Nanagement Unit Hutton Sandstone Subartesian Stock 19525 Installed 200785 Licence to Take Water Issued Sural Note Management Unit Evergreen Formation Subartesian Domestic Supply, Stock 15556 Installed 15557 Installed 15557 Stock Stock Stock 15566 Installed 15568 Licence to Take Water Issued Sural North 2 Management Unit Hutton Sandstone Subartesian Stock 15566 Installed 15568 Licence to Take Water Issued Sural North 2 Management Unit Hutton Sandstone S	15171	Installed	1517 IN 15296N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hulton Sandstone	Artesian-Ceased Flow		Slock
1911 /r Installed 1911 /r Installed 1911 /r Prepube Santabule Subartisation Domestic Supply, stock 19569 Installed 15508 Installed Stock	15380	Installed	15386N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
1946 Installed 1500 Installed Stock Stock 1500 Proposed 1500 Lonce to Take Water Issued Stock Stock 1500 Proposed 1500 Lonce to Take Water Issued Stock Stock 1500 Proposed 1500 Lonce to Take Water Issued Stock Stock 1500 Installed 1500 Lonce to Take Water Issued Stock Stock 1500 Installed 1500 Lonce to Take Water Issued Stock Stock 1556 Installed 1557 Lonce to Take Water Issued Stock Stock Stock 1556 Installed 15584 Lonce to Take Water Issued Stock Stock Stock 1557 Installed 15584 Lonce to Take Water Issued Stock Stock Stock 15584 Installed 15595 Lonce to Take Water Issued Stock Stock Stock	15417	Installed	104175	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian		Domestic Supply, Slock
Instaled Topological Soliding Leence to Take Water Issued Suita North 2 Maragement Unit Hutton Sandstore SubArtesian Stock 15526 Finsteled 30478 Licence to Take Water Issued Suita North 2 Maragement Unit Evergreen Formation SubArtesian Stock 15526 Instaled 20508 Leence to Take Water Issued Suita North 2 Maragement Unit Evergreen Formation SubArtesian Stock 15556 Instaled 15557 Instaled Issued Suita North 2 Maragement Unit Fevrgreen Formation SubArtesian Stock 15566 Instaled 15567 Licence to Take Water Issued Suita North 2 Maragement Unit Hutton Sandstore SubArtesian Stock 15566 Instaled 15680 Licence to Take Water Issued Suita North 2 Maragement Unit Hutton Sandstore SubArtesian Stock 15569 Instaled 171975 Licence to Take Water Issued Suita North 2 Maragement Unit Hutton Sandstore Aubartesian Stock 15569 <td>15487</td> <td>Installed</td> <td>171099</td> <td>Licence to Take Water</td> <td>Issued</td> <td>Surat North 3 Management Unit</td> <td>Hutton Sandstone</td> <td>Subartesian</td> <td></td> <td>Stock</td>	15487	Installed	171099	Licence to Take Water	Issued	Surat North 3 Management Unit	Hutton Sandstone	Subartesian		Stock
15:008 Proposed 15:008N Leence to Take Water Issued Surat North 2 Maragement Unit Hutton Sandstone Subartesian Stock 15:325 Installed 26006S Leence to Take Water Issued Surat North 2 Maragement Unit Evergreen Formation Subartesian Domestic Supply, Stock 15:556 Installed 15:557N Leence to Take Water Issued Surat North 2 Maragement Unit Hutton Sandstone Subartesian Stock 15:556 Installed 15:558 Leence to Take Water Issued Surat North 2 Maragement Unit Hutton Sandstone Subartesian Stock 15:566 Installed 15:568N Leence to Take Water Issued Surat North 2 Maragement Unit Hutton Sandstone Subartesian Stock 15:569 Installed 15:569N Leence to Take Water Issued Surat North 2 Maragement Unit Hutton Sandstone Subartesian Stock 15:569 Installed 15:569N Leence to Take Water Issued Surat North 2 Maragement Unit Hutton Sandstone Subartesian Stock <td>15508</td> <td>Installed</td> <td>15508N</td> <td>Licence to Take Water</td> <td>Issued</td> <td>Surat North 2 Management Unit</td> <td>Hutton Sandstone</td> <td>Subartesian</td> <td></td> <td>Stock</td>	15508	Installed	15508N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
Ubbbc Installed 300/45S Lecence to Take Water Issued Surat North Amagement Unit Evergreen Formation Subartesian Disco 15538 Installed 15560N Lecence to Take Water Issued Surat North 2 Maragement Unit Fivergreen Formation Subartesian Discok 15556 Installed 15557N Lecence to Take Water Issued Surat North 2 Maragement Unit Hutton Sandstone Subartesian Stock 15566 Installed 15568N Lecence to Take Water Issued Surat North 2 Maragement Unit Hutton Sandstone Subartesian Stock 15566 Installed 15680N Lecence to Take Water Issued Surat North 2 Maragement Unit Hutton Sandstone Subartesian Stock 15560 Installed 15680N Lecence to Take Water Issued Surat North 2 Maragement Unit Precipice Sandstone Atlesian-Controlled Flow Domestic Supply, Stock 15660 Installed 15680N Lecence to Take Water Issued Surat North 2 Maragement Unit Evergreen Formation Subartesian	15508	Proposed	15508N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
19:536Installed2000rdsLicence to Take WaterIssuedSural North 2 Management UnitEvergreen FormationSubartesianDomestic Supply, Stock19:557Installed11:557NLicence to Take WaterIssuedSural North 2 Management UnitHutton SandstoneSubartesianStock19:556Installed11:556NLicence to Take WaterIssuedSural North 2 Management UnitHutton SandstoneSubartesianStock19:566Installed11:556NLicence to Take WaterIssuedSural North 2 Management UnitHutton SandstoneSubartesianStock19:579Installed11:5500Licence to Take WaterIssuedSural North 2 Management UnitPrecipice SandstoneSubartesianStock, Domestic Supply, Stock19:590Installed11:5500Licence to Take WaterIssuedSural North 2 Management UnitPrecipice SandstoneAttesian-Controlled FowDomestic Supply, Stock19:690Installed11:5605Licence to Take WaterIssuedSural North 2 Management UnitEvergreen FormationSubartesianStock19:709Installed17:8425Licence to Take WaterIssuedSural North 2 Management UnitEvergreen FormationSubartesianStock19:709Installed17:448Licence to Take WaterIssuedSural North 2 Management UnitEvergreen FormationSubartesianStock19:709Installed17:448Licence to Take WaterIssuedSural North 2 Management UnitEvergreen Fo	15525	Installed	30478S	Licence to Take Water	Issued	Surat North 2 Management Unit	Evergreen Formation	Subartesian		Stock
15556 Installed 15567M Licence to Take Water Issued Subartesian Stock 15557 Installed 15567M Licence to Take Water Issued Sural North 2 Management Unit Formation Name not Specified Artesian-Ceased Flow Stock 15568 Installed 15568M Licence to Take Water Issued Sural North 2 Management Unit Hutton Sandstone Subartesian Stock 15579 Installed 15508 Licence to Take Water Issued Sural North 2 Management Unit Precipice Sandstone Subartesian Stock North 15590 Installed 15590S Licence to Take Water Issued Sural North 2 Management Unit Precipice Sandstone Artesian-Controlled Flow Domestic Supply, Stock 15690 Installed 15590S Licence to Take Water Issued Sural North 2 Management Unit Evergreen Formation Subartesian Stock 15671 Licence to Take Water Issued Sural North 2 Management Unit Evergreen Formation Subartesian Stock 15724 Installed 157492S	15538	Installed	26006S	Licence to Take Water	Issued	Surat North 2 Management Unit	Evergreen Formation	Subartesian		Domestic Supply, Stock
15557Installed15567NLicence to Take WaterIssuedSurat North 2 Management UnitFormation Name not SpecifiedAftesian-Ceased FlowStock15568Installed15568NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock15579Installed15509SLicence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneSubartesianStock15590Installed15509SLicence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneSubartesianStock15690Installed1560SLicence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneArtesian-Corrolled FlowDomestic Supply, Stock15673Installed1564SLicence to Take WaterIssuedSurat North 2 Management UnitEvergreen FormationSubartesianStock15673Installed15742SLicence to Take WaterIssuedSurat North 2 Management UnitEvergreen FormationSubartesianStock1570Installed17248SLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock1570Installed15748NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock15740Installed15748NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock </td <td>15556</td> <td>Installed</td> <td>15556N</td> <td>Licence to Take Water</td> <td>Issued</td> <td>Surat North 2 Management Unit</td> <td>Hutton Sandstone</td> <td>Subartesian</td> <td></td> <td>Stock</td>	15556	Installed	15556N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
15656Installed15568NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock15579Installed17197SLicence to Take WaterIssuedSurat North 2 Management UnitPrecipice SandstoneSubartesianStock, Domestic Supply15590Installed15590SLicence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneSubartesianStock, Domestic Supply15690Installed15590SLicence to Take WaterIssuedSurat North 2 Management UnitPrecipice SandstoneArtesian-Controlled FlowDomestic Supply, Stock15691Installed15698SLicence to Take WaterIssuedSurat North 2 Management UnitEvergreen FormationSubartesianStock1572Installed17248SLicence to Take WaterIssuedSurat North 2 Management UnitEvergreen FormationSubartesianStock1570Installed17248SLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock1573Installed1574ANLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock1574Installed1574ANLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock1574Installed1574ANLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesian <td< td=""><td>15557</td><td>Installed</td><td>15557N</td><td>Licence to Take Water</td><td>Issued</td><td>Surat North 2 Management Unit</td><td>Formation Name not Specified</td><td>Artesian-Ceased Flow</td><td></td><td>Stock</td></td<>	15557	Installed	15557N	Licence to Take Water	Issued	Surat North 2 Management Unit	Formation Name not Specified	Artesian-Ceased Flow		Stock
15569Installed15568Licence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock, Domestic Supply15570Installed155905Licence to Take WaterIssuedSurat North 2 Management UnitPrecipice SandstoneSubartesianStock, Domestic Supply15680Installed156905Licence to Take WaterIssuedSurat North 2 Management UnitPrecipice SandstoneActuation-Controlled FlowDomestic Supply15680Installed156905Licence to Take WaterIssuedSurat North 2 Management UnitEvergreen FormationSubartesianStock16721Installed574925Licence to Take WaterIssuedSurat North 2 Management UnitEvergreen FormationSubartesianStock15730Installed172485Licence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock15740Installed172485Licence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock15742Installed15744NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock15742Installed15744NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock15743Installed15744NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStoc	15565	Installed	15568N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
15579Installed17197SLicence to Take WaterIssuedSurdt North 3 Management UnitPrecipice SandstoneStudentesianStock. Domestic Supply15580Installed155805Licence to Take WaterIssuedSurdt North 3 Management UnitPrecipice SandstoneArtesian-Controlled FlowDomestic Supply, Stock15690Installed156905Licence to Take WaterIssuedSurdt North 2 Management UnitEvergreen FormationSubartesianSubartesianStock15672Installed574925Licence to Take WaterIssuedSurat North 2 Management UnitEvergreen FormationSubartesianStock15709Installed574825Licence to Take WaterIssuedSurat North 2 Management UnitEvergreen FormationSubartesianStock.15710Installed172485Licence to Take WaterIssuedSurat North 2 Management UnitHuton SandstoneSubartesianStock.15729Installed157454Licence to Take WaterIssuedSurat North 2 Management UnitHuton SandstoneSubartesianStock.15746Installed157454Licence to Take WaterIssuedSurat North 1 Management UnitHuton SandstoneSubartesianStock.15747Installed157454Licence to Take WaterIssuedSurat North 2 Management UnitHuton SandstoneSubartesianStock.15748Installed157454Licence to Take WaterIssuedSurat North 3 Management UnitHuton SandstoneSubartesia	15568	Installed	15568N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
15580Installed15580Licence to Take WaterIssuedSturt North 2 Management UnitHutton SandstoneSubartesianStock15690Installed155905Licence to Take WaterIssuedSural North 3 Management UnitPrecipice SandstoneAresian-Controlled FlowDomestic Supply, Stock15673Installed574925Licence to Take WaterIssuedSural North 2 Management UnitEvergreen FormationSubartesianStock15673Installed574925Licence to Take WaterIssuedSural North 2 Management UnitEvergreen FormationSubartesianStock15709Installed172485Licence to Take WaterIssuedSural North 2 Management UnitHutton SandstoneSubartesianStock15710Installed1574925Licence to Take WaterIssuedSural North 2 Management UnitHutton SandstoneSubartesianStock15724Installed15749XLicence to Take WaterIssuedSural North 2 Management UnitHutton SandstoneSubartesianStock15742Installed15749XLicence to Take WaterIssuedSural North 2 Management UnitHutton SandstoneSubartesianStock15744Installed15749XLicence to Take WaterIssuedSural North 2 Management UnitHutton SandstoneSubartesianStock15745Installed15749XLicence to Take WaterIssuedSural North 3 Management UnitHutton SandstoneSubartesianStock15745 <t< td=""><td>15579</td><td>Installed</td><td>17197S</td><td>Licence to Take Water</td><td>Issued</td><td>Surat North 3 Management Unit</td><td>Precipice Sandstone</td><td>Subartesian</td><td></td><td>Stock, Domestic Supply</td></t<>	15579	Installed	17197S	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian		Stock, Domestic Supply
15590Installed15500Licence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneArtesian-Controlled FlowDomestic Supply, Stock15672Installed156095Licence to Take WaterIssuedSurat North 2 Management UnitEvergreen FormationSubartesianStock15673Installed674925Licence to Take WaterIssuedSurat North 2 Management UnitEvergreen FormationSubartesianStock15709Installed172485Licence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock15710Installed172485Licence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock15729Installed157440Licence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock15744Installed157454Licence to Take WaterIssuedSurat North 1 Management UnitHutton SandstoneSubartesianStock15785Installed157454Licence to Take WaterIssuedSurat North 3 Management UnitHutton SandstoneSubartesianStock15782Installed157454Licence to Take WaterIssuedSurat North 3 Management UnitHutton SandstoneSubartesianStock15782Installed157854Licence to Take WaterIssuedSurat North 3 Management UnitHutton SandstoneSubartesianStock15782 <t< td=""><td>15580</td><td>Installed</td><td>15580S</td><td>Licence to Take Water</td><td>Issued</td><td>Surat North 2 Management Unit</td><td>Hutton Sandstone</td><td>Subartesian</td><td></td><td>Stock</td></t<>	15580	Installed	15580S	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
15669Installed1569SLicence to Take WaterIssuedSurat North 2 Management UnitEvergreen FormationSubartesianStock15672Installed57492SLicence to Take WaterIssuedSurat North 2 Management UnitEvergreen FormationSubartesianStock15703Installed17248SLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock15704Installed17248SLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock15710Installed17248SLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock15724Installed1354MLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock15744Installed1574MLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock15745Installed1574SNLicence to Take WaterIssuedSurat North 3 Management UnitHutton SandstoneSubartesianCock15732Installed15739NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianCock15732Installed15739NLicence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneSubartesianCock15732Installed15749N	15590	Installed	15590S	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Artesian-Controlled Flow		Domestic Supply, Stock
16672Installed57492SLicence to Take WaterIssuedSurat North 2 Management UnitEvergreen FormationSubartesianStock1673Installed17248SLicence to Take WaterIssuedSurat North 2 Management UnitEvergreen FormationSubartesianStock15710Installed17248SLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock15710Installed17248SLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock15720Installed15744NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock15744Installed15748NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock15745Installed15748NLicence to Take WaterIssuedSurat North 3 Management UnitHutton SandstoneSubartesianStock15792Installed15749NLicence to Take WaterUnder RenewalSurat North 3 Management UnitPrecipice SandstoneSubartesian200Urban15862Installed3184NLicence to Take WaterUnder RenewalSurat North 3 Management UnitHutton SandstoneSubartesianStock15900Installed3184NLicence to Take WaterUnder RenewalSurat North 2 Management UnitHutton SandstoneSubartesianStock15922<	15669	Installed	15669S	Licence to Take Water	Issued	Surat North 2 Management Unit	Evergreen Formation	Subartesian		Stock
16673Installed57492SLicence to Take WaterIssuedSural North 2 Management UnitEvergreen FormationSubartesianStock15700Installed17248SLicence to Take WaterIssuedSural North 2 Management UnitHutton SandstoneSubartesianStock15710Installed36395SLicence to Take WaterIssuedSural North 2 Management UnitHutton SandstoneSubartesianStock15724Installed15744WLicence to Take WaterIssuedSural North 2 Management UnitHutton SandstoneSubartesianStock15744Installed15745NLicence to Take WaterIssuedSural North 2 Management UnitHutton SandstoneSubartesianStock15785Installed15785NLicence to Take WaterIssuedSural North 3 Management UnitPrecipice SandstoneSubartesianStock, Omestic Supply15793Installed15793NLicence to Take WaterUnder RenewalSural North 3 Management UnitPrecipice SandstoneSubartesianStock, Omestic Supply15862Installed51844NLicence to Take WaterUnder RenewalSural North 3 Management UnitHutton SandstoneSubartesianStock15960Installed16040NLicence to Take WaterIssuedSural North 3 Management UnitHutton SandstoneSubartesianStock15960Installed16044NLicence to Take WaterIssuedSural North 3 Management UnitPrecipice SandstoneSubartesianStock, Omestic	15672	Installed	57492S	Licence to Take Water	Issued	Surat North 2 Management Unit	Evergreen Formation	Subartesian		Stock
15700Installed17248SLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock15710Installed38395SLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock15724Installed36395SLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock15744Installed1574NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock15742Installed1575SLicence to Take WaterIssuedSurat North 3 Management UnitHutton SandstoneSubartesianStock15792Installed1573NLicence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneSubartesian200Urban15862Installed58443NLicence to Take WaterUnder RenewalSurat North 3 Management UnitHutton SandstoneSubartesian200Urban15862Installed31184NLicence to Take WaterIssuedSurat North 3 Management UnitHutton SandstoneSubartesianStock16028Installed1604NLicence to Take WaterIssuedSurat North 3 Management UnitHutton SandstoneSubartesianStock16028Installed1604NLicence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneSubartesianStock16029Inst	15673	Installed	57492S	Licence to Take Water	Issued	Surat North 2 Management Unit	Evergreen Formation	Subartesian		Stock
15710Installed172485Licence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock15729Installed363955Licence to Take WaterIssuedSurat North 1 Management UnitHutton SandstoneArtesian-Ceased FlowStock15744Installed15744NLicence to Take WaterIssuedSurat North 1 Management UnitHutton SandstoneArtesian-Ceased FlowStock15785Installed48816SLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock.15793Installed15793NLicence to Take WaterIssuedSurat North 2 Management UnitPrecipice SandstoneSubartesian200Urthan15862Installed15793NLicence to Take WaterIssuedSurat North 2 Management UnitPrecipice SandstoneSubartesian200Urthan15862Installed1184NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesian200Urthan15862Installed1184NLicence to Take WaterIssuedSurat North 3 Management UnitHutton SandstoneSubartesianSubartesianStock16000Installed1604NLicence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneSubartesianStock, Domestic Supply16048Licence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneSubartesianSt	15709	Installed	17248S	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
15729Installed36395SLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock15744Installed15744NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneArtesian-Ceased FlowStock15785Installed15785NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock15792Installed48816SLicence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneSubartesian200Urban15785Installed15783NLicence to Take WaterIssuedSurat North 2 Management UnitPrecipice SandstoneSubartesian200Urban15862Installed158443NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesian200Urban15860Installed31184NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock16000Installed1600NLicence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneSubartesianStock16024Installed1604NLicence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneSubartesianStock16040Installed1604NLicence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneSubartesianStock	15710	Installed	17248S	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
15744Installed15744NLicence to Take WaterIssuedSurat North 1 Management UnitHutton SandstoneArtesian-Ceased FlowStock15785Installed15785NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneStubartesianStock15792Installed488165Licence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneSubartesian200Urban15862Installed35443NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesian200Urban15862Installed31184NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock15960Installed31184NLicence to Take WaterIssuedSurat North 3 Management UnitHutton SandstoneSubartesianStock16000Installed16000NLicence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneSubartesianStock16024Installed1604NLicence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneSubartesianStock16041Installed1604NLicence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneSubartesianStock16065Installed1606NLicence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneSubartesianStock1606	15729	Installed	36395S	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
15785Installed15785NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock15792Installed48816SLicence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneSubartesian200Urban15793Installed15793NLicence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneSubartesian200Urban15862Installed58443NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock15900Installed16000NLicence to Take WaterIssuedSurat North 3 Management UnitHutton SandstoneSubartesianStock16028Installed16000NLicence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneSubartesianStock16028Installed16000NLicence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneSubartesianStock, Domestic Supply16044Installed16044NLicence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneSubartesianStock, Domestic Supply16045Installed16065NLicence to Take WaterIssuedSurat North 3 Management UnitHutton SandstoneSubartesianStock1604616065NLicence to Take WaterIssuedSurat North 3 Management UnitHutton SandstoneSubartesianStock <tr< td=""><td>15744</td><td>Installed</td><td>15744N</td><td>Licence to Take Water</td><td>Issued</td><td>Surat North 1 Management Unit</td><td>Hutton Sandstone</td><td>Artesian-Ceased Flow</td><td></td><td>Stock</td></tr<>	15744	Installed	15744N	Licence to Take Water	Issued	Surat North 1 Management Unit	Hutton Sandstone	Artesian-Ceased Flow		Stock
15792Installed48816SLicence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneSubartesian200Urban15793Installed15793NLicence to Take WaterUnder RenewalSurat North 3 Management UnitPrecipice SandstoneSubartesian200Urban15862Installed58443NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesian200Urban15960Installed31184NLicence to Take WaterUnder RenewalSurat North 2 Management UnitHutton SandstoneSubartesianStock16000Installed16000NLicence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneSubartesianStock16028Installed16004NLicence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneSubartesianStock16044Installed16044NLicence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneSubartesianStock16055Installed16065NLicence to Take WaterIssuedSurat North 3 Management UnitHutton SandstoneSubartesianStock16065Installed16065NLicence to Take WaterIssuedSurat North 3 Management UnitHutton SandstoneSubartesianStock16065Installed16065NLicence to Take WaterIssuedSurat North 3 Management UnitHutton SandstoneSubartesianStock <td>15785</td> <td>Installed</td> <td>15785N</td> <td>Licence to Take Water</td> <td>Issued</td> <td>Surat North 2 Management Unit</td> <td>Hutton Sandstone</td> <td>Subartesian</td> <td></td> <td>Stock</td>	15785	Installed	15785N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
15793Installed15793NLicence to Take WaterUnder RenewalSurat North 3 Management UnitPrecipice SandstoneSubartesian200Urban15862Installed58443NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock15960Installed31184NLicence to Take WaterUnder RenewalSurat North 2 Management UnitHutton SandstoneSubartesianStock16000Installed16000NLicence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneSubartesianStock16028Installed48816SLicence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneSubartesianStock16044Installed16044NLicence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneSubartesianStock16055Installed16065NLicence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneSubartesianStock16065Installed16065NLicence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneSubartesianStock16065Installed16065NLicence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneSubartesianStock16065Installed16065NLicence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneSubartesianStock	15792	Installed	48816S	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian		Stock, Domestic Supply
15862Installed58443NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock15960Installed31184NLicence to Take WaterUnder RenewalSurat North 2 Management UnitHutton SandstoneSubartesianStock16000Installed16000NLicence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneSubartesianStock16028Installed48816SLicence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneSubartesianStock16024Installed16044NLicence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneSubartesianStock16044Installed16045NLicence to Take WaterIssuedSurat North 3 Management UnitHutton SandstoneSubartesianStock16055Installed16065NLicence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneSubartesianStock16065Installed16065NLicence to Take WaterIssuedSurat North 2 Management UnitPrecipice SandstoneSubartesianStock16082Installed31560SLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock16084Installed31560SLicence to Take WaterIssuedSurat North 2 Management UnitEvergreen FormationSubartesianStock16082Installed </td <td>15793</td> <td>Installed</td> <td>15793N</td> <td>Licence to Take Water</td> <td>Under Renewal</td> <td>Surat North 3 Management Unit</td> <td>Precipice Sandstone</td> <td>Subartesian</td> <td>200</td> <td>Urban</td>	15793	Installed	15793N	Licence to Take Water	Under Renewal	Surat North 3 Management Unit	Precipice Sandstone	Subartesian	200	Urban
15960Installed31184NLicence to Take WaterUnder RenewalSurat North 2 Management UnitHutton SandstoneSubartesianStock16000Installed16000NLicence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneSubartesianStock16028Installed48816SLicence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneSubartesianStock16044Installed16044NLicence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneSubartesianStock16065Installed16065NLicence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneSubartesianStock16067Installed16065NLicence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneSubartesianStock16067Installed16065NLicence to Take WaterIssuedSurat North 2 Management UnitPrecipice SandstoneSubartesianStock16067Installed31560SLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock16082Installed31560SLicence to Take WaterIssuedSurat North 2 Management UnitEvergreen FormationSubartesianStock16144Installed30478SLicence to Take WaterIssuedSurat North 2 Management UnitEvergreen FormationSubartesianStock16217Insta	15862	Installed	58443N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
16000Installed16000NLicence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneSubartesianStock16028Installed48816SLicence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneSubartesianStock, Domestic Supply16044Installed16044NLicence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneSubartesianStock, Domestic Supply16045Installed16065NLicence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneSubartesianStock16065Installed16065NLicence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneSubartesianStock16067Installed16065NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock16068Installed31560SLicence to Take WaterIssuedSurat North 2 Management UnitEvergreen FormationSubartesianStock16144Installed30478SLicence to Take WaterIssuedSurat North 2 Management UnitEvergreen FormationSubartesianStock16217Installed16217NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneArtesian-Controlled Flow2416218Installed16225NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock <td>15960</td> <td>Installed</td> <td>31184N</td> <td>Licence to Take Water</td> <td>Under Renewal</td> <td>Surat North 2 Management Unit</td> <td>Hutton Sandstone</td> <td>Subartesian</td> <td></td> <td>Stock</td>	15960	Installed	31184N	Licence to Take Water	Under Renewal	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
16028Installed48816SLicence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneSubartesianStock, Domestic Supply16044Installed16044NLicence to Take WaterIssuedSurat North 3 Management UnitHutton SandstoneSubartesianStock16055Installed16065NLicence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneSubartesianStock16067Installed16065NLicence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneSubartesianStock16067Installed57733SLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock16082Installed31500SLicence to Take WaterIssuedSurat North 2 Management UnitEvergreen FormationSubartesianStock16144Installed30478SLicence to Take WaterIssuedSurat North 2 Management UnitEvergreen FormationSubartesianStock16217Installed16217NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneArtesian-Controlled Flow24Stock Intensive, Stock16218Installed16225NLicence to Take WaterIssuedSurat North 3 Management UnitHutton SandstoneSubartesianStock16225Installed16225NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesian	16000	Installed	16000N	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian		Stock
16044 Installed 16044N Licence to Take Water Issued Surat North 3 Management Unit Hutton Sandstone Subartesian Stock 16065 Installed 16065N Licence to Take Water Issued Surat North 3 Management Unit Precipice Sandstone Subartesian Stock 16067 Installed 57733S Licence to Take Water Issued Surat North 2 Management Unit Hutton Sandstone Subartesian Stock 16082 Installed 31560S Licence to Take Water Issued Surat North 2 Management Unit Evergreen Formation Subartesian Stock 16144 Installed 30478S Licence to Take Water Issued Surat North 2 Management Unit Evergreen Formation Subartesian Stock 16217 Installed 16217N Licence to Take Water Issued Surat North 2 Management Unit Evergreen Formation Subartesian Stock 16217 Installed 16217N Licence to Take Water Issued Surat North 2 Management Unit Hutton Sandstone Artesian-Controlled Flow 24 Stock Intensive, Stock 16218 Installed 16218N	16028	Installed	48816S	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian		Stock, Domestic Supply
16065 Installed 16065N Licence to Take Water Issued Surat North 3 Management Unit Precipice Sandstone Subartesian Stock 16067 Installed 57733S Licence to Take Water Issued Surat North 2 Management Unit Hutton Sandstone Subartesian Stock 16082 Installed 31560S Licence to Take Water Issued Surat North 2 Management Unit Evergreen Formation Subartesian Stock 16082 Installed 30478S Licence to Take Water Issued Surat North 2 Management Unit Evergreen Formation Subartesian Stock 16144 Installed 30478S Licence to Take Water Issued Surat North 2 Management Unit Evergreen Formation Subartesian Stock 16217 Installed 16217N Licence to Take Water Issued Surat North 2 Management Unit Hutton Sandstone Artesian-Controlled Flow 24 Stock Intensive, Stock 16218 Installed 16218N Licence to Take Water Issued Surat North 3 Management Unit Precipice Sandstone Subart	16044	Installed	16044N	Licence to Take Water	Issued	Surat North 3 Management Unit	Hutton Sandstone	Subartesian		Stock
10067 Installed 57733S Licence to Take Water Issued Surat North 2 Management Unit Hutton Sandstone Subartesian Stock 16082 Installed 31560S Licence to Take Water Issued Surat North 2 Management Unit Hutton Sandstone Subartesian Stock 16144 Installed 30478S Licence to Take Water Issued Surat North 2 Management Unit Evergreen Formation Subartesian Stock 16217 Installed 16217N Licence to Take Water Issued Surat North 2 Management Unit Hutton Sandstone Artesian-Controlled Flow 24 Stock Intensive, Stock 16218 Installed 16218N Licence to Take Water Issued Surat North 2 Management Unit Hutton Sandstone Subartesian Stock 16225 Installed 16218N Licence to Take Water Issued Surat North 2 Management Unit Hutton Sandstone Subartesian Stock 16225 Installed 16225N Licence to Take Water Issued Surat North 3 Management Unit Precipice Sandstone Subartesian Stock	16065	Installed	16065N	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian		Stock
Installed 31500S Licence to Take Water Issued Surat North 2 Management Unit Evergreen Formation Subartesian Stock 16144 Installed 30478S Licence to Take Water Issued Surat North 2 Management Unit Evergreen Formation Subartesian Stock 16144 Installed 16217N Licence to Take Water Issued Surat North 2 Management Unit Evergreen Formation Subartesian Stock 16217 Installed 16217N Licence to Take Water Issued Surat North 2 Management Unit Hutton Sandstone Artesian-Controlled Flow 24 Stock Intensive, Stock 16218 Installed 16218N Licence to Take Water Issued Surat North 2 Management Unit Hutton Sandstone Subartesian Stock 16225 Installed 16225N Licence to Take Water Issued Surat North 3 Management Unit Precipice Sandstone Subartesian Stock	16067	Installed	57733S	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
Installed Stock District District <thdistrict< th=""> <thdistrict< th=""> <th< td=""><td>16082</td><td>Installed</td><td>31560S</td><td>Licence to Take Water</td><td>Issued</td><td>Surat North 2 Management Unit</td><td>Evergreen Formation</td><td>Subartesian</td><td></td><td>Stock</td></th<></thdistrict<></thdistrict<>	16082	Installed	31560S	Licence to Take Water	Issued	Surat North 2 Management Unit	Evergreen Formation	Subartesian		Stock
Installed 16217N Licence to Take Water Issued Surat North 2 Management Unit Hutton Sandstone Artesian-Controlled Flow 24 Stock Intensive, Stock 16218 Installed 16218N Licence to Take Water Issued Surat North 2 Management Unit Hutton Sandstone Artesian-Controlled Flow 24 Stock Intensive, Stock 16218 Installed 16218N Licence to Take Water Issued Surat North 2 Management Unit Hutton Sandstone Subartesian Stock 16225 Installed 16225N Licence to Take Water Issued Surat North 3 Management Unit Precipice Sandstone Subartesian Stock	16144	Installed	30478S	Licence to Take Water	Issued	Surat North 2 Management Unit	Evergreen Formation	Subartesian		Stock
Installed 16218 Licence to Take Water Issued Surat North 2 Management Unit Hutton Sandstone Subartesian Stock 16225 Installed 16225N Licence to Take Water Issued Surat North 3 Management Unit Precipice Sandstone Subartesian Stock	16217	Installed	16217N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Artesian-Controlled Flow	24	Stock Intensive Stock
16225 Installed 16225N Licence to Take Water Issued Surat North 3 Management Unit Precision Subartesian Stock	16218	Installed	16218N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
	16225	Installed	16225N	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian		Stock

RN	Works Status	Authorisation	Authorisation Type	Authorisation Status	Management Unit	Aquifer	Aquifer Type	Nominal	Purpose
		Number						Allocation	
								(ML/water year)	
16229	Installed	16229S	Licence to Take Water	Issued	Surat North 2 Management Unit	Precipice Sandstone	Subartesian		Stock
16270	Installed	16270S	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Artesian-Controlled Flow		Stock, Domestic Supply
16307	Installed	58871N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
16312	Installed	16312N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
16320	Abandoned	89505S	Licence to Take Water	Issued	Surat North 2 Management Unit	Evergreen Formation	Subartesian		Domestic Supply, Stock
16385	Installed	58296N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Domestic Supply, Stock
16405	Installed	896705	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
16598	Installed	16598N	Licence to Take Water	Issued	Surat North 2 Management Unit	Evergreen Formation	Subartesian		Stock
16605	Installed	166055	Licence to Take Water	Issued	Surat North 2 Management Unit	Evergreen Formation	Subartesian		Domestic Supply, Stock
16607	Installed	16607N	Licence to Take Water	beugel	Surat North 2 Management Unit	Hutton Sandstone	Artesian-Ceased Flow		Stock
16661	Installed	16661N	Licence to Take Water	beugel	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
16686	Installed	166865	Licence to Take Water	lesued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian		Stock
16752	Installed	16752N	Licence to Take Water	Linder Renewal	Surat North 3 Management Unit	Precipice Sandstone	Subartesian		Stock
16759	Installed	59466NI	Licence to Take Water		Surat North 2 Management Unit	Hutton Sandatono	Artagian Controlled Flow		Stock
10750	Installed	169266	Licence to Take Water	Issued	Surat North 2 Management Unit		Artesian-Controlled Flow		Stock Demostic Supply
10030	Installed	100303	Licence to Take Water	Issued	Surat North 2 Management Unit	Hullon Sandstone	Subartesian		Stock, Domestic Supply
17070	Installed	170705	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Artesian-Controlled Flow		Stock
17110	Installed	17110N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
1/14/	Installed	26390N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Supartesian		Stock
17196	Installed	171975	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian		Stock, Domestic Supply
17197	Installed	17197S	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Artesian-Controlled Flow		Stock, Domestic Supply
17247	Installed	17247S	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
17248	Installed	17248S	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
17306	Installed	17306N	Licence to Take Water	Under Renewal	Surat North 2 Management Unit	Formation Name not Specified	Subartesian		Domestic Supply, Stock
17448	Installed	17448N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Artesian-Controlled Flow		Stock
17535	Installed	15556N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
17620	Installed	17620N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Artesian-Controlled Flow		Stock
17655	Installed	17655N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Artesian-Controlled Flow		Stock
17690	Installed	17690S	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Artesian-Controlled Flow		Domestic Supply, Stock
17776	Installed	17776S	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Artesian-Controlled Flow		Stock
17796	Installed	17796S	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Artesian-Controlled Flow		Stock
17849	Installed	62877S	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Artesian-Controlled Flow		Stock
17866	Installed	17866S	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian	74	Irrigation
17866	Installed	14188S	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
17945	Installed	17945S	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian		Stock
17984	Installed	17984S	Licence to Take Water	Issued	Surat North 2 Management Unit	Evergreen Formation	Subartesian		Stock
18096	Installed	08357N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
18109	Installed	18178N	Licence to Take Water	Under Renewal	Surat North 4 Management Unit	Precipice Sandstone	Subartesian		Domestic Supply, Stock
18120	Installed	16270S	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian		Stock, Domestic Supply
18135	Installed	26390N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
18171	Installed	895655	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Unknown		Stock, Domestic Supply
18173	Installed	361205	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Artesian-Controlled Flow		Stock
18178	Installed	18178N	Licence to Take Water	Under Renewal	Surat North 4 Management Unit	Precipice Sandstone	Artesian-Controlled Flow		Domestic Supply Stock
18195	Installed	628775	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian		Stock
18207	Installed	182075	Licence to Take Water	Issued	Surat North 2 Management Unit	Precipice Sandstone	Subartesian		Stock
18223	Installed	58456N	Licence to Take Water	beugel	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
18224	Installed	18224N	Licence to Take Water	loguad	Surat North 2 Management Unit	Hutton Sandstone	Artesian-Controlled Flow		Stock
18270	Installed	672349	Licence to Take Water	legued	Surat North 2 Management Unit	Evergreen Formation	Subartesian		Stock
18020	Installed	1805211	Licence to Take Waler	legued	Surat North 2 Management Unit	Hutton Sandatana	Subartasian		Stock
10929	Installed	1004001	Licence to Take Water	leeuod	Surat North 2 Management Unit	Hutton Sandatona	Subartasian		Stock
19040	Installed	13040IN	Licence to Take Water	looved	Surat North 2 Management Unit		Action Controlled Flow		SIUCK
2211/	Installed	2211/N	Licence to Take Water	Issued	Surat North 2 Management Unit		Artegian Occard Flow		SIUCK
223/7	Installed	223/1N	Licence to Take Water	issued	Surat North 2 Management Unit	Hutton Sandstone	Artesian-Ceased Flow		STOCK
23149	Installed	189456	Licence to Take Water	issued	Surat North 3 Management Unit	Precipice Sandstone	Artesian-Controlled Flow		Stock
26006	Installed	260065	Licence to Take Water	Issued	Surat North 2 Management Unit	Evergreen Formation	Supartesian		Domestic Supply, Stock
26062	Installed	260625	Licence to Take Water	Issued	Surat North 2 Management Unit	Evergreen Formation	Supartesian		Domestic Supply, Stock
26074	Installed	26074S	Licence to Take Water	Issued	Surat North 1 Management Unit	Hutton Sandstone	Subartesian		Domestic Supply, Stock
26119	Approval Lapsed	26120S	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
26119	Installed	26120S	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock

RN	Works Status	Authorisation	Authorisation Type	Authorisation Status	Management Unit	Aquifer	Aquifer Type	Nominal	Purpose
		Number						Allocation (ML/water year)	
26120	Installed	26120S	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
26125	Installed	57733S	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
26373	Installed	14459S	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
26387	Installed	26388N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
26388	Installed	26388N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
26390	Installed	26390N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
30053	Installed	30990N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
30054	Installed	12651N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
30055	Installed	12651N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
30232	Installed	58310N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
30318	Installed	67281S	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian		Stock
30344	Installed	30345S	Licence to Take Water	Issued	Surat North 3 Management Unit	Hutton Sandstone	Subartesian		Stock
30345	Installed	30345S	Licence to Take Water	Issued	Surat North 3 Management Unit	Hutton Sandstone	Subartesian		Stock
30421	Installed	67284S	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian		Stock
30422	Installed	67234S	Licence to Take Water	Issued	Surat North 2 Management Unit	Evergreen Formation	Subartesian		Stock
30423	Installed	67234S	Licence to Take Water	Issued	Surat North 2 Management Unit	Evergreen Formation	Subartesian		Stock
30424	Installed	67234S	Licence to Take Water	Issued	Surat North 2 Management Unit	Evergreen Formation	Subartesian		Stock
30484	Installed	16270S	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Artesian-Controlled Flow		Stock, Domestic Supply
30506	Installed	67281S	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian		Stock
30507	Installed	67281S	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian		Stock
30535	Installed	35458N	Licence to Take Water	Issued	Surat North 3 Management Unit	Hutton Sandstone	Subartesian		Stock
30555	Installed	43193S	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian		Stock
30576	Installed	89793S	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Domestic Supply, Stock
30587	Installed	30587S	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Artesian-Controlled Flow		Stock
30655	Installed	62881S	Licence to Take Water	Issued	Surat North 2 Management Unit	Evergreen Formation	Subartesian		Stock
30681	Installed	30681N	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian		Stock
30709	Installed	30709S	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
30756	Installed	62881S	Licence to Take Water	Issued	Surat North 2 Management Unit	Evergreen Formation	Subartesian		Stock
30784	Installed	48921N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
30788	Installed	30852S	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Artesian-Controlled Flow		Domestic Supply, Stock
30852	Installed	30852S	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Domestic Supply, Stock
30990	Installed	30990N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
31184	Installed	31184N	Licence to Take Water	Under Renewal	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
31194	Installed	31194S	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
31401	Installed	89609S	Licence to Take Water	Issued	Surat North 2 Management Unit	Evergreen Formation	Subartesian		Stock, Domestic Supply
31409	Installed	67281S	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian		Stock
31417	Installed	31417N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
31432	Installed	31432S	Licence to Take Water	Issued	Surat North 2 Management Unit	Evergreen Formation	Subartesian		Stock
31544	Installed	67234S	Licence to Take Water	Issued	Surat North 2 Management Unit	Evergreen Formation	Subartesian		Stock
31560	Installed	31560S	Licence to Take Water	Issued	Surat North 2 Management Unit	Evergreen Formation	Subartesian		Stock
31687	Installed	48973N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
31791	Installed	31184N	Licence to Take Water	Under Renewal	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
31894	Installed	31894N	Licence to Take Water	Under Renewal	Surat North 3 Management Unit	Formation Name not Specified	Subartesian		Domestic Supply, Stock
32219	Installed	15669S	Licence to Take Water	Issued	Surat North 2 Management Unit	Evergreen Formation	Subartesian		Stock
32569	Installed	32713N	Licence to Take Water	Issued	Surat North 2 Management Unit	Evergreen Formation	Subartesian		Stock
32713	Installed	32713N	Licence to Take Water	Issued	Surat North 2 Management Unit	Evergreen Formation	Subartesian		Stock
32735	Installed	32735S	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Artesian-Controlled Flow	500	Town Water Supply
32939	Installed	32939N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
33283	Installed	33283S	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Artesian-Controlled Flow		Stock
33547	Installed	57790S	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Artesian-Controlled Flow		Stock
33771	Installed	33771N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Domestic Supply, Stock
34227	Installed	34227N	Licence to Take Water	Issued	Surat EAST 3 Management Unit	Hutton Sandstone	Subartesian		Stock
34597	Installed	34597S	Licence to Take Water	Issued	Surat North 2 Management Unit	Evergreen Formation	Subartesian		Stock, Domestic Supply
34856	Installed	43394S	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
35256	Installed	35256S	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Artesian-Controlled Flow		Stock
35267	Installed	35267N	Licence to Take Water	Under Renewal	Surat North 2 Management Unit	Formation Name not Specified	Subartesian		Domestic Supply, Stock
35458	Installed	35458N	Licence to Take Water	Issued	Surat North 3 Management Unit	Hutton Sandstone	Subartesian		Stock
-									

RN	Works Status	Authorisation	Authorisation Type	Authorisation Status	Management Unit	Aquifer	Aquifer Type	Nominal	Purpose
		Number						(ML/water year)	
35740	Installed	35740S	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Artesian-Controlled Flow		Amenities
35912	Installed	35912S	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian		Domestic Supply, Stock
36120	Installed	36120S	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Artesian-Controlled Flow		Stock
36373	Installed	89793S	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Domestic Supply, Stock
36393	Installed	36393N	Licence to Take Water	Issued	Surat North 2 Management Unit	Formation Name not Specified	Subartesian		Stock
36394	Installed	15669S	Licence to Take Water	Issued	Surat North 2 Management Unit	Evergreen Formation	Subartesian		Stock
36395	Installed	36395S	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
36396	Installed	171341	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock, Domestic Supply
36982	Installed	58289N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
37201	Installed	37201S	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Artesian-Controlled Flow		Stock
37507	Installed	48816S	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian		Stock, Domestic Supply
37781	Installed	37781S	Licence to Take Water	Issued	Surat North 2 Management Unit	Evergreen Formation	Subartesian		Stock
37829	Installed	62880S	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian		Domestic Supply, Stock
37878	Installed	57790S	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Artesian-Controlled Flow		Stock
38334	Installed	58289N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
38337	Installed	100582	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
38658	Installed	38658S	Licence to Take Water	Under Renewal	Surat North 3 Management Unit	Precipice Sandstone	Artesian-Controlled Flow	444	Stock, Irrigation
43193	Installed	43193S	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian		Stock
43363	Installed	43363N	Licence to Take Water	Issued	Surat North 2 Management Unit	Evergreen Formation	Subartesian		Stock
43394	Installed	43394S	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
43596	Installed	408797	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
43611	Installed	44700S	Licence to Take Water	Issued	Not Assigned - For WERD2000 Conversion Only	Robinson Creek Alluvium	Subartesian	200	Irrigation
43687	Installed	43687S	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Artesian-Controlled Flow		Stock
43917	Installed	43917S	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
43940	Installed	43940S	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
44317	Installed	16270S	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian		Stock, Domestic Supply
44404	Installed	44404S	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Artesian-Controlled Flow		Domestic Supply, Stock
44541	Installed	44541S	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
44700	Installed	44700S	Licence to Take Water	Issued	Not Assigned - For WERD2000 Conversion Only	Robinson Creek Alluvium	Subartesian	200	Irrigation
47214	Installed	47214S	Licence to Take Water	Issued	Surat North 3 Management Unit	Hutton Sandstone	Artesian-Controlled Flow		Stock, Domestic Supply
47325	Installed	62877S	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian		Stock
47329	Installed	47329S	Licence to Take Water	Issued	Surat North 2 Management Unit	Evergreen Formation	Subartesian		Stock
47360	Installed	15170S	Licence to Take Water	Issued	Surat North 2 Management Unit	Precipice Sandstone	Subartesian		Stock, Domestic Supply
47366	Installed	47366N	Licence to Take Water	Issued	Surat North 2 Management Unit	Evergreen Formation	Subartesian		Stock
47368	Installed	89728S	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
47369	Installed	89728S	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
47369	Installed	47369S	Licence to Take Water	Issued	The Not Assigned	Precipice Sandstone	Subartesian		Stock
47466	Installed	47466S	Licence to Take Water	Issued	Surat North 2 Management Unit	Evergreen Formation	Subartesian		Stock
47467	Installed	47467S	Licence to Take Water	Issued	Surat North 2 Management Unit	Evergreen Formation	Subartesian		Stock
47550	Installed	16229S	Licence to Take Water	Issued	Surat North 2 Management Unit	Precipice Sandstone	Subartesian		Stock
47768	Installed	31417N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
47959	Installed	89609S	Licence to Take Water	Issued	Surat North 2 Management Unit	Evergreen Formation	Subartesian		Stock, Domestic Supply
48816	Installed	48816S	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian		Stock, Domestic Supply
48829	Installed	11882N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
48831	Installed	48831N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
48863	Installed	48863N	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian		Domestic Supply, Stock
48911	Installed	48911N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
48911	Installed	176902	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian		Stock
48914	Installed	48914N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
48921	Installed	48921N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
48949	Installed	58608N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
48950	Installed	48950N	Licence to Take Water	Issued	Surat North 2 Management Unit	Formation Name not Specified	Unknown		Stock
48973	Installed	48973N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Artesian-Controlled Flow		Stock
48983	Installed	14575N	Licence to Take Water	Issued	Surat North 2 Management Unit	Evergreen Formation	Subartesian		Stock
57304	Installed	57304S	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian		Domestic Supply, Stock
57492	Installed	57492S	Licence to Take Water	Issued	Surat North 2 Management Unit	Evergreen Formation	Subartesian		Stock
57615	Installed	67281S	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian		Stock

UNDE Installed OFECES Learners Tree Volar Board The Nat Adapted Reinston Construction Substruction Disord 1770 Installed 07253 Learners Tree Volar Substruction Substruction Substruction Substruction 1771 Installed 07253 Learners Tree Volar Substruction Substruc	RN	Works Status	Authorisation Number	Authorisation Type	Authorisation Status	Management Unit	Aquifer	Aquifer Type	Nominal Allocation (ML/water year)	Purpose
UP700 Installed 07/245 Locate Tr are Wate Issued Sum Num? Numerator Subarcsian Subarcsian Subarcsian Stock 17711 Healing 07/255 Locate Tr are Wate Biode Biode Biode 17710 Healing 07/255 Locate Tr are Wate Biode Stock Demander Stock Biode 17710 Healing 07/255 Locate Tr are Wate Biode Antainal-Controlower Pain Biode Antainal-Controlower Pain Biode Antainal-Controlower Pain Demander Stock	57632	Installed	57632S	Licence to Take Water	Issued	The Not Assigned	Robinson Creek Alluvium	Subartesian	120	Domestic Supply, Irrigation, Stock
Dyna Instantion Provide structure Resolution Solutions Solutions 1773 Headed 77735 Headed 77745 Headed 57745	57700	Installed	67234S	Licence to Take Water	Issued	Surat North 2 Management Unit	Evergreen Formation	Subartesian		Stock
Bitsbell	57701	Installed	67284S	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian		Stock
Optimization Instantion Space Number Substration State Tools	57733	Installed	57733S	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
OPTION Instand OPTION Leaves to Take Votant Issuer State North 3 Management Unit Precision Sanctares Attrastan-Controller Flow 100 Auguabane, 'Impathon 07164 Installed 57645 Leaves to Take Votant Issuer North 3 Management Unit Precision Sanctares Attrastan-Controller Flow Domesity Sanger 07172 Leaves to Take Votant Issuer North 3 Management Unit Precision Sanctares Attrastan-Controller Flow Domesity Sanger 05017 Installed 675144 Leaves to Take Votant Issuer Sanat North 3 Management Unit Precision Sanctare Attrastance Domesity Sanger 05017 Installed 675554 Leaves to Take Votant Issuer Sanat North 3 Management Unit Precision Sanctare Attrastance Domesity Sanat 05037 Installed 775554 Leaves to Take Votant Issuer Sanat North 3 Management Unit Precision Sanat North	57781	Installed	16270S	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian		Stock, Domestic Supply
07543 Installed 57443 Installed 57443 Installed 57444 Installed 57444 Installed 57444 Installed 57454 Installed 572544 Installed 57264 F72644 Installed 57264 F7264 F7264 F7264 F7264	57790	Installed	57790S	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Artesian-Controlled Flow		Stock
B784.5. Installed S784.5. Leence in Tax Water Baudt More 3. Management Unit. Precipics Strategional Anteniano. Doments Ligging, Stock. 0574.2 Installed 5784.5. Leence in Tax Water Baudt More 3. Management Unit. Precipics Strategional Anteniano. Controled Prov Doments Ligging, Stock. 0574.2 Installed 5801.1% Leence in Tax Water Baudt More 3. Management Unit. Precipics Strateging. Antalen.Controled Prov Doments Ligging, Stock. 0502.2 Installed 5801.1% Leence in Tax Water Baudt More 3. Management Unit. Precipics Strateging. Antalen.Controled Prov Doments Ligging, Stock. 0502.6 Installed 5803.1% Leence in Tax Water Baudt More 3. Management Unit. Precipics Strateging. Antalen.Controled Prov Stock. 0503.7 Installed 5804.5% Leence in Tax Water Baudt More 3. Management Unit. Huiton Strateging. Antalen.Controle Tax Water Baudt More 3. Management Unit. Huiton Strateging. Antalen.Controle Tax Water Baudt More 3. Management Unit. Frecipics Strateging. Antalen.Controle Tax Water Baudt More 3. Management Unit. Frecipics Strateging.	57843	Installed	57843S	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Artesian-Controlled Flow	100	Aquaculture, Irrigation
B754 Installed 67844.8 Control Tax Water Baudt Mon 3 Management Unit Precision Structure Antesin-Control Prov Exclosion 3 1672 Installed 67304 Filled 67344 Filled 57344 Filled 57344 Filled 5534 5534 1672 Installed 67007 Locroto Tax Water Baudt Mon 3 Stall Antesin 1 5504 1671 Installed 57634 Filled Stall Antesin 1 Filled Stall Antesin 1 5504 1671 Installed 176504 Locroto Tax Water Baudt Stall Stall Antesin 1 Filled Stall Antesin 1	57843	Installed	57844S	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Artesian-Controlled Flow		Domestic Supply, Stock
CPTP2 Instant Control Take Water Issued Sourd Nom ² Advancement Attema Casted Prov Attema Casted Prov 00171 Instant Extent Number Sourd Nom ² Advancement Formation Name on Specified Attema Casted Prov Domestic Space/s Name 00181 Instant Sourd Nom ² Advancement Sourd Nom ² Advancement Attema Control Prov Domestic Space/s Name 00181 Instant Sourd Nom ² Advancement Sourd Nom ² Advancement Attema Control Prov Domestic Space/s Name 00181 Instant Sourd Nom ² Advancement Sourd Nom ² Advancement Attema Control Prov Sourd Nom ² 00181 Instant Sourd Nom ² Advancement Sourd Nom ² Advancement Attema Control Prov Sourd Nom ² 00181 Instant Sourd Nom ² Advancement Sourd Nom ² Advancement Attema Control Prov Sourd Nom ² 00181 Instant Sourd Nom ² Advancement Sourd Nom ² Advancement Sourd Nom ² Sourd Nom ² 00181 Instant Sourd Nom ² Advancement Sourd Nom ² Advancement Sourd Nom ² Sourd Nom ²	57844	Installed	57844S	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Artesian-Controlled Flow		Domestic Supply, Stock
Bits Installed 68017M Licence to Tarke Water Essend South Keins Othersets Demosities Study, Stock, 35004 6022 Installed 100004 Licence to Tarke Water South Keins <	57872	Installed	67334N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Artesian-Ceased Flow		Stock
B8022 Intelled 10000N Licence to Tarke Water Issued Surface Status Status	58017	Installed	58017N	Licence to Take Water	Issued	Surat North 2 Management Unit	Formation Name not Specified	Artesian-Controlled Flow		Domestic Supply, Stock
B8030 Installed 68031 M Licence to Take Water Issued Sural Koht2 Omegato Sural Koht2	58022	Installed	16000N	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian		Stock
B8050 Instaled 17955H Learne b Take Water Issued Sunt North 2 Management Unit Huton Sandstome Anssen-Controller Flow Stock 68057 Instaled 15954 Learne b Take Water Issued Sunt North 2 Management Unit Flomaton Name on SpaceMed Sunt North 2 Management Unit Flomaton Name on SpaceMed Sunt North 2 Management Unit Flomaton Name on SpaceMed Sunt North 2 Management Unit Flomaton Name on SpaceMed Sunt North 2 Management Unit Flomaton Name on SpaceMed Sunt North 2 Management Unit Flomaton Name on SpaceMed Sunt North 2 Management Unit Flomaton Name on SpaceMed Sunt North 2 Management Unit Flomaton Name on SpaceMed Sunt North 2 Management Unit Flomaton Name on SpaceMed Sunt North 2 Management Unit Flomaton Name on SpaceMed Sunt North 2 Management Unit Flomaton Name on SpaceMed Sunt North 2 Management Unit Flomaton Name on SpaceMed Sunt North 2 Management Unit Flomaton Name on SpaceMed Sunt North 2 Management Unit Flomaton Name on SpaceMed Sunt North 2 Management Unit Flomaton Name on SpaceMed Sunt North 2 Management Unit Flomaton Name on SpaceMed Sunt North 2 Management Unit Flomaton Name on SpaceMed Sunt North 2 Management Unit Flomaton Name on SpaceMed	58031	Installed	58031N	Licence to Take Water	Issued	Surat North 2 Management Unit	Formation Name not Specified	Artesian-Controlled Flow		Domestic Supply, Stock
68027 Instaled 179550 Learne to Take Water Issued Sunt North 2 Management Unit Fruiton Sandstore Artesin-Controlled Flow Block 68036 Instaled 684404 Learne to Take Water Issued Sunt North 2 Management Unit Fruiton Sandstore Artesin-Controlled Flow Stock 68036 Instaled 684404 Learne to Take Water Issued Start North 2 Management Unit Fruiton Sandstore Artesin-Controlled Flow Stock 68037 Instaled 580540 Learnes to Take Water Issued Start North 2 Management Unit Fruiton Sandstore Artesin-Controlled Flow Stock 68037 Instaled 580540 Learnes to Take Water Issued Start North 2 Management Unit Fruiton Sandstore Subartesian To Stock, Stock Hreavier 68131 Instaled 68133 Learnes to Take Water Issued Start North 2 Management Unit Fruiton Sandstore Subartesian To Stock, Stock Hreavier 68242 Instaled 175282 Learnes to Take Water Issued Start North 2 Management Unit Huton Sandstore	58036	Installed	17655N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Artesian-Controlled Flow		Stock
Installed 68040 Locence to Take Vater Issued Suran North 2 Management Unit Formation Name not Specified Subartesian Stock 68055 Installed 680640 Locence to Take Vater Issued Suran North 2 Management Unit Huttons Sandatome Artesian-Controlled Flow Stock 68056 Installed 680580 Locence to Take Vater Issued Suran North 2 Management Unit Formation Name not Specified Artesian-Controlled Flow Stock 68057 Installed 6810870 Locence to Take Vater Issued Suran North 2 Management Unit Formation Name not Specified Assued Suran North 2 Management Unit Huttons Sandatome Subartesian To Stock 68141 Installed 681201 Locence to Take Vater Issued Suran North 2 Management Unit Huttons Sandatome Subartesian To Stock 68223 Installed 68223 Installed 168204 Suran North 2 Management Unit Huttons Sandatome Subartesian Stock 68233 Installed 168204 Suran North 2 Management Unit Huttons Sandatome	58037	Installed	17655N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Artesian-Controlled Flow		Stock
B3050 Installed Seved N Learne to Take Water Issued Suran North 2 Management Unit Hutton Sandstone Anstalance Stock 68060 Installed 580800 Learne to Take Water Issued Suran North 2 Management Unit Hutton Sandstone Aussal Stock 63031 Installed 58030 Learne to Take Water Issued Suran North 2 Management Unit Hutton Sandstone Aussal Stock 6313 Installed 58030 Learne to Take Water Stock Stock Stock 6313 Installed 58031 Learne to Take Water Stock Stock Stock Stock 63141 Installed 58031 Learne to Take Water Issued Suran North 2 Management Unit Hutton Sandstone Stolattesian To Stock 6322 Installed 58031 Learne Controlled Flow Stock Stock 63234 Installed 58041 Stock Stock Stock Stock 63234 Installed 58041 Stock Sto	58045	Installed	58045N	Licence to Take Water	Issued	Surat North 2 Management Unit	Formation Name not Specified	Subartesian		Stock
B8068 Installed Seb01N Licence to Take Water Issued Sural Noth 2 Maragement Unit Hutton Sandstore Attains - Controlled Flow Stock 68057 Installed 580581 Licence to Take Water Issued Sural Noth 2 Maragement Unit Hutton Sandstore Attains-Controlled Flow Stock 68058 Installed 580511 Licence to Take Water Issued Sural Noth 2 Maragement Unit Hutton Sandstore Subartesian 75 Stock Stock 68111 Installed 580501 Licence to Take Water Issued Sural Noth 2 Maragement Unit Hutton Sandstore Subartesian 75 Stock Stock 68123 Installed 56224 Histalled 16234 Stock Stock Stock Stock 68224 Installed 76384 Licence to Take Water Issued Sural Noth 2 Maragement Unit Hutton Sandstore Subartesian Stock Stock 68224 Installed 75884 Licence to Take Water Issued Sural Noth 2 Maragement Unit Hutton Sandstore Subartesian Stock <t< td=""><td>58055</td><td>Installed</td><td>58456N</td><td>Licence to Take Water</td><td>Issued</td><td>Surat North 2 Management Unit</td><td>Hutton Sandstone</td><td>Artesian-Controlled Flow</td><td></td><td>Stock</td></t<>	58055	Installed	58456N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Artesian-Controlled Flow		Stock
B8087 Installed 580081 Licence to Take Water Issued Sural North 2 Maragement Unit Hutton Sandstone Antesian-Controlled Flow Stock 60030 Installed 56030 Installed 56030 Stock Stock 60031 Installed 56030 Name Ont Specified Stock Stock 6133 Installed 56030 Name Ont Specified Stock Name Stock 6233 Installed 56037 Name Onto Stock Name Stock 6233 Installed 56237 Licence to Take Water Issued Sural North 2 Maragement Unit Hutton Sandstone Subartesian Stock 6232 Installed 158204 Licence to Take Water Issued Sural North 2 Maragement Unit Hutton Sandstone Subartesian Stock 6232 Installed 178201 Licence to Take Water Issued Sural North 2 Maragement Unit Hutton Sandstone Subartesian Stock 62324 Installed 178201 Licence to Take Water Issued Sural North	58086	Installed	58086N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
Bitsbille 68039X Licence to Take Water Issued Sourt North 2 Management Unit Formation Name not Specified Artesian-Controlled Flow Stock 66131 Installed 58037X Licence to Take Water Issued Sural North 2 Management Unit Hutton Sandatone Studartesian 75 Stock 68141 Installed 58030X Licence to Take Water Issued Sural North 2 Management Unit Hutton Sandatone Studartesian 75 Stock 68141 Installed 58030X Licence to Take Water Issued Stural North 2 Management Unit Hutton Sandatone Studartesian	58087	Installed	58086N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Artesian-Controlled Flow		Stock
68077 Lisence to Take Water Issued Start North 2 Management Unit Formation Name not Specified Studentiation Stock 68133 Installed 681341 Installed 5824 Studentiation Stude	58093	Installed	58093N	Licence to Take Water	Issued	Surat North 2 Management Unit	Formation Name not Specified	Artesian-Controlled Flow		Stock
Bit 30 Installed Strikt Installed Stock, Stock, Intensive 58141 Installed Stock Stock, Stock, Intensive Stock, Stock, Intensive 58213 Installed Stock Stock, Stock, Intensive Stock, Stock 58213 Installed Stock, Stock Stock, Stock Stock, Stock 58224 Installed Stock, Stock Stock, Stock Stock, Stock 58224 Installed Trike Water Issued Stock, Stock Stock, Stock 58224 Installed Trike Water Issued Stock, Trike Water Stock, Stock 58225 Installed Trike Water Issued Stock, Trike Water Stock, Stock, Stock 58226 Installed Trike Water Issued Stock, Trike Water Stock, Stock, Stock, Stock, Stock 58236 Installed Stock, Stoc	58097	Installed	58097N	Licence to Take Water	Issued	Surat North 2 Management Unit	Formation Name not Specified	Subartesian		Stock
Installed Stock Stock Stock 82813 Installed 68203 Installed 68213 Stock 828213 Installed 682321 Licence to Take Water Issued Stock 828224 Installed 682321 Licence to Take Water Issued Stock 82824 Installed 17620 Licence to Take Water Issued Stock 82824 Installed 17520 Licence to Take Water Issued Stock Stock 82826 Installed 17520 Licence to Take Water Issued Starta North Z Management Unit Hutton Sandstore Subatresian Stock 82829 Installed 15221 Licence to Take Water Issued Starta North Z Management Unit Hutton Sandstore Subatresian Stock 82824 Installed 15294 Propoed Stock Stock Stock 82824 Installed 56304 Licence to Take Water Issued Starta North Z Management Unit Hutton Sandstore Subatresian	58133	Installed	58133N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian	75	Stock, Stock Intensive
Installed 56213 Installed 56223 Installed 56213N Licence to Take Water Issued Surat North 2 Management Unit Hutton Sandstone Subartesian Stock 56224 Installed 17520N Licence to Take Water Issued Surat North 2 Management Unit Hutton Sandstone Attesian-Controlled Flow Stock 56262 Installed 17562N Licence to Take Water Issued Surat North 2 Management Unit Hutton Sandstone Subartesian Stock 56262 Installed 175621 Licence to Take Water Issued Surat North 2 Management Unit Hutton Sandstone Subartesian Stock 56262 Installed 175621 Licence to Take Water Issued Surat North 2 Management Unit Precipic Sandstone Subartesian Stock 56264 Installed 56274N Licence to Take Water Issued Surat North 2 Management Unit Hutton Sandstone Subartesian Stock 56264 Installed 56281N Licence to Take Water Issued Surat North 2 Management Unit Hutton Sandstone Subartesian Stock 56364 Installed 56300N Licence to Take Water Issued Surat North 2 Management Unit Hutton Sandstone Subartesian	58141	Installed	58086N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
Instaled 55222 Locne to Take Water Issued Sural North 2 Management Unit Hutton Sandstone Subartesian Stock 55242 Instaled 1752N Locne to Take Water Issued Sural North 2 Management Unit Hutton Sandstone Subartesian Stock 55282 Instaled 17662L Locne to Take Water Issued Sural North 2 Management Unit Hutton Sandstone Subartesian Stock 58282 Instaled 17662L Locne to Take Water Issued Sural North 2 Management Unit Hutton Sandstone Subartesian Stock 58284 Instaled 56244L Locne to Take Water Issued Sural Konth 2 Management Unit Hutton Sandstone Subartesian Stock 58294 Instaled 56264L Locne to Take Water Issued Sural North 2 Management Unit Hutton Sandstone Subartesian Stock 58294 Instaled 56304L Locne to Take Water Issued Sural North 2 Management Unit Hutton Sandstone Subartesian Stock 58294 Instaled <	58213	Installed	58213N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
Isslated 17620N Licence to Take Water Issued Sural North 2 Management Unit Hutton Sandstone Artesian-Controlled Flow Stock 58289 Instaled 178021 Licence to Take Water Issued Sural North 2 Management Unit Hutton Sandstone Subartesian Stock 58282 Instaled 178021 Licence to Take Water Issued Sural North 2 Management Unit Hutton Sandstone Subartesian Stock 58284 Proposed 58294M Licence to Take Water Issued Sural North 2 Management Unit Hutton Sandstone Subartesian Stock 58294 Instaled 58204M Licence to Take Water Issued Sural North 2 Management Unit Hutton Sandstone Aubartesian Stock 58296 Instaled 58307M Licence to Take Water Issued Sural North 2 Management Unit Hutton Sandstone Subartesian Stock 58310 Instaled 58307M Licence to Take Water Issued Sural North 2 Management Unit Hutton Sandstone Subartesian Stock 58313	58232	Installed	58232N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
Instaled 153880 Licence to Take Water Issued Sural Noth 2 Management Unit Hutton Sandstone Subartesian Stock 65282 Instaled 176521 Licence to Take Water Issued Sural Noth 2 Management Unit Precipice Sandstone Subartesian Stock 65284 Proposed 562941 Licence to Take Water Issued Sural Noth 2 Management Unit Hutton Sandstone Subartesian Stock 65294 Proposed 562941 Licence to Take Water Issued Sural 6 Management Unit Hutton Sandstone Subartesian Stock 65296 Instaled 562941 Licence to Take Water Issued Sural Noth 2 Management Unit Hutton Sandstone Subartesian Stock 65296 Instaled 563001 Licence to Take Water Issued Sural Noth 2 Management Unit Hutton Sandstone Subartesian Stock 65310 Instaled 56310 Licence to Take Water Issued Sural Noth 2 Management Unit Hutton Sandstone Subartesian 25 Stock.Stock Intensive.Stock Stock	58242	Installed	17620N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Artesian-Controlled Flow		Stock
Issaled178621Licence to Take WaterIssuedSural North 3 Management UnitHutton SandstoneSubartesianStock52226Installed175522Licence to Take WaterIssuedSural North 3 Management UnitHutton SandstoneSubartesianStock52249Installed5529NLicence to Take WaterIssuedSural 6 Management UnitHutton SandstoneSubartesianStock52249Installed5529NLicence to Take WaterIssuedSural 6 Management UnitHutton SandstoneSubartesianStock52268Installed5529NLicence to Take WaterIssuedSural North 2 Management UnitHutton SandstoneAreian-Controlled FlowDomestic Supply, Stock53306Installed55310NLicence to Take WaterIssuedSural North 2 Management UnitHutton SandstoneSubartesianStock53310Installed55310NLicence to Take WaterIssuedSural North 2 Management UnitHutton SandstoneSubartesianStock53313Installed55310NLicence to Take WaterIssuedSural North 2 Management UnitHutton SandstoneSubartesianStock53346Installed5530NLicence to Take WaterIssuedSural North 2 Management UnitHutton SandstoneSubartesianStock53346Installed5530NLicence to Take WaterIssuedSural North 2 Management UnitHutton SandstoneSubartesianStock53446Installed5540NLicence t	58269	Installed	15386N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
Issaled 176592 Licence to Take Water Issued Surat North 2 Management Unit Precipice Sandstone Subartesian Stock 58289 Installed 58289N Licence to Take Water Issued Surat North 2 Management Unit Hutton Sandstone Subartesian Stock 58294 Installed 5829M Licence to Take Water Issued Surat North 2 Management Unit Hutton Sandstone Subartesian Stock 58206 Installed 58206M Licence to Take Water Issued Surat North 2 Management Unit Hutton Sandstone Subartesian Stock 58306 Installed 58317M Licence to Take Water Issued Surat North 2 Management Unit Hutton Sandstone Subartesian Stock 58310 Installed 58317M Licence to Take Water Issued Surat North 2 Management Unit Hutton Sandstone Subartesian Stock 58335 Licence to Take Water Issued Surat North 2 Management Unit Hutton Sandstone Subartesian Stock 58336 Installed 58400M	58282	Installed	178621	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
f5829 Installed 58284 Licence to Take Water Issued Surat 6 Management Unit Hutton Sandstone Subartesian Stock 58294 Installed 5829M Licence to Take Water Issued Surat 6 Management Unit Hutton Sandstone Subartesian Stock 58296 Licence to Take Water Issued Surat North 2 Management Unit Hutton Sandstone Subartesian Stock 58306 Installed 58310M Licence to Take Water Issued Surat North 2 Management Unit Hutton Sandstone Subartesian Stock 58310 Installed 58310M Licence to Take Water Issued Surat North 2 Management Unit Hutton Sandstone Subartesian Stock 58311 Installed 58320M Licence to Take Water Issued Surat North 2 Management Unit Hutton Sandstone Subartesian 15 Stock 58313 Installed 58320M Licence to Take Water Issued Surat North 2 Management Unit Hutton Sandstone Subartesian 15 Stock Intensive Stock	58282	Installed	176592	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian		Stock
f8224Proposed58224NLicence to Take WaterIssuedSurat R Management UnitHutton SandstoneSubartesianStock58296Installed58224NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneAtesian-Controlled FlowDomestic Supply, Stock58306Installed583008Licence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock58310Installed58313NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock58313Installed56313NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesian25Stock, Intensive58313Installed56333NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesian15Stock Intensive, Stock58346Installed56330NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesian15Stock Intensive, Stock58440Installed56500NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock58441Installed56500NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock58442Installed58500NLicence to Take WaterIssuedSurat North 2 Management UnitHutton Sandstone </td <td>58289</td> <td>Installed</td> <td>58289N</td> <td>Licence to Take Water</td> <td>Issued</td> <td>Surat North 2 Management Unit</td> <td>Hutton Sandstone</td> <td>Subartesian</td> <td></td> <td>Stock</td>	58289	Installed	58289N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
58294 Installed 58294 Vieter Issued Surat North 2 Management Unit Hutton Sandstone Subartesian Subartesian 58206 Installed 58209N Licence to Take Water Issued Surat North 2 Management Unit Hutton Sandstone Asubartesian Subartesian Stock 58310 Installed 58310N Licence to Take Water Issued Surat North 2 Management Unit Hutton Sandstone Subartesian 25 Stock 58313 Installed 58228N Licence to Take Water Issued Surat North 2 Management Unit Hutton Sandstone Subartesian 25 Stock, Stock Intensive 58315 Installed 58228N Licence to Take Water Issued Surat Roht 2 Management Unit Hutton Sandstone Subartesian 15 Stock, Stock Intensive, Stock 58436 Installed 58409N Licence to Take Water Issued Surat North 2 Management Unit Hutton Sandstone Subartesian 15 Stock Intensive, Stock 58436 Installed 58409N Licence to Take Water Issued Surat North 2 Management Unit Hutton Sandstone Subartesian Stock 58437 Installed 58409N Licence to Take Water Issued Surat North 2 Management Unit Hu	58294	Proposed	58294N	Licence to Take Water	Issued	Surat 6 Management Unit	Hutton Sandstone	Subartesian		Stock
bissled 58296 Installed 58290 Stand Licence to Take Water Issued Sural North 2 Management Unit Hutton Sandstone Attesian-Controlled Flow Domestic Supply, Stock 58310 Installed 58310N Licence to Take Water Issued Sural North 2 Management Unit Hutton Sandstone Subartesian Stock 58313 Installed 58313N Licence to Take Water Issued Sural North 2 Management Unit Hutton Sandstone Subartesian 25 Stock Intensive 58313 Installed 58328N Licence to Take Water Issued GAB - Taricom Shire Hutton Sandstone Subartesian 15 Stock Intensive, Stock 58346 Installed 58305N Licence to Take Water Issued Sural North 2 Management Unit Hutton Sandstone Subartesian 15 Stock Intensive, Stock 58430 Installed 58500N Licence to Take Water Issued Sural North 2 Management Unit Hutton Sandstone Subartesian 5 Stock Intensive, Stock 58430 Installed 58500N Licence to Take Water <td>58294</td> <td>Installed</td> <td>58294N</td> <td>Licence to Take Water</td> <td>Issued</td> <td>Surat 6 Management Unit</td> <td>Hutton Sandstone</td> <td>Subartesian</td> <td></td> <td>Stock</td>	58294	Installed	58294N	Licence to Take Water	Issued	Surat 6 Management Unit	Hutton Sandstone	Subartesian		Stock
B8306InstalledB306NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStockB8310Installed58313NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesian25StockB8313Installed58313NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesian25StockB8335Installed58325NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesian15Stock Intensive, StockB8436Installed5800NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesian15Stock Intensive, StockB8436Installed5800NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneAttesian-Controlled FlowDomesic: Supply, StockB4434Installed58500NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStockB4434Installed58500NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStockB4434Installed58450NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStockB4434Installed58450NLicence to Take WaterIssuedSurat North 2 Management UnitHutton Sandst	58296	Installed	58296N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Artesian-Controlled Flow		Domestic Supply, Stock
B8310 Installed 58310. Licence to Take Water Issued Surat North 2 Management Unit Hutton Sandstone Subartesian Stock 58313 Installed 583130. Licence to Take Water Issued GAB - Taroom Shire Hutton Sandstone Subartesian 25 Stock, Stock Intensive 58335 Installed 583350. Licence to Take Water Issued Surat RAT 3 Management Unit Hutton Sandstone Subartesian 15 Stock Intensive, Stock 58346 Installed 585000. Licence to Take Water Issued Surat North 2 Management Unit Hutton Sandstone Subartesian Domestic Supply, Stock 58430 Installed 585000. Licence to Take Water Issued Surat North 2 Management Unit Hutton Sandstone Subartesian Stock 58434 Installed 585000. Licence to Take Water Issued Surat North 2 Management Unit Hutton Sandstone Subartesian Stock 58433 Installed 585000. Licence to Take Water Issued Surat North 2 Management Unit Hutton Sandstone	58306	Installed	58306N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
58313Installed58313NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesian25Stock, Intensive58335Installed588235NLicence to Take WaterIssuedSurat RAST 3 Management UnitHutton SandstoneSubartesian15Stock Intensive, Stock58436Installed58600NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesian0Stock58430Installed58500NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneAubartesianStock58434Installed58500NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock58433Installed58500NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock58433Installed58500NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock58443Installed58450NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock58445Installed58450NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneArtesian-Controlled FlowStock58456Installed58450NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneArtesian-Controlled	58310	Installed	58310N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
BasisInstalled58928NLicence to Take WaterIssuedGAB - Taroom ShireHutton SandstoneSubartesianStock58336Installed5835NLicence to Take WaterIssuedSurat RAST 3 Management UnitHutton SandstoneSubartesian15Stock Intensive, Stock58446Installed58400NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock58430Installed58500NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock58431Installed58500NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock58434Installed58500NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock58435Installed58450NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock58446Installed58450NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock58456Installed58450NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneArtesian-Controlled FlowStock58466Installed58460NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock58475Installe	58313	Installed	58313N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian	25	Stock, Stock Intensive
58335Installed58335NLicence to Take WaterIssuedSurat EAST 3 Management UnitHutton SandstoneSubartesian15Stock Intensive, Stock58446Installed58409NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneArtesian-Controlled FlowDomestic Supply, Stock58430Installed58500NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock58434Installed58500NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock58435Installed58500NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock58436Installed5840NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock58443Installed58443NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock58443Installed58462NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneArtesian-Controlled FlowStock58456Installed58462NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock58457Installed58462NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStoc	58319	Installed	58928N	Licence to Take Water	Issued	GAB - Taroom Shire	Hutton Sandstone	Subartesian		Stock
58346Installed58500NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock58409Installed58600NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneArtesian-Controlled FlowDomestic Supply, Stock58430Installed58500NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock58433Installed58500NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock58433Installed58443NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock58443Installed58443NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock58456Installed58450NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneArtesian-Controlled FlowStock58475Installed58450NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianDomestic Supply, Stock58571Installed58571NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock58600Installed177756Licence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock <td>58335</td> <td>Installed</td> <td>58335N</td> <td>Licence to Take Water</td> <td>Issued</td> <td>Surat EAST 3 Management Unit</td> <td>Hutton Sandstone</td> <td>Subartesian</td> <td>15</td> <td>Stock Intensive, Stock</td>	58335	Installed	58335N	Licence to Take Water	Issued	Surat EAST 3 Management Unit	Hutton Sandstone	Subartesian	15	Stock Intensive, Stock
58409Installed58409NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneArtesian-Controlled FlowDomestic Supply, Stock58430Installed58500NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock58434Installed58500NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock58435Installed58443NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock58443Installed58443NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock58456Installed58462NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneArtesian-Controlled FlowStock58462Installed58462NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneArtesian-Controlled FlowStock58475Installed33771NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianDomestic Supply, Stock58571Installed58571NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock58603Installed15770SLicence to Take WaterIssuedSurat North 3 Management UnitHutton SandstoneSubartesian	58346	Installed	58500N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
58430Installed58500NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock58434Installed58500NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock58435Installed58500NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock58443Installed5840NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock58456Installed58462NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneArtesian-Controlled FlowStock58462Installed58462NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneArtesian-Controlled FlowStock58475Installed33771NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianDomestic Supply, Stock58500Installed5850NLicence to Take WaterIssuedSurat North 3 Management UnitHutton SandstoneSubartesianStock58501Installed177756Licence to Take WaterIssuedSurat North 3 Management UnitHutton SandstoneSubartesianStock58608Installed177728Licence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneSubartesianStock58603<	58409	Installed	58409N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Artesian-Controlled Flow		Domestic Supply, Stock
58434Installed58500NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock58435Installed58403NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock58443Installed58443NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock58456Installed58462NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneArtesian-Controlled FlowStock58462Installed58462NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneArtesian-Controlled FlowStock58475Installed38771NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianDomestic Supply, Stock58500Installed5850NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock58501Installed5850NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock58503Installed5850NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock58504Installed177756Licence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock58608	58430	Installed	58500N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
58435Installed58500NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock58443Installed56443NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneArtesian-Controlled FlowStock58456Installed56460NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneArtesian-Controlled FlowStock58475Installed33771NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianDomestic Supply, Stock58571Installed58571NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock58500Installed5850NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock58571Installed58571NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock58580Installed177756Licence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneSubartesianStock58608Installed177428Licence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneArtesian-Controlled FlowDomestic Supply, Stock58623Installed177428Licence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneArtesian-Con	58434	Installed	58500N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
58443Installed58443NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock58456Installed5846NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneArtesian-Controlled FlowStock58462Installed58462NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneArtesian-Controlled FlowStock58475Installed33771NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianDomestic Supply, Stock58500Installed33771NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock58501Installed5850NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock58502Installed58571NLicence to Take WaterIssuedSurat North 3 Management UnitHutton SandstoneSubartesianStock58608Installed177756Licence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneSubartesianStock58623Installed177428Licence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneArtesian-Controlled FlowDomestic Supply, Stock58624Installed177428Licence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneArtesian-Cont	58435	Installed	58500N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
58456Installed58456NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneArtesian-Controlled FlowStock58462Installed58462NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneArtesian-Controlled FlowStock58475Installed33771NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianDomestic Supply, Stock58500Installed58500NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock58501Installed58571NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock58501Installed58571NLicence to Take WaterIssuedSurat North 3 Management UnitHutton SandstoneSubartesianStock58508Installed177756Licence to Take WaterIssuedSurat North 2 Management UnitPrecipice SandstoneSubartesianStock58608Installed177756Licence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneArtesian-Controlled FlowDomestic Supply, Stock58623Installed177428Licence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneArtesian-Controlled FlowDomestic Supply, Stock58624Installed58624NLicence to Take WaterIssuedSurat North 3 Management UnitPrecip	58443	Installed	58443N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
58462Installed58462NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneArtesian-Controlled FlowStock58475Installed33771NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianDomestic Supply, Stock58500Installed5850NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock58501Installed58571NLicence to Take WaterIssuedSurat North 1 Management UnitHutton SandstoneSubartesianStock58571Installed58671NLicence to Take WaterIssuedSurat North 3 Management UnitHutton SandstoneSubartesianStock58580Installed177756Licence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneSubartesianStock58608Installed58608NLicence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneArtesian-Controlled FlowDomestic Supply, Stock58623Installed177428Licence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneArtesian-Controlled FlowDomestic Supply, Stock58624Installed177756Licence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneArtesian-Controlled FlowDomestic Supply, Stock58638Installed177756Licence to Take WaterIssuedSurat North 3 Management	58456	Installed	58456N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Artesian-Controlled Flow		Stock
58475Installed33771NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianDomestic Supply, Stock58500Installed58500NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock58571Installed58571NLicence to Take WaterIssuedSurat North 1 Management UnitHutton SandstoneSubartesianStock58580Installed177756Licence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneSubartesianStock58608Installed58608NLicence to Take WaterIssuedSurat North 3 Management UnitHutton SandstoneSubartesianStock58623Installed177428Licence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneArtesian-Controlled FlowDomestic Supply, Stock58623Installed177428Licence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneArtesian-Controlled FlowDomestic Supply, Stock58624Installed177428Licence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneArtesian-Controlled FlowDomestic Supply, Stock58624Installed5870NLicence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneArtesian-Controlled FlowStock58658Installed177756Licence to Take WaterIssuedSurat North 3 Manageme	58462	Installed	58462N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Artesian-Controlled Flow		Stock
58500Installed5850NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock58571Installed58571NLicence to Take WaterIssuedSurat North 1 Management UnitHutton SandstoneSubartesianStock58580Installed177756Licence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneSubartesianStock58608Installed58608NLicence to Take WaterIssuedSurat North 3 Management UnitHutton SandstoneSubartesianStock58623Installed177428Licence to Take WaterIssuedSurat North 3 Management UnitHutton SandstoneArtesian-Controlled FlowDomestic Supply, Stock58623Installed177428Licence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneArtesian-Controlled FlowDomestic Supply, Stock58624Installed177428Licence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneArtesian-Controlled FlowDomestic Supply, Stock58624Installed58624NLicence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneSubartesianStock58628Installed177756Licence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneArtesian-Controlled FlowStock58628Installed177756Licence to Take WaterIssuedSurat North 3 Management UnitP	58475	Installed	33771N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Domestic Supply, Stock
58571Installed58571NLicence to Take WaterIssuedSurat North 1 Management UnitHutton SandstoneSubartesianStock5850Installed177756Licence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneSubartesianStock58608Installed58608NLicence to Take WaterIssuedSurat North 3 Management UnitHutton SandstoneSubartesianStock58608Installed177428Licence to Take WaterIssuedSurat North 3 Management UnitHutton SandstoneArtesian-Controlled FlowDomestic Supply, Stock58623Installed177428Licence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneArtesian-Controlled FlowDomestic Supply, Stock58624Installed177428Licence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneArtesian-Controlled FlowDomestic Supply, Stock58628Installed58624NLicence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneArtesian-Controlled FlowDomestic Supply, Stock58628Installed177756Licence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneArtesian-Controlled FlowStock58700Installed177756Licence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneArtesian-Controlled FlowStock58700Installed58726NLicence to Take WaterIssued </td <td>58500</td> <td>Installed</td> <td>58500N</td> <td>Licence to Take Water</td> <td>Issued</td> <td>Surat North 2 Management Unit</td> <td>Hutton Sandstone</td> <td>Subartesian</td> <td></td> <td>Stock</td>	58500	Installed	58500N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
58580Installed177756Licence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneSubartesianStock58608Installed58608NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock58623Installed177428Licence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneArtesian-Controlled FlowDomestic Supply, Stock58623Installed177428Licence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneArtesian-Controlled FlowDomestic Supply, Stock58624Installed58624NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock58638Installed177756Licence to Take WaterIssuedSurat North 3 Management UnitHutton SandstoneSubartesianStock58638Installed177756Licence to Take WaterIssuedSurat North 3 Management UnitHutton SandstoneArtesian-Controlled FlowStock58700Installed177756Licence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneArtesian-Controlled FlowStock58700Installed58700NLicence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneArtesian-Controlled FlowStock58700Installed58720NLicence to Take WaterIssuedSurat North 3 Management UnitPrec	58571	Installed	58571N	Licence to Take Water	Issued	Surat North 1 Management Unit	Hutton Sandstone	Subartesian		Stock
58608Installed58608NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock58623Installed177428Licence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneArtesian-Controlled FlowDomestic Supply, Stock58623Installed177428Licence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneArtesian-Controlled FlowDomestic Supply, Stock58624Installed58624Licence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock58658Installed177756Licence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneArtesian-Controlled FlowStock58658Installed177756Licence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneArtesian-Controlled FlowStock58700Installed15776Licence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneSubartesian200Town Water Supply58726Installed58726NLicence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneSubartesian200Town Water Supply58726Installed58726NLicence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneSubartesianDomestic Supply, Stock58726Installed58726NLicence to Take WaterI	58580	Installed	177756	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian		Stock
58623Installed177428Licence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneArtesian-Controlled FlowDomestic Supply, Stock58623Installed177428Licence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneArtesian-Controlled FlowDomestic Supply, Stock58624Installed58624NLicence to Take WaterIssuedSurat North 3 Management UnitHutton SandstoneSubartesianStock58658Installed177756Licence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneArtesian-Controlled FlowStock58658Installed177756Licence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneArtesian-Controlled FlowStock58700Installed58700NLicence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneSubartesian200Town Water Supply58726Installed58726NLicence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneSubartesianDomestic Supply, Stock	58608	Installed	58608N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
58623Installed177428Licence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneArtesian-Controlled FlowDomestic Supply, Stock58624Installed58624NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock58658Installed177756Licence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneArtesian-Controlled FlowStock58700Installed58700NLicence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneSubartesian200Town Water Supply58726Installed58726NLicence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneSubartesian200Town Water Supply, Stock58726Installed58726NLicence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneSubartesianDomestic Supply, Stock	58623	Installed	177428	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Artesian-Controlled Flow		Domestic Supply, Stock
58624Installed58624NLicence to Take WaterIssuedSurat North 2 Management UnitHutton SandstoneSubartesianStock58658Installed177756Licence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneArtesian-Controlled FlowStock58700Installed58700NLicence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneSubartesian200Town Water Supply58726Installed58726NLicence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneSubartesian200Town Water Supply58726Installed58726NLicence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneSubartesianDomestic Supply, Stock	58623	Installed	177428	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Artesian-Controlled Flow		Domestic Supply, Stock
58658Installed177756Licence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneArtesian-Controlled FlowStock58700Installed58700NLicence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneSubartesian200Town Water Supply58726Installed58726NLicence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneSubartesian200Town Water Supply58726Installed58726NLicence to Take WaterIssuedSurat North 3 Management UnitPrecipice SandstoneSubartesianDomestic Supply, Stock	58624	Installed	58624N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
58700 Installed 58700N Licence to Take Water Issued Surat North 3 Management Unit Precipice Sandstone Subartesian 200 Town Water Supply 58726 Installed 58726N Licence to Take Water Issued Surat North 3 Management Unit Precipice Sandstone Subartesian 200 Town Water Supply 58726 Installed 58726N Licence to Take Water Issued Surat North 3 Management Unit Precipice Sandstone Subartesian Domestic Supply, Stock	58658	Installed	177756	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Artesian-Controlled Flow		Stock
58726 Installed 58726N Licence to Take Water Issued Surat North 3 Management Unit Precipice Sandstone Subartesian Domestic Supply, Stock	58700	Installed	58700N	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian	200	Town Water Supply
	58726	Installed	58726N	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian		Domestic Supply, Stock

RN	Works Status	Authorisation Number	Authorisation Type	Authorisation Status	Management Unit	Aquifer	Aquifer Type	Nominal Allocation (MI /water year)	Purpose
58773	Installed	100235	Licence to Take Water	Issued	Surat North 2 Management Unit	Formation Name not Specified	Subartesian	(internation your)	Domestic Supply, Stock
58827	Installed	101984	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
58834	Installed	102157	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
58850	Installed	58850N	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian		Stock
58867	Installed	58867N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
58871	Installed	58871N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
58907	Installed	176861	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian		Stock
58907	Installed	176863	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian		Stock
58907	Installed	176865	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian		Stock
58907	Installed	176869	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian		Stock
58907	Installed	176902	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian		Stock
58918	Installed	58918N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
58968	Installed	173375	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian		Domestic Supply, Stock
58968	Installed	400405	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian		Stock
62005	Installed	89589S	Licence to Take Water	Issued	Surat North 2 Management Unit	Evergreen Formation	Subartesian		Stock
62006	Installed	89517S	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian		Stock, Domestic Supply
62007	Installed	89589S	Licence to Take Water	Issued	Surat North 2 Management Unit	Evergreen Formation	Subartesian		Stock
62015	Installed	62015N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Artesian-Controlled Flow		Stock
62043	Installed	62043S	Licence to Take Water	Issued	Surat North 2 Management Unit	Evergreen Formation	Subartesian		Stock
62077	Installed	38658S	Licence to Take Water	Under Renewal	Surat North 3 Management Unit	Precipice Sandstone	Artesian-Controlled Flow	444	Stock, Irrigation
62213	Installed	62213S	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Artesian-Controlled Flow		Stock
62284	Installed	62284S	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian		Domestic Supply, Stock
62308	Installed	62308S	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Artesian-Controlled Flow		Stock
62664	Installed	67234S	Licence to Take Water	Issued	Surat North 2 Management Unit	Evergreen Formation	Subartesian		Stock
62665	Installed	67234S	Licence to Take Water	Issued	Surat North 2 Management Unit	Evergreen Formation	Subartesian		Stock
62666	Installed	67234S	Licence to Take Water	Issued	Surat North 2 Management Unit	Evergreen Formation	Subartesian		Stock
62746	Installed	17197S	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian		Stock, Domestic Supply
62877	Installed	62877S	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian		Stock
62880	Installed	62880S	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian		Domestic Supply, Stock
62881	Installed	62881S	Licence to Take Water	Issued	Surat North 2 Management Unit	Evergreen Formation	Subartesian		Stock
67229	Installed	38658S	Licence to Take Water	Under Renewal	Surat North 3 Management Unit	Precipice Sandstone	Artesian-Controlled Flow	444	Stock, Irrigation
67231	Installed	67234S	Licence to Take Water	Issued	Surat North 2 Management Unit	Evergreen Formation	Subartesian		Stock
67232	Installed	67284S	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian		Stock
67233	Installed	67234S	Licence to Take Water	Issued	Surat North 2 Management Unit	Evergreen Formation	Subartesian		Stock
67234	Installed	67234S	Licence to Take Water	Issued	Surat North 2 Management Unit	Evergreen Formation	Subartesian		Stock
67236	Installed	15556N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
67260	Installed	67260S	Licence to Take Water	Issued	Surat North 2 Management Unit	Evergreen Formation	Subartesian		Stock
67273	Installed	14871S	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian		Stock
67274	Installed	67274S	Licence to Take Water	Issued	Surat North 2 Management Unit	Evergreen Formation	Subartesian		Stock
67280	Installed	67281S	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Artesian-Controlled Flow		Stock
67281	Installed	67281S	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Artesian-Controlled Flow		Stock
67284	Installed	67284S	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian		Stock
67334	Installed	67334N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
67382	Installed	89565S	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Unknown		Stock, Domestic Supply
67384	Installed	84413S	Licence to Take Water	Issued	Surat North 2 Management Unit	Evergreen Formation	Subartesian		Stock, Domestic Supply
67385	Installed	67385S	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian		Stock
67386	Installed	67386S	Licence to Take Water	Issued	Surat North 2 Management Unit	Evergreen Formation	Subartesian		Stock
67410	Installed	16270S	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian		Stock, Domestic Supply
67624	Installed	16270S	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian		Stock, Domestic Supply
67625	Installed	16270S	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Artesian-Controlled Flow		Stock, Domestic Supply
68097	Installed	68097S	Licence to Take Water	Issued	Surat North 2 Management Unit	Evergreen Formation	Subartesian		Stock
68210	Installed	68211D	Licence to Take Water	Issued	BIL Not Assigned	Quaternary - Undefined	Unknown		Stock
68211	Installed	68211D	Licence to Take Water	Issued	BIL Not Assigned	Quaternary - Undefined	Subartesian		Stock
84032	Installed	62877S	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Artesian-Controlled Flow		Stock
84358	Installed	89777S	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian		Stock
84360	Installed	84360S	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian		Stock
84361	Installed	84362S	Licence to Take Water	Issued	Surat North 2 Management Unit	Evergreen Formation	Subartesian		Stock

RN	Works Status	Authorisation	Authorisation Type	Authorisation Status	Management Unit	Aquifer	Aquifer Type	Nominal	Purpose
		Number						Allocation	
								(ML/water year)	
84362	Installed	84362S	Licence to Take Water	Issued	Surat North 2 Management Unit	Evergreen Formation	Subartesian		Stock
84373	Installed	84373S	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
84374	Installed	84374S	Licence to Take Water	Issued	Surat North 2 Management Unit	Evergreen Formation	Subartesian		Stock
84375	Installed	84375S	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Artesian-Controlled Flow		Stock
84376	Installed	84377S	Licence to Take Water	Issued	Surat North 2 Management Unit	Evergreen Formation	Subartesian		Domestic Supply, Stock
84377	Installed	84377S	Licence to Take Water	Issued	Surat North 2 Management Unit	Evergreen Formation	Subartesian		Domestic Supply, Stock
84411	Installed	84413S	Licence to Take Water	Issued	Surat North 2 Management Unit	Evergreen Formation	Subartesian		Stock, Domestic Supply
84412	Installed	84413S	Licence to Take Water	Issued	Surat North 2 Management Unit	Evergreen Formation	Subartesian		Stock, Domestic Supply
84413	Installed	84413S	Licence to Take Water	Issued	Surat North 2 Management Unit	Evergreen Formation	Subartesian		Stock, Domestic Supply
84633	Installed	34597S	Licence to Take Water	Issued	Surat North 2 Management Unit	Evergreen Formation	Subartesian		Stock Domestic Supply
84634	Installed	34597S	Licence to Take Water	Issued	Surat North 2 Management Unit	Evergreen Formation	Subartesian		Stock Domestic Supply
84635	Installed	34597S	Licence to Take Water	Issued	Surat North 2 Management Unit	Evergreen Formation	Subartesian		Stock Domestic Supply
88445	Installed	884455	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
88449	Installed	884495	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Domestic Supply Stock
88466	Installed	884665	Licence to Take Water	bauca	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Domestic Supply, Stock
88538	Installed	885385	Licence to Take Water	bauca	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Domestic Supply, Stock
89502	Installed	895025	Licence to Take Water	lesued	Surat North 2 Management Unit	Hutton Sandstone	Artesian-Controlled Flow		Stock
89504	Installed	895105	Licence to Take Water	lesued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian		Domestic Supply Stock
80505	Installed	805055	Licence to Take Water	lequed	Surat North 2 Management Unit	Evergreen Formation	Subartesian		Domestic Supply, Stock
80510	Installed	805105	Licence to Take Water	lissued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian		Domestic Supply, Stock
90517	Installed	905175	Licence to Take Water	logued	Surat North 2 Management Unit	Precipice Sandstone	Subartosian		Stock Domostic Supply
09517	Installed	162706	Licence to Take Water	losued	Surat North 2 Management Unit	Precipice Sandstone	Subartasian		Stock, Domestic Supply
80551	Installed	171241	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartasian		Stock, Domestic Supply
09551	Installed	906279	Licence to Take Water	losued	Surat North 2 Management Unit	Procipios Sandstone	Subartasian		Stock, Domestic Supply
09501	Installed	090273	Licence to Take Water	losued	Surat North 2 Management Unit	Hutton Sandstone	Subartasian		Stock Domostic Supply
89505	Installed	895055	Licence to Take Water	Issued	Sular North 2 Management Offic	Presining Conditions	Subaltesian		Stock, Dolllestic Supply
09572	Installed	095725	Licence to Take Water	Issued	File Not Assigned	Precipice Sandstone	Subartesian		Stock
09009	Installed	090093	Licence to Take Water	Issued	Surat North 2 Management Unit	Evergreen Formation	Subartasian		Slock Demostia Supply, Stock
89599	Installed	890993	Licence to Take Water	Issued	Surat North 2 Management Unit	Flecipice Salidstolle	Subaltesian		Steek Demostic Supply, Slock
09004	Installed	096045	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock, Donestic Supply
09000	Installed	090005	Licence to Take Water	Issued	Surat North 2 Management Unit	Presidice Conditions	Artagian Controlled Flow		Slock Demostia Supply Steels
09000	Installed	090005	Licence to Take Water	Issued	Surat North S Management Unit	Precipice Sandstolle	Artesian-Controlled Flow		Domestic Supply, Stock
89609	Installed	896095	Licence to Take Water	Issued	Surat North 2 Management Unit	Evergreen Formation	Subartesian		Stock, Domestic Supply
89612	Installed	896125	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Artesian-Controlled Flow		Stock
09022	Installed	090223	Licence to Take Water	Issued	Surat North 2 Management Unit		Subartesian		Domestic Supply, Stock
89624	Installed	895655	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Unknown		Stock, Domestic Supply
89627	Installed	896275	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian	00	Stock
89639	Installed	896395	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian	60	Stock Intensive
89640	Installed	182400	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian		Stock
89643	Installed	896435	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian	000	Stock
09044	Installed	896445	Licence to Take Water	issued	I ne Not Assigned	KODINSON CREEK AIIUVIUM	Subartesian	300	Irrigation
89647	Installed	896225	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian	100	Domestic Supply, Stock
00054	Installed	5/0325	Licence to Take Water	issued	I ne Not Assigned	Robinson Creek Alluvium	Subartesian	120	Domestic Supply, Irrigation, Stock
89654	Installed	26062S	Licence to Take Water	Issued	Surat North 2 Management Unit	Evergreen Formation	Subartesian		Domestic Supply, Stock
89670	Installed	896705	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
89671	Installed	144595	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
89681	Installed	10584S	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
89688	Installed	896225	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Domestic Supply, Stock
89694	Installed	896958	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Artesian-Controlled Flow		Stock
89695	Installed	896955	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Artesian-Controlled Flow		Stock
89724	Installed	162705	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian		Stock, Domestic Supply
89728	Installed	89728\$	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
89742	Installed	89742S	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian		Domestic Supply, Stock
89762	Installed	182400	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian		Stock
89763	Installed	16270S	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian		Stock, Domestic Supply
89764	Installed	16270S	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian		Stock, Domestic Supply
89772	Installed	89772S	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
89775	Installed	89775S	Licence to Take Water	Issued	Surat North 3 Management Unit	Formation Name not Specified	Subartesian		Stock

RN	Works Status	Authorisation Number	Authorisation Type	Authorisation Status	Management Unit	Aquifer	Aquifer Type	Nominal Allocation (ML/water year)	Purpose
89777	Installed	89777S	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian		Stock
89793	Installed	89793S	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Domestic Supply, Stock
89808	Installed	89808S	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian		Stock
89829	Installed	171339	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian		Stock, Domestic Supply
89830	Installed	171341	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock, Domestic Supply
89853	Installed	16270S	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian		Stock, Domestic Supply
89854	Installed	16270S	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian		Stock, Domestic Supply
89855	Installed	16270S	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian		Stock, Domestic Supply
89865	Proposed	173558	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
89867	Installed	10592S	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian		Stock
89872	Proposed	89622S	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Domestic Supply, Stock
89876	Proposed	89808S	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian		Stock
89876	Installed	89808S	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian		Stock
89877	Proposed	36395S	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
89905	Installed	89670S	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
89920	Installed	177021	Licence to Take Water	Issued	The Not Assigned	Hutton Sandstone	Subartesian		Stock, Domestic Supply
89931	Installed	88449S	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Domestic Supply, Stock
89932	Installed	178602	Licence to Take Water	Issued	The Not Assigned	Precipice Sandstone	Artesian-Controlled Flow		Stock
89937	Installed	32735S	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Artesian	500	Town Water Supply
89941	Installed	14352S	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
89972	Installed	15590S	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Artesian-Controlled Flow		Domestic Supply, Stock
89991	Installed	14188S	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
89992	Installed	14188S	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
123030	Installed	58868N	Licence to Take Water	Issued	Surat 7 Management Unit	Precipice Sandstone	Subartesian		Stock
123104	Installed	105212	Licence to Take Water	Under Amendment	Surat North 2 Management Unit	Formation Name not Specified	Subartesian	24	Domestic Supply, Stock Intensive, Stock
123105	Installed	185670	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian		Stock
123120	Installed	14680N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
123146	Installed	400541	Licence to Take Water	Issued	RMA Not Assigned	Eurombah Creek Alluvium	Subartesian	128	Stock Intensive
123150	Installed	190015	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian		Stock
123158	Approval Lapsed	400541	Licence to Take Water	Issued	RMA Not Assigned	Eurombah Creek Alluvium	Subartesian	128	Stock Intensive
123167	Installed	16065N	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian		Stock
123184	Approval Lapsed	407921	Licence to Take Water	Issued	RMA Not Assigned	Dawson River Alluvium	Subartesian	52	Irrigation, Stock Intensive
123201	Installed	100585	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian		Stock
123208	Installed	58571N	Licence to Take Water	Issued	Surat North 1 Management Unit	Hutton Sandstone	Subartesian		Stock
123231	Installed	409177	Licence to Take Water	Under Amendment	Upper Dawson River and Tributaries Alluvium	Dawson River Alluvium	Subartesian	72	Stock Intensive
123233	Installed	14461N	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
128004	Installed	173558	Licence to Take Water	Issued	Surat North 2 Management Unit	Hutton Sandstone	Subartesian		Stock
128008	Installed	89562S	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Artesian-Controlled Flow		Domestic Supply, Stock
128186	Installed	48816S	Licence to Take Water	Issued	Surat North 3 Management Unit	Precipice Sandstone	Subartesian		Stock, Domestic Supply
128304	Installed	189839	Licence to Take Water	Issued	ROC Not Assigned	Precipice Sandstone	Subartesian		Domestic Supply, Stock

Notes:

© The State of Queensland (Department of Environment and Resource Management) 2009 Nominal allocation not specified in permits for bores licenses for stock purposes.

Table T2: Regional Groundwater Levels

RN	Date	Depth to Water (m BGS)	Aquifer	General Location
38975	2/07/2009	11.08	Alluvium	Theodore
89532	17/07/2008	15.36	Alluvium	8 km NE of Theodore
13030385	2/07/2009	13.21	Alluvium	10 km W of Theodore
13030389	2/07/2009	8.14	Alluvium	Theodore
13030390	2/07/2009	10.45	Alluvium	Theodore
13030392	2/07/2009	14.16	Alluvium	Theodore
13030393	2/07/2009	9.21	Alluvium	Theodore
13030394	2/07/2009	9.77	Alluvium	Theodore
13030395	2/07/2009	9.96	Alluvium	Theodore
13030397	2/07/2009	9.05	Alluvium	Theodore
13030399	2/07/2009	9.45	Alluvium	Theodore
13030401	2/07/2009	9.56	Alluvium	Theodore
13030402	2/07/2009	9.97	Alluvium	Theodore
13030404	2/07/2009	9.17	Alluvium	Theodore
13030406	2/07/2009	9.44	Alluvium	Theodore
13030407	2/07/2009	9.77	Alluvium	Theodore
13030412	2/07/2009	8.92	Alluvium	Theodore
13030420	2/07/2009	9.91	Alluvium	Theodore
13030423	2/07/2009	9.63	Alluvium	Theodore
13030426	2/07/2009	8.49	Alluvium	Theodore
13030427	2/07/2009	9.37	Alluvium	Theodore
13030428	2/07/2009	11.15	Alluvium	Theodore
13030430	2/07/2009	12.50	Alluvium	Theodore
13030434	21/01/2009	8.56	Alluvium	7 km S of Theodore
13030573	2/07/2009	14.43	Alluvium	Theodore
13030576	2/07/2009	10.03	Alluvium	Theodore
13030582	2/07/2009	9.40	Alluvium	Theodore
13030583	2/07/2009	9.61	Alluvium	Theodore
13030586	10/02/2005	11.78	Alluvium	Theodore
13030590	20/01/2009	9.09	Alluvium	Theodore
13030683	21/01/2009	9.68	Alluvium	25 km S of Theodore
13030684	21/01/2009	9.29	Alluvium	15 km S of Theodore
13030685	21/01/2009	3.75	Alluvium	15 km SE of Theodore
13030688	2/07/2009	16.67	Alluvium	20 km NE of Theodore
13030689	21/01/2005	8.19	Alluvium	16 km NE of Theodore
13030735	2/07/2009	9.21	Alluvium	Theodore
13030736	2/07/2009	8.23	Alluvium	Theodore
13030737	2/07/2009	8.60	Alluvium	Theodore
13030738	2/07/2009	10.39	Alluvium	Theodore
13030739	2/07/2009	8.82	Alluvium	Theodore
13030740	2/07/2009	9.74	Alluvium	Theodore
13030796	15/01/2003	6.34	Precipice	40 km NE of Taroom
13030797	15/01/2003	36.35	Precipice	40 km NE of Taroom
13030799	15/01/2003	41.98	Precipice	40 km NE of Taroom
13030808	13/07/2006	2.30	Gubberamunda	20 km SW of Wandoan
13030809	13/07/2006	8.92	Gubberamunda	18 km SW of Wandoan
13030810	13/07/2006	-9.53	Alluvium	18 km SW of Wandoan
13030811	13/07/2006	-16.44	Birkhead	30 km NW of Wandoan
13030818	21/01/2009	-0.88	Flat Top	8 km SE of Theodore
13030819	21/01/2009	-0.99	Alluvium	8 km SE of Theodore
13030820	21/01/2009	-5.30	Flat Top	8 km SE of Theodore
13030821	21/01/2009	-9.87	Flat Top	8 km SE of Theodore
13030822	2/07/2009	-3.92	Barfield	20 km N of Theodore
13030823	2/07/2009	-15.90	Rewan	20 km S of Theodore
13030824	2/07/2009	-13.31	Alluvium	20 km S of Theodore
13030827	2/07/2009	-12.95	Barfield	Banana
13030828	21/01/2009	-2.87	Flat Top	8 km SE of Theodore
13030829	21/01/2009	-6.89	Flat Top	8 km SE of Theodore

Notes:

© The State of Queensland (Department of Environment and Resource Management) 2009

RN	Date	Conductivity	рН	Hardness	Alkalinity	Total Dissolved Solids	Sodium	Chloride	Sulphate
		(µS/cm)		(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
8442	27/02/1981	2,900	8.20	136	313	1,618.90	578.0	676.0	100.0
10479	27/04/1980	3,000	8.10	28	465	1,665.48	652.0	695.0	6.0
10479	27/09/1995	2,830	8.30	18	456	1,585.10	624.7	656.4	0.0
10719	23/01/1964	0	7.40	6,007	33	11,730.80	2,003.4	7,313.0	18.6
10862	25/09/1968	223	8.10	14	110	142.19	55.0	16.0	0.0
10862	8/08/1972	225	7.70	9	116	152.22	61.0	18.0	0.0
10862	7/10/1975	280	7.70	37	135	158.13	49.0	12.0	0.0
10862	13/10/1978	245	7.70	6	100	151.30	51.0	12.0	12.0
10862	16/12/1986	240	8.00	5	112	144.82	52.0	9.5	0.0
10863	8/08/1972	350	7.70	13	205	256.32	104.0	25.0	0.0
10863	7/10/1975	370	7.90	15	193	218.05	85.0	10.0	0.0
10863	8/01/1986	225	8.00	8	112	146.38	52.0	10.0	0.0
11017	14/03/1989	255	7.50	5	115	145.36	60.0	9.0	2.0
11064	30/12/1958	0	0.00	712	392	0.00	2,601.2	4,225.7	18.6
11104	1/10/1975	168	7.20	4	75	89.78	34.0	7.0	0.0
11104	8/01/1986	175	8.00	6	77	112.13	38.0	12.0	0.0
12221	20/03/1953	0	0.00	524	138	3,703.70	1,249.8	2,183.6	22.9
12221	28/04/1953	0	0.00	36	241	0.00	407.6	420.4	82.9
12221	28/04/1953	0	0.00	20	236	0.00	377.5	380.4	67.2
12238	15/11/1954	0	8.00	11	393	358.67	97.8	11.4	10.0
12238	1/10/1975	337	7.70	14	174	189.36	72.0	6.0	0.0
12238	16/07/1988	330	8.50	12	175	208.85	74.0	8.6	2.0
12238	28/05/1991	349	8.50	15	183	218.07	80.1	7.7	0.0
12382	23/02/1954	0	0.00	55	217	1,454.40	553.4	700.7	52.9
12627	18/05/1954	0	0.00	40	217	1,907.60	742.2	1,021.0	0.0
12763	14/03/1955	0	0.00	37	320	6,062.60	2,382.4	3,470.6	4.3
13041	13/01/1956	0	0.00	55	162	2,417.20	929.5	1,327.0	42.9
13060	17/05/1956	0	7.20	49	279	1,888.15	735.0	966.7	0.0
13180	18/09/1957	0	6.90	138	141	319.10	62.9	14.3	105.8
13831	30/12/1958	0	0.00	565	310	9,566.90	3,540.7	5,645.6	0.0
13856	17/11/1965	2,650	8.00	20	440	1,526.79	610.0	640.0	4.0
13881	31/10/1975	277	7.60	16	130	170.28	56.0	14.0	0.0
13882	24/04/1974	270	7.80	7	110	155.20	62.0	17.5	0.0
14582	7/10/1975	350	7.70	33	131	186.67	64.0	30.0	0.0

RN	Date	Conductivity	рН	Hardness	Alkalinity	Total Dissolved Solids	Sodium	Chloride	Sulphate
4 4 5 0 0		(µS/cm)		(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
14598	25/06/1974	430	8.80	31	144	187.82	66.0	20.0	0.0
14697	1/01/1961	0	0.00	424	70	1,815.49	529.1	922.4	194.5
14697	30/07/1983	830	7.60	379	412	471.76	41.0	25.0	16.0
14872	18/10/1961	0	7.50	215	472	655.57	176.0	103.2	16.1
14872	18/10/1961	0	8.00	127	310	546.32	175.0	111.9	33.3
14943	1/01/1967	35,000	5.90	5,978	60	22,691.59	6,400.0	14,080.0	20.0
14943	1/01/1967	10,750	7.50	489	90	6,319.39	2,280.0	3,790.0	18.0
14943	1/01/1967	5,670	7.80	49	240	3,197.47	1,240.0	1,740.0	58.0
14943	1/01/1967	2,250	8.40	21	1,077	1,523.69	628.0	158.0	84.0
14986	17/09/1962	0	7.30	206	62	4,491.70	1,676.0	2,646.9	55.8
15417	7/04/1976	250	7.40	6	116	158.53	59.0	12.0	0.0
15495	25/03/1964	4,250	7.50	218	308	0.00	898.0	1,232.7	121.6
15538	19/03/1964	0	6.70	687	356	2,323.80	623.5	1,096.8	138.7
15672	26/02/1964	0	6.70	392	353	2,468.10	796.5	1,116.8	187.3
15673	26/02/1964	0	6.70	427	220	2,571.20	816.5	1,265.6	193.1
15862	4/08/1964	0	7.40	951	509	3,074.70	818.0	1,441.4	184.5
15862	4/08/1964	0	7.80	296	353	0.00	626.3	843.7	110.1
16028	12/03/1965	0	7.60	34	131	399.60	147.3	160.2	0.0
16082	1/01/1964	0	7.70	219	93	646.40	163.0	303.2	54.3
16270	9/09/1964	0	6.20	9	23	80.53	46.8	13.8	3.0
16270	9/09/1964	0	6.20	221	97	1,881.47	625.5	1,102.7	9.0
16270	17/08/1966	275	7.90	55	116	137.27	35.0	10.0	1.0
16270	7/10/1975	180	7.60	9	86	102.73	38.0	8.0	0.0
16270	6/06/1978	195	7.40	5	85	116.75	41.0	8.0	1.0
16270	24/11/1986	190	8.00	4	87	115.46	40.0	7.5	0.0
16270	28/10/1987	185	7.60	4	87	121.18	42.0	8.0	2.0
16270	15/02/1989	190	7.70	4	87	116.34	37.5	8.7	2.0
16270	7/09/1990	189	7.80	5	88	120.38	43.5	7.1	0.0
16270	18/01/1994	190	7.80	5	88	118.06	42.1	7.0	0.0
16270	18/01/1994	890	11.00	4	324	357.80	152.2	7.1	0.0
16270	22/08/2008	186	7.40	5	91	117.00	40.0	7.1	<1.0
16276	20/02/1976	530	8.50	76	168	288.66	78.0	68.0	0.0
16661	23/09/1966	2,200	8.60	19	210	1,256.42	485.0	540.0	98.0
16686	7/06/1966	230	6.70	9	108	146.15	59.0	15.0	4.0
16752	1/01/1966	3,360	8.90	16	364	1,908.37	759.0	924.0	0.0

RN	Date	Conductivity	рН	Hardness	Alkalinity	Total Dissolved Solids	Sodium	Chloride	Sulphate
16087	7/04/1976	(µS/cm)	7 10	(mg/L) Q	(mg/L) 122	(mg/L) 165.36	(mg/L)	(mg/L) 16.0	(mg/L)
178/0	9/10/1975	205	7.10	6	112	1/0 03	52.0	14.0	0.0
17849	8/04/1975	255	7.50	5	112	149.03	54.0	12.0	0.0
17849	15/03/1080	205	7.50	7	110	142.00	59.0	9.5	2.0
17849	6/00/1000	240	8.00	7	111	153.88	55.2	10.2	2.0
17849	8/11/1995	230	8.20	6	112	145.67	53.7	8.4	0.0
17849	13/10/2008	230	7.50	5	112	145.00	51.0	0.4	<1.0
17849	8/07/1968	230	7.30	14	12	150 01	63.0	14.0	0.0
17849	25/07/1968	230	7.10	0	140	174.08	71.0	16.0	0.0
17849	17/11/1071	244	8.00	5	124	157.65	65.0	16.0	0.0
17945	2/05/1968	370	7 40	65	176	261 42	83.0	40.0	13.0
18173	18/11/1970	250	7 80	9	110	145.24	58.0	18.0	0.0
18173	19/02/1976	220	7 30	7	100	132.68	45.0	5.0	3.0
18173	21/03/1984	215	8.30	6	100	144.20	53.0	9.7	2.9
18173	9/01/1986	235	8.00	11	95	143.87	47.0	14.0	4.0
26080	7/04/1976	262	7.20	6	120	157.89	58.0	12.0	0.0
26080	15/09/1993	430	8.20	62	167	248.65	70.8	38.6	0.0
26081	7/04/1976	405	7.20	61	160	237.38	69.0	34.0	0.0
30318	21/10/1968	730	6.70	97	172	424.86	134.0	154.0	0.0
30506	19/11/1968	300	7.00	33	140	192.88	67.0	25.0	4.0
30507	4/12/1968	274	6.60	19	140	171.48	65.0	15.0	0.0
30884	11/10/1969	230	7.40	8	105	138.24	55.0	15.0	2.0
30884	7/10/1975	220	8.20	9	98	121.10	45.0	12.0	0.0
30884	13/10/1978	225	7.70	5	85	130.05	49.0	12.0	1.0
30884	20/03/1984	215	7.90	6	99	142.51	53.0	10.5	2.5
30884	29/03/1989	215	7.30	4	99	120.22	45.0	10.0	2.0
36120	17/11/1971	194	7.50	7	90	114.79	46.0	12.0	0.0
36120	7/10/1975	180	7.50	8	86	102.43	38.0	8.0	0.0
36120	10/02/1976	180	7.50	8	86	102.43	38.0	8.0	0.0
36120	8/06/1978	192	7.40	5	80	114.69	40.0	8.0	1.0
36120	17/12/1986	195	8.00	6	87	121.08	43.0	8.3	0.0
38156	28/08/1972	235	7.40	9	120	149.14	60.0	14.0	0.0
38156	7/10/1975	220	7.60	9	103	0.00	48.0	12.0	0.0
38156	10/02/1976	220	7.60	9	103	126.66	48.0	12.0	0.0
38658	22/06/1995	301	7.30	7	147	184.15	69.8	9.0	0.0

RN	Date	Conductivity	рН	Hardness	Alkalinity	Total Dissolved Solids	Sodium	Chloride	Sulphate
12697	2/11/1072	(µS/cm)	9.20	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
43007	2/11/19/3	210	8.30	5	00	131.00	49.0 53.0	14.0	0.0
43007	17/12/1086	320	7.00	5	99 110	151.55	50.0	15.0	0.0
43687	20/10/1087	225	7.90	4	00	136.00	40.0	9.7	0.0
43687	14/03/1080	215	7.40	4	100	130.01	49.0 55.0	9.4	2.0
43697	4/00/1000	225	7.50	5	100	130:00	52.0	10.9	2.0
43687	27/00/1005	227	7.30	5	102	136 14	<u> </u>	8.6	0.0
43007	21/09/1995	224	7.50	5	102	150.14	49.7 57.0	22.0	0.0
43007	21/08/2008	13 400	7.50	1/1	105	7 836 07	3 000 0	22.0	<1.0 6.0
44097	7/11/1072	270	8.00	7	400	130.02	53.0	4,440.0	0.0
44404 44404	24/07/1974	240	7 70	5	105	136.89	55.0	14.0	0.0
44404	16/12/1086	240	8 10	5	110	140.00	52.0	0.3	2.0
44404	20/10/1087	240	7 30	5	110	140.00	52.0	9.0	2.0
44404	14/02/1989	225	7.30	4	110	150.00	52.0	9.5	2.0
44404	6/09/1990	200	8.00	4	110	154.05	55.2	11.6	0.0
44404	13/10/2008	243	7 50	5	110	144 00	51.0	9.1	<1.0
47259	21/03/1976	1 510	7.00	275	126	830.23	206.0	394.0	54.0
47328	7/04/1976	430	7.00	59	156	251.82	74.0	44 0	5.2
47329	7/04/1976	320	7.40	18	120	192.69	68.0	32.0	0.0
47330	7/04/1976	620	7.20	187	262	386.87	69.0	46.0	8.1
47502	20/07/1978	10 600	7.90	381	450	6 071 84	2 240 0	3 360 0	20.0
57904	7/05/1966	1 820	8.00	98	722	0.00	460.0	250.0	28.0
58232	21/04/1986	3 150	8 70	670	175	1 650 00	670.0	830.0	3.3
58266	11/11/1987	3 350	8.30	31	140	1 880 00	710.0	1 050 0	5.0
58377	6/06/1989	16.000	8.10	1.200	165	10.300.00	3.450.0	6.300.0	20.0
58393	7/07/1989	3.000	8.50	23	230	1.700.00	640.0	880.0	23.0
58393	14/08/1989	29.000	7.90	2.227	88	7.520.83	6.600.0	0.0	46.0
58393	8/09/1989	5.200	8.20	160	180	3.070.00	1.100.0	1.750.0	16.0
58409	15/02/1990	3,410	8.70	25	892	2.020.63	811.0	628.0	11.3
58608	2/02/1995	4,160	7.70	86	201	2,399.93	900.8	1,204.0	120.4
62077	19/06/1984	335	7.50	9	144	213.06	75.0	30.0	2.6
62077	2/03/1995	342	8.00	25	163	199.06	67.1	8.7	0.0
62289	5/10/1981	2,300	9.00	147	960	1,329.62	512.0	0.3	1.0
62289	11/01/1988	2,450	8.70	180	1,000	1,520.00	540.0	255.0	66.0
62289	4/03/1997	2,600	7.90	322	873	1,640.59	556.9	372.3	69.7

Table T3: Groundwater Quality

RN	Date	Conductivity	рН	Hardness	Alkalinity	Total Dissolved Solids	Sodium	Chloride	Sulphate
		(µS/cm)		(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
62290	5/10/1981	1,490	7.70	497	410	868.38	130.0	245.0	43.0
62290	16/07/1985	1,500	7.70	431	372	815.50	135.0	235.0	45.0
62290	11/01/1988	1,750	7.70	596	409	1,005.64	145.0	330.0	51.0
62323	26/10/1973	1,280	7.40	373	315	597.26	114.0	195.0	0.0
62323	7/03/1974	1,500	7.50	424	370	693.76	121.0	230.0	0.0
62323	7/03/1974	1,260	8.00	417	340	679.00	117.0	240.0	0.0
67229	21/06/1995	284	7.30	7	140	175.21	65.7	8.6	0.0
67280	11/11/1986	175	8.00	4	81	107.81	36.0	7.5	0.0
67280	30/03/1989	175	7.40	4	82	95.00	36.0	6.6	2.0
67280	13/08/1996	157	6.90	5	77	105.36	38.2	6.0	0.0
67281	11/11/1986	220	8.10	5	100	131.10	46.0	9.0	0.0
67281	26/10/1987	210	7.60	5	98	130.00	49.0	9.0	2.0
67281	15/02/1989	215	7.40	5	99	129.62	42.0	9.2	2.5
67281	16/10/1990	222	7.80	7	99	135.89	49.8	9.2	0.0
67300	12/11/1986	205	8.10	9	95	122.75	40.0	7.0	0.0
67300	30/03/1989	200	7.30	10	97	110.00	39.5	7.0	2.0
67624	23/07/1987	550	7.40	84	35	289.94	68.0	130.0	27.0
67625	11/08/1987	200	7.70	4	95	123.38	43.0	7.3	0.0
67625	30/03/1989	200	7.40	5	94	110.00	43.0	8.2	2.0
84032	19/05/1988	235	7.60	4	111	144.14	49.5	9.3	2.0
84032	10/04/1988	14,000	7.10	3,850	105	8,370.00	1,650.0	5,100.0	2.0
84678	4/02/1987	1,100	8.20	355	256	635.60	94.0	210.0	19.5
84679	3/02/1987	1,200	8.00	373	241	654.82	92.0	240.0	20.0
89532	16/03/1993	1,325	7.60	181	347	564.29	81.4	166.8	9.1
89590	21/10/1993	1,279	8.40	444	320	761.32	108.2	247.6	24.6

Notes:

© The State of Queensland (Department of Environment and Resource Management) 2009

Table T4: Recharge and Watercourse Springs

NRS No.	Туре	Aquifer
1	Recharge	Hutton Sandstone
2	Recharge	Hutton Sandstone
3	Recharge	Hutton Sandstone
4	Recharge	Hutton Sandstone
5	Recharge	Hutton Sandstone
6	Recharge	Hutton Sandstone
7	Recharge	Hutton Sandstone
8	Recharge	Hutton Sandstone
9	Recharge	Hutton Sandstone
10	Recharge	Hutton Sandstone
11	Recharge	Hutton Sandstone
12	Recharge	Hutton Sandstone
13	Recharge	Hutton Sandstone
14	Recharge	Hutton Sandstone
15	Recharge	Hutton Sandstone
16	Recharge	Precipice Sanstone
10	Pecharge	Precipice Sanstone
17 18	Rechargo	Precipice Sanstone
10	Booharac	Procipice Salisione
19	Recharge	Precipice Sanstone
20	Recharge	Provinice Sanstone
21	Recharge	Precipice Sansione
22	Recharge	Hullon Sandstone
23	Recharge	Hutton Sandstone
24	Recharge	Hutton Sandstone
25	Recharge	Hutton Sandstone
26	Recharge	Hutton Sandstone
27	Recharge	Hutton Sandstone
28	Recharge	Hutton Sandstone
29	Recharge	Hutton Sandstone
30	Recharge	Hutton Sandstone
31	Recharge	Hutton Sandstone
32	Recharge	Hutton Sandstone
33	Recharge	Hutton Sandstone
34	Recharge	Precipice Sanstone
35	Recharge	Precipice Sanstone
36	Recharge	Precipice Sanstone
37	Recharge	Hutton Sandstone
39	Recharge	Hutton Sandstone
40	Recharge	Hutton Sandstone
41	Recharge	Hutton Sandstone
42	Recharge	Hutton Sandstone
43	Recharge	Hutton Sandstone
44	Recharge	Hutton Sandstone
45	Recharge	Hutton Sandstone
46	Recharge	Hutton Sandstone
47	Recharge	Hutton Sandstone
48	Recharge	Hutton Sandstone
49	Recharge	Hutton Sandstone
50	Recharge	Hutton Sandstone
51	Recharge	Hutton Sandstone
52	Recharge	Hutton Sandstone
53	Recharge	Hutton Sandstone
54	Recharge	Hutton Sandstone
55	Recharge	Hutton Sandstone
56	Recharge	Hutton Sandstone

NRS No.	Туре	Aquifer
57	Recharge	Hutton Sandstone
58	Recharge	Hutton Sandstone
59	Recharge	Hutton Sandstone
60	Recharge	Hutton Sandstone
61	Recharge	Hutton Sandstone
62	Recharge	Hutton Sandstone
63	Recharge	Hutton Sandstone
64	Recharge	Hutton Sandstone
65	Recharge	Hutton Sandstone
66	Recharge	Hutton Sandstone
67	Recharge	Hutton Sandstone
68	Recharge	Hutton Sandstone
69	Recharge	Precipice Sanstone
319	Recharge	Hutton Sandstone
319A	Recharge	Hutton Sandstone
320	Recharge	Hutton Sandstone
321	Recharge	Hutton Sandstone
nv346	Recharge	Hutton Sandstone
nv403	Recharge	Precipice Sanstone
r14	Watercourse	Hutton Sandstone
r15	Watercourse	Hutton Sandstone
r28	Watercourse	Precipice Sanstone
r29	Watercourse	Precipice Sanstone
r41	Watercourse	Precipice Sanstone

Table T4: Recharge and Watercourse Springs

Notes:

© The State of Queensland

(Department of Environment and Resource Management)

Table T5: Distances to 5-metre Drawdown

		Time (days)													
		30	60	90	120	150	200	300	400	500	600	700	800	900	1000
	0.005	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	0.010	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	0.025	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	0.050	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	0.100	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	0.200	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
	0.300	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
(y	0.400	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
/da	0.500	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.002	0.002
AL.	0.600	0.002	0.002	0.003	0.003	0.004	0.005	0.006	0.006	0.007	0.008	0.008	0.009	0.010	0.010
	0.700	0.005	0.008	0.009	0.011	0.012	0.014	0.017	0.020	0.022	0.024	0.026	0.028	0.029	0.031
ate	0.800	0.013	0.018	0.022	0.025	0.028	0.032	0.039	0.045	0.051	0.056	0.060	0.064	0.068	0.072
R R	0.900	0.024	0.034	0.041	0.048	0.053	0.062	0.076	0.087	0.098	0.107	0.116	0.124	0.130	0.138
ion	1.000	0.040	0.057	0.070	0.080	0.090	0.104	0.128	0.147	0.165	0.181	0.195	0.209	0.220	0.233
act	1.500	0.195	0.275	0.337	0.389	0.435	0.502	0.615	0.710	0.794	0.869	0.939	1.004	1.065	1.122
ctri	2.000	0.428	0.604	0.740	0.854	0.955	1.103	1.351	1.560	1.744	1.910	2.064	2.206	2.340	2.466
Ê	2.500	0.688	0.972	1.190	1.374	1.536	1.774	2.173	2.509	2.805	3.073	3.319	3.548	3.763	3.967
	3.000	0.947	1.338	1.639	1.892	2.116	2.443	2.992	3.455	3.863	4.232	4.571	4.886	5.183	5.463
	4.000	1.424	2.012	2.465	2.846	3.182	3.674	4.500	5.196	5.810	6.364	6.874	7.349	7.794	8.216
	5.000	1.834	2.593	3.176	3.667	4.100	4.734	5.799	6.696	7.486	8.200	8.857	9.469	10.043	10.587
	6.000	2.186	3.090	3.786	4.372	4.888	5.644	6.912	7.981	8.923	9.775	10.558	11.287	11.972	12.620
	7.000	2.491	3.522	4.314	4.981	5.569	6.431	7.876	9.095	10.168	11.139	12.031	12.862	13.642	14.380
	8.000	2.758	3.900	4.777	5.515	6.166	7.120	8.721	10.070	11.258	12.333	13.321	14.241	15.105	15.922
	9.000	2.995	4.235	5.185	5.989	6.696	7.732	9.469	10.934	12.225	13.391	14.464	15.463	16.401	17.288

Notes:

Shading denotes distance is less than minimum distance between groundwater bores in database Distances in kilometers



Figures





Towns - Copyright 2009, MapData Sciences PTY LTD, PSMA

Geology, Drainage © The State of Queensland, The Department of Enivronment and Resource Management, 2009, Based on or contains data provided by the State of Queensland Department of Enivronment and Resource Management) [2006, 2008]. In consideration of the State permitting use of this data you acknowledge and agree that the State gives no warranty in relation to the data (including accuracy, reliability, completeness, currency or suitability) and accepts no liability (including without limitation, liability in negligence) for any loss, damage or costs (including onsequential damage) relating to any use of the data. Data must not be used for direct marketing or be used in breach of the privacy laws.

Imagery © Copyright Commonwealth of Australia (Geoscience Australia) 2009. The Commonwealth gives no warranty regarding the accuracy, completeness, currency or suitability for any particular purpose.MA.

Surat Basin Rail Joint Venture has exercised all due care in the preparation of this data, and makes no warranty or representation to the Client or third parties (express or implied) in respect of the information conveyed in this data, particularly with regard to any commercial investment decision made on the basis of this data. Use of this Data by the Client shall be at their own risk, and extracts from this data may only be published with permission of Surat Basin Rail Joint Venture . This disclaimer must be visible in every copy of any maps containg this data.



GDA



Proposed South Water Supply Area



SURAT BASIN RAIL PROJECT EIS

Geology

Map F1 August 2009





Roads, Towns- Copyright 2009, MapData Sciences PTY LTD, PSMA

GW Bores, Drainage ©The State of Queensland, The Department of Enivronment and Resource Management, 2009. Based on or contains data provided by the State of Queensland Department of Enivronment and Resource Management) [2006, 2009]. In consideration of the State permitting use of this data you acknowledge and agree that the State gives no warranty in relation to the data (including accuracy, reliability, completeness, currency or suitability) and accepts no liability (including without limitation, liability in negligence) for any loss, damage or costs (including consequential damage) relating to any use of the data. Data must not be used for direct marketing or be used in breach of the privacy laws.

Imagery © Copyright Commonwealth of Australia (Geoscience Australia) 2009. The Commonwealth gives no warranty regarding the accuracy, completeness, currency or suitability for any particular purpose.MA.

Surat Basin Rail Joint Venture has exercised all due care in the preparation of this data, and makes no warranty or representation to the Client or third parties (express or implied) in respect of the information conveyed in this data, particularly with regard to any commercial investment decision made on the basis of this data. Use of this Data by the Client shall be at their own risk, and extracts from this data may only be published with permission of Surat Basin Rail Joint Venture . This disclaimer must be visible in every copy of any maps containg this data.



1:670,000 (when printed at A3)

GDA





SURAT BASIN RAIL PROJECT EIS

Location of Groundwater Bores

> Map F2 August 2009




GW Aquifers, Drainage ©The State of Queensland, The Department of Enivronment and Resource Management, 2009, Based on or contains data provided by the State of Queensland Department of Enivronment and Resource Management) [2006, 2009]. In consideration of the State permitting use of this data you acknowledge and agree that the State gives no warranty in relation to the data (including accuracy, reliability, completeness, currency or suitability) and accepts no liability (including without limitation, liability in negligence) for any loss, damage or costs (including onsequential damage) relating to any use of the data. Data must not be used for direct marketing or be used in breach of the privacy laws.

Imagery © Copyright Commonwealth of Australia (Geoscience Australia) 2009. The Commonwealth gives no warranty regarding the accuracy, completeness, currency or suitability for any particular purpose.MA.

Surat Basin Rail Joint Venture has exercised all due care in the preparation of this data, and makes no warranty or representation to the Client or third parties (express or implied) in respect of the information conveyed in this data, particularly with regard to any commercial investment decision made on the basis of this data. Use of this Data by the Client shall be at their own risk, and extracts from this data may only be published with permission of Surat Basin Rail Joint Venture . This disclaimer must be visible in every copy of any maps containg this data.



1:413,000 (when printed at A3)



Proposed South Water Supply Area





SURAT BASIN RAIL PROJECT EIS

Aquifers and Springs

Map F3 August 2009





GW Total Dissolved Solids, Drainage © The State of Queensland, The Department of Enivronment and Resource Management, 2009. Based on or contains data provided by the State of Queensland Department of Enivronment and Resource Management) [2006, 2009]. In consideration of the State permitting use of this data you acknowledge and agree that the State gives no warranty in relation to the data (including accuracy, reliability, completeness, currency or suitability) and accepts no liability (including without limitation, liability in negligence) for any loss, damage or costs (including consequential damage) relating to any use of the data. Data must not be used for direct marketing or be used in breach of the privacy laws.

Imagery © Copyright Commonwealth of Australia (Geoscience Australia) 2009. The Commonwealth gives no warranty regarding the accuracy, completeness, currency or suitability for any particular purpose.MA.

Surat Basin Rail Joint Venture has exercised all due care in the preparation of this data, and makes no warranty or representation to the Client or third parties (express or implied) in respect of the information conveyed in this data, particularly with regard to any commercial investment decision made on the basis of this data. Use of this Data by the Client shall be at their own risk, and extracts from this data may only be published with permission of Surat Basin Rail Joint Venture . This disclaimer must be visible in every copy of any maps containg this data.



1:413,000 (when printed at A3)



Proposed South Water Supply Area





SURAT BASIN RAIL PROJECT EIS

Groundwater -Total Dissolved Solids

> Map F4 August 2009





GW Bores, Drainage @The State of Queensland, The Department of Enivronment and Resource Management, 2009. Based on or contains data provided by the State of Queensland Department of Enivronment and Resource Management) [2006, 2009]. In consideration of the State permitting use of this data you acknowledge and agree that the State gives no warranty in relation to the data (including accuracy, reliability, completeness, currency or suitability) and accepts no liability (including without limitation, liability in negligence) for any loss, damage or costs (including consequential damage) relating to any use of the data. Data must not be used for direct marketing or be used in breach of the privacy laws.

Imagery © Copyright Commonwealth of Australia (Geoscience Australia) 2009. The Commonwealth gives no warranty regarding the accuracy, completeness, currency or suitability for any particular purpose MA.

Surat Basin Rail Joint Venture has exercised all due care in the preparation of this data, and makes no warranty or representation to the Client or third parties (express or implied) in respect of the information conveyed in this data, particularly with regard to any commercial investment decision made on the basis of this data. Use of this Data by the Client shall be at their own risk, and extracts from this data may only be published with permission of Surat Basin Rail Joint Venture . This disclaimer must be visible in every copy of any maps containg this data.



1:414,000 (when printed at A3)



Proposed South Water Supply Area





SURAT BASIN RAIL PROJECT EIS

Groundwater Suitability

Map F5 August 2009





GW Aquifers, Drainage ©The State of Queensland, The Department of Enivronment and Resource Management, 2009, Based on or contains data provided by the State of Queensland Department of Enivronment and Resource Management) [2006, 2009]. In consideration of the State permitting use of this data you acknowledge and agree that the State gives no warranty in relation to the data (including accuracy, reliability, completeness, currency or suitability) and accepts no liability (including without limitation, liability in negligence) for any loss, damage or costs (including onsequential damage) relating to any use of the data. Data must not be used for direct marketing or be used in breach of the privacy laws.

Imagery © Copyright Commonwealth of Australia (Geoscience Australia) 2009. The Commonwealth gives no warranty regarding the accuracy, completeness, currency or suitability for any particular purpose.MA.

Surat Basin Rail Joint Venture has exercised all due care in the preparation of this data, and makes no warranty or representation to the Client or third parties (express or implied) in respect of the information conveyed in this data, particularly with regard to any commercial investment decision made on the basis of this data. Use of this Data by the Client shall be at their own risk, and extracts from this data may only be published with permission of Surat Basin Rail Joint Venture . This disclaimer must be visible in every copy of any maps containg this data.



1:413,000 (when printed at A3)



Proposed South Water Supply Area





SURAT BASIN RAIL PROJECT EIS

Model Results (1,800 ML & 2,700 ML) Map F6 November 2009





GW Aquifers, Drainage ©The State of Queensland, The Department of Enivronment and Resource Management, 2009, Based on or contains data provided by the State of Queensland Department of Enivronment and Resource Management) [2006, 2009]. In consideration of the State permitting use of this data you acknowledge and agree that the State gives no warranty in relation to the data (including accuracy, reliability, completeness, currency or suitability) and accepts no liability (including without limitation, liability in negligence) for any loss, damage or costs (including onsequential damage) relating to any use of the data. Data must not be used for direct marketing or be used in breach of the privacy laws.

Imagery © Copyright Commonwealth of Australia (Geoscience Australia) 2009. The Commonwealth gives no warranty regarding the accuracy, completeness, currency or suitability for any particular purpose.MA.

Surat Basin Rail Joint Venture has exercised all due care in the preparation of this data, and makes no warranty or representation to the Client or third parties (express or implied) in respect of the information conveyed in this data, particularly with regard to any commercial investment decision made on the basis of this data. Use of this Data by the Client shall be at their own risk, and extracts from this data may only be published with permission of Surat Basin Rail Joint Venture . This disclaimer must be visible in every copy of any maps containg this data.



1:413,000 (when printed at A3)



Proposed South Water Supply Area





SURAT BASIN RAIL PROJECT EIS

Model Results (3,500 ML) Map F7 November 2009



Appendix A

Groundwater Demand Schedules

"This page has been left blank intentionally"

Table A1 - Groundwater Demand Schedule 0 - 9km (1,800 ML

	Time (Days)	Time Cumulative (Days)	Groundwater Bore No. 1 Extraction Rate (ML/day)
Jun-11			1.109
Jul-11		150	1.109
Aug-11	150		1.109
Sep-11			1.109
Oct-11			1.109
Nov-11	30	180	0.210
Aquifer			Hutton Sandstone

Table A2 - Groundwater Demand Schedule 9 - 19.28 km (1,800 ML

	Time	Time	(Groundwater Bore No),	Total Extraction			
	(Deve)	Cumulative	2	3	4	Pote (ML/dev)			
	(Days)	(Days)	E	Extraction Rate (ML/day)					
May-10			0.029	-	-	0.029			
Jun-10			0.029	-	-	0.029			
Jul-10			0.029	-	-	0.029			
Aug-10			0.029	-	-	0.029			
Sep-10			0.029	-	-	0.029			
Oct-10	330	330	0.029	-	-	0.029			
Nov-10			0.029	-	-	0.029			
Dec-10			0.029	-	-	0.029			
Jan-11			0.029	-	-	0.029			
Feb-11			0.029	-	-	0.029			
Mar-11			0.029	-	-	0.029			
Apr-11	-	-	-	-	-	-			
May-11	-	-	-	-	-	-			
Jun-11	-	-	-	-	-	-			
Jul-11	-	-	-	-	-	-			
Aug-11	-	-	-	-	-	-			
Sep-11	60	300	0.813	0.813	0.813	2.439			
Oct-11	00	090	0.813	0.813	0.813	2.438			
Nov-11	30	420	0.826	0.826	0.826	2.479			
Dec-11	30	450	-	0.279	-	0.279			
Aquifer			Hutton Sandstone	Hutton Sandstone	Precipice Sandstone				

Table A3 - Groundwater Demand Schedule 19.28 - 63 km (1,800 ML

	Time	Time	Groundwater Bore No.					Total Extraction
	(Device)	Cumulative	5	6	7	8	9	
	(Days)	(Days)		Rate (ML/day)				
Feb-10			-	-	0.096	-	-	0.096
Mar-10	120	120	-	-	0.096	-	-	0.096
Apr-10	120	120	-	-	0.096	-	-	0.096
May-10			-	-	0.096	-	-	0.096
Jun-10			-	-	0.108	-	-	0.108
Jul-10	120	240	-	-	0.108	-	-	0.108
Aug-10	120	240	-	-	0.108	-	-	0.108
Sep-10			-	-	0.108	-	-	0.108
Oct-10			-	-	0.258	-	1.526	1.783
Nov-10	120	360	-	-	0.258	-	1.526	1.783
Dec-10	120	500	-	-	0.258	-	1.526	1.783
Jan-11			-	-	0.258	-	1.526	1.783
Feb-11			0.838	-	0.096	0.838	-	1.771
Mar-11	120	480	0.838	-	0.096	0.838	-	1.771
Apr-11	120		0.838	-	0.096	0.838	-	1.771
May-11			0.838	-	0.096	0.838	-	1.771
Jun-11	30	510	0.532	-	0.096	0.532	0.150	1.308
Jul-11			0.532	-	0.096	0.532	0.725	1.883
Aug-11	120	630	0.532	-	0.096	0.532	0.725	1.883
Sep-11	120	030	0.532	0.575	0.096	0.532	0.150	1.883
Oct-11			0.532	0.575	0.096	0.532	0.150	1.883
Nov-11	30	660	-	0.575	0.096	-	0.150	0.821
Dec-11			-	-	0.096	-	-	0.096
Jan-12			-	-	0.096	-	-	0.096
Feb-12	150	810	-	-	0.096	-	-	0.096
Mar-12			-	-	0.096	-	-	0.096
Apr-12			-	-	0.096	-	-	0.096
Aquifer			Hutton Sandstone	Hutton Sandstone	Precipice Sandstone	Precipice Sandstone	Hutton Sandstone	



Table A4 - Groundwater Demand Schedule 63 - 90 km (1,800 ML

	Time	Time		(Groundwater Bore No	•		Total Extraction
		Cumulative	10	11	12	13	14	
	(Days)	(Days)		E	xtraction Rate (ML/day	y)		Rate (ML/day)
Feb-10			0.003	-	0.003	-	0.096	0.102
Mar-10			0.003	-	0.003	-	0.096	0.102
Apr-10			0.003	-	0.003	-	0.096	0.102
May-10			0.003	-	0.003	-	0.096	0.102
Jun-10			0.003	-	0.003	-	0.096	0.102
Jul-10	360	360	0.003	-	0.003	-	0.096	0.102
Aug-10	300	300	0.003	-	0.003	-	0.096	0.102
Sep-10			0.003	-	0.003	-	0.096	0.102
Oct-10			0.003	-	0.003	-	0.096	0.102
Nov-10			0.003	-	0.003	-	0.096	0.102
Dec-10			0.003	-	0.003	-	0.096	0.102
Jan-11			0.003	-	0.003	-	0.096	0.102
Feb-11	30	390	1.710	0.442	0.003	-	0.096	2.251
Mar-11	60	450	1.710	0.442	0.353	0.853	0.949	4.307
Apr-11	00	430	1.710	0.442	0.353	0.853	0.949	4.307
May-11			0.003	0.092	0.353	0.853	0.949	2.250
Jun-11	90	540	0.003	0.092	0.353	0.853	0.949	2.250
Jul-11			0.003	0.092	0.353	0.853	0.949	2.250
Aug-11	30	570	0.003	0.092	0.003	-	0.096	0.194
Sep-11	30	600	0.210	0.092	-	-	0.210	0.512
Aquifer			Precipice Sandstone	Precipice Sandstone	Precipice Sandstone	Precipice	Precipice Sandstone	

AECOM

Table A5 - Groundwater Demand Schedule 0 - 9 km (2,700 ML

	Time (Days)	Time Cumulative (Days)	Groundwater Bore No. 1 Extraction Rate (ML/day)
Jun-11		150	1.669
Jul-11			1.669
Aug-11	150		1.669
Sep-11			1.669
Oct-11			1.669
Nov-11	30	180	0.316
Aquifer			Hutton Sandstone

Table A6 - Groundwater Demand Schedule 9 - 19.28 km (2,700 ML

	Time	Time	(Groundwater Bore No	D.	Total Extraction		
	(Deve)	Cumulative	2	3	4	Pote (ML (dev)		
	(Days)	(Days)	E	Extraction Rate (ML/day)				
May-10			-	0.043	-	0.043		
Jun-10			-	0.043	-	0.043		
Jul-10			-	0.043	-	0.043		
Aug-10			-	0.043	-	0.043		
Sep-10			-	0.043	-	0.043		
Oct-10	330	330	-	0.043	-	0.043		
Nov-10			-	0.043	-	0.043		
Dec-10			-	0.043	-	0.043		
Jan-11			-	0.043	-	0.043		
Feb-11			-	0.043	-	0.043		
Mar-11			-	0.043	-	0.043		
Apr-11	-	-	-	-	-	-		
May-11	-	-	-	-	-	-		
Jun-11	-	-	-	-	-	-		
Jul-11	-	-	-	-	-	-		
Aug-11	-	-	-	-	-	-		
Sep-11	60	300	1.223	1.223	1.223	3.669		
Oct-11	00	390	1.223	1.223	1.223	3.669		
Nov-11	30	420	1.243	1.243	1.243	3.730		
Dec-11	30	450	-	0.420	-	0.420		
Aquifer			Hutton Sandstone	Hutton Sandstone	Precipice Sandstone			

Table A7 - Groundwater Demand Schedule 19.28 - 63 km (2,700 ML

	Time	Time			Groundwater Bore No).		Total Extraction
	(Deve)	Cumulative	5	6	7	8	9	
	(Days)	(Days)		Rate (ML/day)				
Feb-10			-	-	0.144	-	-	0.144
Mar-10	120	120	-	-	0.144	-	-	0.144
Apr-10	120	120	-	-	0.144	-	-	0.144
May-10			-	-	0.144	-	-	0.144
Jun-10			-	-	0.163	-	-	0.163
Jul-10	120	240	-	-	0.163	-	-	0.163
Aug-10	120	240	-	-	0.163	-	-	0.163
Sep-10			-	-	0.163	-	-	0.163
Oct-10			-	-	0.389	-	2.295	2.684
Nov-10	120	260	-	-	0.389	-	2.295	2.684
Dec-10	120	300	-	-	0.389	-	2.295	2.684
Jan-11			-	-	0.389	-	2.295	2.684
Feb-11			1.261	-	0.144	1.261	-	2.665
Mar-11	120	490	1.261	-	0.144	1.261	-	2.665
Apr-11	120	480	1.261	-	0.144	1.261	-	2.665
May-11			1.261	-	0.144	1.261	-	2.665
Jun-11	30	510	0.800	-	0.144	0.800	0.226	1.969
Jul-11			0.800	-	0.144	0.800	1.091	2.834
Aug-11	120	620	0.800	-	0.144	0.800	1.091	2.834
Sep-11	120	030	0.800	0.865	0.144	0.800	0.226	2.834
Oct-11			0.800	0.865	0.144	0.800	0.226	2.834
Nov-11	30	660	-	0.865	0.144	-	0.226	1.235
Dec-11			-	-	0.144	-	-	0.144
Jan-12			-	-	0.144	-	-	0.144
Feb-12	150	810	-	-	0.144	-	-	0.144
Mar-12			-	-	0.144	-	-	0.144
Apr-12			-	-	0.144	-	-	0.144
Aquifer			Hutton Sandstone	Hutton Sandstone	Precipice Sandstone	Precipice Sandstone	Hutton Sandstone	



Table A8 - Groundwater Demand Schedule 63 - 90 km (2,700 ML

	Time	Time		(Groundwater Bore No).		Total Extraction	
		Cumulative	10	11	12	13	14		
	(Days)	(Days)		E	xtraction Rate (ML/da	y)		Rate (ML/day)	
Feb-10			0.005	-	0.005	-	0.144	0.153	
Mar-10			0.005	-	0.005	-	0.144	0.153	
Apr-10			0.005	-	0.005	-	0.144	0.153	
May-10			0.005	-	0.005	-	0.144	0.153	
Jun-10			0.005	-	0.005	-	0.144	0.153	
Jul-10	360	360	0.005	-	0.005	-	0.144	0.153	
Aug-10	300	300	0.005	-	0.005	-	0.144	0.153	
Sep-10			0.005	-	0.005	-	0.144	0.153	
Oct-10			0.005	-	0.005	-	0.144	0.153	
Nov-10			0.005	-	0.005	-	0.144	0.153	
Dec-10			0.005	-	0.005	-	0.144	0.153	
Jan-11			0.005	-	0.005	-	0.144	0.153	
Feb-11	30	390	2.572	0.665	0.005	-	0.144	3.385	
Mar-11	60	450	2.572	0.665	0.532	1.284	1.428	6.479	
Apr-11	00	430	2.572	0.665	0.532	1.284	1.428	6.479	
May-11			0.005	0.138	0.532	1.284	1.428	3.385	
Jun-11	90	540	0.005	0.138	0.532	1.284	1.428	3.385	
Jul-11			0.005	0.138	0.532	1.284	1.428	3.385	
Aug-11	30	570	0.005	0.138	-	-	0.144	0.287	
Sep-11	30	600	0.316	0.138	-	-	0.316	0.770	
Aquifer			Precipice Sandstone	Precipice Sandstone	Precipice Sandstone	Precipice Sandstone	Precipice Sandstone		

AECOM

Table A9 - Groundwater Demand Schedule 0 - 9 km (3,500 ML)

	Time (Days)	Time Cumulative (Days)	Groundwater Bore No. 1 Extraction Rate (ML/day)
Jun-11			2.225
Jul-11		150	2.225
Aug-11	150		2.225
Sep-11			2.225
Oct-11			2.225
Nov-11	30	180	0.420
Aquifer			Hutton Sandstone

Table A10 - Groundwater Demand Schedule 9 - 19.28 km (3,500 ML)

	Time	Time	(Groundwater Bore N	0.	Total Extraction
	(Deve)	Cumulative	2	3	4	
	(Days)	(Davs)	E	Rate (ML/day)		
May-10			0.058	-	-	0.058
Jun-10			0.058	-	-	0.058
Jul-10			0.058	-	-	0.058
Aug-10			0.058	-	-	0.058
Sep-10			0.058	-	-	0.058
Oct-10	330	330	0.058	-	-	0.058
Nov-10			0.058	-	-	0.058
Dec-10			0.058	-	-	0.058
Jan-11			0.058	-	-	0.058
Feb-11			0.058	-	-	0.058
Mar-11			0.058	-	-	0.058
Apr-11	-	-	-	-	-	-
May-11	-	-	-	-	-	-
Jun-11	-	-	-	-	-	-
Jul-11	-	-	-	-	-	-
Aug-11	-	-	-	-	-	-
Sep-11	60	300	1.625	1.625	1.625	4.875
Oct-11	00	390	1.625	1.625	1.625	4.875
Nov-11	30	420	1.653	1.653	1.653	4.959
Dec-11	30	450	-	0.558	-	0.558
Aquifer			Hutton Sandstone	Hutton Sandstone	Precipice Sandstone	

Table A11 - Groundwater Demand Schedule 19.28 - 63 km (3,500 ML)

	Time	Time	Groundwater Bore No.									
	(Deve)	Cumulative	5	6	7	8	9	10	11			
	(Days)	(Davs)			E	straction Rate (ML/da	on Rate (ML/day)					
Feb-10			-	-	-	-	0.191	-	-	0.191		
Mar-10	120	120	-	-	-	-	0.191	-	-	0.191		
Apr-10	120	120	-	-	-	-	0.191	-	-	0.191		
May-10			-	-	-	-	0.191	-	-	0.191		
Jun-10			-	-	-	-	0.216	-	-	0.216		
Jul-10	120	240	-	-	-	-	0.216	-	-	0.216		
Aug-10	120	240	-	-	-	-	0.216	-	-	0.216		
Sep-10			-	-	-	-	0.216	-	-	0.216		
Oct-10			-	-	-	-	0.516	1.525	1.525	3.566		
Nov-10	120 360		-	-	-	-	0.516	1.525	1.525	3.566		
Dec-10	120	300	-	-	-	-	0.516	1.525	1.525	3.566		
Jan-11			-	-	-	-	0.516	1.525	1.525	3.566		
Feb-11			0.463	-	2.887	-	0.191	-	-	3.541		
Mar-11	120	490	0.463	-	2.887	-	0.191	-	-	3.541		
Apr-11	120	400	0.463	-	2.887	-	0.191	-	-	3.541		
May-11			1.525	-	1.525	-	0.191	0.150	0.150	3.541		
Jun-11	30	510	1.063	1.063	-	-	0.191	0.150	0.150	2.616		
Jul-11			1.063	1.063	-	-	0.191	0.725	0.725	3.766		
Aug-11	120	630	1.063	1.063	-	-	0.191	0.725	0.725	3.766		
Sep-11	120	050	1.063	1.063	-	1.150	0.191	0.150	0.150	3.766		
Oct-11			1.063	1.063	-	1.150	0.191	0.150	0.150	3.766		
Nov-11	30	660	-	-	-	1.150	0.191	0.150	0.150	1.641		
Dec-11			-	-	-	-	0.191	-	-	0.191		
Jan-12			-	-	-	-	0.191	-	-	0.191		
Feb-12	150 810		-	-	-	-	0.191	-	-	0.191		
Mar-12			-	-	-	-	0.191	-	-	0.191		
Apr-12			-	-	-	-	0.191	-	-	0.191		
Aquifer			Hutton Sandstone	Hutton Sandstone	Precipice Sandstone	Hutton Sandstone	Precipice Sandstone	Hutton Sandstone	Precipice Sandstone			

Table A12 - Groundwater Demand Schedule 63 - 90 km (3,500 ML)

	Time	Time	Groundwater Bore No.									Total Extraction		
	(Devce)	Cumulative	12	13	14	15	16	17	18	19	20	21		
	(Days)	(Davs)	Extraction Rate (ML/day)									Rate (WL/day)		
Feb-10			0.006	-	-	-	0.006	0.038	0.038	0.038	0.038	0.038	0.202	
Mar-10			0.006	-	-	-	0.006	0.038	0.038	0.038	0.038	0.038	0.202	
Apr-10			0.006	-	-	-	0.006	0.038	0.038	0.038	0.038	0.038	0.202	
May-10			0.006	-	-	-	0.006	0.038	0.038	0.038	0.038	0.038	0.202	
Jun-10			0.006	-	-	-	0.006	0.038	0.038	0.038	0.038	0.038	0.202	
Jul-10	360	360	0.006	-	-	-	0.006	0.038	0.038	0.038	0.038	0.038	0.202	
Aug-10	300	300	0.006	-	-	-	0.006	0.038	0.038	0.038	0.038	0.038	0.202	
Sep-10				0.006	-	-	-	0.006	0.038	0.038	0.038	0.038	0.038	0.202
Oct-10			0.006	-	-	-	0.006	0.038	0.038	0.038	0.038	0.038	0.202	
Nov-10			0.006	-	-	-	0.006	0.038	0.038	0.038	0.038	0.038	0.202	
Dec-10			0.006	-	-	-	0.006	0.038	0.038	0.038	0.038	0.038	0.202	
Jan-11			0.006	-	-	-	0.006	0.038	0.038	0.038	0.038	0.038	0.202	
Feb-11	30	390	1.137	1.137	1.137	0.884	0.006	0.038	0.038	0.038	0.038	0.038	4.491	
Mar-11	60	450	1.137	1.137	1.137	0.884	0.706	0.721	0.721	0.721	0.721	0.721	8.606	
Apr-11	00	430	1.137	1.137	1.137	0.884	0.706	0.721	0.721	0.721	0.721	0.721	8.606	
May-11			0.006	-	-	0.184	0.706	0.721	0.721	0.721	0.721	0.721	4.501	
Jun-11	90	540	0.006	-	-	0.184	0.706	0.721	0.721	0.721	0.721	0.721	4.501	
Jul-11	010	0.006	-	-	0.184	0.706	0.721	0.721	0.721	0.721	0.721	4.501		
Aug-11	30	570	0.006	-	-	0.184	-	0.038	0.038	0.038	0.038	0.038	0.380	
Sep-11	30	600	0.280	0.280	0.280	0.184	-	0.168	0.168	0.168	0.168	0.168	1.864	
Aquifer			Precipice Sandstone	Precipice Sandstone	Precipice Sandstone	Precipice Sandstone	Precipice Sandstone	Precipice Sandstone	Precipice Sandstone	Precipice Sandstone	Precipice Sandstone	Precipice Sandstone		









Appendix B

Groundwater Model Results (1,800 ML)

"This page has been left blank intentionally"

Table B1: Summary of Model Results (1,800 ML)

Chainage	Sub Group	No. Extraction Bores	Extraction Durarion (days)	Extraction Rate (ML/day)	Distance to 5-meter Drawdown (km)	Proposed Extraction Aquifer		
0 0 km		1	150	1.109	0.144	Hutton Sandstone		
0 - 9 KIII	-	I	30	0.210	N/A	Hutton Sandstone		
			330	0.029				
		2	60	1.625	0.027	Hutton Sandstone		
0 10 km			30	1.653				
5 - 15 KIII	-	1	60	0.813	0.022	Precipice Sandstone		
		I	30	0.826	0.022			
		1	30	0.279	N/A	Hutton Sandstone		
		1	120	0.838	0.033	Hutton Sandstone		
	10 - 30 km	I	150	0.532	N/A	Thatton Sandstone		
	19 - 30 Kill	1	120	0.838	0.033	Precipice Sandstone		
		I	150	0.532	N/A	Frecipice Sandstone		
	30 - 41 km	1	90	0.575	0.003	Hutton Sandstone		
			120	0.096				
19 - 63 km	41 - 53 km	1	120	0.108	N/A	Precipice Sandstone		
	41 - 33 Kill	1	120	0.258				
			450	0.096 N/A		Precipice Sandstone		
			120	1.526	0.411	Hutton Sandstone		
	52 63 km	1	30	0.150	0.002	Hutton Sandstone		
	52 - 05 KIII	1	60	0.725	0.002	nution Sandstone		
			90	0.150	N/A	Hutton Sandstone		
			365	0.003	0.406	Precinice Sandstone		
	63 - 70 km	1	90	1.710	0.490	Frecipice Sandstone		
	00 - 70 Kill	I	120	0.003	NI/A	Precipice Sandstone		
			30	0.210	IN/A			
	70 - 77 km	1	90	0.442	<0.001	Precipice Sandstone		
63 - 90 km	70-77 Kiii	I	150	0.092	N/A	Precipice Sandstone		
00 - 90 KIII	77 - 83 km	1	390	0.003	<0.001	Precipice Sandstone		
	77 - 03 Kill	I	150	0.353	VO.001			
		2	390	0.096	0.041	Precipice Sandstone		
	$83 - 90 \ \text{km}$	2	150	1.802	0.041	Frecipice Sandstone		
	00 - 90 KIII	1	30	0.096	N/A	Precipice Sandstone		
		I	30	0.210		Frecipice Sanuslone		

Notes:

© The State of Queensland (Department of Environment and Resource Management) 2009

N/A = Not applicable as the drawdown in extraction bore is less than 5 meters or extraction rate decreased

Table B2: Distance Between Bores (0 - 9 km chainage in Hutton Sandstone)

	13856	22117	58409	58232
13856	0	9.838	13.497	4.911
22117	9.838	0	12.535	14.696
58409	13.497	12.535	0	16.940
58232	4.911	14.696	16.940	0

Notes:

© The State of Queensland (Department of Environment and Resource Management) 2009 RN 58232 is located within the 9 - 19.28 km chainage group

Table B3: Distance Between Bores (0 - 9 km chainage in Precipice Sandstone)

	15793	16752	58700
15793	0	4.854	0.714
16752	4.854	0	4.922
58700	0.714	4.922	0

Notes:

© The State of Queensland (Department of Environment and Resource Management) 2009 RN 16752 is located within the 9 - 19.28 km chainage group

Table B4: Distance Between Bores (9 - 19.28 km chainage in Hutton Sandstone)

	13856	16312	58232
13856	0	9.458	4.911
16312	9.458	0	4.601
58232	4.911	4.601	0

Notes:

© The State of Queensland (Department of Environment and Resource Management) 2009 RN 13856 is located within the 0 - 9 km chainage group

Table B5: Distance Between Bores (19.28 - 63 km chainage in Hutton Sandstone)

	12221	13060	14350	14538	14593	14697	14872	15487	15709	15710	15862	16312	16661	17247	17248	23147	38337	43687	48911	48949	58443	58608	58834	58897
12221	0	10.621	13.417	6.724	2.613	11.061	16.629	5.284	20.975	21.986	11.755	14.285	8.007	17.753	18.609	6.729	5.684	24.204	9.823	8.713	8.215	6.904	2.684	10.045
13060	10.621	0	23.353	15.096	11.101	21.434	27.028	8.940	31.526	32.208	22.299	9.019	7.129	28.359	29.020	14.882	13.235	34.592	19.434	18.863	18.560	16.836	12.715	20.658
14350	13.417	23.353	0	14.830	12.264	3.211	4.589	18.200	9.465	8.936	4.290	27.564	21.263	7.708	6.357	15.145	15.721	11.554	3.984	10.747	5.396	11.696	10.853	5.975
14538	6.724	15.096	14.830	0	9.028	11.693	16.327	6.315	19.570	21.829	11.395	14.717	9.239	16.048	18.074	0.349	1.909	23.398	12.552	5.042	9.719	3.267	7.810	9.298
14593	2.613	11.101	12.264	9.028	0	10.412	15.983	7.674	20.602	21.108	11.444	16.174	10.049	17.604	17.975	9.086	8.208	23.522	8.389	9.981	7.562	8.494	1.954	10.076
14697	11.061	21.434	3.211	11.693	10.412	0	5.595	15.492	10.216	10.936	1.707	24.898	18.634	7.465	7.587	12.016	12.691	13.169	3.632	7.540	2.875	8.517	8.720	2.806
14872	16.629	27.028	4.589	16.327	15.983	5.595	0	20.848	4.902	5.532	5.056	30.238	24.034	3.546	1.993	16.671	17.630	7.578	8.270	11.490	8.470	13.061	14.315	7.111
15487	5.284	8.940	18.200	6.315	7.674	15.492	20.848	0	24.756	26.349	15.802	9.407	3.212	21.328	22.765	6.059	4.408	28.310	14.876	10.751	12.820	8.679	7.914	13.822
15709	20.975	31.526	9.465	19.570	20.602	10.216	4.902	24.756	0	4.273	9.228	34.022	27.968	3.529	3.194	19.918	21.115	4.083	13.156	14.531	13.040	16.408	18.839	11.002
15710	21.986	32.208	8.936	21.829	21.108	10.936	5.532	26.349	4.273	0	10.582	35.748	29.523	6.769	3.789	22.174	23.158	2.924	12.919	16.929	13.772	18.568	19.562	12.642
15862	11.755	22.299	4.290	11.395	11.444	1.707	5.056	15.802	9.228	10.582	0	25.184	18.994	6.168	6.965	11.733	12.611	12.533	5.325	6.799	3.955	8.134	9.633	2.098
16312	14.285	9.019	27.564	14.717	16.174	24.898	30.238	9.407	34.022	35.748	25.184	0	6.304	30.547	32.139	14.382	12.984	37.659	24.100	19.670	22.204	17.674	16.964	23.176
16661	8.007	7.129	21.263	9.239	10.049	18.634	24.034	3.212	27.968	29.523	18.994	6.304	0	24.539	25.959	8.944	7.353	31.512	17.806	13.898	15.914	11.837	10.691	17.027
17247	17.753	28.359	7.708	16.048	17.604	7.465	3.546	21.328	3.529	6.769	6.168	30.547	24.539	0	3.434	16.397	17.614	7.508	10.827	11.008	10.114	12.904	15.766	7.710
17248	18.609	29.020	6.357	18.074	17.975	7.587	1.993	22.765	3.194	3.789	6.965	32.139	25.959	3.434	0	18.421	19.445	5.595	10.179	13.149	10.462	14.821	16.307	8.970
23147	6.729	14.882	15.145	0.349	9.086	12.016	16.671	6.059	19.918	22.174	11.733	14.382	8.944	16.397	18.421	0	1.655	23.746	12.823	5.390	10.009	3.610	7.929	9.636
38337	5.684	13.235	15.721	1.909	8.208	12.691	17.630	4.408	21.115	23.158	12.611	12.984	7.353	17.614	19.445	1.655	0	24.862	13.047	6.687	10.418	4.710	7.357	10.525
43687	24.204	34.592	11.554	23.398	23.522	13.169	7.578	28.310	4.083	2.924	12.533	37.659	31.512	7.508	5.595	23.746	24.862	0	15.516	18.387	16.044	20.183	21.886	14.490
48911	9.823	19.434	3.984	12.552	8.389	3.632	8.270	14.876	13.156	12.919	5.325	24.100	17.806	10.827	10.179	12.823	13.047	15.516	0	9.547	3.025	9.797	7.165	5.664
48949	8.713	18.863	10.747	5.042	9.981	7.540	11.490	10.751	14.531	16.929	6.799	19.670	13.898	11.008	13.149	5.390	6.687	18.387	9.547	0	6.530	2.076	8.123	4.803
58443	8.215	18.560	5.396	9.719	7.562	2.875	8.470	12.820	13.040	13.772	3.955	22.204	15.914	10.114	10.462	10.009	10.418	16.044	3.025	6.530	0	6.823	5.845	3.212
58608	6.904	16.836	11.696	3.267	8.494	8.517	13.061	8.679	16.408	18.568	8.134	17.674	11.837	12.904	14.821	3.610	4.710	20.183	9.797	2.076	6.823	0	6.777	6.040
58834	2.684	12.715	10.853	7.810	1.954	8.720	14.315	7.914	18.839	19.562	9.633	16.964	10.691	15.766	16.307	7.929	7.357	21.886	7.165	8.123	5.845	6.777	0	8.171
58897	10.045	20.658	5.975	9.298	10.076	2.806	7.111	13.822	11.002	12.642	2.098	23.176	17.027	7.710	8.970	9.636	10.525	14.490	5.664	4.803	3.212	6.040	8.171	0

Notes:

 Notes:
 © The State of Queensland (Department of Environment and Resource Management) 2009

 Bold denotes bores are close enough to exceed drawdown threshold

 RN 16312 is located within the 9 - 19.28 km chainage group

 It is not known which aquifer RN 23147 and RN 58897 are screened in, so included in Table A5 and Table A6
Table B6: Distance Between Bores (19.28 - 63 km chainage in Precipice Sandstone)

	12627	13180	13881	13882	15417	16028	16065	16686	17945	18207	23147	30421	37507	38658	44404	48816	48911	57701	58897	58907	62077	67229	67232	89599	123105	123167
12627	0	24.109	32.232	30.337	39.345	22.325	16.926	33.362	23.003	37.515	10.853	37.393	26.889	36.853	27.666	29.345	15.538	40.339	16.368	13.246	35.510	36.786	43.678	35.571	17.850	16.494
13180	24.109	0	9.696	7.164	17.898	2.189	9.904	17.145	4.092	13.827	14.272	14.257	4.427	13.289	9.616	5.338	14.689	16.634	9.446	16.292	11.980	13.273	19.828	13.695	11.080	9.231
13881	32.232	9.696	0	2.649	8.223	11.878	19.586	10.651	9.250	5.929	23.432	5.197	10.937	5.117	6.551	7.600	19.301	8.527	15.978	21.593	3.934	4.973	11.951	4.026	15.614	18.834
13882	30.337	7.164	2.649	0	10.847	9.353	17.067	12.500	7.397	7.205	21.164	7.194	8.333	6.519	6.810	5.160	18.232	10.015	14.323	20.392	5.176	6.449	13.394	6.664	14.445	16.372
15417	39.345	17.898	8.223	10.847	0	20.070	27.757	9.624	16.865	7.641	31.274	5.477	18.923	7.273	11.759	15.366	25.080	7.593	22.992	27.537	7.746	7.088	9.622	4.204	21.804	26.950
16028	22.325	2.189	11.878	9.353	20.070	0	7.716	18.887	5.070	15.942	12.233	16.431	4.975	15.427	11.277	7.032	14.173	18.734	8.628	15.501	14.128	15.418	21.881	15.868	10.826	7.058
16065	16.926	9.904	19.586	17.067	27.757	7.716	0	25.639	11.609	23.482	6.075	24.106	10.867	23.020	18.104	14.095	15.124	26.225	10.053	15.234	21.749	23.026	29.241	23.561	13.306	1.354
16686	33.362	17.145	10.651	12.500	9.624	18.887	25.639	0	14.101	14.719	27.370	12.678	20.193	13.967	7.622	17.564	18.005	16.085	17.900	20.463	13.468	13.748	18.843	9.133	15.606	24.502
17945	23.003	4.092	9.250	7.397	16.865	5.070	11.609	14.101	0	14.601	14.415	14.391	8.451	13.902	6.508	8.300	11.390	17.405	6.945	13.323	12.563	13.821	20.790	12.824	7.604	10.555
18207	37.515	13.827	5.929	7.205	7.641	15.942	23.482	14.719	14.601	0	28.086	2.246	13.218	0.835	12.410	9.593	25.169	2.829	21.517	27.419	2.061	1.026	6.190	5.600	21.440	22.976
23147	10.853	14.272	23.432	21.164	31.274	12.233	6.075	27.370	14.415	28.086	0	28.358	16.370	27.521	20.367	19.195	12.823	30.901	9.636	11.967	26.194	27.491	34.097	27.192	12.611	5.710
30421	37.393	14.257	5.197	7.194	5.477	16.431	24.106	12.678	14.391	2.246	28.358	0	14.317	1.796	11.235	10.663	24.399	3.656	21.172	26.727	2.540	1.618	6.962	3.564	20.758	23.487
37507	26.889	4.427	10.937	8.333	18.923	4.975	10.867	20.193	8.451	13.218	16.370	14.317	0	12.917	13.072	3.657	18.971	15.799	13.536	20.422	11.795	12.975	18.597	14.849	15.446	10.732
38658	36.853	13.289	5.117	6.519	7.273	15.427	23.020	13.967	13.902	0.835	27.521	1.796	12.917	0	11.580	9.268	24.384	3.506	20.800	26.646	1.344	0.221	6.916	4.881	20.665	22.478
44404	27.666	9.616	6.551	6.810	11.759	11.277	18.104	7.622	6.508	12.410	20.367	11.235	13.072	11.580	0	11.075	13.428	14.825	11.408	15.852	10.472	11.413	18.194	8.405	10.048	17.013
48816	29.345	5.338	7.600	5.160	15.366	7.032	14.095	17.564	8.300	9.593	19.195	10.663	3.657	9.268	11.075	0	19.627	12.230	14.658	21.411	8.138	9.322	15.152	11.370	15.878	13.755
48911	15.538	14.689	19.301	18.232	25.080	14.173	15.124	18.005	11.390	25.169	12.823	24.399	18.971	24.384	13.428	19.627	0	27.828	5.664	2.484	23.115	24.256	31.252	21.820	3.811	13.800
57701	40.339	16.634	8.527	10.015	7.593	18.734	26.225	16.085	17.405	2.829	30.901	3.656	15.799	3.506	14.825	12.230	27.828	0	24.305	30.112	4.842	3.602	3.426	7.121	24.131	25.752
58897	16.368	9.446	15.978	14.323	22.992	8.628	10.053	17.900	6.945	21.517	9.636	21.172	13.536	20.800	11.408	14.658	5.664	24.305	0	6.886	19.468	20.709	27.706	19.207	3.274	8.699
58907	13.246	16.292	21.593	20.392	27.537	15.501	15.234	20.463	13.323	27.419	11.967	26.727	20.422	26.646	15.852	21.411	2.484	30.112	6.886	0	25.359	26.525	33.538	24.225	5.981	13.977
62077	35.510	11.980	3.934	5.176	7.746	14.128	21.749	13.468	12.563	2.061	26.194	2.540	11.795	1.344	10.472	8.138	23.115	4.842	19.468	25.359	0	1.297	8.239	4.645	19.381	21.184
67229	36.786	13.273	4.973	6.449	7.088	15.418	23.026	13.748	13.821	1.026	27.491	1.618	12.975	0.221	11.413	9.322	24.256	3.602	20.709	26.525	1.297	0	7.023	4.660	20.544	22.472
67232	43.678	19.828	11.951	13.394	9.622	21.881	29.241	18.843	20.790	6.190	34.097	6.962	18.597	6.916	18.194	15.152	31.252	3.426	27.706	33.538	8.239	7.023	0	10.222	27.557	28.840
89599	35.5/1	13.695	4.026	0.064	4.204	15.868	23.561	9.133	12.824	5.600	27.192	3.564	14.849	4.881	8.405	11.370	21.820	7.121	19.207	24.225	4.645	4.060	10.222	0	18.340	22.769
123105	17.850	11.080	15.614	14.445	21.804	10.826	13.306	15.606	7.604	21.440	12.611	20.758	15.446	20.665	10.048	15.878	3.811	24.131	3.274	5.981	19.381	20.544	27.557	18.340	U 44.050	11.953
123167	16.494	9.231	18.834	16.372	26.950	7.058	1.354	24.502	10.555	22.976	5.710	23.487	10.732	22.478	17.013	13.755	13.800	25.752	8.699	13.977	21.184	22.472	28.840	22.769	11.953	Ű

Notes:

© The State of Queensland (Department of Environment and Resource Management) 2009 RN 15417 is located within the 63 - 90 km chainage group RN 16686 is located within the 63 - 90 km chainage group It is not known which aquifer RN 23147 and RN 58897 are screened in, so included in Table A5 and Table A6

Table B7: Distance Between Bores (63 - 90 km chainage in Precipice Sandstone)

	10594	11104	14582	14583	14584	15417	16270	16686	17849	18173	18195	30318	30506	30507	31409	36120	47325	57615	57781	62877	67232	67280	67281	67410	67624	67625	84032	89504	89510	89540	89572	89724	89763	89764	89775	89853	89854	89855
10594	0	14.827	4.375	6.833	7.530	14.339	5.519	15.618	12.422	11.139	10.267	2.800	4.786	5.639	1.650	13.155	8.281	6.169	2.051	10.358	21.351	8.739	6.558	2.645	8.770	6.339	10.824	8.535	8.625	6.941	13.982	7.028	6.890	8.398	6.041	2.835	2.645	5.295
11104	14.827	0	17.966	20.242	20.085	16.538	9.333	8.399	11.284	8.026	15.031	16.758	18.682	17.534	16.337	2.298	12.965	18.862	15.489	16.795	26.158	16.779	16.419	12.638	22.073	8.660	10.544	17.765	18.168	20.272	23.200	21.723	20.387	19.727	20.731	17.412	12.239	18.870
14582	4.375	17.966	0	2.500	3.205	12.816	9.135	16.819	12.605	12.523	8.869	5.588	6.557	8.707	4.253	16.005	7.901	8.565	2.664	8.160	18.188	12.513	10.229	5.458	4.457	9.334	11.312	5.555	5.446	2.592	10.101	4.352	2.587	4.399	5.718	2.097	6.643	0.962
14583	6.833	20.242	2.500	0	1.469	13.125	11.588	18.409	13.864	14.296	9.518	7.618	8.105	10.571	6.462	18.211	9.200	10.163	5.156	8.342	17.127	14.568	12.284	7.895	1.958	11.676	12.768	5.467	5.179	0.161	8.546	3.770	0.199	3.240	6.431	4.244	9.142	1.545
14584	7.530	20.085	3.205	1.469	0	11.839	11.805	17.658	12.959	13.706	8.396	8.711	9.396	11.760	7.437	17.978	8.398	11.451	5.638	7.072	15.669	15.667	13.379	8.131	2.156	11.680	11.987	4.195	3.861	1.318	7.158	5.222	1.628	1.784	7.869	5.232	9.596	2.441
15417	14.339	16.538	12.816	13.125	11.839	0	13.811	9.624	5.257	8.608	4.091	17.013	18.715	19.977	15.569	14.318	6.265	20.423	12.738	4.784	9.622	22.596	20.652	12.360	13.724	12.325	6.221	7.661	7.978	13.014	9.268	16.764	13.320	10.188	18.509	14.347	14.116	12.969
16270	5.519	9.333	9.135	11.588	11.805	13.811	0	11.630	10.039	7.464	10.345	7.499	9.496	8.864	7.003	7.802	7.768	10.026	6.495	11.379	22.520	9.703	8.399	3.696	13.527	1.699	8.376	10.901	11.189	11.653	16.811	12.507	11.700	12.001	11.405	8.214	2.906	10.090
16686	15.618	8.399	16.819	18.409	17.658	9.624	11.630	0	5.031	4.480	10.017	18.297	20.353	20.332	17.258	6.772	9.261	21.343	15.154	11.908	18.843	21.240	20.028	12.974	19.814	10.009	5.672	14.034	14.472	18.370	18.136	21.153	18.597	16.601	21.460	17.276	13.791	17.475
17849	12.422	11.284	12.605	13.864	12.959	5.257	10.039	5.031	0	3.464	4.997	15.220	17.187	17.762	13.958	9.079	4.712	18.532	11.441	6.880	14.874	19.579	17.943	9.920	15.099	8.367	1.685	9.124	9.556	13.805	13.134	16.946	14.059	11.753	17.779	13.466	11.278	13.126
18173	11.139	8.026	12.523	14.296	13.706	8.608	7.464	4.480	3.464	0	7.150	13.829	15.881	15.952	12.778	5.755	5.519	16.918	10.717	9.004	18.218	17.167	15.786	8.495	15.848	5.777	2.521	10.515	10.948	14.276	15.464	16.816	14.477	12.880	16.994	12.845	9.380	13.240
18195	10.267	15.031	8.869	9.518	8.396	4.091	10.345	10.017	4.997	7.150	0	12.924	14.626	15.907	11.478	12.733	2.586	16.333	8.647	1.908	12.198	18.650	16.648	8.408	10.460	9.061	4.717	4.294	4.705	9.429	8.334	12.989	9.717	6.973	14.508	10.294	10.229	9.131
30318	2.800	16.758	5.588	7.618	8.711	17.013	7.499	18.297	15.220	13.829	12.924	0	2.062	3.166	1.482	15.300	11.046	3.412	4.319	12.832	23.549	6.960	4.672	5.369	9.351	8.671	13.616	10.701	10.707	7.762	15.683	6.310	7.601	9.980	4.107	3.495	4.692	6.271
30506	4.786	18.682	6.557	8.105	9.396	18.715	9.496	20.353	17.187	15.881	14.626	2.062	0	2.736	3.238	17.293	12.899	2.058	5.988	14.357	24.743	6.889	4.764	7.403	9.577	10.719	15.604	12.008	11.951	8.262	16.537	5.810	8.038	10.886	2.808	4.557	6.737	7.013
30507	5.639	17.534	8.707	10.571	11.760	19.977	8.864	20.332	17.762	15.952	15.907	3.166	2.736	0	4.633	16.426	13.871	1.422	7.420	15.930	26.713	4.156	2.066	7.865	12.168	10.361	16.106	13.861	13.872	10.722	18.807	8.541	10.528	13.106	5.495	6.611	6.581	9.324
31409	1.650	16.337	4.253	6.462	7.437	15.569	7.003	17.258	13.958	12.778	11.478	1.482	3.238	4.633	0	14.728	9.671	4.860	2.847	11.354	22.082	8.268	5.990	4.289	8.295	7.945	12.386	9.229	9.244	6.595	14.301	5.831	6.471	8.607	4.430	2.223	4.098	5.024
36120	13.155	2.298	16.005	18.211	17.978	14.318	7.802	6.772	9.079	5.755	12.733	15.300	17.293	16.426	14.728	0	10.684	17.687	13.615	14.499	23.940	16.197	15.538	10.808	20.003	6.841	8.265	15.520	15.928	18.232	20.911	19.905	18.363	17.544	19.155	15.611	10.658	16.884
47325	8.281	12.965	7.901	9.200	8.398	6.265	7.768	9.261	4.712	5.519	2.586	11.046	12.899	13.871	9.671	10.684	0	14.445	6.966	3.950	14.783	16.337	14.424	6.120	10.553	6.479	3.589	4.997	5.429	9.151	10.242	12.236	9.393	7.405	13.206	8.888	7.851	8.414
57615	6.169	18.862	8.565	10.163	11.451	20.423	10.026	21.343	18.532	16.918	16.333	3.412	2.058	1.422	4.860	17.687	14.445	0	7.706	16.192	26.732	5.172	3.353	8.617	11.613	11.449	16.902	13.944	13.910	10.320	18.585	7.712	10.095	12.921	4.491	6.519	7.552	9.058
57781	2.051	15.489	2.664	5.156	5.638	12.738	6.495	15.154	11.441	10.717	8.647	4.319	5.988	7.420	2.847	13.615	6.966	7.706	0	8.517	19.370	10.755	8.540	2.865	7.113	6.829	9.952	6.524	6.594	5.239	11.932	6.308	5.250	6.375	6.360	2.129	3.993	3.626
62877	10.358	16.795	8.160	8.342	7.072	4.784	11.379	11.908	6.880	9.004	1.908	12.832	14.357	15.930	11.354	14.499	3.950	16.192	8.517	0	11.249	18.999	16.891	8.910	9.019	10.276	6.609	2.881	3.218	8.231	6.461	11.992	8.536	5.475	13.878	9.858	10.796	8.232
67232	21.351	26.158	18.188	17.127	15.669	9.622	22.520	18.843	14.874	18.218	12.198	23.549	24.743	26.713	22.082	23.940	14.783	26.732	19.370	11.249	0	30.084	27.903	20.144	16.555	21.258	15.779	12.858	12.843	16.970	8.877	20.766	17.267	13.976	23.530	20.213	22.035	17.830
67280	8.739	16.779	12.513	14.568	15.667	22.596	9.703	21.240	19.579	17.167	18.650	6.960	6.889	4.156	8.268	16.197	16.337	5.172	10.755	18.999	30.084	0	2.288	10.246	16.244	11.396	17.894	17.272	17.348	14.714	22.561	12.697	14.542	16.874	9.605	10.438	8.493	13.229
67281	6.558	16.419	10.229	12.284	13.379	20.652	8.399	20.028	17.943	15.786	16.648	4.672	4.764	2.066	5.990	15.538	14.424	3.353	8.540	16.891	27.903	2.288	0	8.304	13.975	10.034	16.262	15.065	15.126	12.429	20.290	10.528	12.260	14.597	7.550	8.151	6.685	10.941
67410	2.645	12.638	5.458	7.895	8.131	12.360	3.696	12.974	9.920	8.495	8.408	5.369	7.403	7.865	4.289	10.808	6.120	8.617	2.865	8.910	20.144	10.246	8.304	0	9.831	3.984	8.285	7.752	7.968	7.958	13.591	9.101	8.009	8.457	8.609	4.803	1.893	6.407
67624	8.770	22.073	4.457	1.958	2.156	13.724	13.527	19.814	15.099	15.848	10.460	9.351	9.577	12.168	8.295	20.003	10.553	11.613	7.113	9.019	16.555	16.244	13.975	9.831	0	13.561	14.143	6.190	5.811	1.877	7.724	4.350	1.882	3.545	7.509	6.105	11.100	3.500
67625	6.339	8.660	9.334	11.676	11.680	12.325	1.699	10.009	8.367	5.777	9.061	8.671	10.719	10.361	7.945	6.841	6.479	11.449	6.829	10.276	21.258	11.396	10.034	3.984	13.561	0	6.717	10.182	10.515	11.719	16.048	13.084	11.810	11.621	12.371	8.779	3.983	10.255
84032	10.824	10.544	11.312	12.768	11.987	6.221	8.376	5.672	1.685	2.521	4.717	13.616	15.604	16.106	12.386	8.265	3.589	16.902	9.952	6.609	15.779	17.894	16.262	8.285	14.143	6.717	0	8.426	8.865	12.724	13.051	15.664	12.959	10.947	16.311	12.019	9.603	11.904
89504	8.535	17.765	5.555	5.467	4.195	7.661	10.901	14.034	9.124	10.515	4.294	10.701	12.008	13.861	9.229	15.520	4.997	13.944	6.524	2.881	12.858	17.272	15.065	7.752	6.190	10.182	8.426	0	0.439	5.354	5.910	9.153	5.661	2.679	11.228	7.451	9.607	5.478
89510	8.625	18.168	5.446	5.179	3.861	7.978	11.189	14.472	9.556	10.948	4.705	10.707	11.951	13.872	9.244	15.928	5.429	13.910	6.594	3.218	12.843	17.348	15.126	7.968	5.811	10.515	8.865	0.439	0	5.059	5.638	8.900	5.370	2.280	11.073	7.398	9.805	5.296
89540	6.941	20.272	2.592	0.161	1.318	13.014	11.653	18.370	13.805	14.276	9.429	7.762	8.262	10.722	6.595	18.232	9.151	10.320	5.239	8.231	16.970	14.714	12.429	7.958	1.877	11.719	12.724	5.354	5.059	0	8.385	3.911	0.315	3.095	6.590	4.375	9.229	1.646
89572	13.982	23.200	10.101	8.546	7.158	9.268	16.811	18.136	13.134	15.464	8.334	15.683	16.537	18.807	14.301	20.911	10.242	18.585	11.932	6.461	8.877	22.561	20.290	13.591	7.724	16.048	13.051	5.910	5.638	8.385	0	12.016	8.658	5.703	14.965	12.198	15.403	9.528
89724	7.028	21.723	4.352	3.770	5.222	16.764	12.507	21.153	16.946	16.816	12.989	6.310	5.810	8.541	5.831	19.905	12.236	7.712	6.308	11.992	20.766	12.697	10.528	9.101	4.350	13.084	15.664	9.153	8.900	3.911	12.016	0	3.597	7.005	3.307	4.312	9.671	3.869
89763	6.890	20.387	2.587	0.199	1.628	13.320	11.700	18.597	14.059	14.477	9.717	7.601	8.038	10.528	6.471	18.363	9.393	10.095	5.250	8.536	17.267	14.542	12.260	8.009	1.882	11.810	12.959	5.661	5.370	0.315	8.658	3.597	0	3.408	6.309	4.260	9.228	1.626
89764	8.398	19.727	4.399	3.240	1.784	10.188	12.001	16.601	11.753	12.880	6.973	9.980	10.886	13.106	8.607	17.544	7.405	12.921	6.375	5.475	13.976	16.874	14.597	8.457	3.545	11.621	10.947	2.679	2.280	3.095	5.703	7.005	3.408	0	9.560	6.495	10.123	3.883
89775	6.041	20.731	5.718	6.431	7.869	18.509	11.405	21.460	17.779	16.994	14.508	4.107	2.808	5.495	4.430	19.155	13.206	4.491	6.360	13.878	23.530	9.605	7.550	8.609	7.509	12.371	16.311	11.228	11.073	6.590	14.965	3.307	6.309	9.560	0	4.320	8.508	5.787
89853	2.835	17.412	2.097	4.244	5.232	14.347	8.214	17.276	13.466	12.845	10.294	3.495	4.557	6.611	2.223	15.611	8.888	6.519	2.129	9.858	20.213	10.438	8.151	4.803	6.105	8.779	12.019	7.451	7.398	4.375	12.198	4.312	4.260	6.495	4.320	0	5.429	2.805
89854	2.645	12.239	6.643	9.142	9.596	14.116	2.906	13.791	11.278	9.380	10.229	4.692	6.737	6.581	4.098	10.658	7.851	7.552	3.993	10.796	22.035	8.493	6.685	1.893	11.100	3.983	9.603	9.607	9.805	9.229	15.403	9.671	9.228	10.123	8.508	5.429	0	7.603
89855	5.295	18.870	0.962	1.545	2.441	12.969	10.090	17.475	13.126	13.240	9.131	6.271	7.013	9.324	5.024	16.884	8.414	9.058	3.626	8.232	17.830	13.229	10.941	6.407	3.500	10.255	11.904	5.478	5.296	1.646	9.528	3.869	1.626	3.883	5.787	2.805	7.603	0

Notes: © The State of Queensland (Department of Environment and Resource Management) 2009 Bold denotes bores are close enough to exceed drawdown threshold RN 67232 is located within the 19.28 - 63 km chainage group

Chain 0 - 9 km

Coord lat long	RN 13856 -26.100090 149.954160		
s	Drawdown	m	
Q	Extraction rate	1290 m ³ /d	
W(u)			
Т	Transmissivity	150 m²/d	
r	Distance from bore to spring	m	
S	Storage coeff	0.0005	
t	time	150 d	(June 2011 - October 2011)

Thies Eq	uation					Distance Calc	ulation										
Well	Aquifer	r (m)	u	Wu s		RN (BIS_LAT	GIS_LNG	Extract Lat RAD	Obs Lat RAD	Extract Long RAD	Obs Long RAD	COS a	Angle	Dist (m)	Dist (ki	m)
835	6 FORMATION NAME NOT SPECIFIED	0	0	0	0.00	8356	-25.717864	149.864995	-0.455533	-0.448861	2.6171938	3 2.6156376	0.999976769	0.3905499	43427.163	3	43.4
835	0 PRECIPICE SANDSTONE	35614.61237	7.04667008	0.000125226	0.00	8357 8440	-25.864604	149.889717	-0.455533 5 -0.455533	-0.450035	2.6171938	3 2.6215227	0.999984375	0.3202899	35614.612	2 1	35.6 36.1
844	5 EVERGREEN FORMATION	0	10 62099176	0	0.00	8445	-25.650364	150.070267	-0.455533	-0.447683	3 2.6171938	3 2.6192203	0.999967533	0.4616998	51338.676	6	51.3
1046	3 HUTTON SANDSTONE	13210.97374	0.969610151	0.230927971	0.00	10463	-26.051199	150.074714	-0.455533	-0.448672	2.6171938	3 2.6192979	0.99999785	0.3935679	13210.974	1	43.8
1047	5 HUTTON SANDSTONE 8 HUTTON SANDSTONE	72984.94868	29.59334852	-8314921126	0.00	10475 10578	-25.447306	149.878079	0.455533	-0.444139	2.6171938	3 2.615866	0.999934383	0.6563694	72984.949	9	73.0
1057	3 PRECIPICE SANDSTONE	04407.30121	23.10303002	-4317340.073	0.00	10583	-25.370832	149.936375	-0.455533	-0.442805	5 2.6171938	3 2.6168834	0.999918962	0.729434	81109.355	5	81.1
1058	4 HUTTON SANDSTONE	85279.95164	40.40372306	-1.10073E+14	0.00	10584	-25.359943	149.731090	0.455533	-0.442615	5 2.6171938	3 2.6133005	0.999910414	0.766941	85279.952	2	85.3
1059	4 PRECIPICE SANDSTONE	0	0	0	0.00	10594	-25.536493	150.162492	-0.455533	-0.445696	2.6171938	3 2.6208299	0.999946264	0.5939789	66047.44	1	66.0
1069	0 HUTTON SANDSTONE 5 PRECIPICE SANDSTONE	24646.43473	3.374704139	0.008159045	0.01	10690 10875	-25.879253	149.933050) -0.455533	-0.451678	3 2.6171938 3 2.6171938	3 2.6168254	0.999992517	0.2216507	24646.435	5	24.6
1087	6 PRECIPICE SANDSTONE	0	0	0	0.00	10876	-25.505448	150.107771	-0.455533	-0.445154	2.6171938	3 2.6198748	0.999943231	0.6105117	67885.8	3	67.9
1088 1091	6 HUTTON SANDSTONE 8 EVERGREEN FORMATION	13151.63802 0	0.960919904	0.234357097	0.16 0.00	10886 10918	-26.134255 -25.434251	150.080270 149.884711	0.455533	-0.456129 -0.443911	2.6171938	3 2.6193949 3 2.6159817	0.999997869	0.1182755	13151.638 74363.821	3 1	13.2 74.4
1092	9 HUTTON SANDSTONE	84267.48273	39.45004804	-5.31929E+13	0.00	10929	-25.343720	149.901868	3 -0.455533	-0.442331	2.6171938	3 2.6162812	0.999912528	0.7578357	84267.483	3	84.3
1093 1098	0 HUTTON SANDSTONE 0 EVERGREEN FORMATION	61810.44876 0	21.22517542 0	-322451.8487 0	0.00	10930 10980	-25.601477 -25.232863	149.681108	3 -0.455533 -0.455533	-0.44683	3 2.6171938 7 2.6171938	3 2.6124282 3 2.6130534	0.999952937	0.5558747	61810.449 99318.906	9	61.8 99.3
1098	1 EVERGREEN FORMATION	0	0	0	0.00	10981	-25.262309	149.689714	-0.455533	-0.44091	2.6171938	3 2.6125784	0.99988445	0.8710187	96852.857	7	96.9
1098 1099	9 PRECIPICE SANDSTONE 0 EVERGREEN FORMATION	0	0	0	0.00 0.00	10989 10990	-25.198973 -25.160640	149.824986	6 -0.455533 6 -0.455533	-0.439805 -0.439136	5 2.6171938 5 2.6171938	3 2.6149393 3 2.6147211	0.999874261	0.9086093	101032.74	1 ·	101.0 105.4
1099	2 EVERGREEN FORMATION	0	0	0	0.00	10992	-25.233418	149.729711	-0.455533	-0.440406	6 2.6171938	3 2.6132764	0.999879367	0.8899692	98960.064	1	99.0
1100 1100	9 HUTTON SANDSTONE 9 HUTTON SANDSTONE	93484.81669 54149.89292	48.55228306 16.29006057	-2.94255E+16 -97.20318814	0.00	11007 11009	-25.308017 -25.656453	149.641340) -0.455533 3 -0.455533	-0.441708 -0.44779	2.6171938 2.6171938	3 2.6117341 3 2.6132978	0.999892346	0.8407292	93484.817 54149.893	3	93.5 54.1
1110		0	0	0	0.00	11104	-25.621055	150.048223	-0.455533	-0.447172	2.6171938	3 2.6188355	0.999963958	0.4864555	54091.384	4	54.1
1114	5 HUTTON SANDSTONE	0 24280.3907	0 3.275207625	0.009236332	0.00	11140	-25.316837 -25.978976	149.563137	-0.455533 -0.455533	-0.441862	2.6171938	3 2.6103692	0.999887658	0.8588417	24280.391	5 1	95.5 24.3
1117		25025.84816	3.479405979	0.007165861	0.00	11176	-25.962310	150.152212	-0.455533	-0.453128	3 2.6171938	3 2.6206505	0.999992285	0.2250629	25025.848	3	25.0
1130	1 EVERGREEN FORMATION	0	0	0	0.00	11501	-25.663705	149.502499	-0.455533 -0.455533	-0.447916	3 2.6171938	3 2.6093108	0.999940195	0.6266249	49037.088 69677.513	3	49.0 69.7
1155		0	0	0	0.00	11558	-25.595376	150.013748	-0.455533	-0.446724	2.6171938	3 2.6182338	0.999960764	0.5075549	56437.532	2	56.4
1156	7 EVERGREEN FORMATION	10006.19135	0.556243697	0.496887259	0.34	11647	-26.028977 -25.534507	149.892774	-0.455533 3 -0.455533	-0.45429	2.6171938	3 2.6096364	0.999998787	0.0899878	76378.541	1	76.4
1164	8 HUTTON SANDSTONE	77022.90293	32.95848653	-2.222E+11	0.00	11648	-25.477866	149.616107	-0.455533	-0.444673	3 2.6171938	3 2.6112937	0.999926922	0.6926836	77022.903	3	77.0
1169	4 HUTTON SANDSTONE	25926.96545	3.734486319	0.005238022	0.00	11692	-26.109532	150.289708	-0.455533	-0.455697	2.6171936	3 2.6230302	0.999991719	0.2331668	25926.965	5	45.6 25.9
1173		23891.75794	3.171200541	0.010522537	0.01	11739	-25.890086	149.903606	0.455533	-0.451867	2.6171938	3 2.6163115	0.9999992968	0.2148637	23891.758	3	23.9
1175	4 HUTTON SANDSTONE	70774.12913	27.82765197	-1271234902	0.00	11764	-25.472585	149.735299	-0.455533 -0.455533	-0.443167	2.6171936	3 2.6151285	0.999938298	0.636487	70774.129	+ 9	70.8
1176	5 HUTTON SANDSTONE	62945.1938	22.01165235	-981668.5747	0.00	11765	-25.567031	149.742495	-0.455533	-0.446229	2.6171938	3 2.6134996	0.999951194	0.5660797	62945.194	4 a	62.9
1185	0 EVERGREEN FORMATION	000000.02000	24.33730733	-23313320.73	0.00	11850	-25.397308	149.754435	-0.455533	-0.443267	2.6171938	3 2.613708	0.999919847	0.7254403	80665.284	4	80.7
1187 1188	8 PRECIPICE SANDSTONE 2 HUTTON SANDSTONE	0 29872 77534	0	0 001222462	0.00	11878 11882	-25.752586	150.218598	-0.455533	-0.449467	2.6171938	3 2.6218091	0.999972993	0.4210927	46823.368	3	46.8 29.9
1189	2 EVERGREEN FORMATION	0	4.337001702	0.001222402	0.00	11892	-25.753975	150.334428	-0.455533	-0.449492	2.6171938	3 2.6238307	0.99996394	0.486575	54104.672	2	54.1
1211 1222	8 EVERGREEN FORMATION	0 23215 13307	0 2 994124464	0 0.013161938	0.00	12118 12221	-25.990643	150.095547	·0.455533	-0.453622	2.6171938	3 2.6196615	0.999995718	0.167675	18644.614	1 2	18.6
1223	6 HUTTON SANDSTONE	79185.38767	34.83514234	-1.20209E+12	0.00	12236	-25.502535	149.523888	-0.455533	-0.445103	2.6171938	3 2.6096842	0.999922761	0.7121313	79185.388	3	79.2
1223 1237	8 EVERGREEN FORMATION 2 HUTTON SANDSTONE	0	0 5 133175969	0	0.00	12238 12372	-25.580955	150.094355	5 -0.455533 -0.455533	-0.446472	2.6171938	3 2.6196407	0.999956528	0.5342486	59405.737 30396 902	7	59.4 30.4
1262	7 PRECIPICE SANDSTONE	0	0.100170000	0.000000001	0.00	12627	-25.941818	149.969996	-0.455533	-0.45277	2.6171938	3 2.6174702	0.999996154	0.1589105	17670.039	9	17.7
1265 1275	1 HUTTON SANDSTONE 3 HUTTON SANDSTONE	74954.36253 55024.06001	31.21198035	-42222948690 -259 528754	0.00	12651 12753	-25.653978 -25.655087	149.392501	-0.455533 -0.455533	-0.447746 -0.447766	3 2.6171938 3 2.6171938	3 2.607391 3 2.6129954	0.999930794	0.6740808	74954.363 55024 0f	3	75.0 55.0
1283	8 HUTTON SANDSTONE	24118.35598	3.231639418	0.009753876	0.01	12838	-25.884809	149.924717	-0.455533	-0.451775	5 2.6171938	3 2.6166799	0.999992834	0.2169016	24118.356	5	24.1
1288 1306	2 HUTTON SANDSTONE 0 HUTTON SANDSTONE	51924.26122 14793.64033	14.97849391 1.215843301	-7.403715924 0.154504594	0.00 0.11	12882 13060	-25.636197 -25.967865	150.013601	-0.455533 -0.455533	-0.447436	5 2.6171938 5 2.6171938	3 2.6182313 3 2.6169078	0.999966788	0.4669661	51924.261 14793.64	1 1	51.9 14.8
1307	3 HUTTON SANDSTONE	48179.76347	12.89605338	-0.07473273	0.00	13073	-25.680721	149.833051	-0.455533	-0.448213	3 2.6171938	3 2.6150801	0.999971406	0.433291	48179.763	3	48.2
1318 1352	0 PRECIPICE SANDSTONE 1 HUTTON SANDSTONE	0 95388.94802	0 50.55028558	0 -1.00229E+17	0.00 0.00	13180 13521	-25.816464 -25.296707	150.166441 149.620323	-0.455533 -0.455533	0.450582 0.441511	2.6171938 2.6171938	3 2.6208988 3 2.6113673	0.999982199	0.3418667 0.8578534	38013.848 95388.948	3	38.0 95.4
1379	1 HUTTON SANDSTONE	52172.45711	15.12202934	-9.920561969	0.00	13791	-25.632388	149.912551	-0.455533	-0.44737	2.6171938	3 2.6164676	0.99996647	0.4691982	52172.457	7	52.2
1385 1388	1 PRECIPICE SANDSTONE	0.300211771	5.00706E-10 0	20.83780171	14.26 0.00	13856 13881	-26.100088 -25.732308	149.954162	2 -0.455533 5 -0.455533	-0.455532 -0.449113	2 2.6171938	3 2.6171939 3 2.6213583	1 0.999972383	2.7E-06 0.4258175	0.3002118	3	0.0 47.3
1388	2 PRECIPICE SANDSTONE	0	0	0	0.00	13882	-25.756197	150.192209	-0.455533	-0.44953	2.6171938	3 2.6213486	0.999975007	0.4050873	45043.65	5	45.0
1394	3 HUTTON SANDSTONE 3 HUTTON SANDSTONE	68014.40861 71005.42404	25.69977654 28.00983468	-111932017.5 -1551533809	0.00	13945 14133	-25.976203 -25.531348	149.287504	-0.455533 3 -0.455533	-0.45337	2.6171938 5 2.6171938	3 2.6055585	0.999943016	0.6116683	71005.424	9 1	68.0 71.0
1417		81696.64612	37.07967771	-8.05856E+12	0.00	14179	-25.457512	149.558555	-0.455533	-0.444317	2.6171938	3 2.6102892	0.999917784	0.7347156	81696.646	6	81.7
1418	4 HUTTON SANDSTONE	81318.83329 81222.52385	36.65054656	-5.65255E+12	0.00	14180	-25.386267	149.567935	-0.455533) -0.455533	-0.444304 -0.443074	2.6171938	3 2.6104529	0.999918542	0.7313178	81222.524	4	81.3
1418	5 HUTTON SANDSTONE	83628.65012	38.85417289	-3.34648E+13	0.00	14185	-25.365085	149.777212	-0.455533	-0.442704	2.6171938	3 2.6141055	0.999913849	0.7520905	83628.65	5	83.6
1418	8 HUTTON SANDSTONE	75628.88821	31.77627073	-72932575045	0.00	14187	-25.419249	149.83616	-0.455533 -0.455533	-0.44363	3 2.6171938	3 2.6152398	0.999927679	0.6890845	75628.888	3	75.6
1418	9 HUTTON SANDSTONE	66032.12756	24.22356595	-18354709.21	0.00	14189	-25.542309	149.727772	-0.455533	-0.445797	2.6171938	3 2.6132426	0.999946289	0.5938412	66032.128	3	66.0
1419	1 HUTTON SANDSTONE	81688.3762	37.07217114	-8.00901E+12	0.00	14190	-25.401368	149.702236	6 -0.455533	-0.443338	3 2.6171938	3 2.6127969	0.9999178	0.7346412	81688.376	5	81.7
1420	4 EVERGREEN FORMATION	0	0	0	0.00	14204	-25.452310	149.593607	·0.455533	-0.444227	2.6171938	3 2.610901	0.999920034	0.7245913	80570.882	2	80.6
1420	6 HUTTON SANDSTONE	78007.24718	33.80628118	-4.82001E+11	0.00	14206	-25.473699	149.603330	-0.455533	-0.4446	2.6171938	3 2.6110707	0.999925042	0.701536	78007.247	7	78.0
1422 1422	8 HUTTON SANDSTONE 9 HUTTON SANDSTONE	76011.66037	32.09873618	-99235683795 -4 97731E+11	0.00	14228 14229	-25.530931	149.533563	3 -0.455533	-0.445599	2.6171938	3 2.609853 3 2.6091959	0.999928828	0.6835893	76011.66	6 1	76.0
1423	1 HUTTON SANDSTONE	78998.97805	34.67132518	-1.04122E+12	0.00	14231	-25.535348	149.475299	-0.455533	-0.445676	2.6171938	3 2.6088361	0.999923124	0.7104549	78998.978	3	79.0
1424 1424	7 HUTTON SANDSTONE 8 HUTTON SANDSTONE	16656.39382 20982 36548	1.541308084	0.09409655	0.06	14247 14248	-26.009810 -25 998421	150.087214	-0.455533	-0.453957	2.6171938	3 2.619516 3 2.620282	0.999996582	0.1497945	16656.394	1 5	16.7 21 0
1424	9 HUTTON SANDSTONE	19517.77399	2.116352786	0.041687841	0.02	14249	-25.987032	150.103602	-0.455533	-0.453559	2.6171938	3 2.6198021	0.999995307	0.1755276	19517.774	4	19.5
1425 1427	0 HUTTON SANDSTONE 0 HUTTON SANDSTONE	16652.75907 74905.2041	1.54063547 31.17105334	0.094190034	0.06 0.00	14250 14270	-26.028421 -25.501898	150.100547 149.610091	-0.455533	-0.454282	2.6171938	3 2.6197488 3 2.6111887	0.999996584	0.1497619	16652.759	ə 1	16.7 74 9
1427	3 HUTTON SANDSTONE	76042.74017	32.12499074	-1.01741E+11	0.00	14273	-25.499255	149.591387	-0.455533	-0.445046	2.6171938	3 2.6108622	0.99992877	0.6838688	76042.74	1	76.0
1427 1427	6 HUTTON SANDSTONE 7 HUTTON SANDSTONE	72218.99467	28.97546217	-4366714262 -2.46999E+11	0.00	14276 14277	-25.529317 -25 491431	149.609893 149.584095	-0.455533	-0.445571	2.6171938	3 2.6111852	0.999935753	0.649481	72218.995	5	72.2 77 ?
1434	4 HUTTON SANDSTONE	62960.72736	22.02251772	-996602.3851	0.00	14344	-25.997036	149.334448	-0.455533	-0.453734	2.6171938	3 2.6063778	0.99995117	0.5662194	62960.727	7	63.0
1435 1435	U HUTTON SANDSTONE 2 HUTTON SANDSTONE	36666.36068 100243.826	7.46901114 55.82680365	8.38179E-05 -2.04508E+18	0.00 0.00	14350 14352	-25.780364 -25.244954	150.043880 149.637462	0 -0.455533 2 -0.455533	-0.449952 -0.440608	2.6171938 2.6171938	3 2.6187597 3 2.6116664	0.999983439 0.999876217	0.3297485 0.9015144	36666.361	1 3	36.7 100.2
1435	8 HUTTON SANDSTONE	75968.65301	32.06242356	-95868214453	0.00	14358	-26.315929	149.231672	-0.455533	-0.4593	2.6171938	3 2.604584	0.999928908	0.6832025	75968.653	3	76.0
1438	B HUTTON SANDSTONE	69030.16969	26.4/313515	-276913095.4	0.00	14388	-25.541096	149.654166	-0.455533	-0.445776	2.6171938	2.6119579	0.999941301	0.6208032	69030.17	r	69.0

14350 HOTTON SANDSTONE	30000.30000	7.40901114	0.301792-03	0.00	14330	-23.700304	130.043880 -0.433333 -0.443332 2.0171336 2.0187337 - 0.333363433 0.3237483 30000.301	30.7
14352 HUTTON SANDSTONE	100243.826	55.82680365	-2.04508E+18	0.00	14352	-25.244954	149.637462 -0.455533 -0.440608 2.6171938 2.6116664 0.999876217 0.9015144 100243.83	100.2
14358 HUTTON SANDSTONE	75968.65301	32.06242356	-95868214453	0.00	14358	-26.315929	149.231672 -0.455533 -0.4593 2.6171938 2.604584 0.999928908 0.6832025 75968.653	76.0
14388 HUTTON SANDSTONE	69030.16969	26.47313515	-276913095.4	0.00	14388	-25.541096	149.654166 -0.455533 -0.445776 2.6171938 2.6119579 0.999941301 0.6208032 69030.17	69.0
14453 HUTTON SANDSTONE	83470.47625	38.70733558	-2.98204E+13	0.00	14453	-25.435750	149.566058 -0.455533 -0.443938 2.6171938 2.6104202 0.999914175 0.750668 83470.476	83.5
14459 HUTTON SANDSTONE	76826.95476	32.79100543	-1.90229E+11	0.00	14459	-25.428697	149.773047 -0.455533 -0.443814 2.6171938 2.6140328 0.999927293 0.6909214 76826.955	76.8
14460 PRECIPICE SANDSTONE	0	0	0	0.00	14460	-25.774531	150.268875 -0.455533 -0.44985 2.6171938 2.6226866 0.999971658 0.4313764 47966.868	48.0
14461 HUTTON SANDSTONE	34806.38869	6.73047052	0.000172277	0.00	14461	-25.787308	149.967771 -0.455533 -0.450073 2.6171938 2.6174314 0.999985076 0.3130214 34806.389	34.8
14461 HUTTON SANDSTONE	34806.38869	6.73047052	0.000172277	0.00	14461	-25.787308	149.967771 -0.455533 -0.450073 2.6171938 2.6174314 0.999985076 0.3130214 34806.389	34.8
14535 HUTTON SANDSTONE	42296.99273	9.939086633	-4.80468E-06	0.00	14535	-25.729253	149.859995 -0.455533 -0.44906 2.6171938 2.6155503 0.999977962 0.380386 42296.993	42.3
14538 HUTTON SANDSTONE	24213.81808	3.257272145	0.009445823	0.01	14538	-25.911198	150.074714 -0.455533 -0.452236 2.6171938 2.6192979 0.999992778 0.2177601 24213.818	24.2
14561 HUTTON SANDSTONE	53418.35309	15.85289137	-42.2044675	0.00	14561	-25.628142	149.854438 -0.455533 -0.447295 2.6171938 2.6154533 0.999964849 0.4804028 53418.353	53.4
14562 HUTTON SANDSTONE	53520.09246	15.91333498	-47.42954356	0.00	14562	-25.633697	149.821987 -0.455533 -0.447392 2.6171938 2.614887 0.999964715 0.4813178 53520.092	53.5
14562 HUTTON SANDSTONE	53520.09246	15.91333498	-47.42954356	0.00	14562	-25.633697	149.821987 -0.455533 -0.447392 2.6171938 2.614887 0.999964715 0.4813178 53520.092	53.5
14573 HUTTON SANDSTONE	34955.3874	6.788217267	0.000162365	0.00	14573	-25.787308	149.919161 -0.455533 -0.450073 2.6171938 2.616583 0.999984948 0.3143614 34955.387	35.0
14574 HUTTON SANDSTONE	30726.49959	5.245098762	0.000877705	0.00	14574	-26.004532	150.242766 -0.455533 -0.453865 2.6171938 2.6222309 0.99998837 0.27633 30726.5	30.7
14575 EVERGREEN FORMATION	0	0	0	0.00	14575	-25.965087	150.242211 -0.455533 -0.453176 2.6171938 2.6222213 0.999987021 0.2919195 32459.963	32.5
14577 EVERGREEN FORMATION	0	0	0	0.00	14577	-25.943420	150.201934 -0.455533 -0.452798 2.6171938 2.6215183 0.999988711 0.2722524 30273.083	30.3
14578 HUTTON SANDSTONE	29213.99391	4.741430223	0.00157272	0.00	14578	-25.995643	150.222489 -0.455533 -0.45371 2.6171938 2.621877 0.999989487 0.2627278 29213.994	29.2
14582 PRECIPICE SANDSTONE	0	0	0	0.00	14582	-25.543696	150.205262 -0.455533 -0.445822 2.6171938 2.6215764 0.999945068 0.6005524 66778.379	66.8
14583 PRECIPICE SANDSTONE	0	0	0	0.00	14583	-25.542709	150.230094 -0.455533 -0.445804 2.6171938 2.6220098 0.999943286 0.610219 67853.253	67.9
14584 PRECIPICE SANDSTONE	0	0	0	0.00	14584	-25.555363	150.234428 -0.455533 -0.446025 2.6171938 2.6220854 0.999945113 0.6003062 66751.007	66.8
14590 HUTTON SANDSTONE	43317.03974	10.42425518	-8.96483E-05	0.00	14590	-25.714252	150.013880 -0.455533 -0.448798 2.6171938 2.6182361 0.999976886 0.3895595 43317.04	43.3
14591 HUTTON SANDSTONE	40667.26172	9.187923197	2.35675E-05	0.00	14591	-25.735919	149.991659 -0.455533 -0.449177 2.6171938 2.6178483 0.999979628 0.3657295 40667.262	40.7
14593 HUTTON SANDSTONE	24724.06577	3.395996825	0.007946034	0.01	14593	-25.880278	149.991420 -0.455533 -0.451696 2.6171938 2.6178441 0.99999247 0.2223489 24724.066	24.7
14597 PRECIPICE SANDSTONE	0	0	0	0.00	14597	-25.428889	150.031739 -0.455533 -0.443818 2.6171938 2.6185478 0.999930641 0.6748274 75037.386	75.0
14609 EVERGREEN FORMATION	0	0	0	0.00	14609	-25.650086	149.986380 -0.455533 -0.447678 2.6171938 2.6177562 0.999969029 0.4509368 50141.885	50.1
14610 HUTTON SANDSTONE	48813.3973	13.23748753	-0.166769381	0.00	14610	-25.665738	150.024896 -0.455533 -0.447952 2.6171938 2.6184284 0.999970648 0.4389894 48813.397	48.8
14616 HUTTON SANDSTONE	54146.32501	16.28791395	-96.81116559	0.00	14616	-25.613142	149.955547 -0.455533 -0.447034 2.6171938 2.617218 0.999963885 0.4869496 54146.325	54.1
14617 HUTTON SANDSTONE	45102.32322	11.30121978	-0.001277099	0.00	14617	-25.831477	149.616110 -0.455533 -0.450844 2.6171938 2.6112937 0.999974942 0.4056149 45102.323	45.1
14618 FORMATION NAME NOT SPECIFIED	0	0	0	0.00	14618	-25.956200	149.559168 -0.455533 -0.453021 2.6171938 2.6102999 0.999977659 0.3829888 42586.407	42.6
14654 HUTTON SANDSTONE	15309.19841	1.302064199	0.135034673	0.09	14654	-26.039254	150.091658 -0.455533 -0.454471 2.6171938 2.6195936 0.999997113 0.1376789 15309.198	15.3
14680 HUTTON SANDSTONE	64098.67685	22.82577986	-2981647.156	0.00	14680	-25.595366	149.644719 -0.455533 -0.446723 2.6171938 2.6117931 0.999949388 0.5764533 64098.677	64.1
14697 HUTTON SANDSTONE	34151.72208	6.479667338	0.000223853	0.00	14697	-25.807031	150.056380 -0.455533 -0.450418 2.6171938 2.6189779 0.999985633 0.3071338 34151.722	34.2



Appendix C

Groundwater Model Results (2,700 ML)

Use or disclosure of data contained on this sheet is subject to the restriction on the distribution page of this document.

"This page has been left blank intentionally"

Use or disclosure of data contained on this sheet is subject to the restriction on the distribution page of this document.

Table C1: Summary of Model Results (2,700 ML)

Chainage	Sub Group	No. Extraction Bores	Extraction Durarion (days)	Extraction Rate (ML/day)	Distance to 5-meter Drawdown (km)	Proposed Extraction Aquifer
0.0 km		1	150	1.669	0.598	Hutton Sandstone
0 - 9 KM	-	I	30	0.316	N/A	Hutton Sandstone
			330	0.043		
		2	60	2.446	0.179	Hutton Sandstone
0 10 km			30	2.486		
9 - 19 KIII	-	1	60	1.223	0 175	Draginica Sandatana
		I	30	1.243	0.175	Frecipice Sanustone
		1	30	0.558	N/A	Hutton Sandstone
		1	120	1.261	0.215	Hutton Sandstone
	10 30 km	1	150	0.800	N/A	Thullon Sanusione
	19 - 30 KIII	1	120	1.261	0.215	Draginica Sandatana
		I	150	0.800	N/A	Frecipice Sanustone
	30 - 41 km	1	90	0.575	0.003	Hutton Sandstone
			120	0.144		
19 - 63 km	30 53 km	1	120	0.163	N/A	Precipice Sandstone
	50 - 55 KIII	1	120	0.389		
			450	0.144	N/A	Precipice Sandstone
			120	2.295	1.160	Hutton Sandstone
	52 63 km	1	60	0.226	0.070	Hutton Sandstone
	52 - 03 KIII	1	60	1.091	0.079	Thullon Sanusione
			90	0.226	N/A	Hutton Sandstone
			365	0.005	1 262	Precipice Sandstone
	63 70 km	1	90	2.572	1.202	Precipice Sandstone
	03 - 70 KIII	1	120	0.005	NI/A	Draginica Sandatana
			30	0.316	N/A	Frecipice Sanustone
	70 77 km	1	90	0.665	0.007	Precipice Sandstone
62 00 km	70 - 77 Kill	-	150	0.138	N/A	Precipice Sandstone
03 - 90 KIII	77 83 km	1	390	0.005	0.002	Procinico Sandstono
	77 - 03 KIII	I	150	0.532	0.002	Frecipice Sanusione
		2	390	0.144	0 525	Draginica Sandatana
	83 00 km	2	150	2.711	0.525	Frecipice Sanustone
	03 - 90 KIII	1	30	0.144	<0.001	Precipice Sandstone
		I	30	0.316	NU.UU I	Precipice Sandstone

Notes:

© The State of Queensland (Department of Environment and Resource Management) 2009

N/A = Not applicable as the drawdown in extraction bore is less than 5 meters or extraction rate decreased

Table C2: Distance Between Bores (0 - 9 km chainage in Hutton Sandstone)

	13856	22117	58409	58232
13856	0	9.838	13.497	4.911
22117	9.838	0	12.535	14.696
58409	13.497	12.535	0	16.940
58232	4.911	14.696	16.940	0

Notes:

© The State of Queensland (Department of Environment and Resource Management) 2009 RN 58232 is located within the 9 - 19.28 km chainage group

Table C3: Distance Between Bores (0 - 9 km chainage in Precipice Sandstone)

	15793	16752	58700
15793	0	4.854	0.714
16752	4.854	0	4.922
58700	0.714	4.922	0

Notes:

© The State of Queensland (Department of Environment and Resource Management) 2009 RN 16752 is located within the 9 - 19.28 km chainage group

Table C4: Distance Between Bores (9 - 19.28 km chainage in Hutton Sandstone)

	13856	16312	58232
13856	0	9.458	4.911
16312	9.458	0	4.601
58232	4.911	4.601	0

Notes:

© The State of Queensland (Department of Environment and Resource Management) 2009 RN 13856 is located within the 0 - 9 km chainage group

Table C5: Distance Between Bores (19.28 - 63 km chainage in Hutton Sandstone)

	12221	13060	14350	14538	14593	14697	14872	15487	15709	15710	15862	16312	16661	17247	17248	23147	38337	43687	48911	48949	58443	58608	58834	58897
12221	0	10.621	13.417	6.724	2.613	11.061	16.629	5.284	20.975	21.986	11.755	14.285	8.007	17.753	18.609	6.729	5.684	24.204	9.823	8.713	8.215	6.904	2.684	10.045
13060	10.621	0	23.353	15.096	11.101	21.434	27.028	8.940	31.526	32.208	22.299	9.019	7.129	28.359	29.020	14.882	13.235	34.592	19.434	18.863	18.560	16.836	12.715	20.658
14350	13.417	23.353	0	14.830	12.264	3.211	4.589	18.200	9.465	8.936	4.290	27.564	21.263	7.708	6.357	15.145	15.721	11.554	3.984	10.747	5.396	11.696	10.853	5.975
14538	6.724	15.096	14.830	0	9.028	11.693	16.327	6.315	19.570	21.829	11.395	14.717	9.239	16.048	18.074	0.349	1.909	23.398	12.552	5.042	9.719	3.267	7.810	9.298
14593	2.613	11.101	12.264	9.028	0	10.412	15.983	7.674	20.602	21.108	11.444	16.174	10.049	17.604	17.975	9.086	8.208	23.522	8.389	9.981	7.562	8.494	1.954	10.076
14697	11.061	21.434	3.211	11.693	10.412	0	5.595	15.492	10.216	10.936	1.707	24.898	18.634	7.465	7.587	12.016	12.691	13.169	3.632	7.540	2.875	8.517	8.720	2.806
14872	16.629	27.028	4.589	16.327	15.983	5.595	0	20.848	4.902	5.532	5.056	30.238	24.034	3.546	1.993	16.671	17.630	7.578	8.270	11.490	8.470	13.061	14.315	7.111
15487	5.284	8.940	18.200	6.315	7.674	15.492	20.848	0	24.756	26.349	15.802	9.407	3.212	21.328	22.765	6.059	4.408	28.310	14.876	10.751	12.820	8.679	7.914	13.822
15709	20.975	31.526	9.465	19.570	20.602	10.216	4.902	24.756	0	4.273	9.228	34.022	27.968	3.529	3.194	19.918	21.115	4.083	13.156	14.531	13.040	16.408	18.839	11.002
15710	21.986	32.208	8.936	21.829	21.108	10.936	5.532	26.349	4.273	0	10.582	35.748	29.523	6.769	3.789	22.174	23.158	2.924	12.919	16.929	13.772	18.568	19.562	12.642
15862	11.755	22.299	4.290	11.395	11.444	1.707	5.056	15.802	9.228	10.582	0	25.184	18.994	6.168	6.965	11.733	12.611	12.533	5.325	6.799	3.955	8.134	9.633	2.098
16312	14.285	9.019	27.564	14.717	16.174	24.898	30.238	9.407	34.022	35.748	25.184	0	6.304	30.547	32.139	14.382	12.984	37.659	24.100	19.670	22.204	17.674	16.964	23.176
16661	8.007	7.129	21.263	9.239	10.049	18.634	24.034	3.212	27.968	29.523	18.994	6.304	0	24.539	25.959	8.944	7.353	31.512	17.806	13.898	15.914	11.837	10.691	17.027
17247	17.753	28.359	7.708	16.048	17.604	7.465	3.546	21.328	3.529	6.769	6.168	30.547	24.539	0	3.434	16.397	17.614	7.508	10.827	11.008	10.114	12.904	15.766	7.710
17248	18.609	29.020	6.357	18.074	17.975	7.587	1.993	22.765	3.194	3.789	6.965	32.139	25.959	3.434	0	18.421	19.445	5.595	10.179	13.149	10.462	14.821	16.307	8.970
23147	6.729	14.882	15.145	0.349	9.086	12.016	16.671	6.059	19.918	22.174	11.733	14.382	8.944	16.397	18.421	0	1.655	23.746	12.823	5.390	10.009	3.610	7.929	9.636
38337	5.684	13.235	15.721	1.909	8.208	12.691	17.630	4.408	21.115	23.158	12.611	12.984	7.353	17.614	19.445	1.655	0	24.862	13.047	6.687	10.418	4.710	7.357	10.525
43687	24.204	34.592	11.554	23.398	23.522	13.169	7.578	28.310	4.083	2.924	12.533	37.659	31.512	7.508	5.595	23.746	24.862	0	15.516	18.387	16.044	20.183	21.886	14.490
48911	9.823	19.434	3.984	12.552	8.389	3.632	8.270	14.876	13.156	12.919	5.325	24.100	17.806	10.827	10.179	12.823	13.047	15.516	0	9.547	3.025	9.797	7.165	5.664
48949	8.713	18.863	10.747	5.042	9.981	7.540	11.490	10.751	14.531	16.929	6.799	19.670	13.898	11.008	13.149	5.390	6.687	18.387	9.547	0	6.530	2.076	8.123	4.803
58443	8.215	18.560	5.396	9.719	7.562	2.875	8.470	12.820	13.040	13.772	3.955	22.204	15.914	10.114	10.462	10.009	10.418	16.044	3.025	6.530	0	6.823	5.845	3.212
58608	6.904	16.836	11.696	3.267	8.494	8.517	13.061	8.679	16.408	18.568	8.134	17.674	11.837	12.904	14.821	3.610	4.710	20.183	9.797	2.076	6.823	0	6.777	6.040
58834	2.684	12.715	10.853	7.810	1.954	8.720	14.315	7.914	18.839	19.562	9.633	16.964	10.691	15.766	16.307	7.929	7.357	21.886	7.165	8.123	5.845	6.777	0	8.171
58897	10.045	20.658	5.975	9.298	10.076	2.806	7.111	13.822	11.002	12.642	2.098	23.176	17.027	7.710	8.970	9.636	10.525	14.490	5.664	4.803	3.212	6.040	8.171	0

Notes:

 Notes:
 © The State of Queensland (Department of Environment and Resource Management) 2009

 Bold denotes bores are close enough to exceed drawdown threshold

 RN 16312 is located within the 9 - 19.28 km chainage group

 It is not known which aquifer RN 23147 and RN 58897 are screened in, so included in Table A5 and Table A6

Table C6: Distance Between Bores (19.28 - 63 km chainage in Precipice Sandstone)

	12627	13180	13881	13882	15417	16028	16065	16686	17945	18207	23147	30421	37507	38658	44404	48816	48911	57701	58897	58907	62077	67229	67232	89599	123105	123167
12627	0	24.109	32.232	30.337	39.345	22.325	16.926	33.362	23.003	37.515	10.853	37.393	26.889	36.853	27.666	29.345	15.538	40.339	16.368	13.246	35.510	36.786	43.678	35.571	17.850	16.494
13180	24.109	0	9.696	7.164	17.898	2.189	9.904	17.145	4.092	13.827	14.272	14.257	4.427	13.289	9.616	5.338	14.689	16.634	9.446	16.292	11.980	13.273	19.828	13.695	11.080	9.231
13881	32.232	9.696	0	2.649	8.223	11.878	19.586	10.651	9.250	5.929	23.432	5.197	10.937	5.117	6.551	7.600	19.301	8.527	15.978	21.593	3.934	4.973	11.951	4.026	15.614	18.834
13882	30.337	7.164	2.649	0	10.847	9.353	17.067	12.500	7.397	7.205	21.164	7.194	8.333	6.519	6.810	5.160	18.232	10.015	14.323	20.392	5.176	6.449	13.394	6.664	14.445	16.372
15417	39.345	17.898	8.223	10.847	0	20.070	27.757	9.624	16.865	7.641	31.274	5.477	18.923	7.273	11.759	15.366	25.080	7.593	22.992	27.537	7.746	7.088	9.622	4.204	21.804	26.950
16028	22.325	2.189	11.878	9.353	20.070	0	7.716	18.887	5.070	15.942	12.233	16.431	4.975	15.427	11.277	7.032	14.173	18.734	8.628	15.501	14.128	15.418	21.881	15.868	10.826	7.058
16065	16.926	9.904	19.586	17.067	27.757	7.716	0	25.639	11.609	23.482	6.075	24.106	10.867	23.020	18.104	14.095	15.124	26.225	10.053	15.234	21.749	23.026	29.241	23.561	13.306	1.354
16686	33.362	17.145	10.651	12.500	9.624	18.887	25.639	0	14.101	14.719	27.370	12.678	20.193	13.967	7.622	17.564	18.005	16.085	17.900	20.463	13.468	13.748	18.843	9.133	15.606	24.502
17945	23.003	4.092	9.250	7.397	16.865	5.070	11.609	14.101	0	14.601	14.415	14.391	8.451	13.902	6.508	8.300	11.390	17.405	6.945	13.323	12.563	13.821	20.790	12.824	7.604	10.555
18207	37.515	13.827	5.929	7.205	7.641	15.942	23.482	14.719	14.601	0	28.086	2.246	13.218	0.835	12.410	9.593	25.169	2.829	21.517	27.419	2.061	1.026	6.190	5.600	21.440	22.976
23147	10.853	14.272	23.432	21.164	31.274	12.233	6.075	27.370	14.415	28.086	0	28.358	16.370	27.521	20.367	19.195	12.823	30.901	9.636	11.967	26.194	27.491	34.097	27.192	12.611	5.710
30421	37.393	14.257	5.197	7.194	5.477	16.431	24.106	12.678	14.391	2.246	28.358	0	14.317	1.796	11.235	10.663	24.399	3.656	21.172	26.727	2.540	1.618	6.962	3.564	20.758	23.487
37507	26.889	4.427	10.937	8.333	18.923	4.975	10.867	20.193	8.451	13.218	16.370	14.317	0	12.917	13.072	3.657	18.971	15.799	13.536	20.422	11.795	12.975	18.597	14.849	15.446	10.732
38658	36.853	13.289	5.117	6.519	7.273	15.427	23.020	13.967	13.902	0.835	27.521	1.796	12.917	0	11.580	9.268	24.384	3.506	20.800	26.646	1.344	0.221	6.916	4.881	20.665	22.478
44404	27.666	9.616	6.551	6.810	11.759	11.277	18.104	7.622	6.508	12.410	20.367	11.235	13.072	11.580	0	11.075	13.428	14.825	11.408	15.852	10.472	11.413	18.194	8.405	10.048	17.013
48816	29.345	5.338	7.600	5.160	15.366	7.032	14.095	17.564	8.300	9.593	19.195	10.663	3.657	9.268	11.075	0	19.627	12.230	14.658	21.411	8.138	9.322	15.152	11.370	15.878	13.755
48911	15.538	14.689	19.301	18.232	25.080	14.173	15.124	18.005	11.390	25.169	12.823	24.399	18.971	24.384	13.428	19.627	0	27.828	5.664	2.484	23.115	24.256	31.252	21.820	3.811	13.800
57701	40.339	16.634	8.527	10.015	7.593	18.734	26.225	16.085	17.405	2.829	30.901	3.656	15.799	3.506	14.825	12.230	27.828	0	24.305	30.112	4.842	3.602	3.426	7.121	24.131	25.752
58897	16.368	9.446	15.978	14.323	22.992	8.628	10.053	17.900	6.945	21.517	9.636	21.172	13.536	20.800	11.408	14.658	5.664	24.305	0	6.886	19.468	20.709	27.706	19.207	3.274	8.699
58907	13.246	16.292	21.593	20.392	27.537	15.501	15.234	20.463	13.323	27.419	11.967	26.727	20.422	26.646	15.852	21.411	2.484	30.112	6.886	0	25.359	26.525	33.538	24.225	5.981	13.977
62077	35.510	11.980	3.934	5.176	7.746	14.128	21.749	13.468	12.563	2.061	26.194	2.540	11.795	1.344	10.472	8.138	23.115	4.842	19.468	25.359	0	1.297	8.239	4.645	19.381	21.184
67229	36.786	13.273	4.973	6.449	7.088	15.418	23.026	13.748	13.821	1.026	27.491	1.618	12.975	0.221	11.413	9.322	24.256	3.602	20.709	26.525	1.297	0	7.023	4.660	20.544	22.472
67232	43.678	19.828	11.951	13.394	9.622	21.881	29.241	18.843	20.790	6.190	34.097	6.962	18.597	6.916	18.194	15.152	31.252	3.426	27.706	33.538	8.239	7.023	0	10.222	27.557	28.840
89599	35.571	13.695	4.026	6.664	4.204	15.868	23.561	9.133	12.824	5.600	27.192	3.564	14.849	4.881	8.405	11.370	21.820	7.121	19.207	24.225	4.645	4.660	10.222	0	18.340	22.769
123105	17.850	11.080	15.614	14.445	21.804	10.826	13.306	15.606	7.604	21.440	12.611	20.758	15.446	20.665	10.048	15.878	3.811	24.131	3.274	5.981	19.381	20.544	27.557	18.340	0	11.953
123167	16.494	9.231	18.834	16.372	26.950	7.058	1.354	24.502	10.555	22.976	5.710	23.487	10.732	22.478	17.013	13.755	13.800	25.752	8.699	13.977	21.184	22.472	28.840	22.769	11.953	0

Notes:

© The State of Queensland (Department of Environment and Resource Management) 2009 RN 15417 is located within the 63 - 90 km chainage group RN 16686 is located within the 63 - 90 km chainage group It is not known which aquifer RN 23147 and RN 58897 are screened in, so included in Table A5 and Table A6

Table C7: Distance Between Bores (63 - 90 km chainage in Precipice Sandstone)

	10594	11104	14582	14583	14584	15417	16270	16686	17849	18173	18195	30318	30506	30507	31409	36120	47325	57615	57781	62877	67232	67280	67281	67410	67624	67625	84032	89504	89510	89540	89572	89724	89763	89764	89775	89853	89854	89855
10594	0	14.827	4.375	6.833	7.530	14.339	5.519	15.618	12.422	11.139	10.267	2.800	4.786	5.639	1.650	13.155	8.281	6.169	2.051	10.358	21.351	8.739	6.558	2.645	8.770	6.339	10.824	8.535	8.625	6.941	13.982	7.028	6.890	8.398	6.041	2.835	2.645	5.295
11104	14.827	0	17.966	20.242	20.085	16.538	9.333	8.399	11.284	8.026	15.031	16.758	18.682	17.534	16.337	2.298	12.965	18.862	15.489	16.795	26.158	16.779	16.419	12.638	22.073	8.660	10.544	17.765	18.168	20.272	23.200	21.723	20.387	19.727	20.731	17.412	12.239	18.870
14582	4.375	17.966	0	2.500	3.205	12.816	9.135	16.819	12.605	12.523	8.869	5.588	6.557	8.707	4.253	16.005	7.901	8.565	2.664	8.160	18.188	12.513	10.229	5.458	4.457	9.334	11.312	5.555	5.446	2.592	10.101	4.352	2.587	4.399	5.718	2.097	6.643	0.962
14583	6.833	20.242	2.500	0	1.469	13.125	11.588	18.409	13.864	14.296	9.518	7.618	8.105	10.571	6.462	18.211	9.200	10.163	5.156	8.342	17.127	14.568	12.284	7.895	1.958	11.676	12.768	5.467	5.179	0.161	8.546	3.770	0.199	3.240	6.431	4.244	9.142	1.545
14584	7.530	20.085	3.205	1.469	0	11.839	11.805	17.658	12.959	13.706	8.396	8.711	9.396	11.760	7.437	17.978	8.398	11.451	5.638	7.072	15.669	15.667	13.379	8.131	2.156	11.680	11.987	4.195	3.861	1.318	7.158	5.222	1.628	1.784	7.869	5.232	9.596	2.441
15417	14.339	16.538	12.816	13.125	11.839	0	13.811	9.624	5.257	8.608	4.091	17.013	18.715	19.977	15.569	14.318	6.265	20.423	12.738	4.784	9.622	22.596	20.652	12.360	13.724	12.325	6.221	7.661	7.978	13.014	9.268	16.764	13.320	10.188	18.509	14.347	14.116	12.969
16270	5.519	9.333	9.135	11.588	11.805	13.811	0	11.630	10.039	7.464	10.345	7.499	9.496	8.864	7.003	7.802	7.768	10.026	6.495	11.379	22.520	9.703	8.399	3.696	13.527	1.699	8.376	10.901	11.189	11.653	16.811	12.507	11.700	12.001	11.405	8.214	2.906	10.090
16686	15.618	8.399	16.819	18.409	17.658	9.624	11.630	0	5.031	4.480	10.017	18.297	20.353	20.332	17.258	6.772	9.261	21.343	15.154	11.908	18.843	21.240	20.028	12.974	19.814	10.009	5.672	14.034	14.472	18.370	18.136	21.153	18.597	16.601	21.460	17.276	13.791	17.475
17849	12.422	11.284	12.605	13.864	12.959	5.257	10.039	5.031	0	3.464	4.997	15.220	17.187	17.762	13.958	9.079	4.712	18.532	11.441	6.880	14.874	19.579	17.943	9.920	15.099	8.367	1.685	9.124	9.556	13.805	13.134	16.946	14.059	11.753	17.779	13.466	11.278	13.126
18173	11.139	8.026	12.523	14.296	13.706	8.608	7.464	4.480	3.464	0	7.150	13.829	15.881	15.952	12.778	5.755	5.519	16.918	10.717	9.004	18.218	17.167	15.786	8.495	15.848	5.777	2.521	10.515	10.948	14.276	15.464	16.816	14.477	12.880	16.994	12.845	9.380	13.240
18195	10.267	15.031	8.869	9.518	8.396	4.091	10.345	10.017	4.997	7.150	0	12.924	14.626	15.907	11.478	12.733	2.586	16.333	8.647	1.908	12.198	18.650	16.648	8.408	10.460	9.061	4.717	4.294	4.705	9.429	8.334	12.989	9.717	6.973	14.508	10.294	10.229	9.131
30318	2.800	16.758	5.588	7.618	8.711	17.013	7.499	18.297	15.220	13.829	12.924	0	2.062	3.166	1.482	15.300	11.046	3.412	4.319	12.832	23.549	6.960	4.672	5.369	9.351	8.671	13.616	10.701	10.707	7.762	15.683	6.310	7.601	9.980	4.107	3.495	4.692	6.271
30506	4.786	18.682	6.557	8.105	9.396	18.715	9.496	20.353	17.187	15.881	14.626	2.062	0	2.736	3.238	17.293	12.899	2.058	5.988	14.357	24.743	6.889	4.764	7.403	9.577	10.719	15.604	12.008	11.951	8.262	16.537	5.810	8.038	10.886	2.808	4.557	6.737	7.013
30507	5.639	17.534	8.707	10.571	11.760	19.977	8.864	20.332	17.762	15.952	15.907	3.166	2.736	0	4.633	16.426	13.871	1.422	7.420	15.930	26.713	4.156	2.066	7.865	12.168	10.361	16.106	13.861	13.872	10.722	18.807	8.541	10.528	13.106	5.495	6.611	6.581	9.324
31409	1.650	16.337	4.253	6.462	7.437	15.569	7.003	17.258	13.958	12.778	11.478	1.482	3.238	4.633	0	14.728	9.671	4.860	2.847	11.354	22.082	8.268	5.990	4.289	8.295	7.945	12.386	9.229	9.244	6.595	14.301	5.831	6.471	8.607	4.430	2.223	4.098	5.024
36120	13.155	2.298	16.005	18.211	17.978	14.318	7.802	6.772	9.079	5.755	12.733	15.300	17.293	16.426	14.728	0	10.684	17.687	13.615	14.499	23.940	16.197	15.538	10.808	20.003	6.841	8.265	15.520	15.928	18.232	20.911	19.905	18.363	17.544	19.155	15.611	10.658	16.884
47325	8.281	12.965	7.901	9.200	8.398	6.265	7.768	9.261	4.712	5.519	2.586	11.046	12.899	13.871	9.671	10.684	0	14.445	6.966	3.950	14.783	16.337	14.424	6.120	10.553	6.479	3.589	4.997	5.429	9.151	10.242	12.236	9.393	7.405	13.206	8.888	7.851	8.414
57615	6.169	18.862	8.565	10.163	11.451	20.423	10.026	21.343	18.532	16.918	16.333	3.412	2.058	1.422	4.860	17.687	14.445	0	7.706	16.192	26.732	5.172	3.353	8.617	11.613	11.449	16.902	13.944	13.910	10.320	18.585	7.712	10.095	12.921	4.491	6.519	7.552	9.058
57781	2.051	15.489	2.664	5.156	5.638	12.738	6.495	15.154	11.441	10.717	8.647	4.319	5.988	7.420	2.847	13.615	6.966	7.706	0	8.517	19.370	10.755	8.540	2.865	7.113	6.829	9.952	6.524	6.594	5.239	11.932	6.308	5.250	6.375	6.360	2.129	3.993	3.626
62877	10.358	16.795	8.160	8.342	7.072	4.784	11.379	11.908	6.880	9.004	1.908	12.832	14.357	15.930	11.354	14.499	3.950	16.192	8.517	0	11.249	18.999	16.891	8.910	9.019	10.276	6.609	2.881	3.218	8.231	6.461	11.992	8.536	5.475	13.878	9.858	10.796	8.232
67232	21.351	26.158	18.188	17.127	15.669	9.622	22.520	18.843	14.874	18.218	12.198	23.549	24.743	26.713	22.082	23.940	14.783	26.732	19.370	11.249	0	30.084	27.903	20.144	16.555	21.258	15.779	12.858	12.843	16.970	8.877	20.766	17.267	13.976	23.530	20.213	22.035	17.830
67280	8.739	16.779	12.513	14.568	15.667	22.596	9.703	21.240	19.579	17.167	18.650	6.960	6.889	4.156	8.268	16.197	16.337	5.172	10.755	18.999	30.084	0	2.288	10.246	16.244	11.396	17.894	17.272	17.348	14.714	22.561	12.697	14.542	16.874	9.605	10.438	8.493	13.229
67281	6.558	16.419	10.229	12.284	13.379	20.652	8.399	20.028	17.943	15.786	16.648	4.672	4.764	2.066	5.990	15.538	14.424	3.353	8.540	16.891	27.903	2.288	0	8.304	13.975	10.034	16.262	15.065	15.126	12.429	20.290	10.528	12.260	14.597	7.550	8.151	6.685	10.941
67410	2.645	12.638	5.458	7.895	8.131	12.360	3.696	12.974	9.920	8.495	8.408	5.369	7.403	7.865	4.289	10.808	6.120	8.617	2.865	8.910	20.144	10.246	8.304	0	9.831	3.984	8.285	7.752	7.968	7.958	13.591	9.101	8.009	8.457	8.609	4.803	1.893	6.407
67624	8.770	22.073	4.457	1.958	2.156	13.724	13.527	19.814	15.099	15.848	10.460	9.351	9.577	12.168	8.295	20.003	10.553	11.613	7.113	9.019	16.555	16.244	13.975	9.831	0	13.561	14.143	6.190	5.811	1.877	7.724	4.350	1.882	3.545	7.509	6.105	11.100	3.500
67625	6.339	8.660	9.334	11.676	11.680	12.325	1.699	10.009	8.367	5.777	9.061	8.671	10.719	10.361	7.945	6.841	6.479	11.449	6.829	10.276	21.258	11.396	10.034	3.984	13.561	0	6.717	10.182	10.515	11.719	16.048	13.084	11.810	11.621	12.371	8.779	3.983	10.255
84032	10.824	10.544	11.312	12.768	11.987	6.221	8.376	5.672	1.685	2.521	4.717	13.616	15.604	16.106	12.386	8.265	3.589	16.902	9.952	6.609	15.779	17.894	16.262	8.285	14.143	6.717	0	8.426	8.865	12.724	13.051	15.664	12.959	10.947	16.311	12.019	9.603	11.904
89504	8.535	17.765	5.555	5.467	4.195	7.661	10.901	14.034	9.124	10.515	4.294	10.701	12.008	13.861	9.229	15.520	4.997	13.944	6.524	2.881	12.858	17.272	15.065	7.752	6.190	10.182	8.426	0	0.439	5.354	5.910	9.153	5.661	2.679	11.228	7.451	9.607	5.478
89510	8.625	18.168	5.446	5.179	3.861	7.978	11.189	14.472	9.556	10.948	4.705	10.707	11.951	13.872	9.244	15.928	5.429	13.910	6.594	3.218	12.843	17.348	15.126	7.968	5.811	10.515	8.865	0.439	0	5.059	5.638	8.900	5.370	2.280	11.073	7.398	9.805	5.296
89540	6.941	20.272	2.592	0.161	1.318	13.014	11.653	18.370	13.805	14.276	9.429	7.762	8.262	10.722	6.595	18.232	9.151	10.320	5.239	8.231	16.970	14.714	12.429	7.958	1.877	11.719	12.724	5.354	5.059	0	8.385	3.911	0.315	3.095	6.590	4.375	9.229	1.646
89572	13.982	23.200	10.101	8.546	7.158	9.268	16.811	18.136	13.134	15.464	8.334	15.683	16.537	18.807	14.301	20.911	10.242	18.585	11.932	6.461	8.877	22.561	20.290	13.591	7.724	16.048	13.051	5.910	5.638	8.385	0	12.016	8.658	5.703	14.965	12.198	15.403	9.528
89724	7.028	21.723	4.352	3.770	5.222	16.764	12.507	21.153	16.946	16.816	12.989	6.310	5.810	8.541	5.831	19.905	12.236	7.712	6.308	11.992	20.766	12.697	10.528	9.101	4.350	13.084	15.664	9.153	8.900	3.911	12.016	0	3.597	7.005	3.307	4.312	9.671	3.869
89763	6.890	20.387	2.587	0.199	1.628	13.320	11.700	18.597	14.059	14.477	9.717	7.601	8.038	10.528	6.471	18.363	9.393	10.095	5.250	8.536	17.267	14.542	12.260	8.009	1.882	11.810	12.959	5.661	5.370	0.315	8.658	3.597	0	3.408	6.309	4.260	9.228	1.626
89764	8.398	19.727	4.399	3.240	1.784	10.188	12.001	16.601	11.753	12.880	6.973	9.980	10.886	13.106	8.607	17.544	7.405	12.921	6.375	5.475	13.976	16.874	14.597	8.457	3.545	11.621	10.947	2.679	2.280	3.095	5.703	7.005	3.408	0	9.560	6.495	10.123	3.883
89775	6.041	20.731	5.718	6.431	7.869	18.509	11.405	21.460	17.779	16.994	14.508	4.107	2.808	5.495	4.430	19.155	13.206	4.491	6.360	13.878	23.530	9.605	7.550	8.609	7.509	12.371	16.311	11.228	11.073	6.590	14.965	3.307	6.309	9.560	0	4.320	8.508	5.787
89853	2.835	17.412	2.097	4.244	5.232	14.347	8.214	17.276	13.466	12.845	10.294	3.495	4.557	6.611	2.223	15.611	8.888	6.519	2.129	9.858	20.213	10.438	8.151	4.803	6.105	8.779	12.019	7.451	7.398	4.375	12.198	4.312	4.260	6.495	4.320	0	5.429	2.805
89854	2.645	12.239	6.643	9.142	9.596	14.116	2.906	13.791	11.278	9.380	10.229	4.692	6.737	6.581	4.098	10.658	7.851	7.552	3.993	10.796	22.035	8.493	6.685	1.893	11.100	3.983	9.603	9.607	9.805	9.229	15.403	9.671	9.228	10.123	8.508	5.429	0	7.603
89855	5.295	18.870	0.962	1.545	2.441	12.969	10.090	17.475	13.126	13.240	9.131	6.271	7.013	9.324	5.024	16.884	8.414	9.058	3.626	8.232	17.830	13.229	10.941	6.407	3.500	10.255	11.904	5.478	5.296	1.646	9.528	3.869	1.626	3.883	5.787	2.805	7.603	0

Notes: © The State of Queensland (Department of Environment and Resource Management) 2009 Bold denotes bores are close enough to exceed drawdown threshold RN 67232 is located within the 19.28 - 63 km chainage group

Chain 0 - 9 km

Coord	RN 13856
lat	-26.100090
long	149.954160
S	Drawdown
Q	Extraction rate
W(u)	
Т	Transmissivity
r	Distance from bore to spring
S	Storage coeff
t	time

Thies Equation

Distance Calculation

150 m²/d m 0.0005 150 d (June 2011 - October 2011)

m 1669 m³/d

Well	Aquifer	r (m) u	ı	Wu	s	RN	G	GIS_LAT	GIS_LNG	Extract Lat RAD	Obs Lat RAD	Extract Long RAD	Obs C Long RAD	OS a	Angle	Dist (m)	Dist (km)
83	56 FORMATION NAME NOT SPECIFIED	0	0	0	0.00		8356	-25.717864	149.864995	-0.455533	-0.448861	2.6171938	2.6156376	0.999976769	0.3905499	9 43427.16	3 43.4
844 844	40 PRECIPICE SANDSTONE 45 EVERGREEN FORMATION	0	0	0	0.00		8440 8445	-25.864604 -25.650364	150.202185	-0.455533	-0.451422	2.6171938 2.6171938 2.6171938	2.6215227	0.99998398	3 0.3242889 3 0.4616998	36059.28 ² 51338.676	i 36.1 6 51.3
844 1046	49 HUTTON SANDSTONE 53 HUTTON SANDSTONE	43762.75489 13210.97374	10.63988176 0.969610151	-0.000184854 0.230927971	0.00 0.20		8449 10463	-25.707030 -26.051199	149.976381 150.074714	-0.455533 -0.455533	-0.448672	2.6171938 2.6171938	2.6175816 2.6192979	0.999976408	3 0.3935679 5 0.1188091	43762.75	5 43.8 4 13.2
1047 1057	75 HUTTON SANDSTONE 78 HUTTON SANDSTONE	72984.94868 64487.90121	29.59334852 23.10383002	-8314921126 -4317940.675	0.00 0.00		10475 10578	-25.447306 -25.979536	149.878079 149.322782	-0.455533 -0.455533	-0.444139 -0.453428	2.6171938 2.6171938	2.615866 2.6061742	0.999934383 0.999948772	3 0.6563694 2 0.5799536	72984.949 64487.90	 73.0 64.5
1058	33 PRECIPICE SANDSTONE 34 HUTTON SANDSTONE	0 85279.95164	0 40.40372306	0 -1.10073E+14	0.00		10583 10584	-25.370832 -25.359943	149.936375	-0.455533	-0.442805	5 2.6171938 5 2.6171938	2.6168834	0.999918962	2 0.729434 4 0.766941	81109.358 85279.952	5 81.1 2 85.3
105	92 PRECIPICE SANDSTONE 94 PRECIPICE SANDSTONE 96 HUTTON SANDSTONE	0 0 24646 43473	0 3 374704139	0 008159045	0.00		10592	-25.536493 -25.879253	150.053601 150.162492	-0.455533	-0.448207	2.6171938 2.6171938 2.6171938	2.6208299	0.99994626	0.4291538 0.5939789 0.2216507	66047.44	47.7 4 66.0
108	75 PRECIPICE SANDSTONE 76 PRECIPICE SANDSTONE	0	0	0.000139049	0.00		10875 10876	-25.503869 -25.505448	150.129343	-0.455533	-0.445126	2.6171938	2.6202513	0.999942069	0.6167285	5 68577.08 67885.8	3 68.6 3 67.9
1088 1091	B6 HUTTON SANDSTONE 18 EVERGREEN FORMATION	13151.63802 0	0.960919904	0.234357097	0.21 0.00		10886 10918	-26.134255 -25.434251	150.080270 149.884711	-0.455533 -0.455533	-0.456129 -0.443911	2.6171938 2.6171938	2.6193949 2.6159817	0.999997869	0.1182755 0.6687699	5 13151.638 9 74363.82	3 13.2 1 74.4
1092 1093	29 HUTTON SANDSTONE 30 HUTTON SANDSTONE	84267.48273 61810.44876	39.45004804 21.22517542	-5.31929E+13 -322451.8487	0.00 0.00		10929 10930	-25.343720 -25.601477	149.901868 149.681108	-0.455533 -0.455533	-0.442331 -0.44683	2.6171938 2.6171938	2.6162812 2.6124282	0.999912528 0.99995293	3 0.7578357 7 0.5558747	7 84267.483 7 61810.449	3 84.3 9 61.8
1098	30 EVERGREEN FORMATION 31 EVERGREEN FORMATION 30 DECUDICE SANDSTONE	0	0	0	0.00		10980 10981	-25.232863 -25.262309	149.716934 149.689714	-0.455533 -0.455533	-0.440397 -0.44091	2.6171938	2.6130534	0.99987849	0.8931964	99318.906 96852.857	3 99.3 7 96.9
109	20 EVERGREEN FORMATION 22 EVERGREEN FORMATION	0	0	0	0.00		10989 10990 10992	-25.160640	149.824980	-0.455533	-0.439136	2.6171938 2.6171938	2.6149393	0.999863096	0.9480937 0.8899692	7 105423.2 98960.064	i 105.4 4 99.0
1100	07 HUTTON SANDSTONE 09 HUTTON SANDSTONE	93484.81669 54149.89292	48.55228306 16.29006057	-2.94255E+16 -97.20318814	0.00		11007 11009	-25.308017 -25.656453	149.641340 149.730933	-0.455533	-0.441708	2.6171938 2.6171938	2.6117341 2.6132978	0.99989234	6 0.8407292 3 0.4869817	93484.817 54149.893	7 93.5 3 54.1
1110 1114	04 PRECIPICE SANDSTONE 40 EVERGREEN FORMATION	0 0	0 0	0 0	0.00 0.00		11104 11140	-25.621055 -25.316837	150.048223 149.563137	-0.455533 -0.455533	-0.447172 -0.441862	2.6171938 2.6171938	2.6188355 2.6103692	0.999963958 0.999887658	3 0.4864555 3 0.8588417	5 54091.384 7 95498.836	i 54.1 ∂ 95.5
1111 1111	75 HUTTON SANDSTONE 76 HUTTON SANDSTONE	24280.3907 25025.84816	3.275207625 3.479405979	0.009236332 0.007165861	0.01 0.01		11175 11176	-25.978976 -25.962310	150.156379 150.152212	-0.455533 -0.455533	-0.453419 -0.453128	2.6171938 2.6171938	2.6207232 2.6206505	0.999992738	3 0.2183588 5 0.2250629	3 24280.39 9 25025.848	i 24.3 3 25.0
1130	06 PRECIPICE SANDSTONE 01 EVERGREEN FORMATION	0	0	0	0.00		11306 11501	-25.663705 -25.623144	150.024896 149.502499	-0.455533 -0.455533	-0.447916	5 2.6171938 3 2.6171938	2.6184284	0.999970379	0.4410011 0.6266249	49037.088 69677.513	3 49.0 3 69.7
1156	60 FRECIPICE SANDSTONE 60 HUTTON SANDSTONE 47 EVERGREEN FORMATION	10006.19135 0	0.556243697	0.496887259	0.00		11558 11560 11647	-25.595376 -26.028977 -25.534507	149.892774	-0.455533	-0.446724 -0.454291 -0.445661	2.6171938	2.6161224	0.99999876	0.0899878 0.6868887	3 10006.19 ⁷ 7 76378.54 ⁷	1 10.0 1 76.4
1164 1169	48 HUTTON SANDSTONE 32 EVERGREEN FORMATION	77022.90293 0	32.95848653 0	-2.222E+11	0.00		11648 11692	-25.477866 -25.822031	149.616107	-0.455533	-0.444673	2.6171938 2.6171938	2.6112937	0.999926922	2 0.6926836 2 0.4102833	6 77022.903 8 45621.419	3 77.0 9 45.6
1169 1173	94 HUTTON SANDSTONE 39 HUTTON SANDSTONE	25926.96545 23891.75794	3.734486319 3.171200541	0.005238022 0.010522537	0.00 0.01		11694 11739	-26.109532 -25.890086	150.213601 149.903606	-0.455533 -0.455533	-0.455697 -0.451867	2.6171938 2.6171938	2.6217219 2.6163115	0.999991719	0.2331668 0.2148637	3 25926.965 7 23891.758	5 25.9 B 23.9
1175 1176	58 EVERGREEN FORMATION 64 HUTTON SANDSTONE	0 70774.12913	0 27.82765197	0 -1271234902	0.00 0.00		11758 11764	-25.391571 -25.472585	149.733299 149.835824	-0.455533 -0.455533	-0.443167 -0.44458	2.6171938 2.6171938	2.6133391 2.6151285	0.99991751 0.999938298	5 0.735917 3 0.636487	81830.24 70774.129	4 81.8 9 70.8
1176	65 HUTTON SANDSTONE 66 HUTTON SANDSTONE	62945.1938 66539.92903	22.01165235 24.59756753	-981668.5747 -29319320.73	0.00		11765 11766	-25.567031 -25.553143	149.742495 149.684440	-0.455533	-0.446229	2.6171938 2.6171938	2.6134996 2.6124863	0.999951194	0.5660797 0.598408	7 62945.194 3 66539.929	4 62.9 9 66.5
118	50 EVERGREEN FORMATION 78 PRECIPICE SANDSTONE	0 0 20872 77524	0	0 001222462	0.00		11850 11878	-25.397308 -25.752586	149.754435 150.218598	-0.455533 -0.455533	-0.443267	2.6171938 2.6171938	2.613708	0.99991984	0.7254403 0.4210927	3 80665.284 7 46823.368	46.8 x 20.0
1189	22 EVERGREEN FORMATION 18 EVERGREEN FORMATION	29872.77534 0 0	4.957661702	0.001222482	0.00		11892 12118	-26.093568 -25.753975 -25.990643	150.253222 150.334428 150.095547	-0.455533 -0.455533	-0.453419	2.6171938	2.6224134	0.99996394	0.2666523	5 29872.773 5 54104.672 5 18644.614	29.9 2 54.1 4 18.6
1222	21 HUTTON SANDSTONE 36 HUTTON SANDSTONE	23215.13307 79185.38767	2.994124464 34.83514234	0.013161938 -1.20209E+12	0.01		12221 12236	-25.897309 -25.502535	150.009437 149.523888	-0.455533	-0.451993	3 2.6171938 3 2.6171938	2.6181586	0.99999336	0.2087787	7 23215.133 3 79185.388	3 23.2 3 79.2
1223 1233	38 EVERGREEN FORMATION 72 HUTTON SANDSTONE	0 30396.90238	0 5.133175969	0 0.000998081	0.00 0.00		12238 12372	-25.580955 -25.831753	150.094355 149.896106	-0.455533 -0.455533	-0.446472 -0.450849	2.6171938 2.6171938	2.6196407 2.6161806	0.999956528 0.999988618	3 0.5342486 3 0.2733659	59405.737 30396.902	7 59.4 2 30.4
1262 1265	27 PRECIPICE SANDSTONE 51 HUTTON SANDSTONE	0 74954.36253	0 31.21198035	0 -42222948690	0.00 0.00		12627 12651	-25.941818 -25.653978	149.969996 149.392501	-0.455533 -0.455533	-0.45277 -0.447746	2.6171938 2.6171938	2.6174702 2.607391	0.999996154 0.999930794	4 0.1589105 4 0.6740808	5 17670.039 3 74954.363) 17.7 3 75.0
1275	53 HUTTON SANDSTONE 38 HUTTON SANDSTONE	55024.06001 24118.35598	16.82026211 3.231639418	-259.528754 0.009753876	0.00		12753 12838	-25.655087 -25.884809	149.713608 149.924717	-0.455533	-0.447766	5 2.6171938 5 2.6171938	2.6129954 2.6166799	0.999962704	1 0.4948433 1 0.2169016	3 55024.06 5 24118.356	3 55.0 3 24.1
1288	32 HUTTON SANDSTONE 60 HUTTON SANDSTONE 73 HUTTON SANDSTONE	51924.26122 14793.64033 48179 76347	14.97849391 1.215843301 12.89605338	-7.403715924 0.154504594 -0.07473273	0.00		12882 13060 13073	-25.967865 -25.967721	149.937772	-0.455533 -0.455533	-0.447436	5 2.6171938 5 2.6171938 8 2.6171938	2.6169078	0.999996780	0.4669661 0.1330424	1 51924.26 1 14793.64 1 48179.76	1 51.9 1 14.8 3 48.2
1318	21 HUTTON SANDSTONE	0 95388.94802	0 50.55028558	0 -1.00229E+17	0.00		13180 13521	-25.816464 -25.296707	150.166441	-0.455533	-0.450582	2.6171938	2.6208988	0.99998219	0.3418667	7 38013.848 95388.948	3 38.0 3 95.4
1379 1385	91 HUTTON SANDSTONE 56 HUTTON SANDSTONE	52172.45711 0.300211771	15.12202934 5.00706E-10	-9.920561969 20.83780171	0.00 18.45		13791 13856	-25.632388 -26.100088	149.912551 149.954162	-0.455533 -0.455533	-0.44737 -0.455532	2.6171938 2.6171938	2.6164676 2.6171939	0.9999664	0.4691982 2.7E-06	2 52172.45 5 0.3002118	7 52.2 3 0.0
1388 1388	31 PRECIPICE SANDSTONE 32 PRECIPICE SANDSTONE	0 0	0	0 0	0.00 0.00		13881 13882	-25.732308 -25.756197	150.192765 150.192209	-0.455533 -0.455533	-0.449113 -0.44953	8 2.6171938 8 2.6171938	2.6213583 2.6213486	0.999972383 0.999975003	3 0.4258175 7 0.4050873	5 47348.748 3 45043.65	3 47.3 5 45.0
1394 1413	45 HUTTON SANDSTONE 33 HUTTON SANDSTONE	68014.40861 71005.42404	25.69977654 28.00983468	-111932017.5 -1551533809	0.00		13945 14133	-25.976203 -25.531348	149.287504 149.631623	-0.455533 -0.455533	-0.45337 -0.445606	2.6171938 2.6171938	2.6055585 2.6115645	0.999943010	6 0.6116683 1 0.6385671	3 68014.409 71005.424) 68.0 4 71.0
1417	79 HUTTON SANDSTONE 30 HUTTON SANDSTONE	81696.64612 81318.83329	37.07967771 36.73751471	-8.05856E+12 -6.0758E+12	0.00		14179 14180	-25.457512 -25.456762	149.558555	-0.455533	-0.444317	2.6171938	2.6102892	0.999917784	1 0.7347156 2 0.7313178	81696.646 81318.83	3 81.7 3 81.3
1418	34 HUTTON SANDSTONE 35 HUTTON SANDSTONE 37 HUTTON SANDSTONE	81222.52385 83628.65012 76622.69585	38.85417289	-5.65255E+12 -3.34648E+13 -1.61719E+11	0.00		14184 14185 14187	-25.365085 -25.419249	149.782110 149.777212 149.836165	-0.455533	-0.443074	2.6171938 2.6171938	2.614191	0.99991873	0.7304517	5 81222.524 5 83628.65 5 76622.696	5 83.6 5 76.6
1418	38 HUTTON SANDSTONE 39 HUTTON SANDSTONE	75628.88821 66032.12756	31.77627073	-72932575045	0.00		14188 14189	-25.427458 -25.542309	149.842203	-0.455533	-0.443793	2.6171938 2.6171938	2.6152398	0.99992954	0.6801469 0.5938412	75628.888 66032.128	3 75.6 8 66.0
1419 1419	00 HUTTON SANDSTONE 01 HUTTON SANDSTONE	63236.13505 81688.3762	22.21560431 37.07217114	-1301682.322 -8.00901E+12	0.00 0.00		14190 14191	-25.559809 -25.401368	149.756939 149.702236	-0.455533 -0.455533	-0.446103 -0.443338	3 2.6171938 3 2.6171938	2.6137517 2.6127969	0.99995074	0.5686962	2 63236.135 2 81688.376	5 63.2 5 81.7
1420 1420	04 EVERGREEN FORMATION 05 EVERGREEN FORMATION	0 0	0	0 0	0.00 0.00		14204 14205	-25.452310 -25.460366	149.593607 149.609718	-0.455533 -0.455533	-0.444227 -0.444367	2.6171938 2.6171938	2.610901 2.6111822	0.999920034 0.99992301	1 0.7245913 7 0.7109457	80570.882 79053.559	2 80.6 9 79.1
1420 1422	06 HUTTON SANDSTONE 28 HUTTON SANDSTONE	78007.24718 76011.66037	33.80628118 32.09873618	-4.82001E+11 -99235683795	0.00		14206 14228	-25.473699 -25.530931	149.603330 149.533563	-0.455533 -0.455533	-0.4446 -0.445599	2.6171938 2.6171938	2.6110707 2.609853	0.999925042	2 0.701536 3 0.6835893	5 78007.247 3 76011.66	78.0 76.0
1423	29 HUTTON SANDSTONE 31 HUTTON SANDSTONE	78048.34351 78998.97805	33.84191069 34.67132518	-4.97731E+11 -1.04122E+12	0.00		14229 14231	-25.532193 -25.535348	149.495912 149.475299	-0.455533	-0.445621	2.6171938 2.6171938	2.6091959	0.99992496	3 0.7019056 1 0.7104549	5 78048.344 9 78998.978	1 78.0 3 79.0
1424	47 HUTTON SANDSTONE 48 HUTTON SANDSTONE 49 HUTTON SANDSTONE	20982.36548	2.445887007	0.026776511	0.08		14247 14248 14249	-25.998421 -25.987032	150.067214 150.131102 150.103602	-0.455533	-0.453758	2.6171938 2.6171938	2.620282	0.999999658	0.1497945 0.1886989 0.1755276	20982.36	5 21.0 4 19.5
142	50 HUTTON SANDSTONE 70 HUTTON SANDSTONE	16652.75907 74905.2041	1.54063547	0.094190034	0.08		14250 14270	-26.028421 -25.501898	150.100547	-0.455533	-0.454282	2.6171938 2.6171938	2.6197488	0.999996584	0.1497619 0.6736387	9 16652.759 74905.204	3 16.7 4 74.9
142 142	73 HUTTON SANDSTONE 76 HUTTON SANDSTONE	76042.74017 72218.99467	32.12499074 28.97546217	-1.01741E+11 -4366714262	0.00 0.00		14273 14276	-25.499255 -25.529317	149.591387 149.609893	-0.455533 -0.455533	-0.445046 -0.445571	2.6171938 2.6171938	2.6108622 2.6111852	0.99992873 0.999935753	7 0.6838688 3 0.649481	3 76042.74 72218.99	↓ 76.0 5 72.2
1427 1434	77 HUTTON SANDSTONE 44 HUTTON SANDSTONE	77156.65471 62960.72736	33.07305203 22.02251772	-2.46999E+11 -996602.3851	0.00 0.00		14277 14344	-25.491431 -25.997036	149.584095 149.334448	-0.455533 -0.455533	-0.444909 -0.453734	2.6171938 2.6171938	2.610735 2.6063778	0.999926668 0.99995113	3 0.6938865 7 0.5662194	5 77156.655 4 62960.727	577.2763.0
143	50 HUTTON SANDSTONE 52 HUTTON SANDSTONE	36666.36068	7.46901114	8.38179E-05 -2.04508E+18	0.00		14350 14352	-25.780364 -25.244954	150.043880	-0.455533	-0.449952	2 2.6171938 3 2.6171938	2.6187597 2.6116664	0.999983439	0.3297485 0.9015144	5 36666.36 100243.83	36.7 3 100.2
1438	38 HUTTON SANDSTONE 38 HUTTON SANDSTONE 53 HUTTON SANDSTONE	69030.16969 83470 47625	26.47313515 38 70733558	-276913095.4 -2 98204F+13	0.00		14356 14388 14453	-25.541096 -25.435750	149.654166	-0.455533	-0.445776	2.6171938 2.6171938	2.604564	0.999928908	0.6208032	2 69030.17 3 83470 476	70.0 7 69.0 6 83.5
144	59 HUTTON SANDSTONE 60 PRECIPICE SANDSTONE	76826.95476 0	32.79100543 0	-1.90229E+11 0	0.00		14459 14460	-25.428697 -25.774531	149.773047	-0.455533	-0.443814	2.6171938 2.6171938	2.6140328	0.999927293	3 0.6909214 3 0.4313764	76826.955 47966.868	5 76.8 3 48.0
1446 1446	61 HUTTON SANDSTONE 61 HUTTON SANDSTONE	34806.38869 34806.38869	6.73047052 6.73047052	0.000172277 0.000172277	0.00 0.00		14461 14461	-25.787308 -25.787308	149.967771 149.967771	-0.455533 -0.455533	-0.450073 -0.450073	3 2.6171938 3 2.6171938	2.6174314 2.6174314	0.999985076 0.999985076	6 0.3130214 6 0.3130214	4 34806.389 4 34806.389	 34.8 34.8 34.8
1453 1453	35 HUTTON SANDSTONE 38 HUTTON SANDSTONE	42296.99273 24213.81808	9.939086633 3.257272145	-4.80468E-06 0.009445823	0.00 0.01		14535 14538	-25.729253 -25.911198	149.859995 150.074714	-0.455533 -0.455533	-0.44906 -0.452236	6 2.6171938 6 2.6171938	2.6155503 2.6192979	0.999977962 0.999992778	2 0.380386 3 0.2177601	6 42296.993 1 24213.818	3 42.3 3 24.2
1456 1456	61 HUTTON SANDSTONE 62 HUTTON SANDSTONE	53418.35309 53520.09246	15.85289137 15.91333498	-42.2044675 -47.42954356	0.00		14561 14562	-25.628142 -25.633697	149.854438 149.821987	-0.455533	-0.447295	5 2.6171938 2 2.6171938	2.6154533 2.614887	0.999964849	0.4804028 0.4813178	3 53418.353 3 53520.092	3 53.4 2 53.5
1450	73 HUTTON SANDSTONE 73 HUTTON SANDSTONE	53520.09246 34955.3874	15.91333498 6.788217267	-47.42954356 0.000162365	0.00		14562 14573	-25.633697 -25.787308	149.821987 149.919161	-0.455533	-0.447392	2.6171938 2.6171938	2.614887	0.99996471	0.4813178 0.3143614	3 53520.092 1 34955.387	2 53.5 7 35.0
145	75 EVERGREEN FORMATION 75 EVERGREEN FORMATION	0 0	0	0.000877705	0.00		14575 14577	-25.965087 -25.943420	150.242700	-0.455533	-0.453176	2.6171938 2.6171938 2.6171938	2.6222213	0.99998702	0.27033	5 32459.963 4 30273.083	30.7 332.5 330.3
145 1458	78 HUTTON SANDSTONE 32 PRECIPICE SANDSTONE	29213.99391 0	4.741430223 0	0.00157272	0.00		14578 14582	-25.995643 -25.543696	150.222489 150.205262	-0.455533 -0.455533	-0.45371 -0.445822	2.6171938 2.6171938	2.621877 2.6215764	0.99998948	7 0.2627278 3 0.6005524	3 29213.994 4 66778.379	4 29.2 9 66.8
1458 1458	33 PRECIPICE SANDSTONE 34 PRECIPICE SANDSTONE	0 0	0	0 0	0.00 0.00		14583 14584	-25.542709 -25.555363	150.230094 150.234428	-0.455533 -0.455533	-0.445804 -0.446025	2.6171938 2.6171938	2.6220098 2.6220854	0.999943280 0.999945113	6 0.610219 3 0.6003062	67853.253 66751.007	3 67.9 7 66.8
1459 1459	90 HUTTON SANDSTONE 91 HUTTON SANDSTONE	43317.03974 40667.26172	10.42425518 9.187923197	-8.96483E-05 2.35675E-05	0.00 0.00		14590 14591	-25.714252 -25.735919	150.013880 149.991659	-0.455533 -0.455533	-0.448798 -0.449177	3 2.6171938 7 2.6171938	2.6182361 2.6178483	0.999976886 0.999979628	6 0.3895595 3 0.3657295	5 43317.04 5 40667.262	43.3 2 40.7
1459	93 HUTTON SANDSTONE 97 PRECIPICE SANDSTONE	24724.06577	3.395996825 0	0.007946034	0.01		14593 14597	-25.880278 -25.428889	149.991420	-0.455533	-0.451696	5 2.6171938 3 2.6171938	2.6178441 2.6185478	0.9999924	7 0.2223489 1 0.6748274	9 24724.066 1 75037.386	3 24.7 3 75.0
1460	19 EVERGREEN FORMATION 10 HUTTON SANDSTONE 16 HUTTON SANDSTONE	48813.3973	13.23748753	-0.166769381	0.00		14609 14610 14616	-25.665738 -25.613142	149.986380	-0.455533	-0.447678	2.6171938 2.6171938	2.6184284	0.999996902	0.4509368 0.4389894 5.0.4869496	48813.397	5 50.1 7 48.8
146 146	17 HUTTON SANDSTONE 18 FORMATION NAME NOT SPECIFIED	45102.32322	11.30121978	-0.001277099	0.00		14617 14618	-25.831477 -25.956200	149.616110 149.559168	-0.455533 -0.455533	-0.450844	2.6171938	2.6112937	0.999974942	0.4056149 0.3829888	45102.323 42586.407	, 54.1 3 45.1 7 42.6
1468 1468	54 HUTTON SANDSTONE 30 HUTTON SANDSTONE	15309.19841 64098.67685	1.302064199 22.82577986	0.135034673	0.12		14654 14680	-26.039254 -25.595366	150.091658 149.644719	-0.455533 -0.455533	-0.454471	2.6171938 2.6171938	2.6195936 2.6117931	0.999997113	3 0.1376789 3 0.5764533	9 15309.198 3 64098.67	3 15.3 7 64.1
1469 1480	97 HUTTON SANDSTONE 61 HUTTON SANDSTONE	34151.72208 56143.66248	6.479667338 17.51172687	0.000223853 -892.2843279	0.00 0.00		14697 14861	-25.807031 -25.878978	150.056380 149.449169	-0.455533 -0.455533	-0.450418 -0.451673	8 2.6171938 8 2.6171938	2.6189779 2.6083801	0.999985633 0.99996117	3 0.3071338 I 0.5049121	3 34151.722 56143.662	2 34.2 2 56.1
1487 1487	71 PRECIPICE SANDSTONE 72 HUTTON SANDSTONE	0 39599.89839	0 8.71195529	0 3.23366E-05	0.00 0.00		14871 14872	-25.458532 -25.764277	149.958869 150.086004	-0.455533 -0.455533	-0.444335	2.6171938 2.6171938	2.617276 2.6194949	0.999937308	3 0.641572 3 0.3561304	2 71339.553 4 39599.898	3 71.3 3 39.6
1488 1488	33 EVERGREEN FORMATION 37 HUTTON SANDSTONE	0 70537.74893	0 27.64207791	0 -1036311314	0.00		14883 14887	-25.371195 -25.468279	149.895543 149.891052	-0.455533	-0.442811	2.6171938	2.6161708	0.99991865	0.730805	81261.8 ⁴ 70537.749	81.3 70.5
148	70 FREGIMUE SANDSTONE 70 HUTTON SANDSTONE 53 HUTTON SANDSTONE	0 50058.64505 48846 36104	0 13.92148858 13.25537262	0 -0.783391208 -0.173820402	0.00		14888 14970 15052	-∠5.870642 -25.665833 -25.662066	149.736665	-0.455533 -0.455533	-0.451528 -0.447953	2.01/1938 2.6171938 2.6171938	2.6133978	0.99996913	0.3014457 2 0.4501882 2 0.4302050	53519.229 50058.649 48846.269	, 33.5 5 50.1 2 400
1517	70 PRECIPICE SANDSTONE	34635.49182	6 664540519	0 000184428	0.00		15170	-25.309558	149.883167	-0.455533	-0.441735	5 2.6171938	2.6159548	0.999904194	0.7931157	88190.447	7 88.2 2 34.6



Appendix D

Groundwater Model Results (3,500 ML)

Use or disclosure of data contained on this sheet is subject to the restriction on the distribution page of this document.

"This page has been left blank intentionally"

Use or disclosure of data contained on this sheet is subject to the restriction on the distribution page of this document.

Table D1: Summary of Model Results (3,500 ML)

Chainage	Sub Group	No. Extraction Bores	Extraction Durarion (days)	Extraction Rate (ML/day)	Distance to 5-meter Drawdown (km)	Proposed Extraction Aquifer
0 0 km		1	150	2.580	1.215	Hutton Sandstone
0 - 9 KIII	-	I	30	0.600	N/A	Hutton Sandstone
			330	0.058		
		2	60	3.250	0.377	Hutton Sandstone
0 10 km			30	3.306		
5 - 15 KIII	-	1	60	1.625	0 447	Precipice Sandstone
		I	30	1.653	0.447	
		1	30	0.558	<0.001	Hutton Sandstone
		2	120	0.463	0 120	Hutton Sandstone
	10 - 30 km	2	180	1.063	0.120	Hullon Sandslone
	19 - 50 Kill	1	90	2.887	1.540	Precipice Sandstone
		I	30	1.525	N/A	Precipice Sandstone
	30 - 41 km	1	90	1.150	0.130	Hutton Sandstone
			120	0.200		
19 - 63 km	41 - 53 km	1	120	0.225	0.002	Precipice Sandstone
	41 - 33 Kill	1	120	0.263		
			450	0.200	N/A	Precipice Sandstone
			120	3.050	0.410	Hutton Sandstone
	52 63 km	2	60	0.300	0.010	Hutton Sandstone
	52 - 05 KIII	2	60	1.450	0.010	Thullon Sanusione
			90	0.300	N/A	Hutton Sandstone
			365	0.006	0 127	Precipice Sandstone
	63 - 70 km	3	90	3.417	0.127	
	00 - 70 Kill	5	120	0.006	<0.001	Precipice Sandstone
			30	0.840	VO.001	
	70 - 77 km	1	90	0.884	0.038	Precipice Sandstone
63 - 90 km	77 - 83 km	1	390	0.006	0.013	Precipice Sandstone
	77 - 03 Kill	I	150	0.706	0.015	Precipice Sandstone
			390	0.190	0.021	Precipice Sandstone
	$83 - 90 \ \text{km}$	5	150	3.600	0.021	
	00 - 90 KIII	5	30	0.200	N/A	Precipice Sandstone
			30	0.850	N/A	Precipice Sandstone

Notes:

© The State of Queensland (Department of Environment and Resource Management) 2009

N/A = Not applicable as the drawdown in extraction bore is less than 5 meters or extraction rate decreased

Table D2: Distance Between Bores (0 - 9 km chainage in Hutton Sandstone)

	13856	22117	58409	58232
13856	0	9.838	13.497	4.911
22117	9.838	0	12.535	14.696
58409	13.497	12.535	0	16.940
58232	4.911	14.696	16.940	0

Notes:

© The State of Queensland (Department of Environment and Resource Management) 2009 RN 58232 is located within the 9 - 19.28 km chainage group

Table D3: Distance Between Bores (0 - 9 km chainage in Precipice Sandstone)

	15793	16752	58700
15793	0	4.854	0.714
16752	4.854	0	4.922
58700	0.714	4.922	0

Notes:

© The State of Queensland (Department of Environment and Resource Management) 2009 RN 16752 is located within the 9 - 19.28 km chainage group

Table D4: Distance Between Bores (9 - 19.28 km chainage in Hutton Sandstone)

	13856	16312	58232
13856	0	9.458	4.911
16312	9.458	0	4.601
58232	4.911	4.601	0

Notes:

© The State of Queensland (Department of Environment and Resource Management) 2009 RN 58232 is located within the 0 - 9 km chainage group

Table D5: Distance Between Bores (19.28 - 63 km chainage in Hutton Sandstone)

	12221	13060	14350	14538	14593	14697	14872	15487	15709	15710	15862	16312	16661	17247	17248	23147	38337	43687	48911	48949	58443	58608	58834	58897
12221	0	10.621	13.417	6.724	2.613	11.061	16.629	5.284	20.975	21.986	11.755	14.285	8.007	17.753	18.609	6.729	5.684	24.204	9.823	8.713	8.215	6.904	2.684	10.045
13060	10.621	0	23.353	15.096	11.101	21.434	27.028	8.940	31.526	32.208	22.299	9.019	7.129	28.359	29.020	14.882	13.235	34.592	19.434	18.863	18.560	16.836	12.715	20.658
14350	13.417	23.353	0	14.830	12.264	3.211	4.589	18.200	9.465	8.936	4.290	27.564	21.263	7.708	6.357	15.145	15.721	11.554	3.984	10.747	5.396	11.696	10.853	5.975
14538	6.724	15.096	14.830	0	9.028	11.693	16.327	6.315	19.570	21.829	11.395	14.717	9.239	16.048	18.074	0.349	1.909	23.398	12.552	5.042	9.719	3.267	7.810	9.298
14593	2.613	11.101	12.264	9.028	0	10.412	15.983	7.674	20.602	21.108	11.444	16.174	10.049	17.604	17.975	9.086	8.208	23.522	8.389	9.981	7.562	8.494	1.954	10.076
14697	11.061	21.434	3.211	11.693	10.412	0	5.595	15.492	10.216	10.936	1.707	24.898	18.634	7.465	7.587	12.016	12.691	13.169	3.632	7.540	2.875	8.517	8.720	2.806
14872	16.629	27.028	4.589	16.327	15.983	5.595	0	20.848	4.902	5.532	5.056	30.238	24.034	3.546	1.993	16.671	17.630	7.578	8.270	11.490	8.470	13.061	14.315	7.111
15487	5.284	8.940	18.200	6.315	7.674	15.492	20.848	0	24.756	26.349	15.802	9.407	3.212	21.328	22.765	6.059	4.408	28.310	14.876	10.751	12.820	8.679	7.914	13.822
15709	20.975	31.526	9.465	19.570	20.602	10.216	4.902	24.756	0	4.273	9.228	34.022	27.968	3.529	3.194	19.918	21.115	4.083	13.156	14.531	13.040	16.408	18.839	11.002
15710	21.986	32.208	8.936	21.829	21.108	10.936	5.532	26.349	4.273	0	10.582	35.748	29.523	6.769	3.789	22.174	23.158	2.924	12.919	16.929	13.772	18.568	19.562	12.642
15862	11.755	22.299	4.290	11.395	11.444	1.707	5.056	15.802	9.228	10.582	0	25.184	18.994	6.168	6.965	11.733	12.611	12.533	5.325	6.799	3.955	8.134	9.633	2.098
16312	14.285	9.019	27.564	14.717	16.174	24.898	30.238	9.407	34.022	35.748	25.184	0	6.304	30.547	32.139	14.382	12.984	37.659	24.100	19.670	22.204	17.674	16.964	23.176
16661	8.007	7.129	21.263	9.239	10.049	18.634	24.034	3.212	27.968	29.523	18.994	6.304	0	24.539	25.959	8.944	7.353	31.512	17.806	13.898	15.914	11.837	10.691	17.027
17247	17.753	28.359	7.708	16.048	17.604	7.465	3.546	21.328	3.529	6.769	6.168	30.547	24.539	0	3.434	16.397	17.614	7.508	10.827	11.008	10.114	12.904	15.766	7.710
17248	18.609	29.020	6.357	18.074	17.975	7.587	1.993	22.765	3.194	3.789	6.965	32.139	25.959	3.434	0	18.421	19.445	5.595	10.179	13.149	10.462	14.821	16.307	8.970
23147	6.729	14.882	15.145	0.349	9.086	12.016	16.671	6.059	19.918	22.174	11.733	14.382	8.944	16.397	18.421	0	1.655	23.746	12.823	5.390	10.009	3.610	7.929	9.636
38337	5.684	13.235	15.721	1.909	8.208	12.691	17.630	4.408	21.115	23.158	12.611	12.984	7.353	17.614	19.445	1.655	0	24.862	13.047	6.687	10.418	4.710	7.357	10.525
43687	24.204	34.592	11.554	23.398	23.522	13.169	7.578	28.310	4.083	2.924	12.533	37.659	31.512	7.508	5.595	23.746	24.862	0	15.516	18.387	16.044	20.183	21.886	14.490
48911	9.823	19.434	3.984	12.552	8.389	3.632	8.270	14.876	13.156	12.919	5.325	24.100	17.806	10.827	10.179	12.823	13.047	15.516	0	9.547	3.025	9.797	7.165	5.664
48949	8.713	18.863	10.747	5.042	9.981	7.540	11.490	10.751	14.531	16.929	6.799	19.670	13.898	11.008	13.149	5.390	6.687	18.387	9.547	0	6.530	2.076	8.123	4.803
58443	8.215	18.560	5.396	9.719	7.562	2.875	8.470	12.820	13.040	13.772	3.955	22.204	15.914	10.114	10.462	10.009	10.418	16.044	3.025	6.530	0	6.823	5.845	3.212
58608	6.904	16.836	11.696	3.267	8.494	8.517	13.061	8.679	16.408	18.568	8.134	17.674	11.837	12.904	14.821	3.610	4.710	20.183	9.797	2.076	6.823	0	6.777	6.040
58834	2.684	12.715	10.853	7.810	1.954	8.720	14.315	7.914	18.839	19.562	9.633	16.964	10.691	15.766	16.307	7.929	7.357	21.886	7.165	8.123	5.845	6.777	0	8.171
58897	10.045	20.658	5.975	9.298	10.076	2.806	7.111	13.822	11.002	12.642	2.098	23.176	17.027	7.710	8.970	9.636	10.525	14.490	5.664	4.803	3.212	6.040	8.171	0

Notes:

 Notes:
 © The State of Queensland (Department of Environment and Resource Management) 2009

 Bold denotes bores are close enough to exceed drawdown threshold

 RN 16312 is located within the 9 - 19.28 km chainage group

 It is not known which aquifer RN 23147 and RN 58897 are screened in, so included in Table A5 and Table A6

Table D6: Distance Between Bores (19.28 - 63 km chainage in Precipice Sandstone)

	12627	13180	13881	13882	15417	16028	16065	16686	17945	18207	23147	30421	37507	38658	44404	48816	48911	57701	58897	58907	62077	67229	67232	89599	123105	123167
12627	0	24.109	32.232	30.337	39.345	22.325	16.926	33.362	23.003	37.515	10.853	37.393	26.889	36.853	27.666	29.345	15.538	40.339	16.368	13.246	35.510	36.786	43.678	35.571	17.850	16.494
13180	24.109	0	9.696	7.164	17.898	2.189	9.904	17.145	4.092	13.827	14.272	14.257	4.427	13.289	9.616	5.338	14.689	16.634	9.446	16.292	11.980	13.273	19.828	13.695	11.080	9.231
13881	32.232	9.696	0	2.649	8.223	11.878	19.586	10.651	9.250	5.929	23.432	5.197	10.937	5.117	6.551	7.600	19.301	8.527	15.978	21.593	3.934	4.973	11.951	4.026	15.614	18.834
13882	30.337	7.164	2.649	0	10.847	9.353	17.067	12.500	7.397	7.205	21.164	7.194	8.333	6.519	6.810	5.160	18.232	10.015	14.323	20.392	5.176	6.449	13.394	6.664	14.445	16.372
15417	39.345	17.898	8.223	10.847	0	20.070	27.757	9.624	16.865	7.641	31.274	5.477	18.923	7.273	11.759	15.366	25.080	7.593	22.992	27.537	7.746	7.088	9.622	4.204	21.804	26.950
16028	22.325	2.189	11.878	9.353	20.070	0	7.716	18.887	5.070	15.942	12.233	16.431	4.975	15.427	11.277	7.032	14.173	18.734	8.628	15.501	14.128	15.418	21.881	15.868	10.826	7.058
16065	16.926	9.904	19.586	17.067	27.757	7.716	0	25.639	11.609	23.482	6.075	24.106	10.867	23.020	18.104	14.095	15.124	26.225	10.053	15.234	21.749	23.026	29.241	23.561	13.306	1.354
16686	33.362	17.145	10.651	12.500	9.624	18.887	25.639	0	14.101	14.719	27.370	12.678	20.193	13.967	7.622	17.564	18.005	16.085	17.900	20.463	13.468	13.748	18.843	9.133	15.606	24.502
17945	23.003	4.092	9.250	7.397	16.865	5.070	11.609	14.101	0	14.601	14.415	14.391	8.451	13.902	6.508	8.300	11.390	17.405	6.945	13.323	12.563	13.821	20.790	12.824	7.604	10.555
18207	37.515	13.827	5.929	7.205	7.641	15.942	23.482	14.719	14.601	0	28.086	2.246	13.218	0.835	12.410	9.593	25.169	2.829	21.517	27.419	2.061	1.026	6.190	5.600	21.440	22.976
23147	10.853	14.272	23.432	21.164	31.274	12.233	6.075	27.370	14.415	28.086	0	28.358	16.370	27.521	20.367	19.195	12.823	30.901	9.636	11.967	26.194	27.491	34.097	27.192	12.611	5.710
30421	37.393	14.257	5.197	7.194	5.477	16.431	24.106	12.678	14.391	2.246	28.358	0	14.317	1.796	11.235	10.663	24.399	3.656	21.172	26.727	2.540	1.618	6.962	3.564	20.758	23.487
37507	26.889	4.427	10.937	8.333	18.923	4.975	10.867	20.193	8.451	13.218	16.370	14.317	0	12.917	13.072	3.657	18.971	15.799	13.536	20.422	11.795	12.975	18.597	14.849	15.446	10.732
38658	36.853	13.289	5.117	6.519	7.273	15.427	23.020	13.967	13.902	0.835	27.521	1.796	12.917	0	11.580	9.268	24.384	3.506	20.800	26.646	1.344	0.221	6.916	4.881	20.665	22.478
44404	27.666	9.616	6.551	6.810	11.759	11.277	18.104	7.622	6.508	12.410	20.367	11.235	13.072	11.580	0	11.075	13.428	14.825	11.408	15.852	10.472	11.413	18.194	8.405	10.048	17.013
48816	29.345	5.338	7.600	5.160	15.366	7.032	14.095	17.564	8.300	9.593	19.195	10.663	3.657	9.268	11.075	0	19.627	12.230	14.658	21.411	8.138	9.322	15.152	11.370	15.878	13.755
48911	15.538	14.689	19.301	18.232	25.080	14.173	15.124	18.005	11.390	25.169	12.823	24.399	18.971	24.384	13.428	19.627	0	27.828	5.664	2.484	23.115	24.256	31.252	21.820	3.811	13.800
57701	40.339	16.634	8.527	10.015	7.593	18.734	26.225	16.085	17.405	2.829	30.901	3.656	15.799	3.506	14.825	12.230	27.828	0	24.305	30.112	4.842	3.602	3.426	7.121	24.131	25.752
58897	16.368	9.446	15.978	14.323	22.992	8.628	10.053	17.900	6.945	21.517	9.636	21.172	13.536	20.800	11.408	14.658	5.664	24.305	0	6.886	19.468	20.709	27.706	19.207	3.274	8.699
58907	13.246	16.292	21.593	20.392	27.537	15.501	15.234	20.463	13.323	27.419	11.967	26.727	20.422	26.646	15.852	21.411	2.484	30.112	6.886	0	25.359	26.525	33.538	24.225	5.981	13.977
62077	35.510	11.980	3.934	5.176	7.746	14.128	21.749	13.468	12.563	2.061	26.194	2.540	11.795	1.344	10.472	8.138	23.115	4.842	19.468	25.359	0	1.297	8.239	4.645	19.381	21.184
67229	36.786	13.273	4.973	6.449	7.088	15.418	23.026	13.748	13.821	1.026	27.491	1.618	12.975	0.221	11.413	9.322	24.256	3.602	20.709	26.525	1.297	0	7.023	4.660	20.544	22.472
67232	43.678	19.828	11.951	13.394	9.622	21.881	29.241	18.843	20.790	6.190	34.097	6.962	18.597	6.916	18.194	15.152	31.252	3.426	27.706	33.538	8.239	7.023	0	10.222	27.557	28.840
89599	35.571	13.695	4.026	6.664	4.204	15.868	23.561	9.133	12.824	5.600	27.192	3.564	14.849	4.881	8.405	11.370	21.820	7.121	19.207	24.225	4.645	4.660	10.222	0	18.340	22.769
123105	17.850	11.080	15.614	14.445	21.804	10.826	13.306	15.606	7.604	21.440	12.611	20.758	15.446	20.665	10.048	15.878	3.811	24.131	3.274	5.981	19.381	20.544	27.557	18.340	0	11.953
123167	16.494	9.231	18.834	16.372	26.950	7.058	1.354	24.502	10.555	22.976	5.710	23.487	10.732	22.478	17.013	13.755	13.800	25.752	8.699	13.977	21.184	22.472	28.840	22.769	11.953	0

Notes:

© The State of Queensland (Department of Environment and Resource Management) 2009 Bold denotes bores are close enough to exceed drawdown threshold RN 15417 is located within the 63 - 90 km chainage group

RN 16686 is located within the 63 - 90 km chainage group It is not known which aquifer RN 23147 and RN 58897 are screened in, so included in Table A5 and Table A6

Table D7: Distance Between Bores (63 - 90 km chainage in Precipice Sandstone)

	10594	11104	14582	14583	14584	15417	16270	16686	17849	18173	18195	30318	30506	30507	31409	36120	47325	57615	57781	62877	67232	67280	67281	67410	67624	67625	84032	89504	89510	89540	89572	89724	89763	89764	89775	89853	89854	89855
10594	0	14.827	4.375	6.833	7.530	14.339	5.519	15.618	12.422	11.139	10.267	2.800	4.786	5.639	1.650	13.155	8.281	6.169	2.051	10.358	21.351	8.739	6.558	2.645	8.770	6.339	10.824	8.535	8.625	6.941	13.982	7.028	6.890	8.398	6.041	2.835	2.645	5.295
11104	14.827	0	17.966	20.242	20.085	16.538	9.333	8.399	11.284	8.026	15.031	16.758	18.682	17.534	16.337	2.298	12.965	18.862	15.489	16.795	26.158	16.779	16.419	12.638	22.073	8.660	10.544	17.765	18.168	20.272	23.200	21.723	20.387	19.727	20.731	17.412	12.239	18.870
14582	4.375	17.966	0	2.500	3.205	12.816	9.135	16.819	12.605	12.523	8.869	5.588	6.557	8.707	4.253	16.005	7.901	8.565	2.664	8.160	18.188	12.513	10.229	5.458	4.457	9.334	11.312	5.555	5.446	2.592	10.101	4.352	2.587	4.399	5.718	2.097	6.643	0.962
14583	6.833	20.242	2.500	0	1.469	13.125	11.588	18.409	13.864	14.296	9.518	7.618	8.105	10.571	6.462	18.211	9.200	10.163	5.156	8.342	17.127	14.568	12.284	7.895	1.958	11.676	12.768	5.467	5.179	0.161	8.546	3.770	0.199	3.240	6.431	4.244	9.142	1.545
14584	7.530	20.085	3.205	1.469	0	11.839	11.805	17.658	12.959	13.706	8.396	8.711	9.396	11.760	7.437	17.978	8.398	11.451	5.638	7.072	15.669	15.667	13.379	8.131	2.156	11.680	11.987	4.195	3.861	1.318	7.158	5.222	1.628	1.784	7.869	5.232	9.596	2.441
15417	14.339	16.538	12.816	13.125	11.839	0	13.811	9.624	5.257	8.608	4.091	17.013	18.715	19.977	15.569	14.318	6.265	20.423	12.738	4.784	9.622	22.596	20.652	12.360	13.724	12.325	6.221	7.661	7.978	13.014	9.268	16.764	13.320	10.188	18.509	14.347	14.116	12.969
16270	5.519	9.333	9.135	11.588	11.805	13.811	0	11.630	10.039	7.464	10.345	7.499	9.496	8.864	7.003	7.802	7.768	10.026	6.495	11.379	22.520	9.703	8.399	3.696	13.527	1.699	8.376	10.901	11.189	11.653	16.811	12.507	11.700	12.001	11.405	8.214	2.906	10.090
16686	15.618	8.399	16.819	18.409	17.658	9.624	11.630	0	5.031	4.480	10.017	18.297	20.353	20.332	17.258	6.772	9.261	21.343	15.154	11.908	18.843	21.240	20.028	12.974	19.814	10.009	5.672	14.034	14.472	18.370	18.136	21.153	18.597	16.601	21.460	17.276	13.791	17.475
17849	12.422	11.284	12.605	13.864	12.959	5.257	10.039	5.031	0	3.464	4.997	15.220	17.187	17.762	13.958	9.079	4.712	18.532	11.441	6.880	14.874	19.579	17.943	9.920	15.099	8.367	1.685	9.124	9.556	13.805	13.134	16.946	14.059	11.753	17.779	13.466	11.278	13.126
18173	11.139	8.026	12.523	14.296	13.706	8.608	7.464	4.480	3.464	0	7.150	13.829	15.881	15.952	12.778	5.755	5.519	16.918	10.717	9.004	18.218	17.167	15.786	8.495	15.848	5.777	2.521	10.515	10.948	14.276	15.464	16.816	14.477	12.880	16.994	12.845	9.380	13.240
18195	10.267	15.031	8.869	9.518	8.396	4.091	10.345	10.017	4.997	7.150	0	12.924	14.626	15.907	11.478	12.733	2.586	16.333	8.647	1.908	12.198	18.650	16.648	8.408	10.460	9.061	4.717	4.294	4.705	9.429	8.334	12.989	9.717	6.973	14.508	10.294	10.229	9.131
30318	2.800	16.758	5.588	7.618	8.711	17.013	7.499	18.297	15.220	13.829	12.924	0	2.062	3.166	1.482	15.300	11.046	3.412	4.319	12.832	23.549	6.960	4.672	5.369	9.351	8.671	13.616	10.701	10.707	7.762	15.683	6.310	7.601	9.980	4.107	3.495	4.692	6.271
30506	4.786	18.682	6.557	8.105	9.396	18.715	9.496	20.353	17.187	15.881	14.626	2.062	0	2.736	3.238	17.293	12.899	2.058	5.988	14.357	24.743	6.889	4.764	7.403	9.577	10.719	15.604	12.008	11.951	8.262	16.537	5.810	8.038	10.886	2.808	4.557	6.737	7.013
30507	5.639	17.534	8.707	10.571	11.760	19.977	8.864	20.332	17.762	15.952	15.907	3.166	2.736	0	4.633	16.426	13.871	1.422	7.420	15.930	26.713	4.156	2.066	7.865	12.168	10.361	16.106	13.861	13.872	10.722	18.807	8.541	10.528	13.106	5.495	6.611	6.581	9.324
31409	1.650	16.337	4.253	6.462	7.437	15.569	7.003	17.258	13.958	12.778	11.478	1.482	3.238	4.633	0	14.728	9.671	4.860	2.847	11.354	22.082	8.268	5.990	4.289	8.295	7.945	12.386	9.229	9.244	6.595	14.301	5.831	6.471	8.607	4.430	2.223	4.098	5.024
36120	13.155	2.298	16.005	18.211	17.978	14.318	7.802	6.772	9.079	5.755	12.733	15.300	17.293	16.426	14.728	0	10.684	17.687	13.615	14.499	23.940	16.197	15.538	10.808	20.003	6.841	8.265	15.520	15.928	18.232	20.911	19.905	18.363	17.544	19.155	15.611	10.658	16.884
47325	8.281	12.965	7.901	9.200	8.398	6.265	7.768	9.261	4.712	5.519	2.586	11.046	12.899	13.871	9.671	10.684	0	14.445	6.966	3.950	14.783	16.337	14.424	6.120	10.553	6.479	3.589	4.997	5.429	9.151	10.242	12.236	9.393	7.405	13.206	8.888	7.851	8.414
57615	6.169	18.862	8.565	10.163	11.451	20.423	10.026	21.343	18.532	16.918	16.333	3.412	2.058	1.422	4.860	17.687	14.445	0	7.706	16.192	26.732	5.172	3.353	8.617	11.613	11.449	16.902	13.944	13.910	10.320	18.585	7.712	10.095	12.921	4.491	6.519	7.552	9.058
57781	2.051	15.489	2.664	5.156	5.638	12.738	6.495	15.154	11.441	10.717	8.647	4.319	5.988	7.420	2.847	13.615	6.966	7.706	0	8.517	19.370	10.755	8.540	2.865	7.113	6.829	9.952	6.524	6.594	5.239	11.932	6.308	5.250	6.375	6.360	2.129	3.993	3.626
62877	10.358	16.795	8.160	8.342	7.072	4.784	11.379	11.908	6.880	9.004	1.908	12.832	14.357	15.930	11.354	14.499	3.950	16.192	8.517	0	11.249	18.999	16.891	8.910	9.019	10.276	6.609	2.881	3.218	8.231	6.461	11.992	8.536	5.475	13.878	9.858	10.796	8.232
67232	21.351	26.158	18.188	17.127	15.669	9.622	22.520	18.843	14.874	18.218	12.198	23.549	24.743	26.713	22.082	23.940	14.783	26.732	19.370	11.249	0	30.084	27.903	20.144	16.555	21.258	15.779	12.858	12.843	16.970	8.877	20.766	17.267	13.976	23.530	20.213	22.035	17.830
67280	8.739	16.779	12.513	14.568	15.667	22.596	9.703	21.240	19.579	17.167	18.650	6.960	6.889	4.156	8.268	16.197	16.337	5.172	10.755	18.999	30.084	0	2.288	10.246	16.244	11.396	17.894	17.272	17.348	14.714	22.561	12.697	14.542	16.874	9.605	10.438	8.493	13.229
67281	6.558	16.419	10.229	12.284	13.379	20.652	8.399	20.028	17.943	15.786	16.648	4.672	4.764	2.066	5.990	15.538	14.424	3.353	8.540	16.891	27.903	2.288	0	8.304	13.975	10.034	16.262	15.065	15.126	12.429	20.290	10.528	12.260	14.597	7.550	8.151	6.685	10.941
67410	2.645	12.638	5.458	7.895	8.131	12.360	3.696	12.974	9.920	8.495	8.408	5.369	7.403	7.865	4.289	10.808	6.120	8.617	2.865	8.910	20.144	10.246	8.304	0	9.831	3.984	8.285	7.752	7.968	7.958	13.591	9.101	8.009	8.457	8.609	4.803	1.893	6.407
67624	8.770	22.073	4.457	1.958	2.156	13.724	13.527	19.814	15.099	15.848	10.460	9.351	9.577	12.168	8.295	20.003	10.553	11.613	7.113	9.019	16.555	16.244	13.975	9.831	0	13.561	14.143	6.190	5.811	1.877	7.724	4.350	1.882	3.545	7.509	6.105	11.100	3.500
67625	6.339	8.660	9.334	11.676	11.680	12.325	1.699	10.009	8.367	5.777	9.061	8.671	10.719	10.361	7.945	6.841	6.479	11.449	6.829	10.276	21.258	11.396	10.034	3.984	13.561	0	6.717	10.182	10.515	11.719	16.048	13.084	11.810	11.621	12.371	8.779	3.983	10.255
84032	10.824	10.544	11.312	12.768	11.987	6.221	8.376	5.672	1.685	2.521	4.717	13.616	15.604	16.106	12.386	8.265	3.589	16.902	9.952	6.609	15.779	17.894	16.262	8.285	14.143	6.717	0	8.426	8.865	12.724	13.051	15.664	12.959	10.947	16.311	12.019	9.603	11.904
89504	8.535	17.765	5.555	5.467	4.195	7.661	10.901	14.034	9.124	10.515	4.294	10.701	12.008	13.861	9.229	15.520	4.997	13.944	6.524	2.881	12.858	17.272	15.065	7.752	6.190	10.182	8.426	0	0.439	5.354	5.910	9.153	5.661	2.679	11.228	7.451	9.607	5.478
89510	8.625	18.168	5.446	5.179	3.861	7.978	11.189	14.472	9.556	10.948	4.705	10.707	11.951	13.872	9.244	15.928	5.429	13.910	6.594	3.218	12.843	17.348	15.126	7.968	5.811	10.515	8.865	0.439	0	5.059	5.638	8.900	5.370	2.280	11.073	7.398	9.805	5.296
89540	6.941	20.272	2.592	0.161	1.318	13.014	11.653	18.370	13.805	14.276	9.429	7.762	8.262	10.722	6.595	18.232	9.151	10.320	5.239	8.231	16.970	14.714	12.429	7.958	1.877	11.719	12.724	5.354	5.059	0	8.385	3.911	0.315	3.095	6.590	4.375	9.229	1.646
89572	13.982	23.200	10.101	8.546	7.158	9.268	16.811	18.136	13.134	15.464	8.334	15.683	16.537	18.807	14.301	20.911	10.242	18.585	11.932	6.461	8.877	22.561	20.290	13.591	1.124	16.048	13.051	5.910	5.638	8.385	0	12.016	8.658	5.703	14.965	12.198	15.403	9.528
89724	7.028	21.723	4.352	3.770	5.222	16.764	12.507	21.153	16.946	16.816	12.989	6.310	5.810	8.541	5.831	19.905	12.236	7.712	6.308	11.992	20.766	12.697	10.528	9.101	4.350	13.084	15.664	9.153	8.900	3.911	12.016	0	3.597	7.005	3.307	4.312	9.671	3.869
89763	6.890	20.387	2.587	0.199	1.628	13.320	11.700	18.597	14.059	14.477	9.717	7.601	8.038	10.528	6.471	18.363	9.393	10.095	5.250	8.536	17.267	14.542	12.260	8.009	1.882	11.810	12.959	5.661	5.370	0.315	8.658	3.597	0	3.408	6.309	4.260	9.228	1.626
89764	8.398	19.727	4.399	3.240	1.784	10.188	12.001	16.601	11.753	12.880	6.973	9.980	10.886	13.106	8.607	17.544	7.405	12.921	6.375	5.475	13.976	16.874	14.597	8.457	3.545	11.621	10.947	2.679	2.280	3.095	5.703	7.005	3.408	0	9.560	6.495	10.123	3.883
89775	6.041	20.731	5.718	6.431	7.869	18.509	11.405	21.460	17.779	16.994	14.508	4.107	2.808	5.495	4.430	19.155	13.206	4.491	6.360	13.878	23.530	9.605	7.550	8.609	7.509	12.371	16.311	11.228	11.073	6.590	14.965	3.307	6.309	9.560	0	4.320	8.508	5.787
89853	2.835	17.412	2.097	4.244	5.232	14.347	8.214	17.276	13.466	12.845	10.294	3.495	4.557	0.011	2.223	15.011	8.888	0.519	2.129	9.858	20.213	10.438	8.151	4.803	0.105	8.779	12.019	7.451	7.398	4.375	12.198	4.312	4.260	0.495	4.320	0	5.429	2.805
89854	2.645	12.239	6.643	9.142	9.596	14.116	2.906	13.791	11.278	9.380	10.229	4.692	6.737	6.581	4.098	10.658	7.851	7.552	3.993	10.796	22.035	8.493	6.685	1.893	11.100	3.983	9.603	9.607	9.805	9.229	15.403	9.671	9.228	10.123	8.508	5.429		7.603
89855	5.295	18.870	0.962	1.545	2.441	12.969	10.090	17.475	13.126	13.240	9.131	6.271	7.013	9.324	5.024	16.884	8.414	9.058	3.626	8.232	17.830	13.229	10.941	6.407	3.500	10.255	11.904	5.478	5.296	1.646	9.528	3.869	1.626	3.883	5.787	2.805	7.603	0

Notes: © The State of Queensland (Department of Environment and Resource Management) 2009 Bold denotes bores are close enough to exceed drawdown threshold RN 67232 is located within the 19.28 - 63 km chainage group

76.0 72.2 77.2 63.0 36.7

0.99995117 0.5662194 62960.727 0.999983439 0.3297485 36666.361

Chain 0 - 9 km

Coord lat long	RN 13856 -26.100090 149.954160	
s	Drawdown	m
Q W(u)	Extraction rate	2218 m ³ /d
Т	Transmissivity	150 m²/d
r	Distance from bore to spring	m
S	Storage coeff	0.0005
t	time	150 d

62960.72736 22.02251772 36666.36068 7.46901114

14344 HUTTON SANDSTONE 14350 HUTTON SANDSTONE

-996602.3851 8.38179E-05

0.00

Thies Equation

Well

ell Aquifer	r (m)	u \	Wu	s	RN	GI	S_LAT	GIS_LNG	Extract	Obs	Extract	Obs	COS a	Angle	Dist (m)	Dist (km)
	0	0	0	0.00	0	256	25 717964	140.964005			2 6171029		0 000076760	0 2005 400	12427 16	2 424
8356 FORMATION NAME NOT SPECIFIED 8357 HUTTON SANDSTONE	35614 61237	7 04667008	0 000125226	0.00	8	350 357	-25.717804	149.864995	-0.455533 -0.455533	-0.448861	2.6171938	2.6150376	0.999976765	0.3905499	35614.61	3 43.4 2 35.6
8440 PRECIPICE SANDSTONE	0	0	0.000120220	0.00	8	440	-25.864604	150.202185	6 -0.455533	-0.451422	2.6171938	2.6215227	0.999983983	0.3242889	36059.28	1 36.1
8445 EVERGREEN FORMATION	0	0	0	0.00	8	445	-25.650364	150.070267	-0.455533	-0.447683	2.6171938	2.6192203	0.999967533	0.4616998	3 51338.67	6 51.3
8449 HUTTON SANDSTONE	43762.75489	10.63988176	-0.000184854	0.00	8	449	-25.707030	149.976381	-0.455533	-0.448672	2.6171938	2.6175816	0.999976408	0.3935679	9 43762.75	5 43.8
10463 HUTTON SANDSTONE	72984 94868	29 59334852	-8314921126	0.27	10	403 475	-25.051199	149 878079	-0.455533	-0.454679	2.6171938	2.6192979	0.999934383	0.1188091	1 72984 94	4 13.2 9 73.0
10578 HUTTON SANDSTONE	64487.90121	23.10383002	-4317940.675	0.00	10	578	-25.979536	149.322782	-0.455533	-0.453428	2.6171938	2.6061742	0.999948772	0.5799536	64487.90	1 64.5
10583 PRECIPICE SANDSTONE	0	0	0	0.00	10	583	-25.370832	149.936375	-0.455533	-0.442805	2.6171938	2.6168834	0.999918962	0.729434	81109.35	5 81.1
10584 HUTTON SANDSTONE	85279.95164	40.40372306	-1.10073E+14	0.00	10	584	-25.359943	149.731090	0.455533	-0.442615	2.6171938	2.6133005	0.999910414	0.766941	85279.95	2 85.3
10592 PRECIPICE SANDSTONE	0	0	0	0.00	10	592 594	-25.680364	150.053601	-0.455533	-0.448207	2.6171938	2.6189294	0.999971949	0.4291536	660474	8 47.7 4 66.0
10690 HUTTON SANDSTONE	24646.43473	3.374704139	0.008159045	0.01	10	690	-25.879253	149.933050	0.455533	-0.451678	2.6171938	2.6168254	0.999992517	0.2216507	24646.43	5 24.6
10875 PRECIPICE SANDSTONE	0	0	0	0.00	10	875	-25.503869	150.129343	3 -0.455533	-0.445126	2.6171938	2.6202513	0.999942069	0.6167285	68577.0	8 68.6
10876 PRECIPICE SANDSTONE	12151 62802	0	0 224257007	0.00	10	876	-25.505448	150.107771	-0.455533	-0.445154	2.6171938	2.6198748	0.999943231	0.6105117	67885.	8 67.9
10918 EVERGREEN FORMATION	13151.03602	0.960919904	0.234357097	0.28	10	918	-26.134255	149.884711	-0.455533	-0.436129	2.6171938	2.6159817	0.99993188	0.6687699	9 74363.82	o 13.2 1 74.4
10929 HUTTON SANDSTONE	84267.48273	39.45004804	-5.31929E+13	0.00	10	929	-25.343720	149.901868	-0.455533	-0.442331	2.6171938	2.6162812	0.999912528	0.7578357	84267.48	3 84.3
10930 HUTTON SANDSTONE	61810.44876	21.22517542	-322451.8487	0.00	10	930	-25.601477	149.681108	3 -0.455533	-0.44683	2.6171938	2.6124282	0.999952937	0.5558747	61810.44	9 61.8
10980 EVERGREEN FORMATION	0	0	0	0.00	10	980 981	-25.232863	149.716934	-0.455533	-0.440397	2.6171938	2.6130534	0.999878491	0.8931964	1 99318.90 7 96852.85	6 99.3 7 96.9
10989 PRECIPICE SANDSTONE	0	0	0	0.00	10	989	-25.198973	149.824986	-0.455533 6 -0.455533	-0.439805	2.6171938	2.6149393	0.999874261	0.9086093	3 101032.7	4 101.0
10990 EVERGREEN FORMATION	0	0	0	0.00	10	990	-25.160640	149.812486	6 -0.455533	-0.439136	2.6171938	2.6147211	0.999863096	0.9480937	7 105423.2	1 105.4
10992 EVERGREEN FORMATION	0	0	0	0.00	10	992	-25.233418	149.729711	-0.455533	-0.440406	2.6171938	2.6132764	0.999879367	0.8899692	2 98960.06	4 99.0
11007 HUTTON SANDSTONE	54149 89292	48.55228306	-2.94255E+16 -97 20318814	0.00	11	007	-25.308017	149.641340	-0.455533	-0.441708	2.6171938	2.6132978	0.999892346	0.8407292	2 93484.81 7 54149 89	7 93.5 3 54.1
11104 PRECIPICE SANDSTONE	0	0	0	0.00	11	104	-25.621055	150.048223	-0.455533	-0.447172	2.6171938	2.6188355	0.999963958	0.4864555	5 54091.38	4 54.1
11140 EVERGREEN FORMATION	0	0	0	0.00	11	140	-25.316837	149.563137	-0.455533	-0.441862	2.6171938	2.6103692	0.999887658	0.8588417	95498.83	6 95.5
11175 HUTTON SANDSTONE	24280.3907	3.275207625	0.009236332	0.01	11	175	-25.978976	150.156379	0.455533	-0.453419	2.6171938	2.6207232	0.999992738	0.2183588	3 24280.39	1 24.3 9 25.0
11306 PRECIPICE SANDSTONE	25025.84810	0	0.007 105801	0.01	11	306	-25.663705	150.024896	0.455533 0.455533	-0.4433128	2.6171938	2.6184284	0.99999228	0.4410011	49037.08	8 <u>49.0</u>
11501 EVERGREEN FORMATION	0	0	0	0.00	11	501	-25.623144	149.502499	0.455533	-0.447208	2.6171938	2.6093108	0.999940195	0.6266249	9 69677.51	3 69.7
11558 PRECIPICE SANDSTONE	0	0	0	0.00	11	558	-25.595376	150.013748	3 -0.455533	-0.446724	2.6171938	2.6182338	0.999960764	0.5075549	9 56437.53	2 56.4
11647 EVERGREEN FORMATION	10006.19135	0.556243697	0.496887259	0.58	11	560 647	-26.028977	149.892774	· -0.455533 3 -0.455533	-0.454291	2.6171938	2.6096364	0.999998767	0.6868887	76378.54	1 10.0
11648 HUTTON SANDSTONE	77022.90293	32.95848653	-2.222E+11	0.00	11	648	-25.477866	149.616107	-0.455533	-0.444673	2.6171938	2.6112937	0.999926922	0.6926836	5 77022.90	3 77.0
11692 EVERGREEN FORMATION	0	0	0	0.00	11	692	-25.822031	150.289708	3 -0.455533	-0.450679	2.6171938	2.6230502	0.999974362	0.4102833	3 45621.41	9 45.6
11694 HUTTON SANDSTONE 11739 HUTTON SANDSTONE	25926.96545	3.734486319	0.005238022	0.01	11	694 739	-26.109532	150.213601	-0.455533	-0.455697	2.6171938	2.6217219	0.999991719	0.2331668	3 25926.96 7 23891 75	5 25.9 8 23.9
11758 EVERGREEN FORMATION	0	0	0.010022001	0.00	11	758	-25.391571	149.733299	-0.455533	-0.443167	2.6171938	2.6133391	0.999917515	0.735917	81830.2	4 81.8
11764 HUTTON SANDSTONE	70774.12913	27.82765197	-1271234902	0.00	11	764	-25.472585	149.835824	-0.455533	-0.44458	2.6171938	2.6151285	0.999938298	0.636487	7 70774.12	9 70.8
11765 HUTTON SANDSTONE	62945.1938	22.01165235	-981668.5747	0.00	11	765 766	-25.567031	149.742495	0.455533	-0.446229	2.6171938	2.6134996	0.999951194	0.5660797	62945.19	4 62.9 9 66.5
11850 EVERGREEN FORMATION	000000.02000	24.53750755	-23313320.73	0.00	11	850	-25.397308	149.754435	-0.455533	-0.443267	2.6171938	2.613708	0.999919847	0.7254403	3 80665.28	4 80.7
11878 PRECIPICE SANDSTONE	0	0	0	0.00	11	878	-25.752586	150.218598	3 -0.455533	-0.449467	2.6171938	2.6218091	0.999972993	0.4210927	46823.36	8 46.8
	29872.77534	4.957681702	0.001222462	0.00	11	882	-26.093568	150.253222	2 -0.455533	-0.455419	2.6171938	2.6224134	0.999989007	0.2686523	3 29872.77 5 54104 67	5 29.9 2 54.1
12118 EVERGREEN FORMATION	0	0	0	0.00	12	118	-25.990643	150.095547	·0.455533	-0.453622	2.6171938	2.6196615	0.999995718	0.167675	5 18644.61	4 18.6
12221 HUTTON SANDSTONE	23215.13307	2.994124464	0.013161938	0.02	12	221	-25.897309	150.009437	-0.455533	-0.451993	2.6171938	2.6181586	0.999993361	0.2087787	7 23215.13	3 23.2
12236 HUTTON SANDSTONE	79185.38767	34.83514234	-1.20209E+12	0.00	12	236	-25.502535	149.523888	3 -0.455533	-0.445103	2.6171938	2.6096842	0.999922761	0.7121313	3 79185.38	8 79.2
12238 EVERGREEN FORMATION 12372 HUTTON SANDSTONE	30396.90238	5.133175969	0.000998081	0.00	12	230 372	-25.831753	149.896106	-0.455533 -0.455533	-0.446472	2.6171938	2.6161806	0.999988618	0.2733659	30396.90	2 30.4
12627 PRECIPICE SANDSTONE	0	0	0	0.00	12	627	-25.941818	149.969996	6 -0.455533	-0.45277	2.6171938	2.6174702	0.999996154	0.1589105	5 17670.03	9 17.7
12651 HUTTON SANDSTONE	74954.36253	31.21198035	-42222948690	0.00	12	651	-25.653978	149.392501	-0.455533	-0.447746	2.6171938	2.607391	0.999930794	0.6740808	3 74954.36	3 75.0
12753 HUTTON SANDSTONE	24118.35598	3.231639418	-259.528754	0.00	12	753 838	-25.884809	149.713608	·0.455533	-0.447766	2.6171938	2.6166799	0.999962702	0.2169016	5 24118.35	o 55.0 6 24.1
12882 HUTTON SANDSTONE	51924.26122	14.97849391	-7.403715924	0.00	12	882	-25.636197	150.013601	-0.455533	-0.447436	2.6171938	2.6182313	0.999966788	0.4669661	51924.26	1 51.9
13060 HUTTON SANDSTONE	14793.64033	1.215843301	0.154504594	0.18	13	060	-25.967865	149.937772	2 -0.455533	-0.453225	2.6171938	2.6169078	0.999997304	0.1330424	14793.6	4 14.8
13073 HUTTON SANDSTONE 13180 PRECIPICE SANDSTONE	48179.76347	12.89605338	-0.07473273	0.00	13	180	-25.680721	149.833051	-0.455533	-0.448213	2.6171938	2.6150801	0.999971406	0.433291	1 48179.76 7 38013 84	3 48.2 8 38.0
13521 HUTTON SANDSTONE	95388.94802	50.55028558	-1.00229E+17	0.00	13	521	-25.296707	149.620323	3 -0.455533	-0.441511	2.6171938	2.6113673	0.999887916	0.8578534	4 95388.94	8 95.4
13791 HUTTON SANDSTONE	52172.45711	15.12202934	-9.920561969	0.00	13	791	-25.632388	149.912551	-0.455533	-0.44737	2.6171938	2.6164676	0.99996647	0.4691982	2 52172.45	7 52.2
13856 HULLON SANDSTONE	0.300211771	5.00706E-10	20.83780171	24.52	13	856	-26.100088	149.954162	2 -0.455533	-0.455532	2.6171938	2.61/1939	0 000072383	2.7E-06	5 0.300211 5 47348 74	8 0.0 8 473
13882 PRECIPICE SANDSTONE	0	0	0	0.00	13	882	-25.756197	150.192209	0.455533	-0.44953	2.6171938	2.6213486	0.999975007	0.4050873	3 45043.6	5 45.0
13945 HUTTON SANDSTONE	68014.40861	25.69977654	-111932017.5	0.00	13	945	-25.976203	149.287504	-0.455533	-0.45337	2.6171938	2.6055585	0.999943016	0.6116683	8 68014.40	9 68.0
14133 HUTTON SANDSTONE	71005.42404	28.00983468	-1551533809	0.00	14	133	-25.531348	149.631623	3 -0.455533	-0.445606	2.6171938	2.6115645	0.999937894	0.6385671	1 71005.42	4 71.0 6 91.7
14180 HUTTON SANDSTONE	81318.83329	36.73751471	-6.0758E+12	0.00	14	180	-25.456762	149.567935	-0.455533 -0.455533	-0.444304	2.6171938	2.6102692	0.999918542	0.7313178	3 81318.83	3 81.3
14184 HUTTON SANDSTONE	81222.52385	36.65054656	-5.65255E+12	0.00	14	184	-25.386267	149.782110	-0.455533	-0.443074	2.6171938	2.614191	0.999918735	0.7304517	81222.52	4 81.2
14185 HUTTON SANDSTONE	83628.65012	38.85417289	-3.34648E+13	0.00	14	185	-25.365085	149.777212	2 -0.455533	-0.442704	2.6171938	2.6141055	0.999913849	0.7520905	5 83628.6	5 83.6
14188 HUTTON SANDSTONE	75628.88821	31.77627073	-72932575045	0.00	14	188	-25.419249	149.842203	-0.455533 -0.455533	-0.44365	2.6171938	2.6151344	0.99992767	0.6801469	75628.88	6 76.6 8 75.6
14189 HUTTON SANDSTONE	66032.12756	24.22356595	-18354709.21	0.00	14	189	-25.542309	149.727772	-0.455533	-0.445797	2.6171938	2.6132426	0.999946289	0.5938412	2 66032.12	8 66.0
14190 HUTTON SANDSTONE	63236.13505	22.21560431	-1301682.322	0.00	14	190	-25.559809	149.756939	-0.455533	-0.446103	2.6171938	2.6137517	0.999950741	0.5686962	2 63236.13	5 63.2
14191 HUTTON SANDSTONE 14204 EVERGREEN FORMATION	81688.3762	37.07217114	-8.00901E+12	0.00	14	204	-25.401368	149.702236	· -0.455533	-0.443338	2.6171938	2.6127969	0.99999178	0.7346412	2 81688.37	6 81.7 2 80.6
14205 EVERGREEN FORMATION	0	0	0	0.00	14	205	-25.460366	149.609718	3 -0.455533	-0.444367	2.6171938	2.6111822	0.999923017	0.7109457	79053.55	9 79.1
14206 HUTTON SANDSTONE	78007.24718	33.80628118	-4.82001E+11	0.00	14	206	-25.473699	149.603330	-0.455533	-0.4446	2.6171938	2.6110707	0.999925042	0.701536	6 78007.24	7 78.0
14228 HUTTON SANDSTONE	76011.66037	32.09873618	-99235683795 -4 97731E±11	0.00	14	228	-25.530931	149.533563	·0.455533	-0.445599	2.6171938	2.609853	0.999928828	0.6835893	3 76011.6 3 78048 24	6 76.0 4 78.0
14231 HUTTON SANDSTONE	78998.97805	34.67132518	-1.04122E+12	0.00	14.	231	-25.535348	149.475299	-0.455533 -0.455533	-0.445676	2.6171938	2.6088361	0.999923124	0.7104549	78998.97	-, /0.0 8 79.0
14247 HUTTON SANDSTONE	16656.39382	1.541308084	0.09409655	0.11	14	247	-26.009810	150.087214	-0.455533	-0.453957	2.6171938	2.619516	0.999996582	0.1497945	5 16656.39	4 16.7
	20982.36548	2.445887007	0.026776511	0.03	14	248	-25.998421	150.131102	-0.455533	-0.453758	2.6171938	2.620282	0.999994577	0.1886989	20982.36	5 21.0
14250 HUTTON SANDSTONE	16652.75907	2.110352786	0.094190034	0.05	14.	∠49 250	-25.987032	150.103602	-0.455533 -0.455533	-0.453559	2.6171938	2.6198021	0.999996584	0.1755276	9 16652.75	9 16.7
14270 HUTTON SANDSTONE	74905.2041	31.17105334	-40566202460	0.00	14	270	-25.501898	149.610091	-0.455533	-0.445092	2.6171938	2.6111887	0.999930885	0.6736387	74905.20	4 74.9
14273 HUTTON SANDSTONE	76042.74017	32.12499074	-1.01741E+11	0.00	14	273	-25.499255	149.591387	-0.455533	-0.445046	2.6171938	2.6108622	0.99992877	0.6838688	3 76042.7	4 76.0
14277 HUTTON SANDSTONE	77156.65471	33.07305203	-2.46999E+11	0.00	14.	277	-25.491431	149.584095	-0.455533	-0.444909	2.6171938	2.610735	0.999926668	0.6938865	5 77156.65	5 77.2

(June 2011 - October 2011)

Distance Calculation

14550 HOTTON SANDOTONE	30000.30000	7.40301114	0.001732-00	0.00	14000	-20.700004	130.043000 -0.4333333 -0.443332 2.0171330 2.0107337	0.333303433 0.3237403 30000.301	50.7
14352 HUTTON SANDSTONE	100243.826	55.82680365	-2.04508E+18	0.00	14352	-25.244954	149.637462 -0.455533 -0.440608 2.6171938 2.6116664	0.999876217 0.9015144 100243.83	100.2
14358 HUTTON SANDSTONE	75968.65301	32.06242356	-95868214453	0.00	14358	-26.315929	149.231672 -0.455533 -0.4593 2.6171938 2.604584	0.999928908 0.6832025 75968.653	76.0
14388 HUTTON SANDSTONE	69030.16969	26.47313515	-276913095.4	0.00	14388	-25.541096	149.654166 -0.455533 -0.445776 2.6171938 2.6119579	0.999941301 0.6208032 69030.17	69.0
14453 HUTTON SANDSTONE	83470.47625	38.70733558	-2.98204E+13	0.00	14453	-25.435750	149.566058 -0.455533 -0.443938 2.6171938 2.6104202	0.999914175 0.750668 83470.476	83.5
14459 HUTTON SANDSTONE	76826.95476	32.79100543	-1.90229E+11	0.00	14459	-25.428697	149.773047 -0.455533 -0.443814 2.6171938 2.6140328	0.999927293 0.6909214 76826.955	76.8
14460 PRECIPICE SANDSTONE	0	0	0	0.00	14460	-25.774531	150.268875 -0.455533 -0.44985 2.6171938 2.6226866	0.999971658 0.4313764 47966.868	48.0
14461 HUTTON SANDSTONE	34806.38869	6.73047052	0.000172277	0.00	14461	-25.787308	149.967771 -0.455533 -0.450073 2.6171938 2.6174314	0.999985076 0.3130214 34806.389	34.8
14461 HUTTON SANDSTONE	34806.38869	6.73047052	0.000172277	0.00	14461	-25.787308	149.967771 -0.455533 -0.450073 2.6171938 2.6174314	0.999985076 0.3130214 34806.389	34.8
14535 HUTTON SANDSTONE	42296.99273	9.939086633	-4.80468E-06	0.00	14535	-25.729253	149.859995 -0.455533 -0.44906 2.6171938 2.6155503	0.999977962 0.380386 42296.993	42.3
14538 HUTTON SANDSTONE	24213.81808	3.257272145	0.009445823	0.01	14538	-25.911198	150.074714 -0.455533 -0.452236 2.6171938 2.6192979	0.999992778 0.2177601 24213.818	24.2
14561 HUTTON SANDSTONE	53418.35309	15.85289137	-42.2044675	0.00	14561	-25.628142	149.854438 -0.455533 -0.447295 2.6171938 2.6154533	0.999964849 0.4804028 53418.353	53.4
14562 HUTTON SANDSTONE	53520.09246	15.91333498	-47.42954356	0.00	14562	-25.633697	149.821987 -0.455533 -0.447392 2.6171938 2.614887	0.999964715 0.4813178 53520.092	53.5
14562 HUTTON SANDSTONE	53520.09246	15.91333498	-47.42954356	0.00	14562	-25.633697	149.821987 -0.455533 -0.447392 2.6171938 2.614887	0.999964715 0.4813178 53520.092	53.5
14573 HUTTON SANDSTONE	34955.3874	6.788217267	0.000162365	0.00	14573	-25.787308	149.919161 -0.455533 -0.450073 2.6171938 2.616583	0.999984948 0.3143614 34955.387	35.0
14574 HUTTON SANDSTONE	30726.49959	5.245098762	0.000877705	0.00	14574	-26.004532	150.242766 -0.455533 -0.453865 2.6171938 2.6222309	0.99998837 0.27633 30726.5	30.7
14575 EVERGREEN FORMATION	0	0	0	0.00	14575	-25.965087	150.242211 -0.455533 -0.453176 2.6171938 2.6222213	0.999987021 0.2919195 32459.963	32.5
14577 EVERGREEN FORMATION	0	0	0	0.00	14577	-25.943420	150.201934 -0.455533 -0.452798 2.6171938 2.6215183	0.999988711 0.2722524 30273.083	30.3
14578 HUTTON SANDSTONE	29213.99391	4.741430223	0.00157272	0.00	14578	-25.995643	150.222489 -0.455533 -0.45371 2.6171938 2.621877	0.999989487 0.2627278 29213.994	29.2
14582 PRECIPICE SANDSTONE	0	0	0	0.00	14582	-25.543696	150.205262 -0.455533 -0.445822 2.6171938 2.6215764	0.999945068 0.6005524 66778.379	66.8
14583 PRECIPICE SANDSTONE	0	0	0	0.00	14583	-25.542709	150.230094 -0.455533 -0.445804 2.6171938 2.6220098	0.999943286 0.610219 67853.253	67.9
14584 PRECIPICE SANDSTONE	0	0	0	0.00	14584	-25.555363	150.234428 -0.455533 -0.446025 2.6171938 2.6220854	0.999945113 0.6003062 66751.007	66.8
14590 HUTTON SANDSTONE	43317.03974	10.42425518	-8.96483E-05	0.00	14590	-25.714252	150.013880 -0.455533 -0.448798 2.6171938 2.6182361	0.999976886 0.3895595 43317.04	43.3
14591 HUTTON SANDSTONE	40667.26172	9.187923197	2.35675E-05	0.00	14591	-25.735919	149.991659 -0.455533 -0.449177 2.6171938 2.6178483	0.999979628 0.3657295 40667.262	40.7
14593 HUTTON SANDSTONE	24724.06577	3.395996825	0.007946034	0.01	14593	-25.880278	149.991420 -0.455533 -0.451696 2.6171938 2.6178441	0.99999247 0.2223489 24724.066	24.7
14597 PRECIPICE SANDSTONE	0	0	0	0.00	14597	-25.428889	150.031739 -0.455533 -0.443818 2.6171938 2.6185478	0.999930641 0.6748274 75037.386	75.0
14609 EVERGREEN FORMATION	0	0	0	0.00	14609	-25.650086	149.986380 -0.455533 -0.447678 2.6171938 2.6177562	0.999969029 0.4509368 50141.885	50.1
14610 HUTTON SANDSTONE	48813.3973	13.23748753	-0.166769381	0.00	14610	-25.665738	150.024896 -0.455533 -0.447952 2.6171938 2.6184284	0.999970648 0.4389894 48813.397	48.8
14616 HUTTON SANDSTONE	54146.32501	16.28791395	-96.81116559	0.00	14616	-25.613142	149.955547 -0.455533 -0.447034 2.6171938 2.617218	0.999963885 0.4869496 54146.325	54.1
14617 HUTTON SANDSTONE	45102.32322	11.30121978	-0.001277099	0.00	14617	-25.831477	149.616110 -0.455533 -0.450844 2.6171938 2.6112937	0.999974942 0.4056149 45102.323	45.1
14618 FORMATION NAME NOT SPECIFIED	0	0	0	0.00	14618	-25.956200	149.559168 -0.455533 -0.453021 2.6171938 2.6102999	0.999977659 0.3829888 42586.407	42.6
14654 HUTTON SANDSTONE	15309.19841	1.302064199	0.135034673	0.16	14654	-26.039254	150.091658 -0.455533 -0.454471 2.6171938 2.6195936	0.999997113 0.1376789 15309.198	15.3
14680 HUTTON SANDSTONE	64098.67685	22.82577986	-2981647.156	0.00	14680	-25.595366	149.644719 -0.455533 -0.446723 2.6171938 2.6117931	0.999949388 0.5764533 64098.677	64.1
14697 HUTTON SANDSTONE	34151.72208	6.479667338	0.000223853	0.00	14697	-25.807031	150.056380 -0.455533 -0.450418 2.6171938 2.6189779	0.999985633 0.3071338 34151.722	34.2

14344 14350

-25.997036 -25.780364

 149.334448
 -0.455533
 -0.453734
 2.6171938
 2.6063778

 150.043880
 -0.455533
 -0.449952
 2.6171938
 2.6187597

Worldwide Locations

Australia	+61-2-8484-8999	
Azerbaijan	+994 12 4975881	
Belgium	+32-3-540-95-86	
Bolivia	+591-3-354-8564	
Brazil	+55-21-3526-8160	
China	+86-20-8130-3737	
England	+44 1928-726006	
France	+33(0)1 48 42 59 53	
Germany	+49-631-341-13-62	
Ireland	+353 1631 9356	
Italy	+39-02-3180 77 1	
Japan	+813-3541 5926	
Malaysia	+603-7725-0380	
Netherlands	+31 10 2120 744	
Philippines	+632 910 6226	
Scotland	+44 (0) 1224-624624	
Singapore	+65 6295 5752	
Thailand	+662 642 6161	
Turkey	+90-312-428-3667	
United States	+1 978-589-3200	
Venezuela	+58-212-762-63 39	

Australian Locations

Adelaide Brisbane Canberra Darwin Melbourne Newcastle Perth Sydney Singleton

www.aecom.com

About AECOM

AECOM is a leading provider of advanced environmental, planning, design, engineering, management and advisory services in the buildings, energy, environment, government, mining, power, transport and water markets.

From our offices across Australia and New Zealand, we leverage AECOM's global reach while providing a unique blend of local knowledge, innovation and technical excellence combined with a personal commitment to meeting our clients' specific needs.

Together, AECOM forms a strong global network of more than 43,000 professionals united by a common purpose to enhance and sustain the world's built, natural and social environments.

AECOM has over 740 offices across Africa, the Americas, Asia-Pacific, the Middle East, the United Kingdom & Europe.

For more information, please visit: www.aecom.com

Australian Locations

Adelaide Brisbane Canberra Darwin Melbourne Newcastle Perth Singleton Sydney