



CIC Australia

SITE INVESTIGATION REPORT

JUMPING CREEK QUEANBEYAN

BROWN CONSULTING (ACT)
JOB NO: C10084

August 2011



**SITE INVESTIGATION REPORT
JUMPING CREEK
QUEANBEYAN**

AUGUST 2011

PREPARED FOR CIC AUSTRALIA

REVISION SCHEDULE

NO	DATE	ISSUE	PREPARED BY	REVIEWED BY	AUTHORISED BY
0	22/10/10	CLIENT ISSUE	DLB	TC	TC
1		CLIENT ISSUE	DLB	TC	TC
2	28/6/11	CLIENT REVIEW	TC		
3	15/8/11	CLIENT REVIEW	TC	BH	TC

EXECUTIVE SUMMARY

This report is prepared in response to CIC Australia's request for a Site Investigation of the land referred as Jumping Creek, Queanbeyan. The objective of the report is to identify constraints affecting the future development of the site, investigate how the site will be serviced and to provide an opinion of cost for the works required to develop the site.

This site investigation was based upon an inspection of the site, existing services information supplied by the service authority asset owners and advice from service authorities on servicing requirements to the proposed blocks.

Jumping Creek (Lot 1, DP 711905 area 109 Ha) is located to the southeast of Queanbeyan on the eastern side of the Queanbeyan River. It is bounded by Greenleigh to the northwest, the Queanbeyan Escarpment to the east, the Queanbeyan River to the south west and undeveloped land to the south. The proposed alignment of the future Ellerton Drive passes through the site at the northwest corner separating the majority of the developable land from the existing Greenleigh development.

The site slopes towards four distinct gullies, one of which being Jumping Creek, which is located through the middle of the site. The grade of slope across the site varies from gentle (1-2%) to steep (>40%).

CIC Australia is interested in developing the land directly south and west of the future Ellerton Drive a parcel of land of approximately 96.4 Ha. .

It is understood that the proposed development is to consist of 262 detached dwellings with associated roads and services. Capacity investigations have allowed for a development consisting of up to 300 dwellings with the initial stage consisting of 79 dwellings.

The proposed residential layout which has been developed by John Easthope and Associates (JEA) is understood to be consistent with the draft Local Environmental Plan (LEP) prepared by Queanbeyan City Council for the area.

The proposed development will be constructed in stages with the following yields:

Stage 1 – 79 dwellings

Stage 2 - 135 dwellings

Stage 3 - 48 dwellings

Existing services within the vicinity of the site include sewer, water, gas, electricity and telecommunications. Servicing of the total estate can be provided from these surrounding services as follows:

- An existing 600mm diameter sewer main is located to the west of the block downstream of the Queanbeyan River at the location of Beston Place. 1100m of 225mm diameter gravity sewer main will need to be constructed to access this existing sewer main. Three sewer pump stations and associated rising mains (one pump station in each stage) will be required to service the developable areas of the site due to the site sloping towards the numerous gullies. For Stage 1, pump station 1

will need to be constructed with a connection to the trunk main near Beston Place. An interim and shorter connection to an existing 150mm diameter main in the Greenleigh Estate near Lonergan Drive is a possibility but requires further consideration with Council.

- An existing 375mm diameter water main passes through the northwest corner of the site along the alignment of the proposed Ellerton Drive. A 150mm diameter branch connection exists from this main at the northern boundary of the site. Queanbeyan City Council has indicated that the site will be serviced from this main with a gravity reticulation system servicing individual blocks. Queanbeyan City Council has not been able to confirm whether an additional reservoir to supplement existing reservoirs at East Queanbeyan and Greenleigh will be required for the development. Queanbeyan City Council has provided an expected static head at the 150mm diameter tee. From this, Brown Consulting (ACT) estimates that potable water can be provided up to RL 630m AHD throughout the development.
- Country Energy has advised that Jumping Creek will be ultimately serviced by the existing infrastructure at Karabar via the proposed Ellerton Drive. Electrical connections to the existing Greenleigh Estate will also be constructed as a part of this development. For stage 1 overhead power lines will be provided across the Molonglo River.
- Jemena has advised that there is insufficient spare capacity in the surrounding network to service the full development. Gas supply to the site is proposed via the existing district regulator at Atkinson Street, Queens Gate, a distance of approximately 2.5km from Jumping Creek. For stage 1 there is sufficient capacity in the Greenleigh Estate for an interim connection.
- Telstra has advised that the existing telecommunications infrastructure surrounding the site has insufficient capacity to service the full development. It is proposed that new infrastructure be constructed from the Queanbeyan exchange via Karabar. Jumping Creek will be accessed by the proposed Ellerton Drive. It is assumed NBN Co will be responsible for provision of new telecommunications infrastructure. For Stage 1 it is assumed an overhead supply will be provided from Greenleigh or Karabar.

Ultimately vehicle access to the site is proposed from the future Ellerton Drive. The nominated access point is approximately 400m from the Queanbeyan River a location that is considered to be suitable based on the limited information available at this time on the new road.

Prior to Ellerton Drive being constructed, access to stage 1 of the development will be via a properly constructed but temporary connection from Lonergan Ave. A secondary emergency fire trail access is proposed from Severne St following the future Ellerton Drive alignment. Option 2 as shown on drawing C10084-010 is contained totally within the future road reservations and is the nominated solution. Option 1 requires access through private property which will need to be negotiated.

Preliminary opinion of cost (POC) for servicing and development of the site in three stages is

Stage	POC incl. GST
Stage 1	\$10.9 million
Stage 2	\$13.8 million
Stage 3	\$5.97 million

The POC is based on March 2011 rates.

The POC excludes any developer charges that Queanbeyan City council may levy. Currently Council has Development Servicing Plans (DSP) for the Greater Queanbeyan City Council for water supply and sewerage.

The DSP for water supply requires Developers to make contributions for the provision of distribution works which are defined as trunk mains and service reservoirs and may also include minor pump stations. It is assumed in the context of the Jumping Creek site that the developer charges would cover the cost of the provision of any additional reservoir or pump stations that may be required.

The DSP for sewerage requires Developers to make contribution for the provision of collection systems (trunk mains, major pumping stations and rising mains) and the sewerage treatment works.

Both DSPs require the Developer to fund all hydraulic reticulation within the subdivision.

For the POC we have made no cost provision for a possible water reservoir or pump station on the basis it will be covered by developer charges. For sewer the POC assumes all pump stations and rising mains will be funded by the Developer. However there may be a case to argue that Pump Station 1 which is the main pump station for the development and the rising main from the pump station qualify as part of the collection system.

Current developer contributions are as follows

Sewerage - \$1,232 per lot

Water - \$3,762 per lot

Other Section 94 contributions may apply.

Further engagement with Council is required to confirm the servicing arrangements for sewer and water supply.

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1 INTRODUCTION

The purpose of this report is to document a services investigation of the land referred as Jumping Creek, Queanbeyan. The objective of this investigation is to determine the suitability of the site for development with respect to any constraints, and to provide an opinion of cost for both onsite and off-site related works required to service future development.

It is understood that the proposed development is to consist of 262 detached dwellings with associated roads and services. Capacity investigations have allowed for a development consisting of up to 300 dwellings with the initial stage consisting of 79 dwellings.

The proposed residential layout which has been developed by John Easthope and Associates (JEA) is understood to be consistent with the draft Local Environmental Plan (LEP) prepared by Queanbeyan City Council (QCC) for the area.

The proposed development will be constructed in stages with the following yields:

Stage 1 – 79 dwellings

Stage 2- 135 dwellings

Stage 3 - 48 dwellings

The Jumping Creek site (Lot 1, DP 711905, total area 109 Ha) is bounded by the Greenleigh Estate to the northwest, the Queanbeyan Escarpment to the east, the Queanbeyan River to the south west and undeveloped land to the south. The proposed alignment of Ellerton Drive, a reservation of 4 Ha passes through the site at the northwest corner separating the majority of the developable land from the existing Greenleigh development. CIC Australia is interested in developing the land directly south and west of the future Ellerton Drive. A three lot subdivision (total land area 8.5Ha) with access from Woodman Place is currently under construction from the Ellerton Drive reservation to the Greenleigh Estate.

2 SCOPE OF INVESTIGATION

The investigation identified the presence of existing services surrounding and through the site including electricity, water, sewer, gas and telecommunications. Access provisions were also investigated. Constraints upon the proposed development of the site were established, the requirements to service the site were determined and an opinion of the cost for the required works is provided.

3 THE SITE

The CIC Australia development site (the site) is approximately 96.5 Ha in area and is bounded by the Queanbeyan River to the west and the Queanbeyan Escarpment to the east. The southern boundary, approximately 1400m in length, fronts vacant land whilst the western boundary, approximately 950m in length, faces the Queanbeyan River. The north western boundary abuts the future Ellerton Drive Road reservation.

The site predominantly falls towards Jumping Creek running through the middle of the site from the northern boundary to the Queanbeyan River on the south-western boundary with approximate grades varying between 1% and 40%.

The vast majority of proposed residential blocks are located between the RL 580 and 610m contours. The larger rural style blocks extend up to RL 630m contour apart from three blocks in the north east corner. It is anticipated no housing sites will be above RL 630m.

4 GEOTECHNICAL ASSESSMENT

A detailed geotechnical and site contamination assessment was not part of the scope of this investigation. Coffey Geosciences carried an investigation of the site in 2008.

5 LANDSCAPE ASSESSMENT

A detailed landscape assessment was not part of the scope of this investigation.

6 EXISTING SERVICES

6.1 Dial Before You Dig

A "Dial Before You Dig" enquiry and on-site inspection revealed the existence of several services around and through the site. The known existing services are shown on Drawing C10084-001 in Appendix A. Numerous services are to be installed as part of the Ellerton Drive construction project.

6.2 Sewer

A network of 150mm diameter sewer reticulation mains exist to the northwest of the site in the existing development of Greenleigh. A network of sewer mains ranging from 150mm diameter to 450mm diameter also exists in the existing development of Karabar. There are two sewer pump stations within the development of Karabar with capacity limited to the current development. The reticulation mains from both developments drain into a 600mm diameter trunk main at the western end of Beston Place, Greenleigh.

The QCC asset plans show a 150mm diameter tie into the north west corner of lot 1 near Woodman Place. Apart from this there is no other existing sewer infrastructure within the Jumping Creek site

6.3 Stormwater

Jumping Creek is an intermittent water course draining directly into the Queanbeyan River. The total catchment area draining through the site is approximately 35 square kilometres of undeveloped land. A detailed analysis of the expected flows or extent of flooding has not been carried out for this development at this time.

There is no existing stormwater infrastructure within the site. The surrounding developments are serviced by traditional street drainage typically discharging directly into the Queanbeyan River.

6.4 Water

An existing 375mm diameter water main runs approximately northeast-southwest through the northwest corner of the site. This water main approximately follows the alignment of the proposed Ellerton Drive. This water main provides supply from the Googong pipeline located to the west to Greenleigh and the following existing reservoirs to the east as noted in Table 1.

Table 1 Existing Reservoirs

Reservoir	Size	Top Water Level	Bottom Water Level
East Queanbeyan	12ML	670.0 m	660.0 m
Greenleigh	1ML	691.4 m	686.8 m

The East Queanbeyan reservoir consists of a single reservoir while the Greenleigh reservoir consists of three reservoirs with a combined capacity of 1ML.

The development site is currently serviced by a blanked off 150 mm diameter tie from the 375mm diameter water main near the north boundary of the site. There is another 150mm diameter tee connection near Lonergan Drive that services the existing Greenleigh development.

There is also a blanked off 100m diameter connection from Woodman Place in the extreme north west corner of the site..

6.5 Gas

Jemena has advised that there are existing reticulation gas mains servicing the developments of Greenleigh and Karabar.

There is no existing gas supply infrastructure within the Jumping Creek site.

6.6 Electricity

An electrical reticulation network exists within the existing developments of Greenleigh and Karabar. A zone substation exists to the south of Karabar and services Southern Queanbeyan and for a short time will service the proposed development of Googong, subject to staging, and the Googong zone substation.

There is no existing electrical infrastructure within the Jumping Creek site.

6.7 Telecommunications

Telstra infrastructure exists in surrounding developments of Greenleigh and Karabar. This Telstra infrastructure is for the reticulation of services within the existing developments.

There is no existing telecommunication infrastructure within the Jumping Creek site.

7 SITE SERVICING

The required site servicing works are shown on **Drawing C10084-002 to 005** in **Appendix A**. The servicing requirements and cost opinion has been based on a development yield of 262 blocks but provision has been made for the servicing of up to 300 blocks. Where appropriate a scenario of 79 dwellings, as part of the initial stages, has been analysed. For these 79 dwellings, it is assumed that the Ellerton Drive, with the associated bridge across the Queanbeyan River, has not been constructed.

7.1 Sewer

Enquires have been made with QCC on the capacity of the existing downstream infrastructure to accommodate the sewer flows from the proposed development site. Council has been cautious in their responses to date and have been unable to provide definitive answers on network capacity (refer to correspondence in **Appendix C**). Brown Consulting (ACT) are of the opinion that by virtue of its size the existing sewer network in the Greenleigh Estate is unlikely to have capacity to accept the Jumping Creek development and a connection to the 600mm diameter trunk main near Beston Place will be required. To service the estate internally a network of 150mm diameter sewer mains will be required. As the majority of the site falls to the gullies within the site, three sewer pump stations, and associated rising mains, will be required as shown on **Drawing C10084-004**.

Pump stations 1 is located in Stage 1, pump station 2 in Stage 2 and pump station 3 in Stage 3. Pump station 1 will not only service stage 1 but ultimately take the flow from the total development while pump station 2 will service 12 lots in stage 2 and pump station 3 all of stage 3.

A rising main from pump station 1 will feed a 225mm diameter gravity main that will connect to the existing sewer infrastructure to the west. This gravity main will need to extend to the 600mm diameter main located near Beston Place. For stage 1 it may be possible to connect to nearest available existing 150mm diameter main a distance of approximately 200m from the site. To test the viability of this option the capacity of the existing 150mm diameter main running parallel to the Queanbeyan River will need to be confirmed. As emergency storage will be incorporated into pump station 1, this storage could be used to buffer the stage 1 flows to match existing infrastructure capabilities.. **Further investigation of the existing system with Council assistance will be required to confirm this proposal.**

The opinion of cost has assumed that the pumps in pump station 1 will be progressively upgraded as development proceeds and new catchments come on line.

7.2 Stormwater

All stormwater from the site will discharge into the Queanbeyan River via Jumping Creek. Due to the terrain of the site, it is proposed that there will be numerous discharged points with varying treatments. An indicative stormwater layout is shown on **Drawing C10084-002**.

Stormwater runoff will need to be treated to a level that satisfies Queanbeyan City Council's guide lines with respect to quality and quantity. It is assumed that this will be able to be achieved through the use of four bio-retention ponds located at the outlet of the four largest sub-catchments. An allowance of \$500k has been made in our opinion of costs for the construction of these bio-retention ponds.

It is advised that prior to completion of a concept design for this development an in depth flood analysis is carried out for Jumping Creek and its tributaries. This analysis is required to ascertain the limits of flooding in the area and may possibly alter the developable portion of the site.

7.3 Water

Queanbeyan City Council has advised that the existing water reservoirs servicing Greenleigh and East Queanbeyan may or may not have adequate storage capacity to cater for the proposed development at Jumping Creek (refer to correspondence in **Appendix C**). For the purposes of this investigation two scenarios have been considered. One scenario was analysed assuming there was a requirement for additional storage capacity and the other without the requirement for additional capacity.

If the Queanbeyan City Council confirms that additional potable water storage is required, it could potentially be located within the site of Jumping Creek or externally to it, most likely adjacent to the existing reservoirs. **Further engagement with Queanbeyan City Council is required on this matter when Council is able to provide more information.**

Queanbeyan City Council has advised that the existing 375mm diameter water main is likely to be of sufficient size to service the proposed development of Jumping Creek. However, Queanbeyan City Council will not confirm this until more information becomes available. Water supply to the site is to be from existing new 225mm diameter tee connection from the 375mm diameter main at the new entry road to the site and either reticulate the site directly or supply an internally located reservoir (note: the current 150mm diameter branch connection is not in a suitable location). On the basis of the current elevation of reservoirs at East Queanbeyan and Greenleigh it is expected water pressures within the existing infrastructure will provide an adequate service for the entire site. Queanbeyan City Council has provided a static head value within the existing 375mm diameter water main. From this, Brown Consulting (ACT) has estimated that a practical working pressure head within the proposed reticulation network will be able to be achieved at locations in Jumping Creek up to 630m AHD. This elevation is sufficient to service all residences on the basis supply is not required to the steeper areas.

7.4 Gas

Jemena has advised that the existing gas network does not have adequate capacity to cater for the entire proposed development (refer to correspondence in **Appendix C**). However, the first stage of 79 dwellings can be serviced from the existing infrastructure in Greenleigh.

Jemena has advised that gas supply to the site will be via the existing district regulator in Atkinson Street, Queensgate. The existing network through Greenleigh will need to be duplicated for approximately 600-1000m with 110mm PE main to give adequate capacity to the development of Jumping Creek. A portion of the costs for this network upgrade is likely to be borne by the developer, however, cannot yet be quantified by Jemena. An allowance of \$100k has been made in our opinion of costs for this work.

The reticulation network within the development will be via the shared trench, with electricity and telecommunications, in the road verges. There will be no cost borne by the developer for the inclusion of the gas network beyond connection from Queensgate, as outlined above.

7.5 Electricity

Country Energy has advised the site will be serviced with electricity from the existing substation at Karabar, via Ellerton Drive. These electrical cables will be underground for the entire length. For the purposes of our opinion of costs, we have assumed a contribution of \$100k will be required from the developer. For the first stage of 79 dwellings, the electrical infrastructure will cross the Queanbeyan River via overhead lines.

In addition to the connection to the existing substation at Karabar, there will also be electrical connections to the existing development of Greenleigh, to improve network integrity. It is assumed that there will be no cost to the developer for this work.

The reticulation network within the development will be via underground conduits within the shared trench. For the purposes of our cost opinion, we have assumed that the cost to the developer will be \$6,000 per block and will include streetlighting for the internal roads..

7.6 Telecommunications

Telstra has previously advised that the existing network has insufficient capacity for the proposed development (refer to correspondence in **Appendix C**).

Telstra has advised that a new connection to the Queanbeyan exchange will need to be made to service this development.

For the purposes of our cost opinion, it is assumed that NBN Co will be approached to provide telecommunication services within Jumping Creek.

For the opinion of costs, we have assumed that a contribution of \$800 per block will be required by the developer. No provision has been made for any backhaul costs.

7.7 Street lighting

Street lighting is proposed for all internal streets within the development where the relevant standards require. This will be included as a part of the electrical reticulation for the development.

8 ACCESS

Drawing C10084-010 shows the proposed access options.

Ultimately vehicle access to the site is proposed from the future Ellerton Drive. The nominated access point is approximately 400m from the Queanbeyan River a location that is considered to be suitable based on the limited information available at this time on the new road.

Prior to Ellerton Drive being constructed, access to Stage 1 of the development will be via a properly constructed but temporary connection from Lonergan Ave. A secondary emergency fire trail access is proposed from Severne St following the future Ellerton Drive alignment. Option 2 as shown on **Drawing C10084-010** is contained totally within the future road reservations and is the nominated solution. Option 1 requires access through private property which will need to be negotiated.

9 DEVELOPMENT CONSTRAINTS

There are four natural water courses running through the site, including Jumping Creek. Two of these water courses have a catchment area of approximately 17 square kilometres and 15 Square kilometres respectively. Coupled with the steep terrain within the catchment area and the nature of the shallow shale soils, it is likely that high natural runoff will be generated. Hydraulic modelling has not been undertaken to identify the level of flooding within the site and therefore accurate flooding limits are not available. It is advised that prior to completion of a concept design for this development an in depth flood analysis is carried out for Jumping Creek and its tributaries. This analysis is required to ascertain the limits of flooding in the area and may possibly alter the developable portion of the site.

The level range of the site is 120m, rising from the Queanbeyan River at 572 AHD to 692 AHD at the north-eastern corner of the site. It is anticipated locations within the site above 630m AHD may not be able to be serviced with potable water reticulation due to expected pressures within the existing infrastructure.

10 PRELIMINARY OPINION OF COST

Preliminary opinion of cost (POC) for servicing and development of the site in three stages has been prepared and is set out in Table 3. A detailed opinion of cost can be viewed in **Appendix D**.

Table 3 Staged Costs

Stage	POC incl. GST
Stage 1	\$10.9 million
Stage 2	\$13.8 million
Stage 3	\$5.97 million

The opinion of costs has been prepared using March 2011 rates.

The POC excludes any developer charges that Queanbeyan City council may levy. Currently Council has Development Servicing Plans (DSP) for the Greater Queanbeyan City Council for water supply and sewerage.

The DSP for water supply requires Developers to make contributions for the provision of distribution works which are defined as trunk mains and service reservoirs and may also include minor pump stations. It is assumed in the context of the Jumping Creek site that the developer charges would cover the cost of the provision of any additional reservoirs or pump stations.

The DSP for sewerage requires Developers to make contribution for the provision of collection systems (trunk mains, major pumping stations and rising mains) and the sewerage treatment works.

Both DSPs require the Developer to fund all reticulation within the subdivision.

For the POC we have made no cost provision for a possible water reservoir or pump station on the basis it will be covered by developer charges. For sewer the POC assumes all pump stations and rising mains will be funded by the Developer. However there may be a case to argue that Pump Station 1 which is the main pump station for the development and the rising main from the pump station CIC qualify as part of the collection system.

Current developer contributions are as follows

Sewerage - \$1,232 per lot

Water - \$3,762 per lot

In terms of the staging the contributions per stage are as follows as set out in Table 4.

Table 4 – Development Servicing Contributions per stage

Stage	No of lots	Sewerage	Water
1	79	\$97,328	\$297,198
2	135	\$166,320	\$507,870
3	48	\$59,136	\$180,576
Total	262	\$322,784	\$985,644

Other Section 94 contributions may apply.

BROWN CONSULTING (ACT) PTY LTD
AUGUST 2011

APPENDICES

APPENDIX A: DRAWINGS

APPENDIX B: PHOTOGRAPHS

APPENDIX C: CORRESPONDENCE

APPENDIX D: DETAILED OPINION OF COST

APPENDIX A

DRAWINGS

JUMPING CREEK SITE INVESTIGATION

AUGUST 2011

DRAWING SCHEDULE:

C10084-000 - COVER SHEET
C10084-001 - EXISTING SERVICES
C10084-002 - PROPOSED STORMWATER SERVICES
C10084-003 - PROPOSED WATER SERVICES
C10084-004 - PROPOSED SEWER
C10084-005 - PROPOSED UTILITIES SERVICES
C10084-010 - PROPOSED ACCESS OPTIONS



For



DOCUMENT NO.....
PREPARED:.....
CHECKED:.....
PAGE:.....OF.....
DATE:.....

PROJECT No.
JOB No.

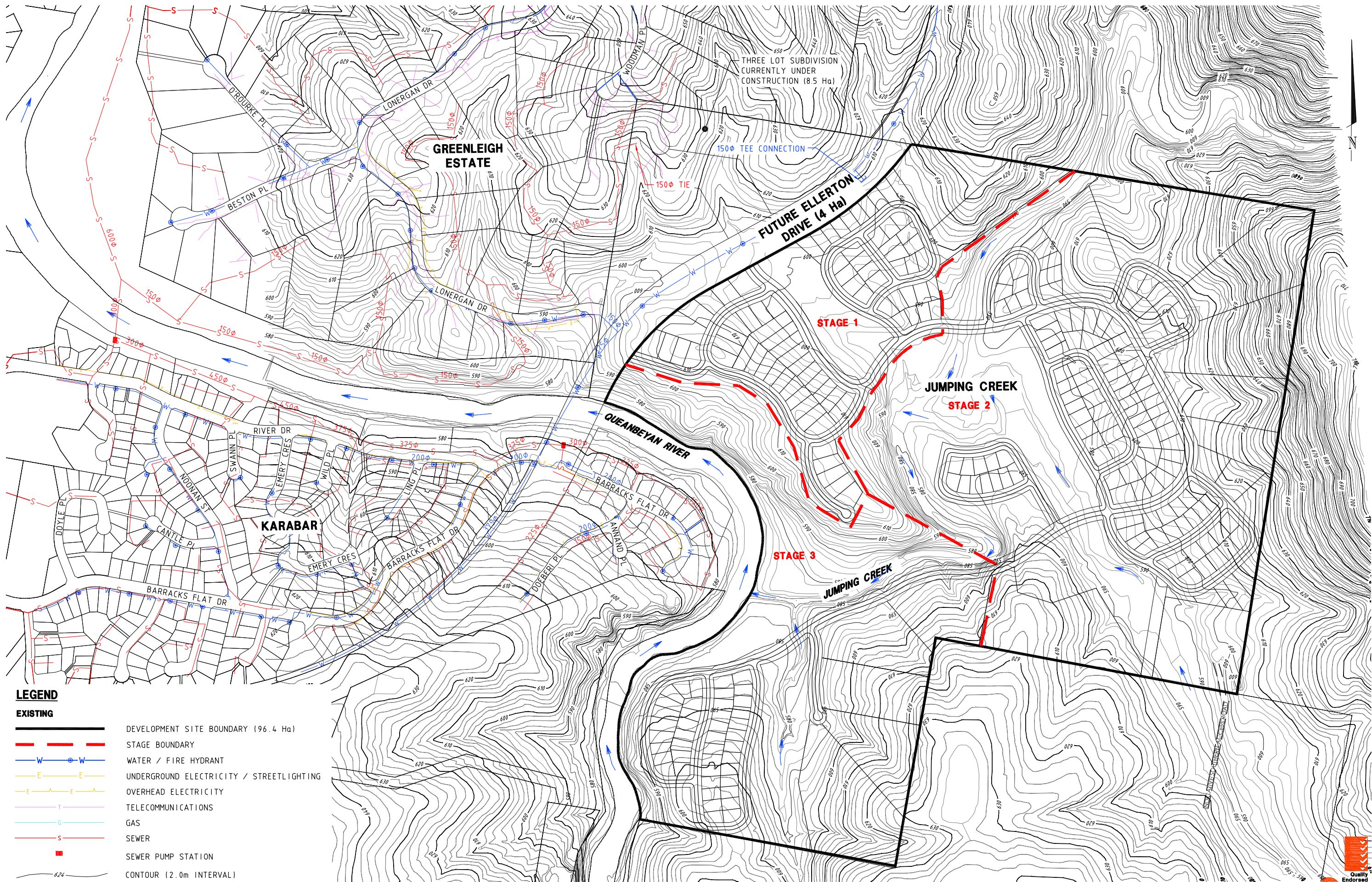
C10084



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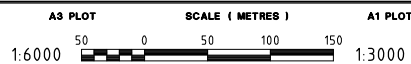
Brown Consulting (A.C.T.) Pty Ltd Engineers & Managers ACN 004 327 164
Level 6, 121 Marcus Clarke St Canberra City ACT 2601 Telephone 02 62117100 Facsimile 02 62117199
E-mail canberra@brownconsulting.com.au Website www.brownconsulting.com.au
Canberra Brisbane Melbourne Singapore Sunshine Coast Sydney



- LEGEND**
- EXISTING**
- DEVELOPMENT SITE BOUNDARY (96.4 Ha)
 - STAGE BOUNDARY
 - WATER / FIRE HYDRANT
 - UNDERGROUND ELECTRICITY / STREETLIGHTING
 - OVERHEAD ELECTRICITY
 - TELECOMMUNICATIONS
 - GAS
 - SEWER
 - SEWER PUMP STATION
 - CONTOUR (2.0m INTERVAL)

FILE: H:\C10084\drawing\C10084-001 EX SERV.dwg 15th-Aug-2011 11:07AM USER: jerryb
Xref's: X-A1 C10084 X-BLOCK-C10084 QBN ACTGRID QBN-CADASTER-MGA QBN-CADASTER X-Photo-C10084 Drawing5 X-CONTOURS-EX-C10084 X-Boundary MGA-C10084 X-SERVICES-C10084

FIRST ISSUE	DESIGN D.L.B.	DRAWN V.J.T.	CHECK K.R.C.	APPROVED	DATE	AMENDMENT DETAILS
A	TC	KRC			22/10/10	
B					15/08/11	JUMPING CREEK LAYOUT REVISED
C						
D						
E						
F						



MICROFILM No.
PROJECT No.

CLIENT
PROJECT
**JUMPING CREEK
SITE INVESTIGATION**



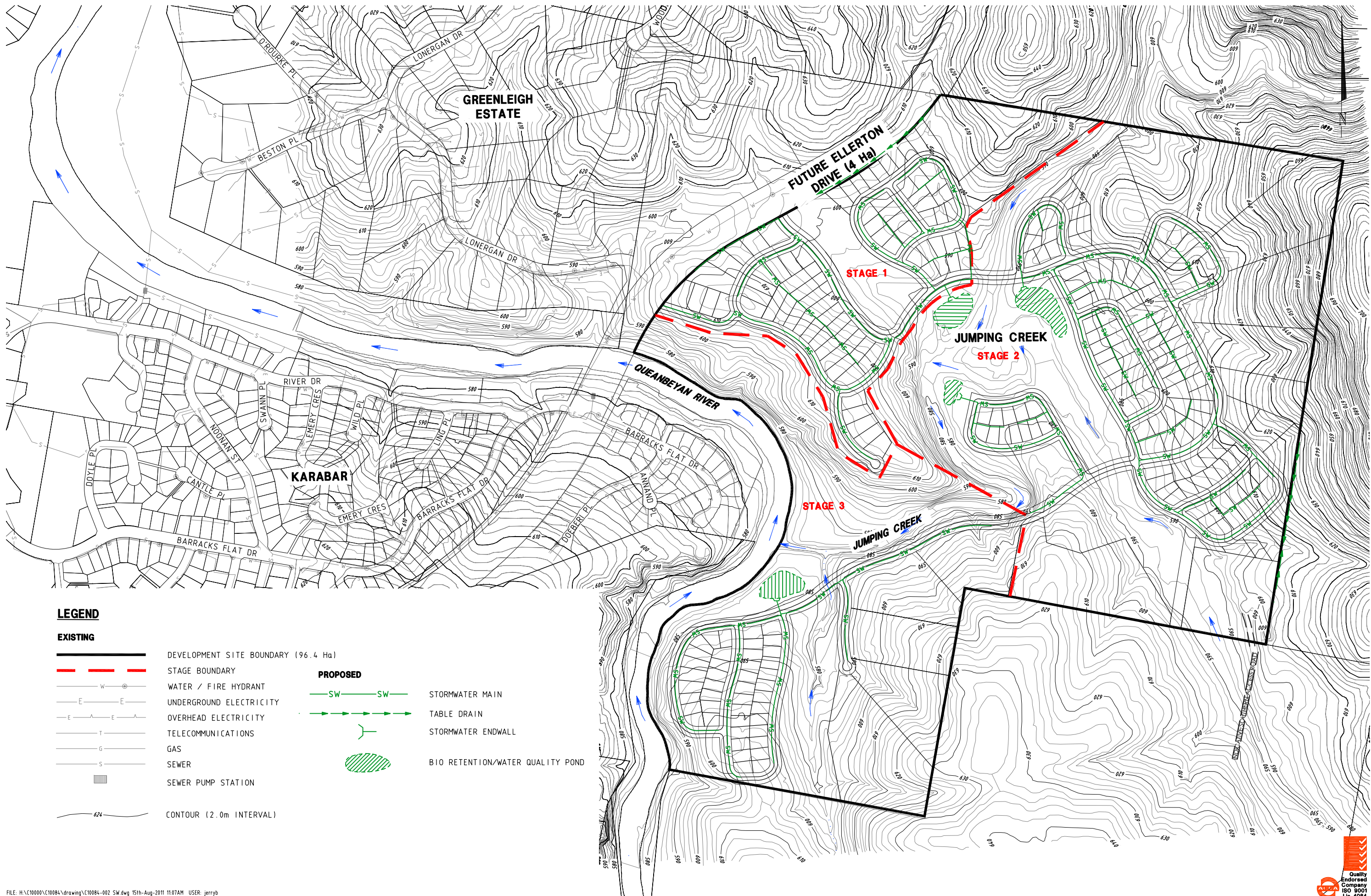
Brown Consulting (ACT) Pty Ltd Engineers & Managers
Level 6, 121 Marcus Clarke St, Canberra City ACT 2601
Telephone: 02 62117100 Facsimile: 02 62117199
Canberra Brisbane Melbourne Sydney Singapore Sunningdale Coast

DRAWING TITLE
EXISTING SERVICES

DRAWING NUMBER
C10084-001+

AMEND.
A





LEGEND

EXISTING

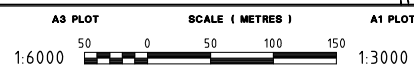
- DEVELOPMENT SITE BOUNDARY (96.4 Ha)
- STAGE BOUNDARY
- W — WATER / FIRE HYDRANT
- E — UNDERGROUND ELECTRICITY
- E — OVERHEAD ELECTRICITY
- T — TELECOMMUNICATIONS
- G — GAS
- S — SEWER
- SEWER PUMP STATION
- 624 — CONTOUR (2.0m INTERVAL)

PROPOSED

- SW — STORMWATER MAIN
- TABLE DRAIN
- STORMWATER ENDWALL
- BIO RETENTION/WATER QUALITY POND

FILE: H:\C10000\C10084\drawing\C10084-002 SW.dwg 15th-Aug-2011 11:07AM USER: jerryb
Xref's: X-A1 C10084 X-BLOCK-C10084 X-Photo-C10084 X-CONTOURS-EX-C10084 X-Boundary MGA-C10084 X-SERVICES-C10084 X-PSERVICES-C10084

FIRST ISSUE	DESIGN	DRAWN	CHECK	APPROVED	DATE	AMENDMENT DETAILS
A	TC	KRC			22/10/10	
B					15/08/11	JUMPING CREEK LAYOUT REVISED
C						
D						
E						
F						



MICROFILM No.
PROJECT No.

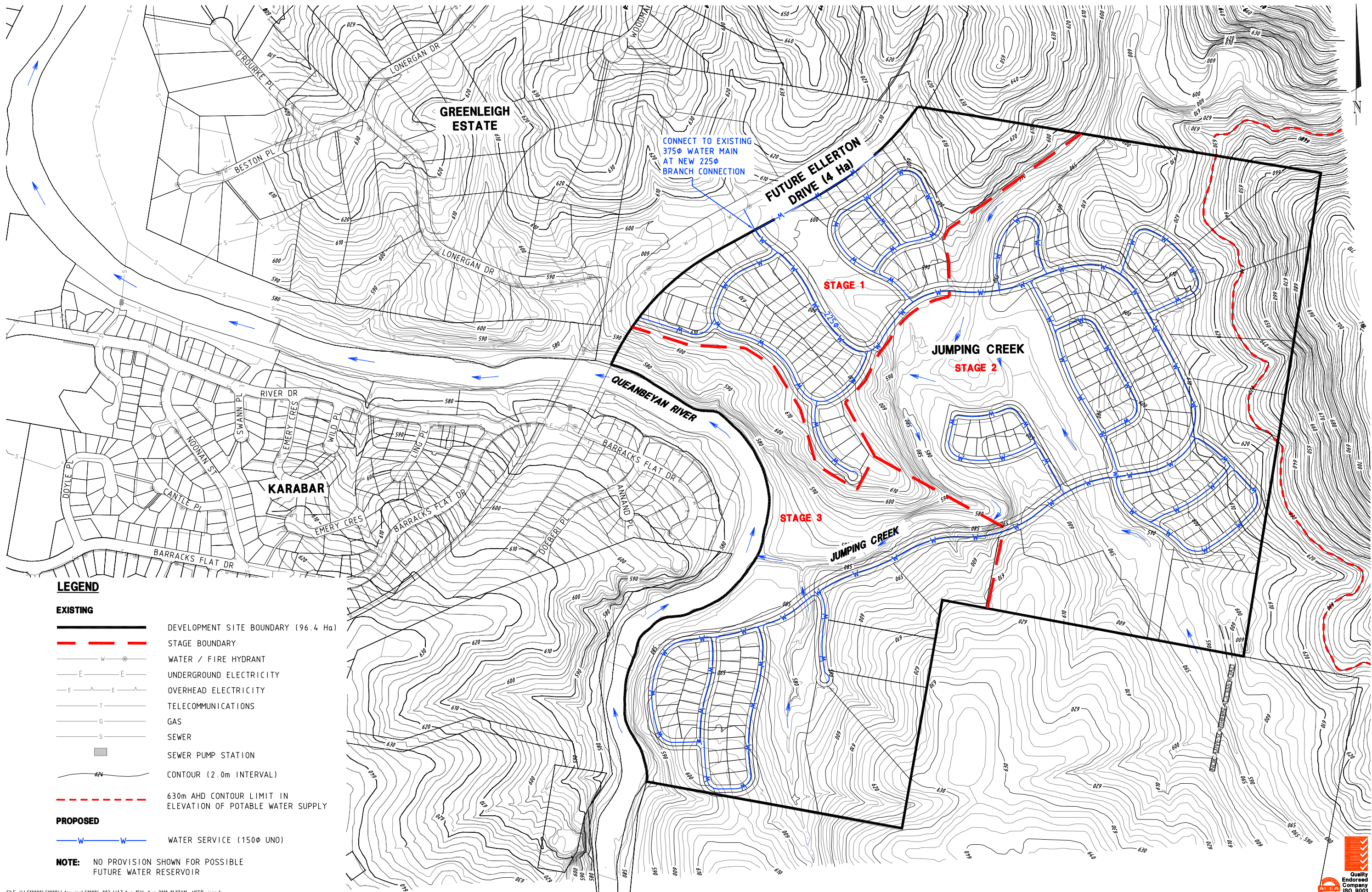
CLIENT
PROJECT
**JUMPING CREEK
SITE INVESTIGATION**



Brown Consulting (ACT) Pty Ltd Engineers & Managers
Level 6, 121 Marcus Clarke St, Canberra City ACT 2601
Telephone: 02 62117100 Facsimile: 02 62117199
Canberra Brisbane Melbourne Sydney Singapore Sunningdale Coast

DRAWING TITLE
PROPOSED STORMWATER SERVICES
DRAWING NUMBER
C10084-002+
AMEND.
A





LEGEND

EXISTING

- DEVELOPMENT SITE BOUNDARY (96.4 Ha)
- STAGE BOUNDARY
- W — WATER / FIRE HYDRANT
- E — UNDERGROUND ELECTRICITY
- E — OVERHEAD ELECTRICITY
- T — TELECOMMUNICATIONS
- G — GAS
- S — SEWER
- SEWER PUMP STATION
- 624 — CONTOUR (2.0m INTERVAL)

PROPOSED

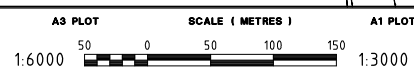
- W — WATER SERVICE (150mm UNO)

NOTE: NO PROVISION SHOWN FOR POSSIBLE FUTURE WATER RESERVOIR

FILE: H:\C10084\drawing\C10084-003.WAT.dwg 15th-Aug-2011 11:07AM USER: jerryb
Xref's: X-A1 C10084 X-BLOCK-C10084 X-Photo-C10084 X-CONTOURS-EX-C10084 X-Boundary MGA-C10084 X-SERVICES-C10084 X-P-SERVICES-C10084

FIRST ISSUE	DESIGN	DRAWN	CHECK	APPROVED	DATE
A	TC	KRC			22/10/10
B					15/08/11
C					
D					
E					
F					

AMENDMENT DETAILS
JUMPING CREEK LAYOUT REVISED



MICROFILM No.

PROJECT No.

CLIENT

PROJECT



**JUMPING CREEK
SITE INVESTIGATION**



Brown Consulting (ACT) Pty Ltd Engineers & Managers
Level 6, 121 Marcus Clarke St, Canberra City ACT 2601
Telephone: 02 62117100 Facsimile: 02 62117199
Canberra Brisbane Melbourne Sydney Singapore Sunningdale Coast

DRAWING TITLE

PROPOSED WATER SERVICES

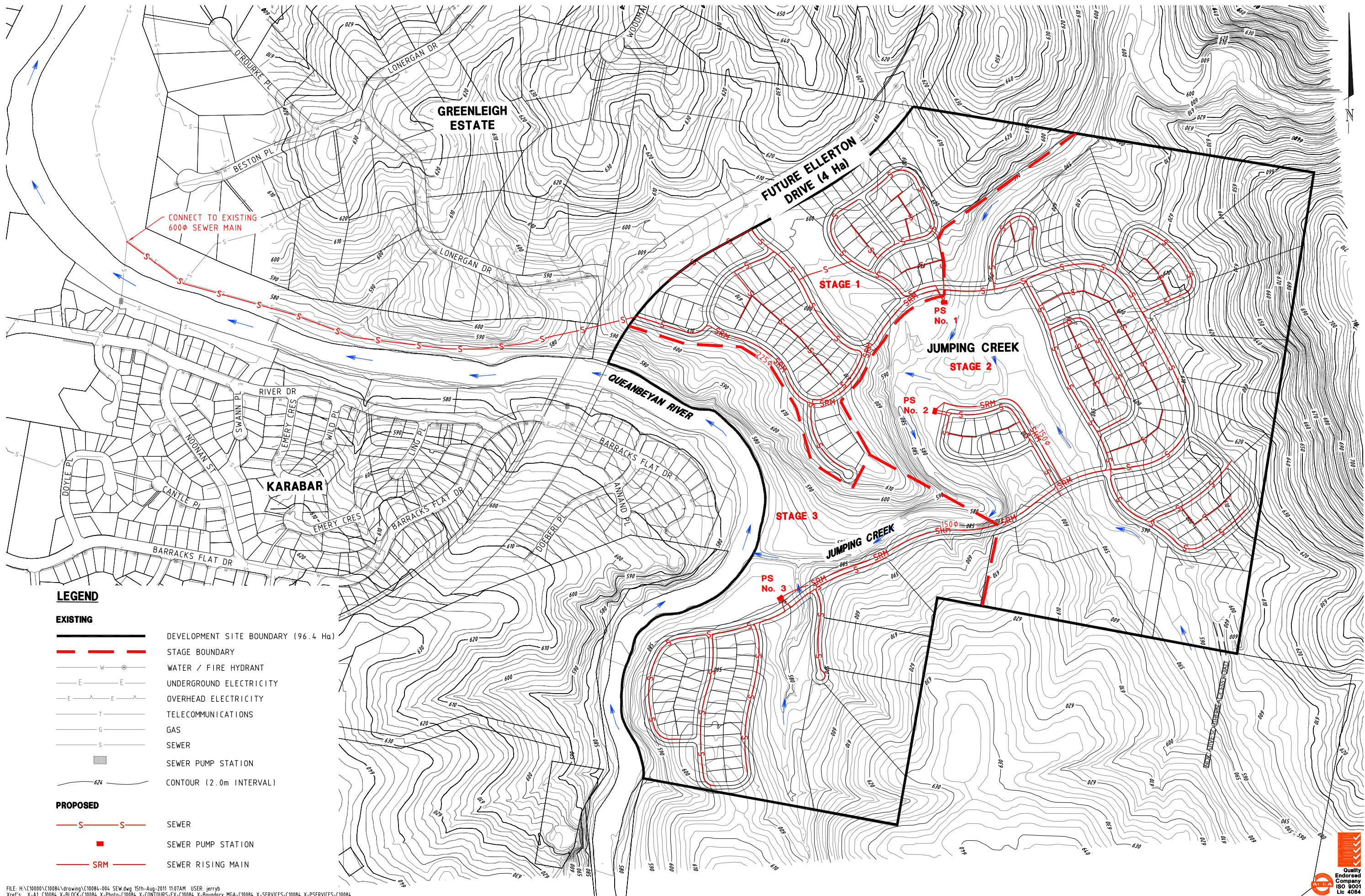
DRAWING NUMBER

C10084-003+

AMEND.

A





LEGEND

EXISTING

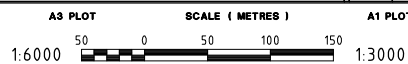
- — — — — DEVELOPMENT SITE BOUNDARY (96.4 Ha)
- — — — — STAGE BOUNDARY
- W — WATER / FIRE HYDRANT
- E — UNDERGROUND ELECTRICITY
- E — OVERHEAD ELECTRICITY
- T — TELECOMMUNICATIONS
- G — GAS
- S — SEWER
- SEWER PUMP STATION
- 624 — CONTOUR (2.0m INTERVAL)

PROPOSED

- S — SEWER
- SEWER PUMP STATION
- SRM — SEWER RISING MAIN

FILE: H:\C10084\drawing\C10084-004_SEW.dwg 15th-Aug-2011 11:07AM USER: jerryb
Xref's: X-A1 C10084 X-BLOCK-C10084 X-Photo-C10084 X-CONTOURS-EX-C10084 X-Boundary MGA-C10084 X-SERVICES-C10084 X-P-SERVICES-C10084

FIRST ISSUE	DESIGN	DRAWN	CHECK	APPROVED	DATE	AMENDMENT DETAILS
A	TC	KRC			22/10/10	
B					15/08/11	JUMPING CREEK LAYOUT REVISED
C						
D						
E						
F						



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PROJECT No.

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**JUMPING CREEK
SITE INVESTIGATION**



Brown Consulting (ACT) Pty Ltd Engineers & Managers
Level 6, 121 Marcus Clarke St, Canberra City ACT 2601
Telephone: 02 62117100 Facsimile: 02 62117199
Canberra Brisbane Melbourne Sydney Singapore Suva/We Coast

DRAWING TITLE

PROPOSED SEWER

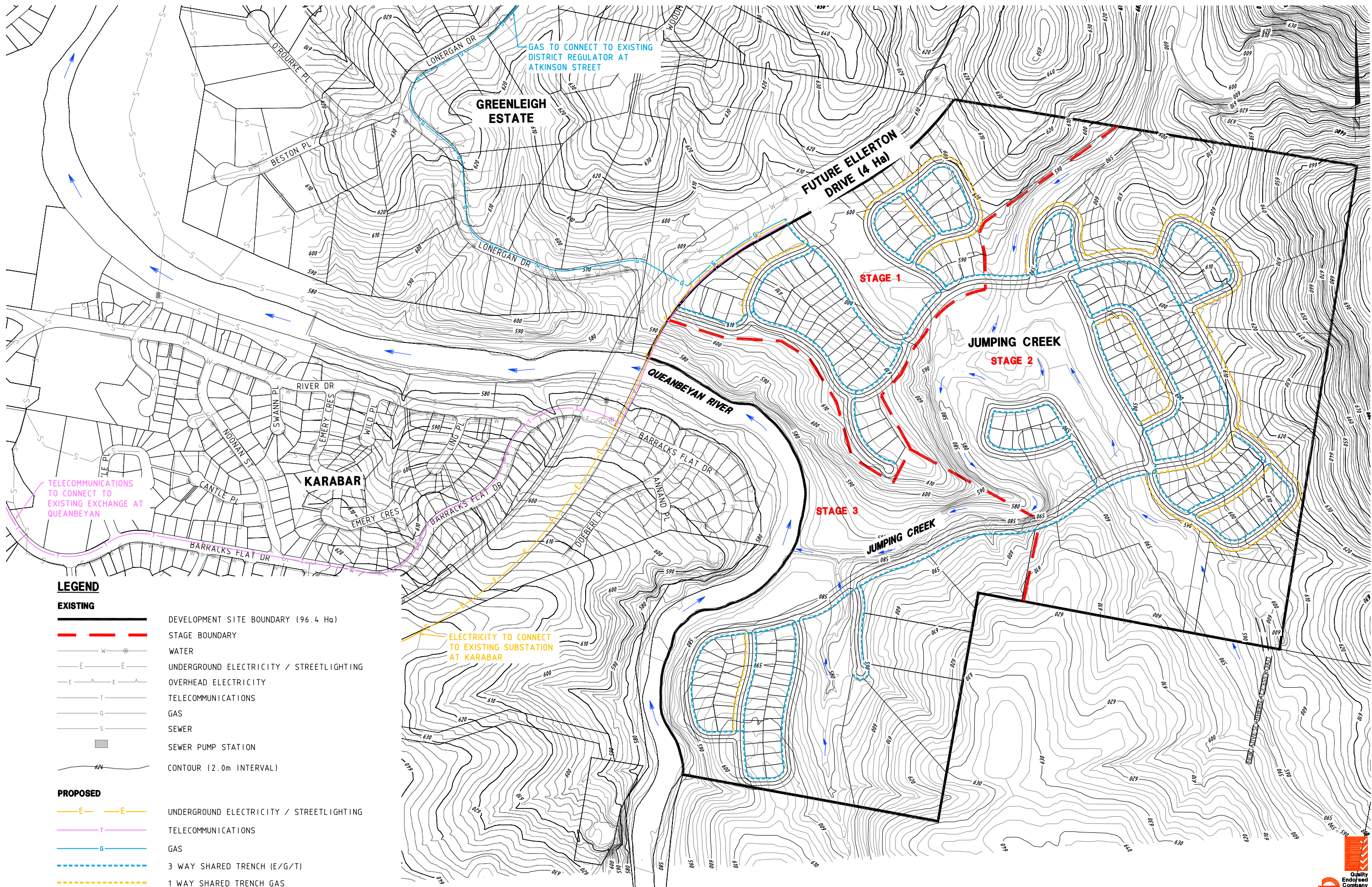
DRAWING NUMBER

C10084-004+

AMEND.

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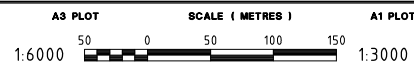




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FIRST ISSUE	DESIGN	DRAWN	CHECK	APPROVED	DATE
A	TC	KRC			22/10/10
B					15/08/11
C					
D					
E					
F					

AMENDMENT DETAILS
JUMPING CREEK LAYOUT REVISED



MICROFILM No.
PROJECT No.

CLIENT
PROJECT

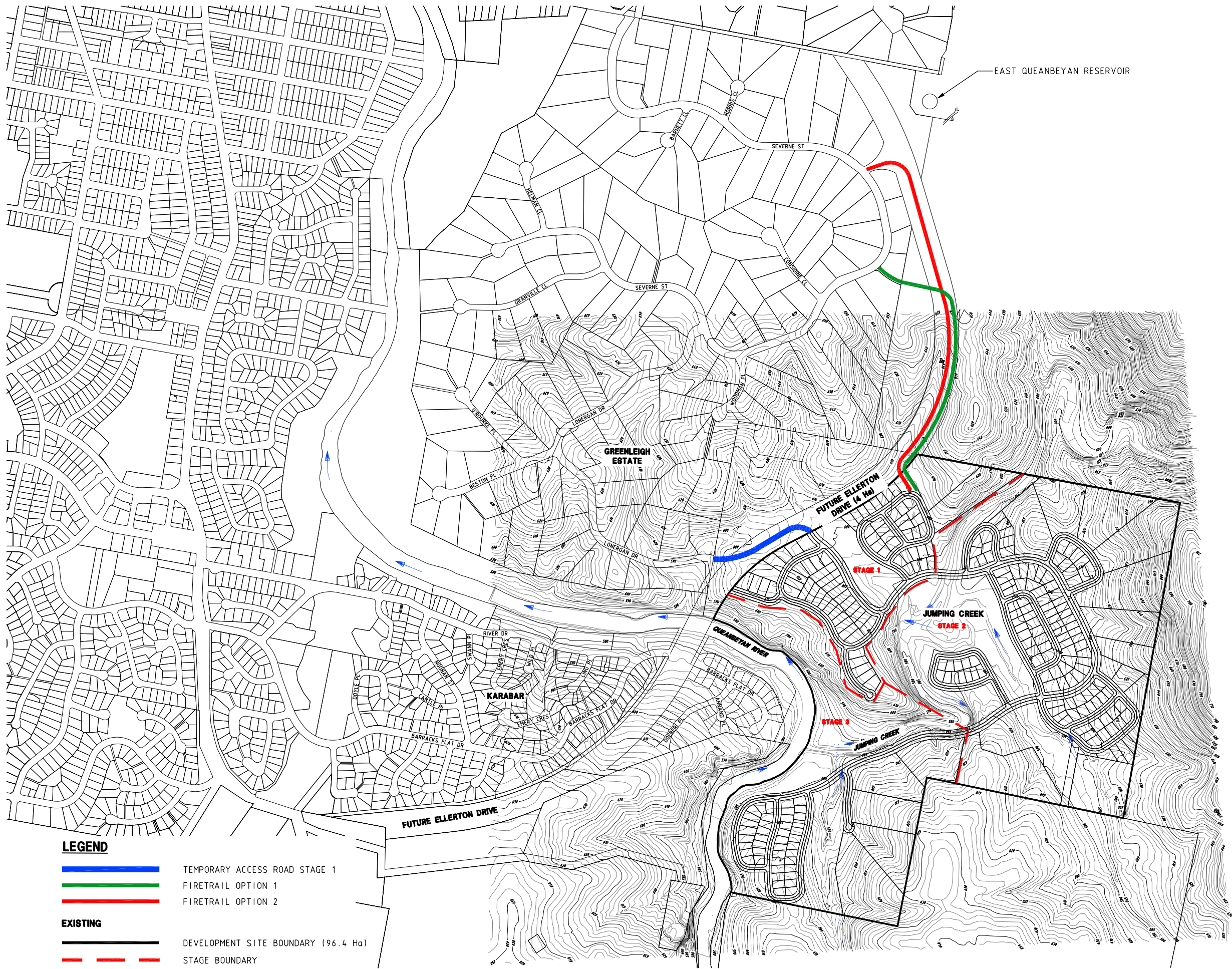
**JUMPING CREEK
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Telephone: 02 62117100 Facsimile: 02 62117199
Canberra Brisbane Melbourne Sydney Singapore Suva/Re Coast

DRAWING TITLE
PROPOSED UTILITIES SERVICES
DRAWING NUMBER
C10084-005+
AMEND.
A



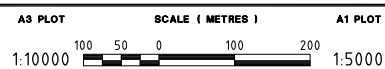


LEGEND

- TEMPORARY ACCESS ROAD STAGE 1
- FIRETRAIL OPTION 1
- FIRETRAIL OPTION 2
- EXISTING
- DEVELOPMENT SITE BOUNDARY (96.4 Ha)
- STAGE BOUNDARY

FILE: H:\C10084\drawing\C10084-010 ACCESS.dwg 15th-Aug-2011 11:08AM USER: jerryb
Xref's: X-A1 C10084 X-BLOCK-C10084 X-PhotosID-C08086 X-Boundary MGA-C10084 X-CONTOURS-EX-C10084

FIRST ISSUE	DESIGN	DRAWN	CHECK	APPROVED	DATE	AMENDMENT DETAILS
A		KRC			15/08/11	
B						
C						
D						
E						
F						



MICROFILM No.

PROJECT No.

CLIENT

PROJECT



**JUMPING CREEK
SITE INVESTIGATION**



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Telephone: 02 62117100 Facsimile: 02 62117199
Canberra Brisbane Melbourne Sydney Singapore Sunshine Coast

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DRAWING TITLE	
PROPOSED ACCESS OPTIONS	
DRAWING NUMBER	AMEND.
C10084-010+	



APPENDIX B

PHOTOGRAPHS



Photograph 1:
View from the north-western corner of the site towards the southern boundary



Photograph 2:
**Existing fire hydrant on the 375mm dia water rising main in the proposed
Ellerton Drive reserve**



**Photograph 3:
View of the Jumping Creek flood plain**



**Photograph 3:
View of the Jumping Creek several days after significant rainfall**

APPENDIX C

CORRESPONDENCE

Daniel Banks

From: Michael Nolan [Michael.Nolan@cicaustralia.com.au]
Sent: Friday, 15 October 2010 9:54 AM
To: Daniel Banks; Tony Connell
Cc: Malcolm Leslie
Subject: FW: Jumping Creek Services Assessment

Hi Tony / Dan

Please see the email reply from Council below.

Please complete the draft services assessment with two scenarios – one where there is sufficient water and sewer capacity and another where there is not.

Please also advise me on the scope of the additional “investigative work” described by Council below and suggest what would be the cost to complete this work on their behalf.

Cheers
Mike

Michael Nolan
Development Manager



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From: Grant Moller [mailto:Grant.Moller@qcc.nsw.gov.au]
Sent: Thursday, 14 October 2010 1:18 PM
To: Michael Nolan
Cc: Phil Hansen; Keith Davies
Subject: FW: Jumping Creek Services Assessment

Hi Michael

I'm responding in order as matters put forward:

- Council is not in a position to comment whether the adjacent sewer network has spare capacity for this development. Council would need to carry out investigational works in modelling and design to determine spare capacity – if any – that would be available for this development. Additional investigation of the broader downstream sewer network is also necessary etc.
- There is approx 550kPa static pressure from the receiving East Queanbeyan Reservoir to the development offtake.
- Council cannot comment on the capacity of this main without carrying out further investigational works. Our best guess suggests there is capacity in both the 375 rising main and the East Queanbeyan Reservoir for this development.

- Again, council cannot comment without further investigational works. I'm not sure of the development size in ET and whether a 150 offtake is adequate without further investigational works.
- See point 3 above.

Grant Moller

Manager Water and Sewer
Queanbeyan City Council
Phone: 02 6298 0286
Fax: 02 6298 0182
Mobile: 0418 250 853
Email: grant.moller@qcc.nsw.gov.au

From: Michael Nolan [<mailto:Michael.Nolan@cicaustralia.com.au>]
Sent: Wednesday, 13 October 2010 3:42 PM
To: Phil Hansen
Subject: FW: Jumping Creek Services Assessment

Hi Phil

You'll note from the email below that Brown Consulting have made several requests to Council to obtain the information listed to allow us to advance the planning for development of Jumping Creek.

Given that the comprehensive LEP is soon to go on exhibition it essential that we are able to get this information to inform the feasibility for the development so we don't get a rezoning outcome that is unviable. Such information would also be used to inform the making of future contributions plans / planning agreements for the development.

Your timely assistance would be much appreciated.

Regards
Mike

Michael Nolan
Development Manager



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From: Daniel Banks [<mailto:Daniel.Banks@brownconsulting.com.au>]
Sent: Wednesday, 13 October 2010 2:55 PM
To: Michael Nolan
Cc: Tony Connell
Subject: RE: Jumping Creek Services Assessment

Hi Mike,

In response to your email to Tony Connell, below, I can provide the following information about what is required from council.

We first contacted Queanbeyan City Council regarding the hydraulic servicing of Jumping Creek in mid June, shortly after our Planning Workshop at your office. Since that time, there have been several attempts to contact QCC with only a minority of those attempts receiving a response.

Information provided to us has thus far has been irregular and vague, usually with the assurance that more information would follow.

The last time we were able to successfully contact QCC, in mid September, we were told that the internal systems within the department were being updated and technical specifications about the surrounding network could not be confirmed. We were assured that once the new system came online they would provide us with the information we required. Subsequent attempts to contact QCC have been unsuccessful.

The information we are still waiting for includes

- Spare capacity of the adjacent sewer network at Greenleigh to aid in the staging of the development
- Pressure of existing 375mm dia water main at the northwest of the block (may restrict the elevation of the development)
- Capacity of the 375mm dia water main to ensure servicing of Jumping Creek
- Status of the 150mm tee connection from this main. i.e. can we service the site directly from this connection
- Requirement of a reservoir within or outside the development (possible large extra cost)

Any help you can offer in this matter would be greatly appreciated.

If you have any questions, please contact me.

Regards,

Daniel Banks | Engineer - Urban Development

Brown Consulting (ACT) Pty Ltd

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E Daniel.Banks@brownconsulting.com.au
W www.brownconsulting.com.au



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From: Michael Nolan [mailto:Michael.Nolan@cicaustralia.com.au]
Sent: Wednesday, 13 October 2010 10:49 AM
To: Tony Connell
Subject: Jumping Creek Services Assessment

Hi Tony

As discussed, please see a copy of the current layout for Jumping Creek attached + please send me an email listing exactly what is required from Council for you to complete your draft services assessment.

I'll then follow up with Phil Hansen later today.

Cheers
Mike

Michael Nolan
Development Manager



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Michael.Nolan@cicaustralia.com.au

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Daniel Banks

From: Keith Davies [Keith.Davies@qcc.nsw.gov.au]
Sent: Tuesday, 14 September 2010 10:14 AM
To: Daniel Banks
Subject: RE: Jumping Creek - Engineering Services

Categories: C10084

Daniel

Sorry for the delay in response to your enquiry. Council is currently installing updated sewer & water models to facilitate requests such as yours.

At the moment the new models are being tested and we will reply asap. Regarding the point of sewer connection, we are determining what (if any) capacity is in the 150 lines running east of Beston Place parallel to the river and in the 600 main. Connection will need to be made via this system.

The trunk water main that runs through the site on the future Ellerton Drive alignment has a 150 tee provided for the site toward the north end of the lot (as indicated on the water drawing attached to your e-mail). This would be the supply point for the subdivision. We will provide a flow rate in due course at this point. You will need to size a reservoir for the proposed development to provide supply in accordance with the demands stipulated in Council's DCP 38, Part B1 – D11 – Water Reticulation. Reservoir size is 24 hours at peak day demand with no net loss of reservoir operating capacity permitted over a 24 hour period.

Please direct any further enquiry in this matter to me.

Regards

Keith Davies
Senior Engineer – Development
Queanbeyan City Council
6298 0120

From: Daniel Banks [mailto:Daniel.Banks@brownconsulting.com.au]
Sent: Monday, 6 September 2010 9:12 AM
To: Keith Davies
Cc: James Muthukuda
Subject: FW: Jumping Creek - Engineering Services

Keith,

Some time ago I spoke to you about the servicing of a new development at Jumping Creek on Queanbeyan's south-eastern fringe. At the time I sent you the email below, but I didn't hear back from you.

The project has been taken to the next stage and we would like to finalise the servicing concept for the site. The two issues raised in the email below regarding water supply and sewerage are still outstanding. A response to these two issues would be much appreciated.

I have attached a draft Existing Services Plan for the surrounding developments as well as a locality plan for the development. I have also attached the existing sewer and water plans provided to us by QCC some time ago.

It is likely the development will have approximately 300 dwellings, all detached housing. The total site area is approximately 109Ha (albeit the developable land is much less), and with the current block layout, there will be a total of 7000m of road.

If you have any questions, or need further information, please contact me.

Regards,

Daniel Banks | Engineer - Urban Development

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From: Daniel Banks

Sent: Tuesday, 22 June 2010 9:54 AM

To: 'keith.davies@qcc.nsw.gov.au'

Subject: Jumping Creek - Engineering Services

Keith,

A couple of weeks ago I spoke to you on the phone about water and sewer services for the possible future development at Jumping Creek.

With regard to the water supply, you said that you would follow up on the expected pressures in the area, to gauge if the site could be serviced. Also, you were to advise me of the possible tie in locations for the trunk 375dia water main in the Edwin Land Parkway reserve. Can you please provide this information.

Please also confirm that we can connect to the existing sewer network upstream of the 600dia trunk main, in the vicinity of Beston Pl, at the edge of the Queanbeyan River.

If you have any questions, please contact me.

Regards,

Daniel Banks | Engineer - Urban Development

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Daniel Banks

From: Donnelly, Steve [Stephen.Donnelly@jemena.com.au]
Sent: Tuesday, 23 November 2010 10:11 AM
To: Daniel Banks
Subject: FW: Jumping Creek Proposed Development - Servicing Capacity

Daniel

The existing network can supply 80 lots without need for reinforcement.

Regards

Steve Donnelly
Network Development Manager



Jemena Gas Networks (NSW) Limited, Unit 1/5-7 Johns Place Hume ACT 2620
Direct (02) 6203 0640 **Mobile** 0427 401 803 **Email** stephen.donnelly@jemena.com.au
www.thenaturalchoice.com.au

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From: Wijaya, Edward
Sent: Monday, 22 November 2010 1:25 PM
To: Donnelly, Steve
Subject: RE: Jumping Creek Proposed Development - Servicing Capacity

Steve,

The existing network configuration is capable of handling the additional 80 lots subdivision.

Regards
Edward Wijaya
Asset Planning Engineer
Gas Planning & Development | Asset Strategy

Jemena
100 Benelong Rd, Sydney Olympic Park, NSW, 2127
T: (02) 9397 9367 | F: (02) 9397 9997
E: Edward.Wijaya@jemena.com.au
W: www.jemena.com.au

From: Donnelly, Steve
Sent: Thursday, 18 November 2010 11:16 AM
To: Wijaya, Edward
Subject: FW: Jumping Creek Proposed Development - Servicing Capacity

Edward

The developer is now asking if the existing network can supply an 80 lot subdivision, instead of the original 300-350 lots. Please advise.

Regards

Steve Donnelly
Network Development Manager



Jemena Gas Networks (NSW) Limited, Unit 1/5-7 Johns Place Hume ACT 2620
Direct (02) 6203 0640 **Mobile** 0427 401 803 **Email** stephen.donnelly@jemena.com.au
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Steve,

There won't be any creek crossings; the additional mains would be laid from DR87 to Atkinson St, Queanbeyan. I have included some diversity factor and came out with approximately 600+ meters of 110mm PE main extension (instead of 1km).

Regards

Edward Wijaya

Graduate Capacity Planning Engineer

Gas Planning & Development | Asset Strategy Jemena 100 Benelong Rd, Sydney Olympic Park, NSW, 2127

T: (02) 9397 9367 | F: (02) 9397 9997

E: Edward.Wijaya@jemena.com.au

W: www.jemena.com.au

-----Original Message-----

From: Donnelly, Steve

Sent: Monday, 13 September 2010 12:19 PM

To: Wijaya, Edward

Subject: RE: Jumping Creek Proposed Development - Servicing Capacity

Edward

Brendan Hill

From: Daniel Banks
Sent: Thursday, 18 November 2010 9:04 AM
To: 'Donnelly, Steve'
Subject: RE: Jumping Creek Proposed Development - Servicing Capacity

Hi Steve,

Further to our correspondence below, we would like to check the capacity of your surrounding network, in Greenleigh, if there was to be only 80 blocks developed.

It is the intention of our client to develop the first 80 blocks prior to the Edwin Land Parkway being constructed. Obviously, they would like to avoid the large capital costs required to service the site for the entire development if they can avoid it.

So, is it possible to service 80 blocks from the existing infrastructure in Greenleigh? Alternatively, what is the maximum amount of blocks able to be serviced with gas without the need for a connection to the district regulator at Atkinson Street?

Once the development exceeds the capacity of the Greenleigh network, the connection to Atkinson Street regulator will be made.

If you have any questions, please contact me.

Regards,

Daniel Banks | Engineer - Urban Development

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From: Donnelly, Steve [<mailto:Stephen.Donnelly@jemen.com.au>]
Sent: Tuesday, 14 September 2010 9:48 AM

To: Daniel Banks

Subject: RE: Jumping Creek Proposed Development - Servicing Capacity

Daniel

There are likely to be costs that need to be borne by the developer. We would need to see plans of the subdivision to do a total design before I would be able to give you an idea of what the costs may be.

Regards

Steve Donnelly

Network Development Manager



Jemena Gas Networks (NSW) Limited, Unit 1/5-7 Johns Place Hume ACT 2620

Direct (02) 6203 0640 **Mobile** 0427 401 803 **Email** stephen.donnelly@jemena.com.au

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From: Daniel Banks [<mailto:Daniel.Banks@brownconsulting.com.au>]

Sent: Tuesday, 14 September 2010 9:37 AM

To: Donnelly, Steve

Subject: RE: Jumping Creek Proposed Development - Servicing Capacity

Thanks for that Steve,

Will there be any cost associated with this work that will need to be borne by the developer for Jumping Creek?

Cheers,

Daniel Banks | Engineer - Urban Development

Brown Consulting (ACT) Pty Ltd

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From: Donnelly, Steve [mailto:Stephen.Donnelly@jemena.com.au]
Sent: Tuesday, 14 September 2010 9:34 AM
To: Daniel Banks
Subject: RE: Jumping Creek Proposed Development - Servicing Capacity

Hi Daniel

The existing network does not have sufficient capacity to supply the proposed 300-350 lot development. An upgrade of the network upstream will be required. We will need to duplicate the network from the district regulator in Atkinson Street with approximately 600-1,000 metres of 110mm PE main to give adequate supply.

Don't hesitate to contact me if you require any further information.

Regards

Steve Donnelly
Network Development Manager



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From: Daniel Banks [mailto:Daniel.Banks@brownconsulting.com.au]
Sent: Friday, 10 September 2010 11:07 AM
To: Donnelly, Steve
Subject: RE: Jumping Creek Proposed Development - Servicing Capacity

Hi Steve,

I am chasing up on the email below. Have you had a chance to analyse the surrounding network yet and confirm there is enough capacity to service the development of Jumping Creek. If not, do you have an alternative arrangement to service the development with gas.

If you have any questions, please contact me.

Regards,

Daniel Banks | Engineer - Urban Development

Brown Consulting (ACT) Pty Ltd

15 Hall St, Lyneham, Canberra ACT, 2602
PO Box 5004, Lyneham, Canberra ACT, 2602

P 02 6211 7100 **F** 02 6211 7199

E Daniel.Banks@brownconsulting.com.au

W www.brownconsulting.com.au



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From: Hilton, Neale [mailto:Neale.Hilton@jemena.com.au]
Sent: Monday, 6 September 2010 10:20 AM
To: Donnelly, Steve
Cc: Daniel Banks
Subject: FW: Jumping Creek Proposed Development - Servicing Capacity

Steve,
Can you please assist Daniel with his enquiry.

Neale Hilton
Network Development Manager
Sydney

Jemena Gas Networks (NSW) Limited
Address Level 20, 111 Pacific Highway North Sydney NSW 2060
Postal Address Locked Box 2/159 Ridgecrop Drive Castle Hill 2154
Mobile 0402 060 151 Fax (02) 9899 3571 Email neale.hilton@jemena.com.au

thenaturalchoice.com.au



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From: Daniel Banks [mailto:Daniel.Banks@brownconsulting.com.au]
Sent: Monday, 6 September 2010 9:01 AM
To: Hilton, Neale
Subject: FW: Jumping Creek Proposed Development - Servicing Capacity

Neale,

I just sent the email below to Elle but got an auto-reply directing me to you.

Can you please help me with the issue in the following email?

Regards,

Daniel Banks | Engineer - Urban Development

Brown Consulting (ACT) Pty Ltd

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From: Daniel Banks
Sent: Monday, 6 September 2010 8:57 AM
To: 'Eliana.Peters@jemen.com.au'
Subject: FW: Jumping Creek Proposed Development - Servicing Capacity

Elle,

Some time ago I spoke to you about the servicing of a new development at Jumping Creek on Queanbeyan's south-eastern fringe. At the time I sent you the email below, but I didn't hear back from you.

The project has been taken to the next stage and we would like to finalise the servicing concept for the site.

I have attached the Dial Before You Dig information provided to us by Jemena, as well as a draft Existing Services Plan for the surrounding developments.

It is likely the development will have approximately 300 dwellings, all detached housing. The total site area is approximately 109Ha (albeit the developable land is much less), and with the current block layout, there will be a total of 7000m of road.

Ideally we would like to service the site from the existing development of Greenleigh. Alternatively, if needed, we could service the site via the proposed Edwin Land Parkway. At this stage there is no plan for an additional crossing of the Queanbeyan River.

If you have any questions or need more information, please contact me.

Regards,

Daniel Banks | Engineer - Urban Development

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From: Daniel Banks
Sent: Thursday, 10 June 2010 2:53 PM
To: 'Eliana.Peters@jemen.com.au'
Subject: Jumping Creek Proposed Development - Servicing Capacity

Elle,

As discussed, we are undertaking a preliminary servicing investigation for a proposed development at Jumping Creek.

Please find attached a drawing of the location of Jumping Creek.

The development is planned to have 300 dwellings, but this may be as high as 350. All of these will be detached houses in a greenfields development.

At this stage we would like to be able to service the development from the suburb of Greenleigh only, or possibly a connection via the proposed Edwin Land Parkway over the river. At this stage there is no plan for an additional crossing of the Queanbeyan River.

Please confirm that the surrounding network will have the capacity to accommodate this development.

If you have any questions, please contact me.

Regards,

Daniel Banks | Engineer - Urban Development

Brown Consulting (ACT) Pty Ltd

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Daniel Banks

From: Lai, Jacob Y [Jacob.Y.Lai@team.telstra.com]
Sent: Monday, 6 September 2010 10:47 AM
To: Daniel Banks
Subject: RE: Jumping Creek - Site Investigation

Categories: C10084

Daniel,

There is insufficient capacity in the existing Telstra network to service this proposed development. New network infrastructures will need to be built from the Queanbeyan exchange via Karabar. It is proposed to access this estate via the Barracks Flat Drive and the proposed new Edwin Land Parkway.

Regards,

Jacob Lai

From: Daniel Banks [mailto:Daniel.Banks@brownconsulting.com.au]
Sent: Monday, 6 September 2010 8:31 AM
To: Lai, Jacob Y
Subject: Jumping Creek - Site Investigation

Jacob,

We are involved in a site investigation for a housing development at Jumping Creek, on the south-eastern outskirts of Queanbeyan. Please see the attached sketch for the location.

The development is proposed to have up to 300 dwellings, all detached housing. The total site area is approximately 109Ha (albeit the developable land is much less), and with the current block layout, there will be a total of 7000m of road.

I have included our draft Existing Services Plan for your reference and also the Dial Before You Dig information recently provided to us by Telstra.

Could you please provide advice on the capacity of the surrounding network to service this site? Also, can you please provide advice on the location of the servicing for this site?

Ideally we would like to service the site from the existing development of Greenleigh. Alternatively, if needed, we could service the site via the proposed Edwin Land Parkway. At this stage there is no plan for an additional crossing of the Queanbeyan River.

If you need further information, or have any questions, please contact me.

Regards,

Daniel Banks | Engineer - Urban Development

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Daniel Banks

From: Barrett, Rod [Rod.Barrett@transact.com.au]
Sent: Tuesday, 14 September 2010 8:33 AM
To: Daniel Banks
Cc: Read, Wayne
Subject: FW: Jumping Creek - Services Investigation

Categories: C10084

Daniel,

Wayne passed your email,

I've provided embedded responses below; please feel free to contact me should you require more information

Regards

Rod Barrett

Group Manager

Network Design and Construction Branch

TransACT Communications

ph: 02 62298047

mob: 0428298001

please think of the environment before printing this email

We are involved in the development of a residential subdivision at Jumping Creek on the south-eastern fringe of Queanbeyan. Please see attached sketch for the location.

It is likely the development will have up to 300 dwellings, all detached housing. The total site area is approximately 109Ha (albeit the developable land is much less, about 35Ha with the current layout), and with the current block layout, there will be a total of 7000m of road.

Is it at all likely that TransACT would be interested in servicing this development **Yes**; we understand this will come at a cost to the developer? **TransACT request developer contributions to assist building the business case to justify CAPEX, these can be either a lump sum up front contribution, or staged per dwelling or a combination of both** If so, can you please provide an indication of where the development will be serviced from and a rough indication of the costs to be borne by the developer **Depending on final layout and timings a dedicated comms hut within the estate will more than likely be required, having said, TransACT would aim to use existing head end infrastructure to service the estate, but, this depends on timings with other planned estates. TransACT seek contributions for pit and pipe and fibre per "dwelling passed" as the Estate is being built. Further to the "dwellings passed" contribution, a "dwelling connected" contribution is sought once customers connect. For the major backhaul works and the "comms hut" if required separate upfront contributions would be requested. These agreements are commercial in confidence and would be provided to the developer during contract negotiations. Our Dial Before You Dig request has come back showing there is no TransACT equipment or cabled in the area. That is correct, TransACT would need to build network to the estate**

Ideally we would like to service the site via the existing development of Greenleigh. Alternatively, if needed, we could service the site via the proposed Edwin Land Parkway. At this stage there is no plan for an additional crossing of the Queanbeyan River. **As part of our detailed costing analysis, upon receiving formal request for a proposal from the Developer, we would study the most practical and cost efficient method of accessing the network.**

From: Read, Wayne
Sent: Monday, 13 September 2010 12:40 PM
To: Barrett, Rod
Subject: FW: Jumping Creek - Services Investigation

Rod,
The developers are CIC but the request is from Browns Consulting

Cheers
Wayne

From: Daniel Banks [mailto:Daniel.Banks@brownconsulting.com.au]
Sent: Friday, 10 September 2010 2:24 PM
To: Read, Wayne
Cc: Newton, Michael
Subject: Jumping Creek - Services Investigation

Wayne,

We are involved in the development of a residential subdivision at Jumping Creek on the south-eastern fringe of Queanbeyan. Please see attached sketch for the location.

It is likely the development will have up to 300 dwellings, all detached housing. The total site area is approximately 109Ha (albeit the developable land is much less, about 35Ha with the current layout), and with the current block layout, there will be a total of 7000m of road.

Is it at all likely that TransACT would be interested in servicing this development; we understand this will come at a cost to the developer? If so, can you please provide an indication of where the development will be serviced from and a rough indication of the costs to be borne by the developer. Our Dial Before You Dig request has come back showing there is no TransACT equipment or cabled in the area.

Ideally we would like to service the site via the existing development of Greenleigh. Alternatively, if needed, we could service the site via the proposed Edwin Land Parkway. At this stage there is no plan for an additional crossing of the Queanbeyan River.

If you have any questions or need more information, please contact me.

Regards,

Daniel Banks | Engineer - Urban Development

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Daniel Banks

From: Robert Jarman [RJarman@hmac.com.au]
Sent: Thursday, 7 October 2010 9:34 AM
To: Tony Connell
Cc: Jeremy Peters
Subject: Electricity Supply to Jumping Creek Estate

Categories: C10084

Tony

I've discussed the electricity supply arrangements with Geoff Edmonds of Country Energy.

The initial supply will be provided by overhead lines across the river from Karabar connecting into the underground distribution network for the development. Connections with the network supplying the Greenleigh Estate are also to be provided. When the Edwin Land Parkway is built with a bridge across the Queanbeyan River then underground cables can be accommodated in the bridge crossing.

In regard to an initial cost estimate please allow \$6000 per block due to the spread out nature of the development which will require long high voltage underground cable feeds.

Please let me know if you need further information at this stage.

Regards

Bob



Robert Jarman

Director & Executive Engineer

p: +61 2 6282 7350

f: +61 2 6282 7351

m: 0417 516 967

e: rjarman@hmac.com.au

www.hmac.com.au

APPENDIX D

DETAILED OPINION OF COST

Appraisal of Construction Costs

Project: CIC Australia Jumping Creek Stage 1
Project No: C10084
Client : CIC

LOTS 79

Jumping Creek - Stage 1

Item	Description Prices are inclusive of GST	Total Amount	Comments	Project Wide Costs	Stage 1 Only Costs	Project Wide Items - Comments
0 PRELIMINARIES						
	Subtotal	\$410,000	5% of Construction Costs	\$76,430	\$333,570	
1 PROVISION FOR TRAFFIC						
	Subtotal	\$20,000		\$0	\$20,000	Access to the site via Lonegan Ave
	Subtotal	\$0		\$0	\$0	Access to the site via Lonegan Ave
2 EARTHWORKS						
	Subtotal	\$888,000	Assumes Topsoil 100mm thick over 100% of site Allows for Cut to Fill or Stockpile for road regrading Allows minor block regrading, NO block benching Excludes Contaminated Land rehab - i.e. sheep dips, etc	\$11,350	\$876,650	Earthworks associated with trunk sewer construction
3 UNDERGROUND SERVICES						
	303 Excavation & Backfilling					
	Subtotal	\$400,000	Excavation of Elec/Gas/Tel services shall be provided in common trench provided by developer	\$0	\$400,000	Service location at entrance to site
	304 Sewerage					
	Subtotal	\$2,050,000	Based on providing 150mm dia gravity reticulation system throughout the site within carriageways. Three pump stations required for all 3 stages. PS No 1 in stage 1 Connection to existing at Beston Pl.	\$1,076,679	\$973,321	Trunk sewer to connect to existing. Total cost of a large sewer pump station included as a project wide
	Specific Sewerage Items					
	Subtotal	\$0				
	305 Stormwater Drainage					
	Subtotal	\$976,000	Conventional RC pipe and sump system, in internal roads		\$976,000	
	Stormwater Extra Over Items		Where Needed. Includes earthworks/subsoil drain and aggregate.			
	Swales edge roads/Cut off drains Detention Basin/WQCP Bio retention Basins/rain gardens					
	Subtotal	\$132,000			\$132,000	
	306 Subsoil Drains					
	Subtotal	\$209,000	Typical subsoil drainage provided at both kerbs of all roads		\$209,000	
	307 Conduits					
	Subtotal	\$44,500	Includes 50mm Electrical Conduit Crossings of roads for Minipillar services		\$44,500	

Appraisal of Construction Costs

Jumping Creek - Stage 1

LOTS 79

Project: CIC Australia Jumping Creek Stage 1
Project No: C10084
Client : CIC

Item	Description Prices are inclusive of GST	Total Amount	Comments	Project Wide Costs	Stage 1 Only Costs	Project Wide Items - Comments
308 Water Supply Mains						
Subtotal		\$422,000	Based on Conventional 150mm dia potable water mains including hydrants in subdivision. Connection to existing 375mm dia in Edwin Land Parkway	\$10,000	\$412,000	Connection to existing 375mm dia main
Water Extra Over Items						
Reservoir Tanks			Reservoir excluded	\$0	\$0	Reservoir excluded
Subtotal		\$0	Reservoir excluded			
309 Water Services						
Subtotal		\$69,200	20mm Potable water services to all Lots		\$69,200	
Excavation By Boring						
Subtotal		\$35,000	Allowance for boring		\$35,000	
4 FLEXIBLE PAVEMENT CONSTRUCTION						
Subtotal		\$954,000	Based on providing flexible pavements and carriageways including connection to Lonegan Ave Asphaltic concrete to all roads		\$954,000	
6 CONCRETE KERBS, FOOTPATHS & MINOR WORKS						
Subtotal		\$762,000	Includes 1.2m minor paths in all streets		\$762,000	
8 INCIDENTAL WORKS						
Subtotal		\$440,000	No allowance for bollards. Provision for mortared stone walls, mortared stone pitching and rip rap ; included fire trail option 2 (\$81k saving for option 1)		\$440,000	
9 LANDSCAPE						
Subtotal		\$193,000	Allows for topsoiling (site soil), dryland grassing of disturbed areas for offsite services, Temporary Grassing of blocks as Erosion protection Excludes tree, shrub planting or any other landscape items.	\$24,061	\$168,939	Rehabilitation of trunk sewer alignment
10 ROAD SIGNS						
Subtotal		\$5,100	Based on providing street name blades		\$5,100	
11 PAVEMENT MARKING						
Subtotal		\$4,400			\$4,400	
12 SEGMENTAL PAVING						
Subtotal		\$0			\$0	

Appraisal of Construction Costs

Project: CIC Australia Jumping Creek Stage 1
Project No: C10084
Client : CIC

LOTS 79

Jumping Creek - Stage 1

Item	Description Prices are inclusive of GST	Total Amount	Comments	Project Wide Costs	Stage 1 Only Costs	Project Wide Items - Comments
14 STREET LIGHTING/ LIGHT SIGNALS						
	Subtotal	\$78,000	Streetlighting cabling Conducted.		\$78,000	
	15 Electricity		\$6k per lot			
	Subtotal	\$474,000	Pricing for standard streetlight columns and block servicing	\$0	\$474,000	
	15 Telecommunications					
	Subtotal	\$63,200	NBN		\$63,200	
	20 Off Site Works/special items					
	Subtotal	\$447,000	Provision for Fire Trail, Off Site Servicing and Bebo Arch	\$406,500	\$40,500	Bebo Arch and off site servicing for whole site
	Total	\$9,076,400		\$1,605,020	\$7,471,380	
	Contingency (20%)	\$1,816,000		\$321,004	\$1,494,996	
	Grand Total for Jumping Creek - Stage 1	\$10,900,000				
	Cost per Block with Project Wide Items	\$ 137,975	Cost Per Block w/o Project Wide Items	\$1,926,024	\$8,973,976	
					\$113,595	

Notes

Street Lengths based on JEA layout Dwg August 2011.
Based on rates current at Mar 2011
Includes GST

Appraisal of Construction Costs

Jumping Creek - Stage 2

LOTS 135

Project: CIC Australia Jumping Creek Stage 2
Project No: C10084
Client : CIC

Item	Description Prices are inclusive of GST	Total Amount	Comments	Project Wide Costs	Stage 2 Only Costs	Project Wide Items - Comments
0	PRELIMINARIES					
	Subtotal	\$524,000	5% of Construction Costs	\$25,000	\$499,000	
1	PROVISION FOR TRAFFIC					
	Subtotal	\$20,000			\$20,000	
	Subtotal	\$0				
2	EARTHWORKS					
	Subtotal	\$1,280,000	Assumes Topsoil 100mm thick over 100% of site Allows for Cut to Fill or Stockpile for road regrading Allows for minor block regrading, NO block benching Excludes Contaminated Land rehab - i.e. sheep dips, etc		\$1,280,000	
3	UNDERGROUND SERVICES					
303	Excavation & Backfilling					
	Subtotal	\$510,000	Excavation of Elec/Gas/Tel services shall be provided in common trench provided by developer		\$510,000	
304	Sewerage					
	Subtotal	\$1,670,000	Based on providing 150mm dia gravity reticulation system throughout the site within carriageways. Includes upgrading pumps in PS No 1 & small PS No 2.	\$90,000	\$1,580,000	
	Specific Sewerage Items					
	Subtotal	\$0				
305	Stormwater Drainage					
	Subtotal	\$1,580,000	Conventional RC pipe and sump system, in internal roads		\$1,580,000	
	Stormwater Extra Over Items					
	Swales edge roads/Cut off drains		Where Needed. Includes earthworks/subsoil drain and aggregate.			
	Detention Basin/WQCP					
	Bio retention Basins/rain gardens					
	Subtotal	\$271,000	Two Ponds		\$271,000	Two Ponds
306	Subsoil Drains					
	Subtotal	\$310,000	Typical subsoil drainage provided at both kerbs of all roads		\$310,000	
307	Conduits					
	Subtotal	\$95,900	Includes 50mm Electrical Conduit Crossings of roads for Minipillar services		\$95,900	

Appraisal of Construction Costs

Jumping Creek - Stage 2

LOTS 135

Project: CIC Australia Jumping Creek Stage 2
Project No: C10084
Client : CIC

Item	Description Prices are inclusive of GST	Total Amount	Comments	Project Wide Costs	Stage 2 Only Costs	Project Wide Items - Comments
308	Water Supply Mains					
	Subtotal	\$691,000	Based on Conventional 150mm dia potable water mains including hydrants in subdivision. Connection to existing 375mm dia in Edwin Land Parkway	\$10,000	\$681,000	Works by the water authority
	Water Extra Over Items					
	Reservoir Tanks					
	Subtotal	\$0			\$0	
309	Water Services					
	Subtotal	\$126,000	20mm Potable water services to all Lots		\$126,000	
	Excavation By Boring					
	Subtotal	\$18,000	Allowance for boring		\$18,000	
4	FLEXIBLE PAVEMENT CONSTRUCTION					
	Subtotal	\$1,320,000	Based on providing flexible pavements and carriageways Asphaltic concrete to all roads		\$1,320,000	
6	CONCRETE KERBS, FOOTPATHS & MINOR WORKS					
	Subtotal	\$1,220,000	Includes 1.2m minor paths in all streets		\$1,220,000	
8	INCIDENTAL WORKS					
	Subtotal	\$83,000	No allowance for bollards. Provision for mortared stone walls, mortared stone pitching and rip rap		\$83,000	
9	LANDSCAPE					
	Subtotal	\$244,000	Allows for topsoiling (site soil), dryland grassing of disturbed areas for offsite services, Temporary Grassing of blocks as Erosion protection Excludes tree, shrub planting or any other landscape items.		\$244,000	
10	ROAD SIGNS					
	Subtotal	\$14,000	Based on providing street name blades		\$14,000	
11	PAVEMENT MARKING					
	Subtotal	\$8,100			\$8,100	
12	SEGMENTAL PAVING					
	Subtotal	\$0				

Appraisal of Construction Costs

Project: CIC Australia Jumping Creek Stage 2
Project No: C10084
Client : CIC

LOTS 135

Jumping Creek - Stage 2

Item	Description Prices are inclusive of GST	Total Amount	Comments	Project Wide Costs	Stage 2 Only Costs	Project Wide Items - Comments
14	STREET LIGHTING/ LIGHT SIGNALS					
	Subtotal	\$140,000	Streetlighting cabling Conducted.		\$140,000	
15	Electricity		\$6k per lot			
	Subtotal	\$810,000	Pricing for standard streetlight columns and block servicing		\$810,000	
15	Telecommunications					
	Subtotal	\$108,000	NBN		\$108,000	
20	Off Site Works/special items					
	Subtotal	\$445,000	Provision for Fire Trail, Bebo Arch and Bridge across Jumping Creek	\$400,000	\$45,000	Bridge and bebo
	Total	\$11,488,000		\$525,000	\$10,963,000	
	Contingency (20%)	\$2,298,000		\$105,000	\$2,193,000	
	Grand Total for Jumping Creek - Stage 2	\$13,800,000		\$630,000	\$13,170,000	
	Cost per Block with Project Wide Items	\$ 102,222	Cost Per Block w/o Project Wide Items		\$97,556	

Notes

Street Lengths based on JEA layout August 2011.
Based on rates current at Mar 2011
Includes GST

Appraisal of Construction Costs

Project: CIC Australia Jumping Creek Stage 3
Project No: C10084
Client : CIC

LOTS 48

Jumping Creek - Stage 3

Item	Description Prices are inclusive of GST	Total Amount	Comments	Project Wide Costs	Stage 3 Only Costs	Project Wide Items - Comments
0 PRELIMINARIES						
	Subtotal	\$227,000	5% of Construction Costs	\$10,500	\$216,500	
1 PROVISION FOR TRAFFIC						
	Subtotal	\$20,000			\$20,000	
	Subtotal	\$0				
2 EARTHWORKS						
	Subtotal	\$601,000	Assumes Topsoil 100mm thick over 100% of site Allows for Cut to Fill or Stockpile for road regrading Allows for No Block Regrading, but not block benching Excludes Contaminated Land rehab - i.e. sheep dips, etc		\$601,000	
3 UNDERGROUND SERVICES						
	303 Excavation & Backfilling	\$250,000	Excavation of Elec/Gas/Tel services shall be provided in common trench provided by developer		\$250,000	
	Subtotal					
	304 Sewerage					
	Subtotal	\$661,000	Based on providing 150mm dia gravity reticulation system throughout the site within carriageways. Includes PS No 3 as stage cost.	\$0	\$661,000	Sewer pump station
	Specific Sewerage Items					
	Subtotal	\$0			\$0	
305 Stormwater Drainage						
	Subtotal	\$609,000	Conventional RC pipe and sump system, in internal roads		\$609,000	
	Stormwater Extra Over Items		Where Needed. Includes earthworks/subsoil drain and aggregate.			
	Swales edge roads/Cut off drains					
	Detention Basin/WQCP					
	Bio retention Basins/rain gardens					
	Subtotal	\$132,000			\$132,000	
306 Subsoil Drains						
	Subtotal	\$145,000	Typical subsoil drainage provided at both kerbs of all roads		\$145,000	
307 Conduits						
	Subtotal	\$34,200	Includes 50mm Electrical Conduit Crossings of roads for Minipillar services		\$34,200	

Appraisal of Construction Costs

Jumping Creek - Stage 3

LOTS 48

Project: CIC Australia Jumping Creek Stage 3
Project No: C10084
Client : CIC

Item	Description Prices are inclusive of GST	Total Amount	Comments	Project Wide Costs	Stage 3 Only Costs	Project Wide Items - Comments
308	Water Supply Mains					
	Subtotal	\$261,000	Based on Conventional 150mm dia potable water mains including hydrants in subdivision. Connection to existing 375mm dia in Edwin Land Parkway	\$10,000	\$251,000	Connection by water Authority
	Water Extra Over Items					
	Reservoir Tanks					
	Subtotal	\$0			\$0	
309	Water Services					
	Subtotal	\$44,600	20mm Potable water services to all Lots		\$44,600	
	Excavation By Boring					
	Subtotal	\$18,000	Allowance for boring		\$18,000	
4	FLEXIBLE PAVEMENT CONSTRUCTION					
	Subtotal	\$631,000	Based on providing flexible pavements and carriageways Asphaltic concrete to all roads		\$631,000	
6	CONCRETE KERBS, FOOTPATHS & MINOR WORKS					
	Subtotal	\$524,000	Flush Kerb throughout development Includes 1.2m minor paths in all streets		\$524,000	
8	INCIDENTAL WORKS					
	Subtotal	\$99,000	No allowance for bollards. Provision for mortared stone walls, mortared stone pitching and rip rap		\$99,000	
9	LANDSCAPE					
	Subtotal	\$116,000	Allows for topsoiling (site soil), dryland grassing of disturbed areas for offsite services, Temporary Grassing of blocks as Erosion protection Excludes tree, shrub planting or any other landscape items.		\$116,000	
10	ROAD SIGNS					
	Subtotal	\$4,100	Based on providing street name blades		\$4,100	
11	PAVEMENT MARKING					
	Subtotal	\$3,900			\$3,900	
12	SEGMENTAL PAVING					
	Subtotal	\$0			\$0	

Appraisal of Construction Costs

Project: CIC Australia Jumping Creek Stage 3
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LOTS 48

Jumping Creek - Stage 3

Item	Description Prices are inclusive of GST	Total Amount	Comments	Project Wide Costs	Stage 3 Only Costs	Project Wide Items - Comments
14 STREET LIGHTING/ LIGHT SIGNALS						
Subtotal		\$62,000	Streetlighting cabling Conduited.		\$62,000	
15 Electricity			\$6k per lot			
Subtotal		\$288,000	Pricing for standard streetlight columns and block servicing		\$288,000	
15 Telecommunications						
Subtotal		\$38,400	NBN		\$38,400	
20 Off Site Works/special items						
Subtotal		\$200,000	Bebo Arch	\$200,000	\$0	Bebo arch
Total		\$4,969,200		\$220,500	\$4,748,700	
Contingency (20%)		\$993,900		\$44,100	\$949,800	
Grand Total for Jumping Creek - Stage 3		\$5,970,000		\$264,600	\$5,705,400	
Cost per Block with Project Wide Items		\$ 124,375	Cost Per Block w/o Project Wide Items		\$118,863	

Notes

Street Lengths based on JEA layout August 2011.
Based on rates current at Mar 2011
Includes GST