



Walford East Project Exploration Drilling Program

Supporting information -
Regional Interests Development Approval

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1. INTRODUCTION

Footprints Resources (the applicant) is proposing to undertake exploration drilling for copper on EPM26316 as part of the Walford East Project. The tenement area is located approximately 35 km northwest of Doomadgee on the Doomadgee-Westmoreland Road (refer **Map 1, Attachment 1**).

The exploration area is located in the Gulf Rivers Strategic Environmental Area (SEA)(refer **Map 2, Attachment 1**) which triggers a requirement to obtain a Regional Interests Development Approval (RIDA) under the *Regional Planning Interests Act 2014*. This document contains information on the exploration activities and supporting the RIDA application.

The applicant holds an existing standard Environmental Authority (EPSX0424951) and will undertake drilling in accordance with the Department of Environment and Heritage Protection's *Eligibility criteria and standard conditions for exploration and mineral development projects (Version 2)*.

1.1. Project context

The Walford East Project is located in the North West Mineral Province, which accounts for the majority of Queensland's base metal production. Mining is also the dominant industry in the North West region in terms of employment, economic activity and gross regional product (DIP 2010). However, most existing mines in the area are at a mature stage of development and a number have closed or are scheduled for closure in the short to medium term up to 2020 (DIP 2010; DNRM 2012). According to DNRM (2012), "the long term future of Queensland's...minerals industry is dependent upon new mineral discoveries and improved infrastructure to extend the lives of mines in the area."

1.2. The applicant

Footprints Resources Pty Ltd (ACN 167 751 868) is the holder of EPM26316 and associated Environmental Authority (EPSX0424951) and is therefore an eligible person under section 28 of the RPI Act.

1.3. Property and tenure details

Table 1.1 summarises property and tenure details for the exploration area (refer **Map 3, Attachment 1**). Recent land title searches are included in **Attachment 2**.

Table 1.1 Underlying property and tenure details for EPM26316

Category	Particulars (Bowthorn Station)	Particulars (Turn Off Lagoons Station)
Real property description	Lot 1 on Plan MU1	Lot 1 on Plan CP887914
Tenure	Lands Lease	Lands Lease
Lessee	Edward Sparke Charles Throsby	Turn Off Lagoons Pastoral Holding Company Pty Ltd
Purpose for which lease was granted	Pastoral	Pastoral

2. PROPOSED EXPLORATION ACTIVITIES

2.1. Drill program particulars

The proposed activities to be undertaken on EPM26316 comprise the establishment of exploration drill sites over two target areas, access tracks, an associated laydown storage area and campsite for the drill crew. A summary of project activities is provided in **Table 2.1**. Maps showing the location of drill sites and other infrastructure in relation to the EPM boundary are provided in **Attachment 1 (see Map 1, 1a and 1b)**.

Table 2.1 Summary of project activities

Area of regional interest	Location	Resource activity	Area of disturbance (ha)
Strategic environmental area	Lot 1 MU1	Reverse circulation drill holes (8) (Target 1, Target 2)	0.32 ha
		Access tracks (new)	0.58 ha
	Lot 1 CP887914	Reverse circulation drill holes (7) (Target 2)	0.28 ha
		Access tracks (new)	0.52 ha
	Total area of disturbance		1.70 ha

Table 2.2 Proposed exploration drilling activity definitions

Activity	Definitions
Reverse circulation drill hole	An area of approximately 400sq.m (20x20m), typically requiring limited disturbance, with mature trees avoided and pads orientated to minimise clearing. Drill holes are 150mm in diameter with a depth generally ranging from 100-150m.
Access tracks	A cleared track no greater than 3 m wide to facilitate access to the drill sites or laydown storage area. Existing farm tracks will be used as is or upgraded using a grader to clear scrub and level where required.
Laydown storage	A dedicated laydown area of approximately 20x20m for the storage of approximately 500 litres of oil and drilling fluids.
Field campsite	A place where exploration activity personnel intermittently lodge for short terms of typically one to two months but not more than four consecutive months in a tent or tents, caravan or other similar means of temporary shelter.

2.2. Water supply

A limited water supply volume is required for dust suppression when using reverse circulation drilling. It is currently proposed that all water required for the drilling program can be accommodated in water tanks mounted on the support vehicles and trucked into site from Mt Isa; it is not proposed to source water from the exploration area.

2.3. Timing

Exploration activities will be undertaken during the northern dry season (April to November) to avoid periods of high rainfall in the region. Rehabilitation of disturbed areas will occur as soon as practical after the completion of drilling. This may be up to six months after completion of drilling at each site pending collection, analysis and interpretation of assay and geological data. Rehabilitation will occur when areas are closed off due to no further geological interest.

3. ENVIRONMENTAL ATTRIBUTES OF THE EXPLORATION AREA

The exploration area (EPM26316) is located approximately 35km northwest of the township of Doomadgee on the boundary between Tertiary lateritic surfaces in the Northwest Highlands bioregion and the active alluvial plains around Walford Creek (in the Gulf Plains bioregion). The region is characterised by a semi-arid tropical climate with cool dry winters and hot wet summers. Most of the annual rainfall occurs during the summer monsoon, with average annual rainfall in the region totalling 590.5 millimetres. Mean daily temperatures range from 24.1°C to 39.1°C in summer and from 12.8°C to 28.3°C in winter.

Environmental attributes have been extrapolated from the limited published data sources available for the exploration area including:

- Climate data for Century Mine (mean monthly temperatures) and Gregory Downs Station (mean monthly rainfall)
- Hedleys Creek 1:100,000 topographic map
- Google Earth aerial imagery
- Queensland government data layers (including WetlandInfo for Hedleys Creek map tile and Regional ecosystem data)

3.1. Surface water

The main target area (Target 2) comprises flat, low lying (~80 m elevation) areas adjacent to Walford Creek approximately 65 km upstream of the junction with Cliffdale Creek (refer **Map 4, Attachment 1**). One additional drill hole (Target 1) is proposed on an upstream tributary at slightly higher elevation (approximately 130 m elevation). The catchment area is remote and no historical water quality or flow monitoring data for Walford Creek or Cliffdale Creek is available. As such, environmental attributes have been extrapolated from topographic maps and aerial photography.

Flows in Walford Creek are intermittent and presumably seasonal; analysis of aerial photography indicates the presence of a series of waterholes downstream of the exploration area. Some vegetation communities mapped for the main target area are dominated by *Melaleuca spp.* and a number of other species which indicate frequent inundation of low-lying areas.

Like most rivers in north-western Queensland, the Cliffdale Creek system is largely undeveloped with surrounding land used predominantly for low intensity cattle grazing. Evidence of development identified from aerial photography is restricted to tracks, fence lines and man-made water storages adjacent to Walford Creek. Environmental attributes in the exploration area are therefore expected to reflect near-natural conditions, with elevated sediment inputs from eroded areas associated with cattle grazing in and around Walford Creek.

3.2. Groundwater

The exploration area is located in an unmanaged area between the Nicholson Groundwater Management Area (GMA) and Great Artesian Basin GMA (refer **Map 4, Attachment 1**). There are no registered bores in the immediate vicinity, with the closest data coming from Sarah's Bore (RN72582) approximately 22 km west of the main target area (Target 2)(see **Attachment 3**). This aquifer is associated with the Mt Les Siltstone unit, which also forms part of the target sequence for the Walford East Project. However, the exploration program is targeting copper mineralisation on the Fish River Fault at the boundary between the Fickling Group sediments and Peters Creek Volcanics, where there is a low likelihood of encountering significant groundwater.

3.3. Terrestrial habitats

The exploration area straddles the boundary between the Northwest Highlands and Gulf Plains bioregions. Mapped vegetation communities reflect the change in landscape between dissected lateritic surfaces on the margins of the Northwest Highlands and older alluvial terraces and active alluvial areas of the Gulf Plains. **Table 3.1** summarises exploration drilling in mapped Regional Ecosystems (and adjacent communities associated with Walford Creek).

Terrestrial habitats in the upper reaches of the catchment (Target 1) are characteristic of those common in the bioregion – very sparse, low open eucalypt woodlands with an understorey of spinifex. These would be expected to provide food and shelter for a range of fauna species adapted to harsh environments and prolonged dry periods. Terrestrial habitats in and around Target 2 are likely to be more diverse. These include riparian vegetation, sparse open woodlands and woodlands dominated by eucalypt and/or *Melaleuca* spp. with tussock grass understorey that would be expected to provide resources for a wider range of fauna.

Table 3.1 Summary of exploration drilling in Regional Ecosystems

Mapped as	RE codes	Summary description	Biodiversity status	Structure category	No. of drillholes proposed
No concern at present	1.7.1	<i>Corymbia polycarpa</i> woodland. <i>Corymbia ferruginea</i> subsp. <i>ferruginea</i> occurs occasionally and a variable shrub layer of <i>Acacia</i> spp., <i>Petalostylis labicheoides</i> , <i>Jacksonia odontoclada</i> , <i>Grevillea wickhamii</i> , <i>G. dryandri</i> and <i>Dodonaea</i> spp. may be present. The grass layer is dominated by <i>Triodia pungens</i> and <i>Triodia</i> spp. Occurs on gentle slopes on Tertiary plains; lateritic podzolic soils.	No concern at present	Very sparse	1
Of concern (dominant)	2.3.20x3	Floodplain (other than floodplain wetlands) associated with Walford Creek. <i>Eucalyptus microtheca</i> low open woodland to woodland, commonly with <i>Excoecaria parvifolia</i> , <i>Grevillea striata</i> , <i>Lysiphyllum cunninghamii</i> and <i>Atalaya hemiglauca</i> . The ground layer is tussock grasses, including <i>Aristida</i> spp., <i>Chrysopogon fallax</i> , <i>Dichanthium</i> spp., <i>Brachyachne convergens</i> and <i>Sporobolus australasicus</i> . Occurs on Quaternary alluvial plains derived from coarse-grained parent material. Brown silty clays and loams.	Of concern	Sparse	0
	2.3.30a	Floodplain (other than floodplain wetlands) associated with Walford Creek. <i>Melaleuca viridiflora</i> low woodland, commonly with <i>Eucalyptus microtheca</i> , <i>Eucalyptus pruinosa</i> subsp. <i>pruinosa</i> , <i>E. chlorophylla</i> and <i>Corymbia polycarpa</i> . Occurs on minor Quaternary alluvial plains and shallow depressions at the fringes of Tertiary lateritic landscapes around the Doomadgee Plains subregion. Texture contrast soils.	No concern at present	Sparse	0
Of concern (sub-dominant)	2.5.13x1c	<i>Melaleuca citrolens</i> and/or <i>Eucalyptus pruinosa</i> subsp. <i>pruinosa</i> and/or <i>M. viridiflora</i> low open woodland, occasionally with <i>E. tectifera</i> , <i>M. stenostachya</i> and <i>Cochlospermum gregorii</i> . A shrub layer commonly occurs, including canopy species and <i>Carissa lanceolata</i> . The ground layer is tussock grasses and <i>Triodia pungens</i> . Occurs on level, old alluvial plains (early Pleistocene surface) between Tertiary lateritic surfaces and active alluvial systems. Yellow-brown silty loam soils.	No concern at present	Sparse	14

Mapped as	RE codes	Summary description	Biodiversity status	Structure category	No. of drillholes proposed
	2.5.13x1d	<i>Melaleuca viridiflora</i> and/or <i>Eucalyptus pruinosa</i> subsp. <i>pruinosa</i> and/or <i>M. citrolens</i> low open woodland to low woodland. A sparse shrub layer may occur, including <i>Acacia</i> spp. and <i>Carissa lanceolata</i> . The ground layer includes <i>Schizachyrium fragile</i> , <i>Triodia pungens</i> and <i>Aristida</i> spp. Occurs on Tertiary outwash plains and sand sheets around the margins of dissected lateritic surfaces and the Northwest Highlands bioregion. Yellow to brown loams and texture contrast soils.	No concern at present	Sparse	
	2.3.19	<i>Eucalyptus tectifica</i> woodland with grass layer of <i>Eulalia aurea</i> and <i>Chrysopogon fallax</i> . Occurs on Pleistocene alluvial plains; mainly solodised solonetz soils. Occurs on frequently inundated areas (not wetlands or floodplains).	Of concern	Sparse	

3.4. Aquatic and riparian habitats

Table 3-2: Riparian and aquatic processes – expected attributes and project impacts

Aspect	Expected attributes
Physical integrity	There are no major water resource developments upstream and the exploration area and surrounds are largely undeveloped with minimal infrastructure (tracks and farm dams) in place to support cattle grazing operations. Limited impacts on the physical integrity of waterways may be associated with cattle grazing and access.
Aquatic habitat	<p>Target 1 is located in the upper reaches of the catchment, approximately 500 metres from the nearest tributary. Headwater streams are typically narrow, with substrates comprised of coarse gravels, boulders and/or rock outcrops (Gordon et al. 2004). Shading and scouring restrict the growth of algae and aquatic plants, with aquatic fauna typically dominated by macroinvertebrates and crustaceans adapted to prolonged dry periods. Some fish may extend their range upstream during times of flow.</p> <p>Target 2 comprises flat, low-lying (~80 m elevation) areas to the south of Walford Creek. Flows in the adjacent section of Walford Creek are expected to be intermittent, with regular inundation likely associated with the summer monsoon. Aerial photography analysis indicates that some waterholes do persist in the main channel. These waterholes would be expected to provide refuge for aquatic fauna (macroinvertebrates, crustaceans and possibly some fish) during dry periods.</p>
Pollution control	Although sparse, terrestrial and riparian vegetation would filter sediment inputs from the surrounding catchment. However, turbidity and total suspended solids would be expected to increase during significant flow activity due to erosion from grazing activity.
Food sources for water and land-based fauna	Riparian woodlands would be expected to support a variety of vertebrate fauna with tree hollows, soil cracks, grasses and fallen timber providing food and shelter resources. In the upper reaches of the catchment, organic inputs from the riparian zone would provide most of the food for water-based organisms (fungi, bacteria, macroinvertebrates), which in turn may become food for higher organisms (e.g. fish) during times of flow (see Gordon et al, 2004). Where present, aquatic plants would also contribute organic nutrients in the lower parts of Walford Creek adjacent to the main target area.
Links between in-stream and land-based ecosystems	<p>Channels in the upper reaches of the catchment (Target 1) would effectively become part of the terrestrial environment during no flow periods. Overtopping of banks is likely to be rare or infrequent except during times of exceptional rainfall.</p> <p>Vegetation mapping for Target 2 indicates the presence of <i>Melaleuca</i>-dominated communities (RE 2.3.19) characteristic of frequently inundated areas. It is likely that frequent inundation results from seasonal flooding of the landscape linking Walford Creek and the target area but may also occur as a result of localised depressions in the landscape.</p>

4. EXPLORATION IMPACTS ON ENVIRONMENTAL ATTRIBUTES

Mineral exploration, particularly in this terrain, is considered a low impact activity. A total of 15 drill sites are proposed, comprising a total area of 0.6 ha. It is expected that only minor clearing or scraping of scrub will be required at most sites. A total of 3.9 km of new track is proposed at a width of 3 m (comprising 1.1 ha of disturbance across two target areas). All activities will be managed in accordance with the *Eligibility criteria and standard conditions for exploration and mineral development projects-Version 2* (the Code).

4.1. Hydrologic processes and water quality (surface and groundwater)

Vegetation cover in the exploration area is naturally sparse, with evidence of existing erosion in and around Walford Creek resulting from cattle grazing. Turbidity and TSS loads to waterways would be expected to increase during times of high rainfall. As the area of land disturbed through drilling will be very small, the potential for significant additional erosion or adverse effects on water quality is negligible. The drilling program will be timed to coincide with the dry season in northern Australia and to avoid periods of flow in local waterways. No exploration is proposed in or immediately adjacent to major watercourses and will not encroach on the minimum riverine area setbacks (3 metres from top of bank, 5 metres from toe of bank) set out in the Code.

It is possible that the Fickling Group sediments targeted by the exploration program contain groundwater however, there is a low likelihood of encountering significant aquifers at the boundary between two geological sequences. In the event that drill holes intersect water-bearing strata, flows will be managed in accordance with the Code; i.e.:

- Non-artesian aquifers that intersect more than one water-bearing strata will be isolated by casing or plugging as soon as practical after the hole is no longer required (but no more than 2 months after the hole was drilled) where the flow difference between aquifers exceeds 500L/hour; and
- Exploration drill holes that strike artesian flows that exceed 500L/hour for seven days will be decommissioned as soon as practical (but no later than one month after the hole was drilled); or converted into a controlled artesian bore by a licensed water bore driller (subject to agreement with the land owner and the Department of Natural Resources and Mines); or capped to allow for future conversion by a licensed driller.

Subject to appropriate management as described above, no widespread or irreversible impacts on hydrologic processes of the Gulf Rivers SEA are expected to occur as a result of exploration.

4.2. Riparian processes

Drill sites and access tracks will be located away from waterways and riparian areas. No impacts on the physical integrity of waterways or riparian vegetation would occur as a result of exploration.

4.3. Aquatic habitats

Campsites are required to be located more than 100 m from riverine areas under the Code. Water and wastewater from campsites and exploration activities will be discharged to sumps and/or absorption trenches away from waterways. All water required for dust suppression during drilling activities will be trucked into site from Mt Isa; it is not proposed to source water from the exploration area at this stage.

4.4. Wildlife corridor function

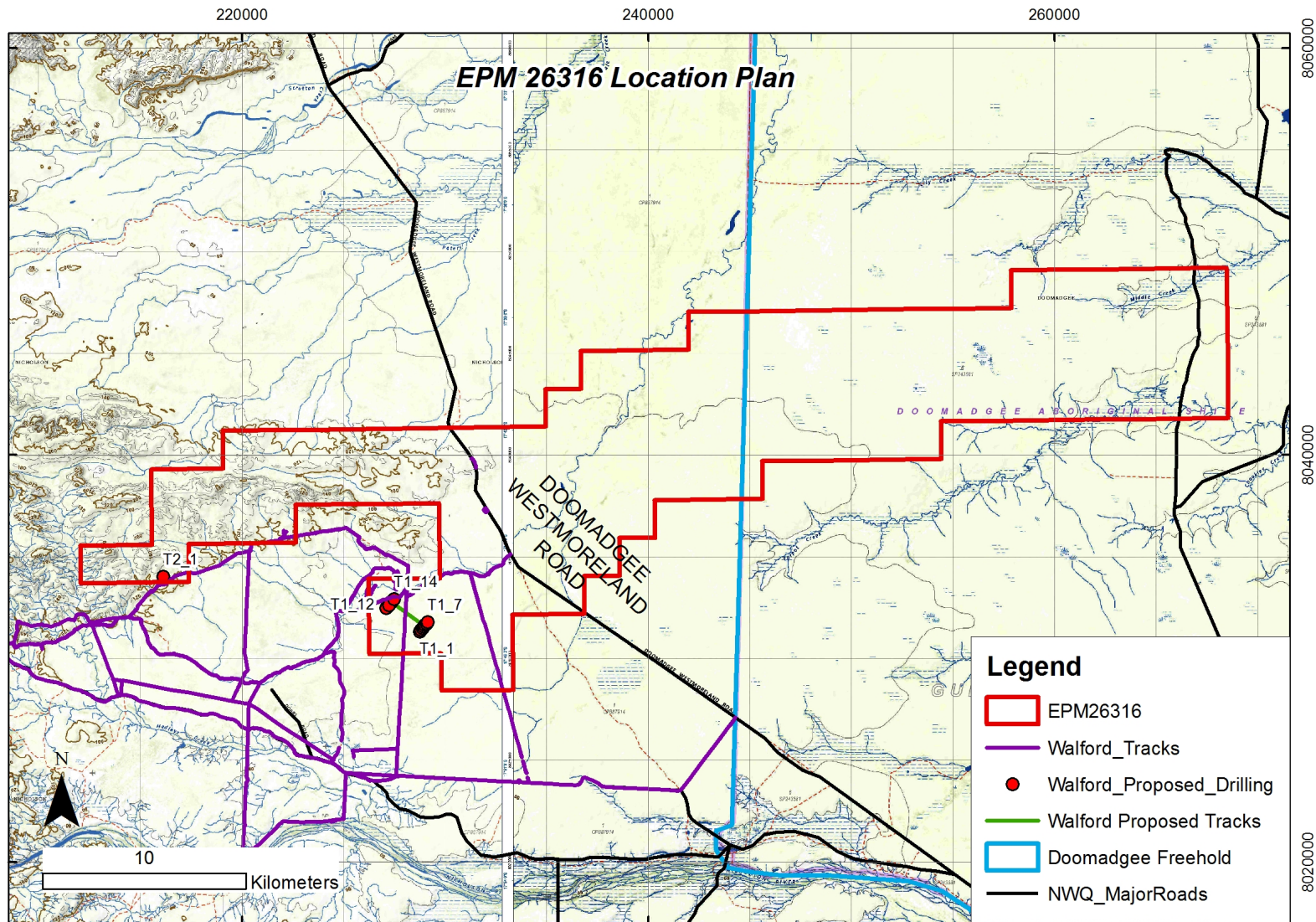
Wildlife corridors in the exploration area are associated with Walford Creek. Given the naturally sparse to very sparse vegetation structure, fauna species would be adapted to relatively low cover environments. While the small areas of disturbance may trigger temporary displacement of individual animals, the drilling program would not significantly impede the use of riparian vegetation for migration, shelter and habitat associated with watercourses.

4.5. Beneficial flooding

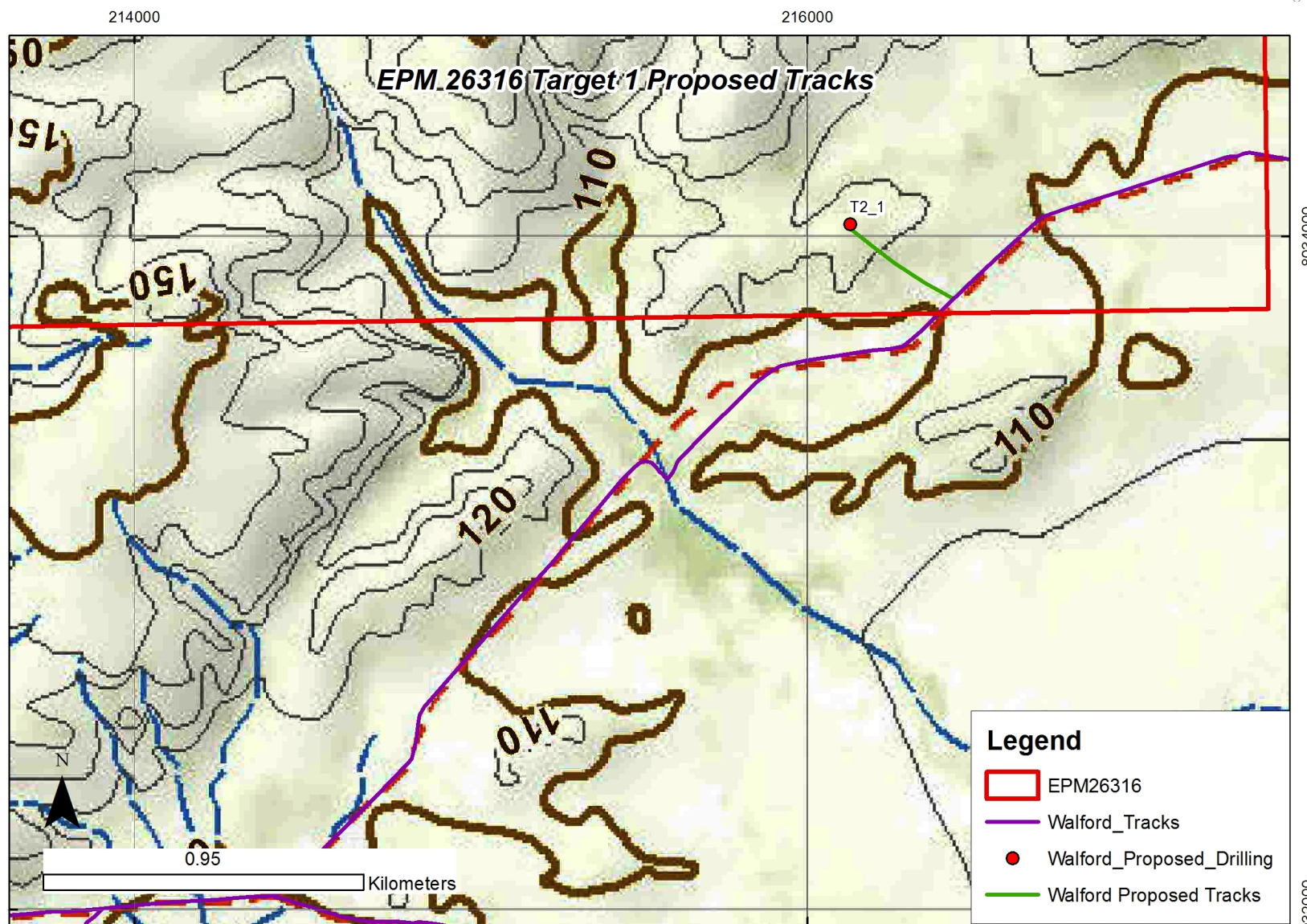
Infrastructure associated with the exploration program will be temporary, with limited surface disturbance and associated infrastructure to be completed and rehabilitated prior to the onset of the wet season. No permanent alteration of natural flow paths or the natural extent of flooding across floodplains will occur as a result of the drilling program.

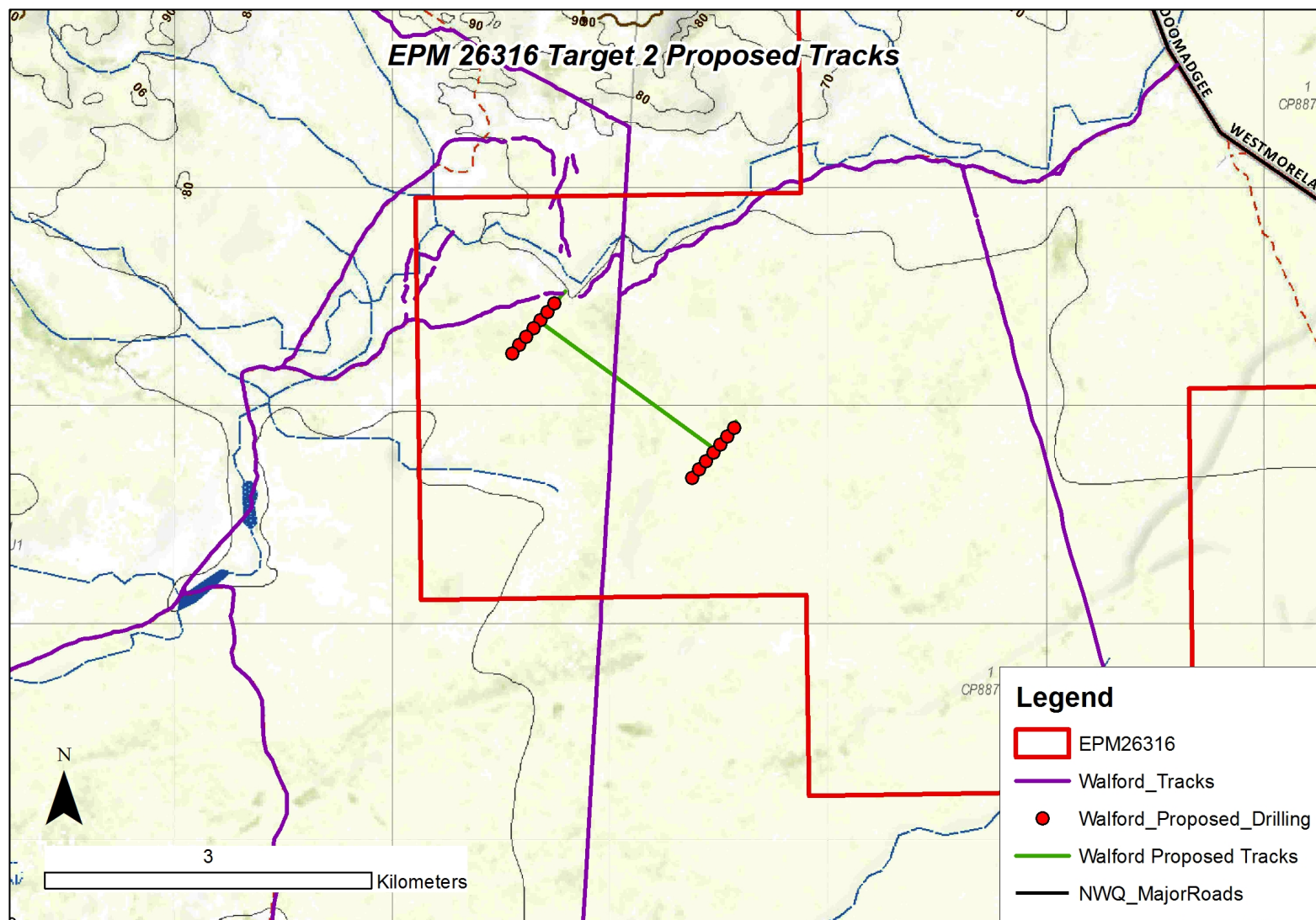
ATTACHMENT 1

MAPS

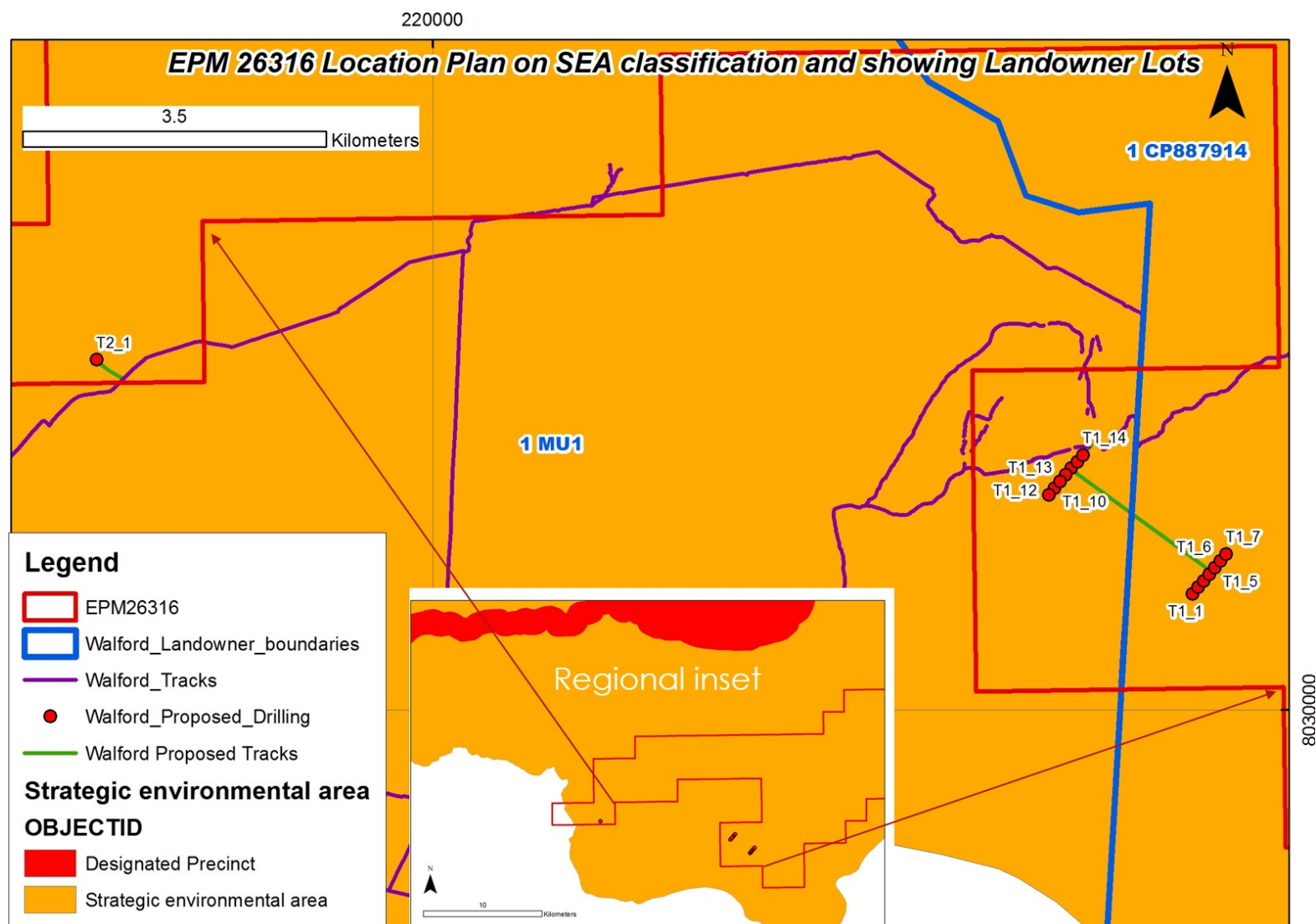


Map 1 – Locality



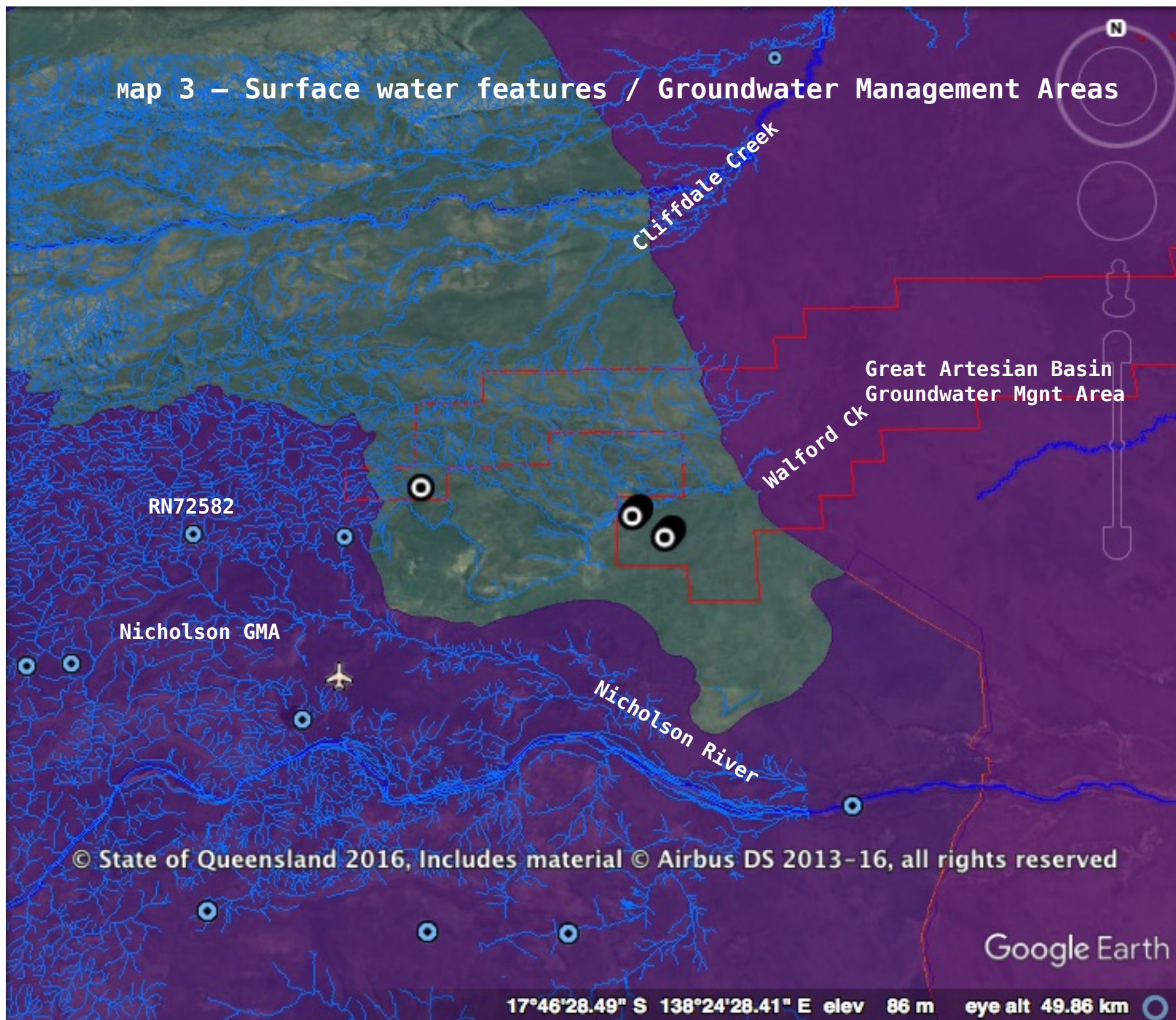


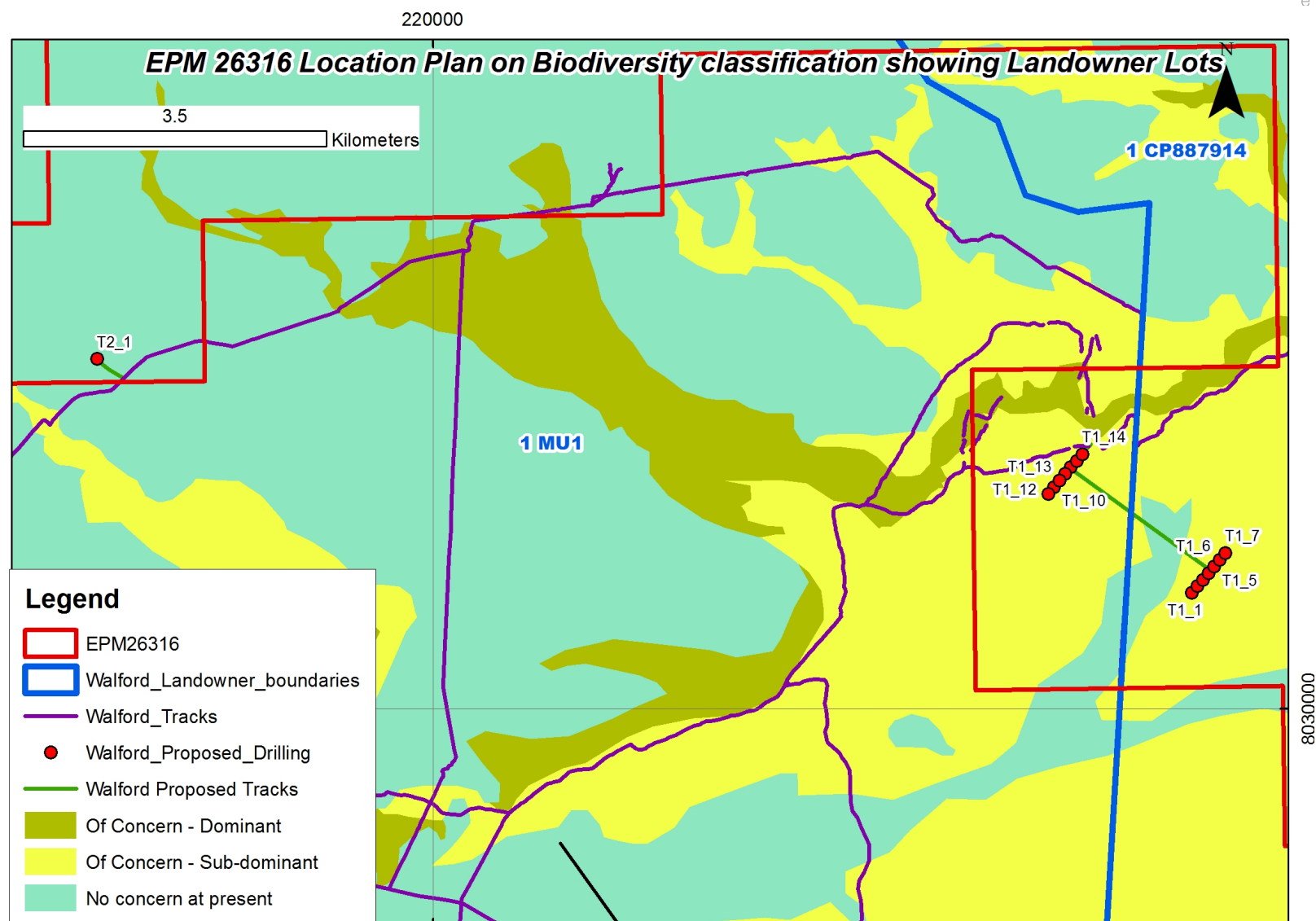
Map 1b – Target 2 infrastructure



Map 2 – Strategic Environmental Areas

map 3 – Surface water features / Groundwater Management Areas





Map 4 – Mapped Regional Ecosystems (Biodiversity status)

ATTACHMENT 2

LAND TITLES

CURRENT STATE TENURE SEARCH

DEPT OF NATURAL RESOURCES AND MINES, QUEENSLAND

Request No: 24543975

Search Date: 25/10/2016 15:46

Title Reference: 17657048

Date Created: 21/10/1995

DESCRIPTION OF LAND

Tenure Reference: GHPL 8/50

Lease Type: PERPETUAL

LOT 1 CROWN PLAN MU1
Local Government: BURKE

Area: 236000.000000 Ha. (ABOUT)

No Land Description

No Forestry Entitlement Area

Purpose for which granted:
NO PURPOSE DEFINED

TERM OF LEASE

Day of beginning of lease

Lease in perpetuity commencing on 01/07/1984

REGISTERED LESSEE

Dealing No: 708770341 27/06/2005

EDWARD SPARKE CHARLES THROSBY

CONDITIONS

- M76 The Lessee shall, within five (5) years from the date of the commencement of the lease and to the satisfaction of the Minister provide two (2) earth dams each with a capacity of 7500 cubic metres, such dams to be provided in the eastern and central parts of the additional area.
- M76 The Lessee shall, within two (2) years from the date of the commencement of the lease and to the satisfaction of the Minister erect approximately 20 kilometres of new boundary fence on the additional area.
- M76 The Lessee shall, within five (5) years from the date of the commencement of the Lease and to the satisfaction of the Minister, erect approximately 50 kilometres of new internal fencing on the area with 40 kilometres of such fencing to be erected on the additional area.

CURRENT STATE TENURE SEARCH

DEPT OF NATURAL RESOURCES AND MINES, QUEENSLAND

Request No: 24543975

Search Date: 25/10/2016 15:46

Title Reference: 17657048

Date Created: 21/10/1995

CONDITIONS

M76 The Lessee shall, during the whole term of the lease, maintain all improvements on the holding existing at the commencement thereof, together with the improvements effected in compliance with conditions 1, 2 and 3 hereof, in a good and substantial state of repair.

ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Lease No. 17657048
2. MORTGAGE No 708770348 27/06/2005 at 11:19
COOPERATIEVE CENTRALE RAIFFEISEN-BOERENLEENBANK B.A.
(AUSTRALIA BRANCH) A.B.N. 70 003 917 655

ADMINISTRATIVE ADVICES - NIL

UNREGISTERED DEALINGS - NIL

Caution - Charges do not necessarily appear in order of priority

** End of Current State Tenure Search **

Information provided under section 34 Land Title Act(1994) or
section 281 Land Act(1994)

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Requested By: D-ENQ PROPERTY & TITLE SEARCH

CURRENT STATE TENURE SEARCH

DEPT OF NATURAL RESOURCES AND MINES, QUEENSLAND

Request No: 24543978

Search Date: 25/10/2016 15:46

Title Reference: 17664127

Date Created: 21/10/1995

DESCRIPTION OF LAND

Tenure Reference: PH 8/5440

Lease Type: ROLLING TERM LEASE

LOT 1 CROWN PLAN 887914
Local Government: BURKE

Area: 208000.000000 Ha. (ABOUT)

No Land Description

No Forestry Entitlement Area

Purpose for which granted:
NO PURPOSE DEFINED

TERM OF LEASE

Term and day of beginning of lease

Term: 30 years commencing on 01/07/1984

Expiring on 30/06/2014

Extended to 30/06/2034

REGISTERED LESSEE

Dealing No: 703482089 28/07/1999

TURN OFF LAGOONS PASTORAL HOLDING COMPANY PTY LTD
A.C.N. 085 377 304

CONDITIONS

Nil

ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Lease No. 17664127
2. SUB LEASE No 715676718 26/03/2014 at 11:50
SUZANNE MERRYL LOGAN
OF THE WHOLE OF THE LAND
TERM: 02/01/2014 TO 31/10/2018 OPTION AS THEREIN STATED

CURRENT STATE TENURE SEARCH

DEPT OF NATURAL RESOURCES AND MINES, QUEENSLAND

Request No: 24543978

Search Date: 25/10/2016 15:46

Title Reference: 17664127

Date Created: 21/10/1995

ADMINISTRATIVE ADVICES

Dealing	Type	Lodgement Date	Status
716869987	ADMIN NOTING	06/11/2015 11:42	CURRENT
SEE DEALING FOR RELEVANT LEGISLATION			

UNREGISTERED DEALINGS - NIL

Caution - Charges do not necessarily appear in order of priority

** End of Current State Tenure Search **

Information provided under section 34 Land Title Act(1994) or
section 281 Land Act(1994)

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Requested By: D-ENQ PROPERTY & TITLE SEARCH

ATTACHMENT 3

**GROUNDWATER BORE REPORT –
SARAH'S BORE (RN 72582)**

BORE REPORT

REG NUMBER 72582

REGISTRATION DETAILS

OFFICE Mareeba	BASIN 9121	LATITUDE 17-47-03	MAP-SCALE 254
DATE LOG RECD	SUB-AREA	LONGITUDE 138-12-47	MAP-SERIES M
D/O FILE NO. 515/000(2644	SHIRE 1950-BURKE	EASTING 204538	MAP-NO SE5405
R/O FILE NO.	LOT 1	NORTHING 8031510	MAP NAME
H/O FILE NO.	PLAN MU1	ZONE 54	PROG SECTION
	ORIGINAL DESCRIPTION PHOENIX PARK NO.1	ACCURACY SKET	PRES EQUIPMENT
		GPS ACC	
GIS LAT -17.784045773	PARISH NAME 3818-PHOENIX		ORIGINAL BORE NO SARAHS BORE (WFDD63)
GIS LNG 138.213275991	COUNTY NICHOLSON		BORE LINE -
CHECKED Y			
			POLYGON
			RN OF BORE REPLACED
			DATA OWNER
FACILITY TYPE Artesian - Controlled Flow	DATE DRILLED 08/08/1991		
STATUS Existing	DRILLERS NAME		
ROLES WS	DRILL COMPANY		
	METHOD OF CONST. ROTARY DIAMOND CORE PLANT		

CASING DETAILS

PIPE	DATE	RECORD NUMBER	MATERIAL DESCRIPTION	MAT SIZE (mm)	SIZE DESC	OUTSIDE DIAM (mm)	TOP (m)	BOTTOM (m)
A	08/08/1991	1	Plastic Casing	4.500	WT	161	0.00	6.00
A	08/08/1991	2	Open Hole			140	6.00	90.00
A	08/08/1991	3	Open Hole			75	90.00	423.40
A	23/10/1991	1	Grout			152	0.00	6.00
A	23/10/1991	2	Grout			140	6.00	87.30
A	23/10/1991	3	Plastic Casing		WT	86	0.00	90.00

STRATA LOG DETAILS

RECORD NUMBER	STRATA TOP (m)	STRATA BOT (m)	STRATA DESCRIPTION
1			CONVERTED STRATA HOLE - ARTESIAN
2			DRILLED BY WESTERN MINING CORP LTD
3	0.00	4.00	SANDSTONE OXIDISED

BORE REPORT

REG NUMBER 72582

RECORD NUMBER	STRATA TOP (m)	STRATA BOT (m)	STRATA DESCRIPTION
4	4.00	22.00	SANDSTONE OXIDISED / SILTSTONE
5	22.00	90.00	SILTSTONE INTERBEDDED / SHALE /
6			SANDSTONE FINE GRAINED (DOLOMITIC &
7			CARBONACEOUS)
8	90.00	117.45	SILTSTONE DOLOMITIC / SHALE
9	117.45	129.84	DOLOMITE
10	129.84	190.50	SILTSTONE CARBONACEOUS & DOLOMITIC /
11			SHALE * FLOW @ 180M
12	190.50	192.65	CHERT JASPEROIDAL
13	192.65	255.40	SILTSTONE CARBONACEOUS, DOLOMITIC AND
14			PYRITIC / SHALE
15	255.40	268.20	DOLOMITE SEDIMENTARY BRECCIA
16	268.20	270.44	SILTSTONE CARBONACEOUS & PYRITIC /
17			SHALE
18	270.44	357.85	SILTSTONE GREEN DOLOMITIC / SHALE WITH
19			MINOR DOLOMITE BRECCIA INTERBEDS
20	357.85	423.40	SILTSTONE CARBONACEOUS, PYRITIC AND
21			DOLOMITIC / SHALE
22	423.40		E.O.H.
23			HOLE DRILLED AT 80 DEGREES

STRATIGRAPHY DETAILS

SOURCE	RECORD NUMBER	STRATA TOP (m)	STRATA BOT (m)	STRATA DESCRIPTION
DNR	1	129.80		MOUNT LES SILTSTONE

AQUIFER DETAILS

REC	TOP BED(M)	BOTTOM BED(M)	BED LITHOLOGY	DATE	SWL (m)	FLOW	QUALITY	YIELD CTR (l/s)	CONDIT	FORMATION NAME
1	129.80		SSTO						PS	MOUNT LES SILTSTONE

BORE REPORT

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PUMP TEST DETAILS PART 1

PIPE	DATE	REC RN OF NO. PUMP-BORE	TOP (m)	BOTTOM (m)	DIST METH (m)	TEST TYPES	PUMP TYPE	SUCTION SET (m)	Q PRIOR TO TEST (l/s)	DUR OF Q PR (min)	PRES ON ARRIV (m)	Q ON ARRIV (l/s)
A	25/10/1991	1 72582	180.00		0.30	ART	DT					

PUMP TEST DETAILS PART 2

PIPE	DATE	REC	TEST DUR (mins)	SWL (m)	RECOV. TIME (mins)	RESID. DD (m)	MAX DD or P RED (m)	Q at MAX DD (l/s)	TIME TO MAX DD (mins)	Max Q (l/s)	CALC STAT HD (m)	DESIGN YIELD (l/s)	DESIGN BP (m)	SUCT. SET (m)	TMSY (m2/DAY)	STOR
A	25/10/1991	1 336		6.84			5.70	5.50	90			6.00	0.40		1270	

BORE CONDITION

**** NO RECORDS FOUND ****

ELEVATION DETAILS

PIPE	DATE	ELEVATION	PRECISION	DATUM	MEASUREMENT POINT	SURVEY SOURCE
A	24/10/1991	130.00	EST	AHD	R	
X	08/08/1991	120.65	EST	AHD	N	

WATER ANALYSIS PART1

PIPE	DATE	RD ANALYST	QAN	DEPT H (m)	RMK	SRC	COND (uS/cm)	pH	Si (mg/L)	TOTAL IONS (mg/L)	TOTAL SOLIDS (mg/L)	HARD	ALK	FIG. OF MERIT	SAR	RAH
A	23/10/1991	1 GCL	142176			PU GB	421	8.1	22	342.22	233.19	181	214	18.5	0.2	0.66
A	25/10/1991	1 GCL	142181	180.00		PU GB	413	8.0	25	348.87	242.61	190	215	25.0	0.1	0.49
A	25/10/1991	2 GCL	142182	180.00		PU GB	419	8.0	24	340.53	235.31	191	211	27.4	0.1	0.40

WATER ANALYSIS PART 2

PIPE	DATE	RD	Na	K	Ca	Mg	Mn	HCO3	Fe	CO3	Cl	F	NO3	SO4	Zn	Al	B	Cu
A	23/10/1991	1	4.5	14.9	36.7	21.7	0.09	257.0	0.00	2.0	3.1	0.13	0.0	2.2				
A	25/10/1991	1	3.5	14.5	38.7	22.8	1.64	259.0	0.00	1.6	6.1	0.15	0.0	2.5				
A	25/10/1991	2	3.2	14.2	39.2	22.6	0.10	254.2	0.00	1.6	2.6	0.15	0.0	2.8				

WATER LEVEL DETAILS

PIPE

PIPE DATE

RMK

BORE REPORT

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PIPE	DATE	MEASURE (m)	N/R	RMK	MEAS TYPE
A	25/10/1991	6.84		R	NR

PIPE	DATE	MEASURE (m)	N/R	RMK	MEAS TYPE
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PIPE	DATE	MEASURE (m)	N/R	RMK	MEAS TYPE
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WIRE LINE LOG DETAILS

**** NO RECORDS FOUND ****

FIELD MEASUREMENTS

PIPE	DATE	DEPTH (m)	COND (uS/cm)
A	25/10/1991		

pH	TEMP (C)	NO3 (mg/L)	DO (mg/L)
	38.0		

Eh (mV)	ALK (mEq)	METH	SOURCE
		PU	GB

SPECIAL WATER ANALYSIS

**** NO RECORDS FOUND ****

BORE REPORT

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