

**Carson, Lucia**

---

**From:** Carson, Lucia  
**Sent:** Tuesday, 27 May 2014 2:25 PM  
**To:** Jatheendran, Lingam  
**Cc:** Yu, Frank  
**Subject:** RE: Footpath changes for Rivett Block 13 Section ~~106~~ 28

Hi Lingam,

On 16<sup>th</sup> May I forwarded an email to Frank Yu confirming our discussions regarding footpath changes for Rivett Block 13 Section ~~106~~ and requested in principle support for those changes to take effect.

Frank Yu forwarded the email to you for response. As of today I have not received a reply from you. So that I can finalise the SIR I need in principle support from you for these changes to go ahead.

Regards,

Lucia Carson  
Project Officer  
Site Preparation  
Land Development Agency  
Economic Development Directorate  
Level 7 TransACT House  
470 Northbourne Avenue  
DICKSON ACT 2602  
T: 6207 9604  
F: 6207 7324  
E: [lucia.carson@act.gov.au](mailto:lucia.carson@act.gov.au)

---

**From:** Yu, Frank  
**Sent:** Monday, 19 May 2014 3:57 PM  
**To:** Carson, Lucia  
**Cc:** Jatheendran, Lingam  
**Subject:** RE: Footpath changes for Rivett Block 13 Section ~~106~~ 28

Lucia

I have forwarded your email to Lingam in our office. He will respond to your email.

Kind Regards

Frank Yu  
Senior Project Engineer  
Asset Acceptance / Operational Support / Directorate Services  
Territory & Municipal Services Directorate (TAMS) | ACT Government  
(Ph: (02) 62052970 | Fax: (02) 6207 7484 | E-mail: [frank.yu@act.gov.au](mailto:frank.yu@act.gov.au))  
"Great Services - Quality Assets - Better Lifestyles"

---

**From:** Carson, Lucia  
**Sent:** Friday, 16 May 2014 1:41 PM  
**To:** Yu, Frank  
**Subject:** Footpath changes for Rivett Block 13 Section 106 ~~28~~ 28

Hi Frank

Appreciate very much your attendance at the meeting this morning. I would however like to confirm what we discussed and agreed to with the removal and extension of the footpath for Rivett Block 13 Section 28.

Confirming your agreement to the removal of the existing concrete footpath which passes through the southern end of the site and extending the path east of the site which will then connect to the footpath running north of the site.

Could you please forward your in principle agreement so that I can contact the consultant and have the SIR and costs amended to include the above changes.

Regards,

Lucia Carson  
Project Officer  
Site Preparation  
Land Development Agency  
Economic Development Directorate  
Level 7 TransACT House  
470 Northbourne Avenue  
DICKSON ACT 2602  
T: 6207 9604  
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E: [lucia.carson@act.gov.au](mailto:lucia.carson@act.gov.au)

**Carson, Lucia**

---

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**To:** Carson, Lucia  
**Cc:** Jatheendran, Lingam  
**Subject:** RE: Footpath changes for Rivett Block 13 Section 106

Lucia

I have forwarded your email to Lingam in our office. He will respond to your email.

Kind Regards

Frank Yu  
Senior Project Engineer  
Asset Acceptance / Operational Support / Directorate Services  
Territory & Municipal Services Directorate (TAMS) | ACT Government  
(Ph: (02) 62052970 | Fax: (02) 6207 7484 | E-mail: [frank.yu@act.gov.au](mailto:frank.yu@act.gov.au))  
*"Great Services - Quality Assets - Better Lifestyles"*

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**Sent:** Friday, 16 May 2014 1:41 PM  
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**Subject:** Footpath changes for Rivett Block 13 Section 106

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Confirming your agreement to the removal of the existing concrete footpath which passes through the southern end of the site and extending the path east of the site which will then connect to the footpath running north of the site.

Could you please forward your in principle agreement so that I can contact the consultant and have the SIR and costs amended to include the above changes.

Regards,

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T: 6207 9604  
F: 6207 7324  
E: [lucia.carson@act.gov.au](mailto:lucia.carson@act.gov.au)

**Carson, Lucia**

---

**From:** Breen, Mike J  
**Sent:** Monday, 26 May 2014 1:46 PM  
**To:** Carson, Lucia  
**Cc:** Grdur, Michael  
**Subject:** RE: 13/28 Rivett Overland Flow  
**Attachments:** 311006CC05 Rivett Stormwater Investigation Rev 1.pdf

Lucia  
 Please find attached report related to overland flow at Rivett.  
 For you comment prior to lodging with TAMS.  
 Mike Breen

---

**From:** Breen, Mike J  
**Sent:** Friday, 11 April 2014 3:21 PM  
**To:** 'Carson, Lucia'  
**Subject:** RE: 13/28 Rivett Overland Flow

ucia  
 Principle support from TAMS included in quote.  
 Mike Breen

---

**From:** Carson, Lucia [<mailto:Lucia.Carson@act.gov.au>]  
**Sent:** Friday, 11 April 2014 2:15 PM  
**To:** Breen, Mike J  
**Subject:** FW: 13/28 Rivett Overland Flow

Hi Mike,

Thank you for speaking with me this afternoon. I am pleased to accept your offer however, I also need you to include in principle support from TAMS in your quote. Could you please advice if this request is acceptable to you so that we can continue to go ahead with the above quote.

Many thanks & regards,

Lucia Carson  
 Project Officer  
 Site Preparation  
 Land Development Agency  
 Economic Development Directorate  
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 470 Northbourne Avenue  
 DICKSON ACT 2602  
 T: 6207 9604  
 F: 6207 7324  
 E: [lucia.carson@act.gov.au](mailto:lucia.carson@act.gov.au)

---

**From:** Breen, Mike J  
**Sent:** Friday, 11 April 2014 11:45 AM

**To:** Grdur, Michael; Carson, Lucia  
**Subject:** RE: 13/28 Rivett Overland Flow

Please find attached revised fee proposal as requested.  
Mike Breen

---

**From:** Breen, Mike J  
**Sent:** Thursday, 10 April 2014 1:45 PM  
**To:** 'Grdur, Michael'  
**Subject:** RE: 13/28 Rivett...

Michael  
Pleased to review the fee and scope as requested.  
Note that this fee is similar to the amount for the initial stormwater investigation undertaken for Chapman.  
Although we are familiar with the site the stormwater investigation requires offsite assessment including inspection to determine extent of contributing catchment.  
Mike Breen

---

**From:** Grdur, Michael [<mailto:Michael.Grdur@act.gov.au>]  
**Sent:** Wednesday, 9 April 2014 11:25 AM  
**To:** Breen, Mike J  
**Subject:** RE: 13/28 Rivett...

Mike,

Could you please review your fee proposal, it appears a little on the high side considering that you have already familiarised yourself with the site.

Regards

Michael Grdur

---

**From:** Breen, Mike J  
**Sent:** Wednesday, 9 April 2014 10:39 AM  
**To:** Carson, Lucia  
**Cc:** Grdur, Michael  
**Subject:** RE: 13/28 Rivett...

Lucia/Michael  
Further to our discussions yesterday please find attached overland flow investigation fee proposal for your consideration.  
Mike Breen

---

**From:** Breen, Mike J  
**Sent:** Tuesday, 8 April 2014 9:42 AM  
**To:** 'Carson, Lucia'  
**Subject:** RE: 13/28 Rivett...

Lucia  
Further to our conversation please find attached prelim stormwater report post SIR for Chapman.  
The report assessed :

- Contributing catchment
- Estimated 100 Year ARI flow.
- Estimated overland flow in excess of pipe system
- Extent of overland flows across the site – indicated on a plan

A similar assessment could be undertaken for Rivett  
Mike Breen

---

**From:** Carson, Lucia [<mailto:Lucia.Carson@act.gov.au>]  
**Sent:** Friday, 4 April 2014 9:17 AM  
**To:** Breen, Mike J  
**Subject:** RE: 13/28 Rivett...

Morning Mike,

I believe Actew Water would have records of their stormwater system in that area by checking them we may be able to see if the stormwater system can cope with the 1 in 100 year flood.

Regards,

Lucia

---

**From:** Breen, Mike J  
**Sent:** Thursday, 3 April 2014 5:20 PM  
**To:** Carson, Lucia  
**Cc:** Grdur, Michael  
**Subject:** RE: 13/28 Rivett...

Lucia

From the survey we have established the low point in the kerb adjacent to 13/28 Rivett, refer attached sketch. This low point will form the spill point for overland flow in the event of major storm and/or blockage in stormwater pipe system. The approximate overland flow path from the kerb through the block is also shown on the attachment. For discussion.  
Mike Breen

---

**From:** Carson, Lucia [<mailto:Lucia.Carson@act.gov.au>]  
**Sent:** Tuesday, 1 April 2014 4:29 PM  
**To:** Breen, Mike J  
**Subject:** FW: 13/28 Rivett...

Mike,

Attached is the survey for Rivett Block 13 Section 28 with your requested amendments.

Regards,

Lucia Carson  
Project Officer  
Site Preparation  
Land Development Agency  
Economic Development Directorate  
Level 7 TransACT House  
470 Northbourne Avenue  
DICKSON ACT 2602  
T: 6207 9604

F: 6207 7324  
E: [lucia.carson@act.gov.au](mailto:lucia.carson@act.gov.au)

---

**From:**  
**Sent:** Tuesday, 1 April 2014 4:25 PM  
**To:** Carson, Lucia  
**Subject:** 13/28 Rivett...

Lucia,

I have spoken to Mike just now and all is OK. Here is a new set of files with 0.1m contours. I will let you pass this on to him.

Cheers...

--

BW Fox Drafting & Consultant Services  
Phone: 6258 7587  
Mobile:  
Email:

-----  
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# Rivett Section 28 Block 13

Stormwater Investigation

May 2014

Land Development Agency





# Rivett Section 28 Block 13



May 2014

Land Development Agency



# Issue and revision record

Revision	Date	Originator	Checker	Approver	Description
1	26/05/2014	MB	CO	MB	Draft

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Appendix A. Plans

## Executive Summary

Mott MacDonald has been engaged by the Land Development Agency to undertake an investigation of the potential implications of the existing stormwater overland flow path on Rivett Section 28 Block 13.

This report has been prepared in accordance with Mott MacDonald's fee proposal dated 11 April.

The findings of this investigation are as follows:

### Site Survey

The survey confirms that overland flow will pond in the Rivett Place before spilling across the western kerb onto part of Block 13.

### Catchment Flows

The catchment area of 13.5 Ha is a mixture of public roads and existing residential development.

The 100 year ARI flow from the catchment is estimated to be 2.7 m<sup>3</sup>/s

The estimated 100 Year ARI flow at Block 13 in excess of the capacity of the pipe system is 0.5 m<sup>3</sup>/s.

### Existing Overland Flow across Block 13

This assessment has found that the overland flow will overtop the western kerb and verge of Rivett Place over a length of approximately 40m and spill across the southern parts of Block 13 and the gravel carpark in the adjacent Block 14.

The overland flow would generally be broad sheet flow with minimal depth.

### Option to Cater for Overland Flow

It appears feasible to provide a separate reserve at the southern end of Block 13 adjacent to Block 14 to accommodate overland flow.

This reserve could be shaped to accommodate both a path and overland flow.

Detailed design of this reserve would need to incorporate measures to minimise the reduction in developable land.

The existing kerb levels in Rivett Place adjacent to Block 13 would need to be adjusted to assist in the conveyance of the overland flow over a more restricted width than is currently the case.

The location and value of existing trees would need to be considered in the detail design of the reserve.

# 1. Background

## 1.1 Introduction

This report investigates the issues associated a stormwater overland flow path that currently crosses Rivett Section 28 Block 13. Block 13 is bound by :

- North – Existing community facilities building on Block 9 Section 28
- East – Rivett public oval and facilities on Block 4 Section 27
- South – Existing community facilities and associated gravel car park on Block 14 Section 28
- West – public infrastructure of Rivett Place and carpark serving Rivett local shops.

Figure 1.1: Rivett Section 28 Block 13 Aerial Photograph (^ North)





**1.2 Previous SIR**

The Site Investigation Report of July 2013 for Rivett Section 28 Block 13 identified a potential overland flow path through the block which may be a constraint on development. This overland flow path appears to be aligned through Block 13 from a low point in Rivett Place towards the oval to the east.

The overland flow path had been identified in the Site Investigation report on the basis of a visual assessment on site and contour information of the surrounding area shown on ACTMAPi.

The Site Investigation indicated that to comply with the Design Standards for Urban Infrastructure the overland flow paths should not cross block leases.

**1.3 Purpose of Report**

The purpose of this report is to assess the potential development implications of the existing stormwater overland flow paths on Block 13 in accordance with the Mott MacDonald Fee Proposal dated 11 April 2014 including the identification of one option to cater for the overland flow.

This investigation report will form an appendix to the main Site Investigation Report completed for this site in July 2013.

## 2. Stormwater Assessment

### 2.1 Topographic Survey

A site survey has been undertaken of Block 13 and surrounds. This survey has assisted in determining the path of the overland flow within both Rivett Place and Block 13. The survey confirms that in the event of flow in excess of the capacity of the stormwater pipes the overland flow will pond in Rivett Place before spilling across the western kerb onto part of Block 13. The survey provides accurate levels of the western kerb which assists in determining the width of flow across the kerb and onto Block 13.

Figure 2.1: Section of Rivett Place kerb adjacent to Block 13



## 2.2 Catchment

A review has been undertaken of existing catchment information including topographic plans and site visit, this check found :

- Catchment Area = 13.5Ha
- Catchment area is a mixture of public roads and existing residential development
- The catchment area is directly west of the Block 13 with the upper reaches of the catchment almost extending to Darwinia Terrace
- The main drainage path towards Block 13 is along Angophora and Pavonia Streets towards Bangalay Crescent into Rivett Place and the Rivett shops carpark.

Figure 2.1: Catchment Area (^ North)



## 2.3 100 Year ARI Flow

An assessment of the 100 year ARI flow has been carried out taking into account catchment size, land uses, slope of terrain etc. On this basis the 100 year ARI flow from the catchment is estimated to be 2.7 m<sup>3</sup>/s.





**2.4 Overland Flow**

Design Standards for Urban Infrastructure Part 1 Stormwater indicates that overland flow can be estimated on the basis of the "gap" flow ie the 100 year ARI flow less a proportion of the design capacity of the pipe system based on an assumed blockage factor.

The "gap" or overland flow directed towards Block 13 is reduced by the following :

- 900mm stormwater pipe in the carriageway of Bangalay Crescent serving the 13.5 Ha catchment.
- 450mm stormwater pipe serving the Rivett Place
- Bangalay Crescent / Rivett Place intersection which splits overland flows and partially diverts overland flow away from Rivett Place.

A blockage factor of 50% has been adopted in accordance the DUS stormwater design standard for both the 900mm and 450mm stormwater pipes.

Based on the grading of the Bangalay Crescent / Rivett Place intersection it is estimated that a majority (approximately 75%) of the overland flow in Bangalay Crescent falls towards Rivett Place and the Rivett shops carpark adjacent to Block 13. On this basis it is estimated that the 100 Year ARI flow in excess of the capacity of the pipe system is 0.5 m3/s at Block 13.

**2.5 Extent of 100 Year ARI Flow**

This assessment has found that the estimated overland flow of 0.5 m<sup>3</sup>/s will overtop the western kerb and verge of Rivett Place over a length of approximately 40m and spill across the southern parts of Block 13 and the adjacent Block 14. Block 14 contains an existing gravel carpark serving and adjacent community facility. The overland flow would generally be broad sheet flow with minimal depth. Flow across the kerb is expected to be less than 100mm in depth. Up to a 20m width of the southern end of Block 13 would be affected. The estimated extent of the 100 Year ARI flow on Block 13 is shown on the plan in Appendix A.

Figure 2.2: Overland Flow Path Block 13 & gravel carpark of Block 14



Figure 2.3: Block 14 including gravel carpark and community facilities



## 2.6 Option to Cater for Overland Flow

As part of a separate pedestrian assessment report for Block 13 TAMS required a new path along the southern boundary of the Block 13. TAMS also require that this path be located within a separate reserve of 6 metres minimum width. This reserve could be shaped to accommodate both a path and overland flow.

Detail design would need to be undertaken to determine the exact width of this reserve with the view to minimise the reduction in developable land taking into account :

- The western kerb levels of Rivett Place would need to be adjusted to assist in the conveyance of the overland flow over a more restricted width than is currently the case.
- Alignment of the path and shaped overland flow path would need to take into account the existing trees adjacent to the southern boundary of Block 13. It appears feasible to retain the existing high value tree and remove other trees in order to provide for an overland flow alignment close to the southern boundary of Block 13 thereby limiting the reduction in developable land. Discussion would be required with TAMS regarding the removal of these existing trees.

An indicative arrangement to accommodate overland flow in this manner is shown on plan in Appendix A.



# Appendices

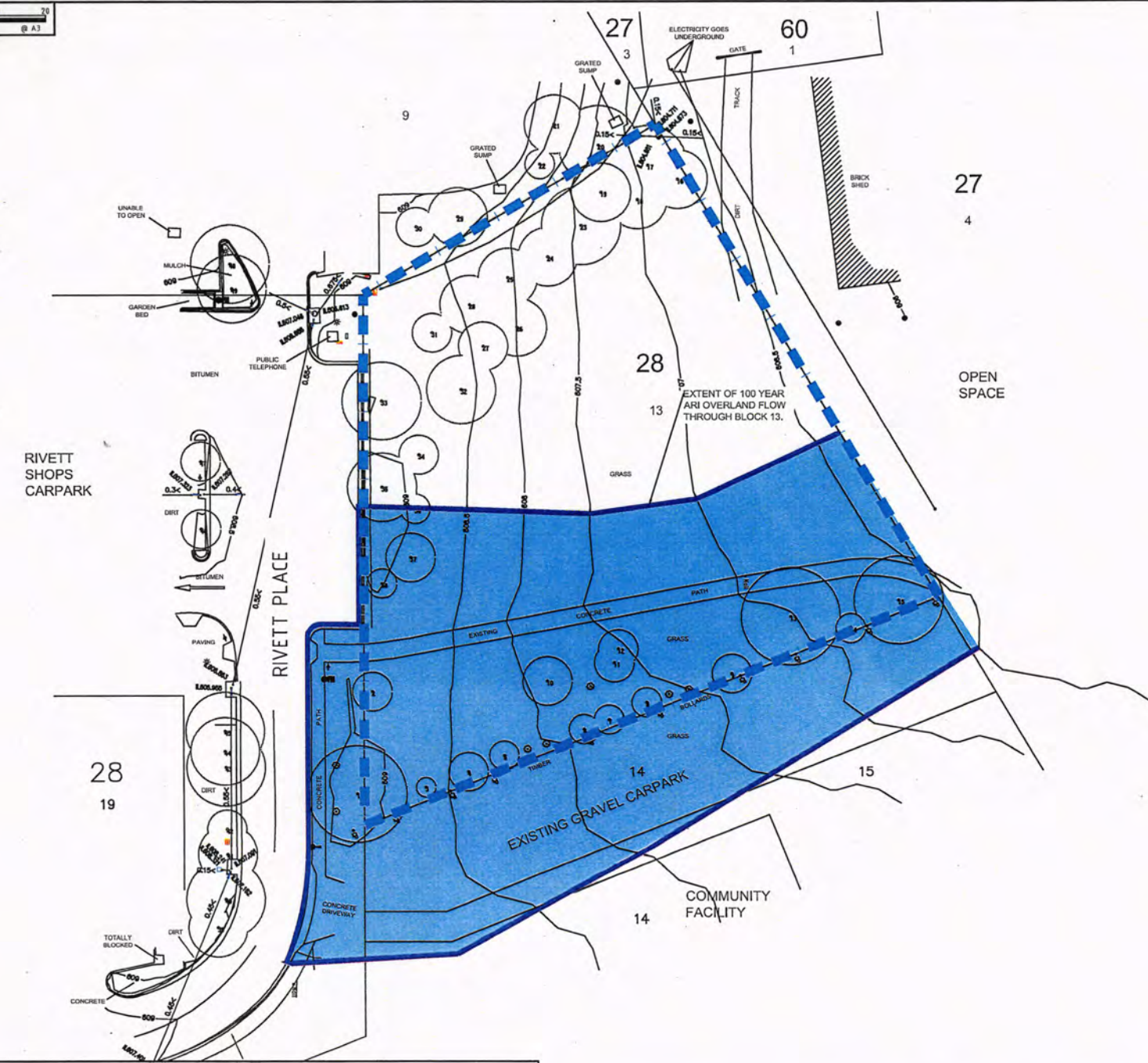
Appendix A. Plans



# Appendix A. Plans

- A.1 Extent of Existing 100 Year ARI Overland Flow
- A.2 Option to Accommodate Overland Flow
- A.3 Existing Stormwater Pipe Layout Rivett

PLAN SCALE 1:400 @ A3



**Notes**

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**Key to symbols**

**EXISTING FEATURES**

- 607 — EXISTING CONTOURS 0.5m INTERVALS
- ■ — ■ — BOUNDARY BLOCK 13
- 34 ○ EXISTING TREES

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**Reference drawings**

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P1	23.05.14	AV	FOR INFORMATION	MB	MB
Rev	Date	Drawn	Description	CIVIL	APPL

---

**Mott MacDonald**

Level 6, SAP House  
201 Bourke St, Canberra City ACT 2601  
PO Box 228 Civic Square ACT 2608  
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F +61 (0)2 6233 1555  
www.mottmac.com.au

---

**Client**

**Land Development Agency**

---

**Title** RIVETT SECTION 28 BLOCK 13  
EXTENT OF EXISTING 100 YEAR ARI OVERLAND FLOW

---

Designed	A. Valeri	Eng check	M. Breen
Drawn	A. Valeri	Coordination	M. Breen
Design check	M. Breen	Approved	M. Breen

---

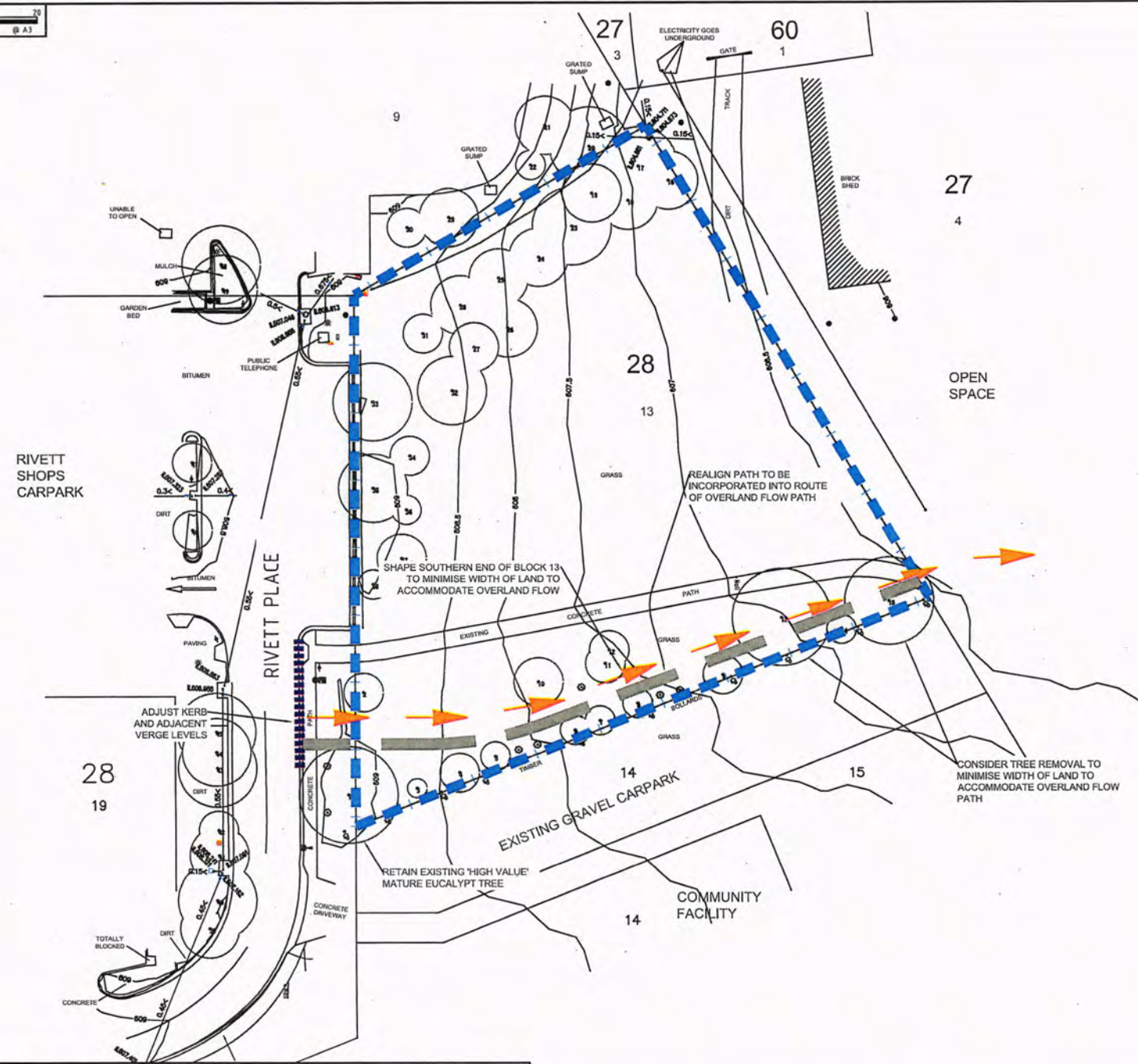
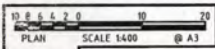
Scale at A3: 1:400 Status: PRE Rev: P1 Security: STD

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Drawing Number: MMD-311006-C-SK-CC05-XX-0001

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Notes

Key to symbols

**EXISTING FEATURES**

- 0.07 EXISTING CONTOURS 0.5m INTERVALS
- BOUNDARY BLOCK 13
- EXISTING TREES

**PROPOSED FEATURES**

- OVERLAND FLOWPATH
- KERB ADJUSTMENT
- NEW PATH

Reference drawings

Rev	Date	Drawn	Description	MB	MB
P1	23.05.14	AV	FOR INFORMATION	MB	MB

Level 6, SAP House  
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PO Box 628, Civic Square ACT 2608  
Canberra  
Australia  
+ 61 (0)2 8233 1000  
www.mottmac.com.au

Client

Land Development Agency

Title **RIVETT SECTION 28 BLOCK 13**  
**OPTION TO ACCOMMODATE OVERLAND FLOW**

Designed	A. Valeri	Eng check	M. Breen
Drawn	A. Valeri	Coordination	M. Breen
Eng check	M. Breen	Approval	M. Breen

Scale at A3: 1:400 Status: PRE Rev: P1 Security: STD

Drawing Number: MMD-311006-C-SK-CC05-XX-0002

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P:\Projects\Projects\1\mmd\311006\CC05\CAD\Working drawings\CD\Environ\Map\MMD-311006-C-SK-CC05-XX-0002.dwg May 20 2014 13:36:14 v19/067

A.3 Existing Stormwater Pipe Layout Rivett





**Carson, Lucia**

---

**From:** Yu, Frank  
**Sent:** Monday, 19 May 2014 3:57 PM  
**To:** Carson, Lucia  
**Cc:** Jatheendran, Lingam  
**Subject:** RE: Footpath changes for Rivett Block 13 Section 106

Lucia

I have forwarded your email to Lingam in our office. He will respond to your email.

Kind Regards

Frank Yu  
Senior Project Engineer  
Asset Acceptance / Operational Support / Directorate Services  
Territory & Municipal Services Directorate (TAMS) | ACT Government  
(Ph: (02) 62052970 | Fax: (02) 6207 7484 | E-mail: [frank.yu@act.gov.au](mailto:frank.yu@act.gov.au))  
*"Great Services - Quality Assets - Better Lifestyles"*

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**From:** Carson, Lucia  
**Sent:** Friday, 16 May 2014 1:41 PM  
**To:** Yu, Frank  
**Subject:** Footpath changes for Rivett Block 13 Section 106

Hi Frank

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Confirming your agreement to the removal of the existing concrete footpath which passes through the southern end of the site and extending the path east of the site which will then connect to the footpath running north of the site.

Could you please forward your in principle agreement so that I can contact the consultant and have the SIR and costs amended to include the above changes.

Regards,

Lucia Carson  
Project Officer  
Site Preparation  
Land Development Agency  
Economic Development Directorate  
Level 7 TransACT House  
470 Northbourne Avenue  
DICKSON ACT 2602  
T: 6207 9604  
F: 6207 7324  
E: [lucia.carson@act.gov.au](mailto:lucia.carson@act.gov.au)

**Carson, Lucia**

---

**From:** Chappell, Hazel  
**Sent:** Tuesday, 13 May 2014 2:03 PM  
**To:** Carson, Lucia  
**Subject:** RE: Fee Proposal for Rivett Block 13 Section 28  
  
**Importance:** High

Lucia  
Please raise a purchase order to commit the funds for  
Thanks Hazel

---

**From:** Carson, Lucia  
**Sent:** Tuesday, 13 May 2014 1:56 PM  
**To:** Chappell, Hazel  
**Subject:** FW: Fee Proposal for Rivett Block 13 Section 28

Hazel,

We have received in principle support from TAMS for the Pedestrian Assessment for Block 13 Section 28 Rivett. The Pedestrian Assessment includes provision for an additional path south of the site. TAMS in principle support is conditional on the new path been constructed within an easement of a minimum of 6 meters wide and removal of the old footpath.

I have spoken to Garry and have decided that it would be best for the boundary to be moved forward by 6 meters so that the new footpath can be undertaken as part of the offsite works.

Attached above is the quote from [redacted] to undertake the site survey for Rivett Block 13 Section 28 for the total sum including GST of [redacted]

Your approval is requested [redacted] to go ahead and undertake the survey.

Regards,

Lucia

---

**From:** Anthony Quinn  
**Sent:** Tuesday, 13 May 2014 1:15 PM  
**To:** Zamora-Pullin, Joshua  
**Cc:** Carson, Lucia  
**Subject:** RE: Fee Proposal for Rivett Block 13 Section 28

Josh/Lucia,

Please find the survey quote attached.

It doesn't matter about ringing me back Josh - if I am successful with the quote, we can discuss the boundary amendments then.

Thanks

**From:** Zamora-Pullin, Joshua [<mailto:Joshua.Zamora-Pullin@act.gov.au>]  
**Sent:** Tuesday, 13 May 2014 10:20 AM  
**To:** Anthony Quinn  
**Subject:** RE: Fee Proposal for Rivett Block 13 Section 28

We are indeed moving the southern boundary further north.

If you could send the fee proposal to myself and Lucia Carson that would be greatly appreciated,

Kind Regards

Joshua Zamora-Pullin  
Project Officer | Urban Releases | Land Development Agency | Economic Development Directorate  
Phone: 6207 1749 | Email: [joshua.zamora-pullin@act.gov.au](mailto:joshua.zamora-pullin@act.gov.au)  
Level 7 TransACT House, 470 Northbourne Avenue, Dickson ACT 2602  
GPO Box 158, Canberra ACT 2601 | [www.economicdevelopment.act.gov.au](http://www.economicdevelopment.act.gov.au)

---

**From:** Anthony Quinn  
**Sent:** Monday, 12 May 2014 8:15 PM  
**To:** Zamora-Pullin, Joshua  
**Subject:** FW: Fee Proposal for Rivett Block 13 Section 28

P.S. If the southern boundary is being moved further north then my comments below don't apply.

---

**From:** Anthony Quinn  
**Sent:** Monday, 12 May 2014 8:11 PM  
**To:** 'Zamora-Pullin, Joshua'  
**Subject:** RE: Fee Proposal for Rivett Block 13 Section 28

Josh,

I have the survey search for the block and surrounds. I have attached DP3873 which is for Block 14 to the south of Block 13. Also check out actmapi.

I have never seen anything like it in the whole time I have been doing surveys in the ACT. Block 14 straddles Block 13. If you are taking part of Block 14 it may mean having to survey the remainder of Block 14 which lies on the other side of the battleaxe handle of Block 15. Block 14 is a registered block so I presume it has a lease.

Examinations Section may accept a compilation (no field survey work required) of that part of Block 14 remaining.

Best to get some advice about it - also suggest you have a talk to Ron Jarman.

In the meantime I will have a look at the job tomorrow and give you a call in the afternoon.

Regards

---

**From:** Zamora-Pullin, Joshua [<mailto:Joshua.Zamora-Pullin@act.gov.au>]  
**Sent:** Monday, 12 May 2014 9:24 AM  
**To:** Anthony Quinn  
**Cc:** Carson, Lucia  
**Subject:** Fee Proposal for Rivett Block 13 Section 28

Good Morning

The LDA invites you to submit a **Fee Proposal** to carry out a Cadastral Survey on Rivett Section 28 Block 13, we require an alteration to the northern and southern boundaries.

Sorry for the previous email with nothing attached, I'm just a tad brain dead this morning, feel free to call if you have any questions.

Kind Regards

Joshua Zamora-Pullin  
Project Officer | Urban Releases | Land Development Agency | Economic Development Directorate  
Phone: 6207 1749 | Email: [joshua.zamora-pullin@act.gov.au](mailto:joshua.zamora-pullin@act.gov.au)  
Level 7 TransACT House, 470 Northbourne Avenue, Dickson ACT 2602  
GPO Box 158, Canberra ACT 2601 | [www.economicdevelopment.act.gov.au](http://www.economicdevelopment.act.gov.au)

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-----

**Carson, Lucia**

---

**From:** Carson, Lucia  
**Sent:** Friday, 16 May 2014 1:41 PM  
**To:** Yu, Frank  
**Subject:** Footpath changes for Rivett Block 13 Section 106

Hi Frank

Appreciate very much your attendance at the meeting this morning. I would however like to confirm what we discussed and agreed to with the removal and extension of the footpath for Rivett Block 13 Section 28.

Confirming your agreement to the removal of the existing concrete footpath which passes through the southern end of the site and extending the path east of the site which will then connect to the footpath running north of the site.

Could you please forward your in principle agreement so that I can contact the consultant and have the SIR and costs amended to include the above changes.

Regards,

Lucia Carson  
Project Officer  
Site Preparation  
Land Development Agency  
Economic Development Directorate  
Level 7 TransACT House  
470 Northbourne Avenue  
DICKSON ACT 2602  
T: 6207 9604  
F: 6207 7324  
E: [lucia.carson@act.gov.au](mailto:lucia.carson@act.gov.au)

✓ 160  
**Carson, Lucia**

---

**From:** Carson, Lucia  
**Sent:** Friday, 16 May 2014 8:18 AM  
**To:** Luchetti, Christine  
**Subject:** Rivett Block 18 Section 28

Morning Christine,

Could you please advise me if the above site is subject to DA.

Regards,

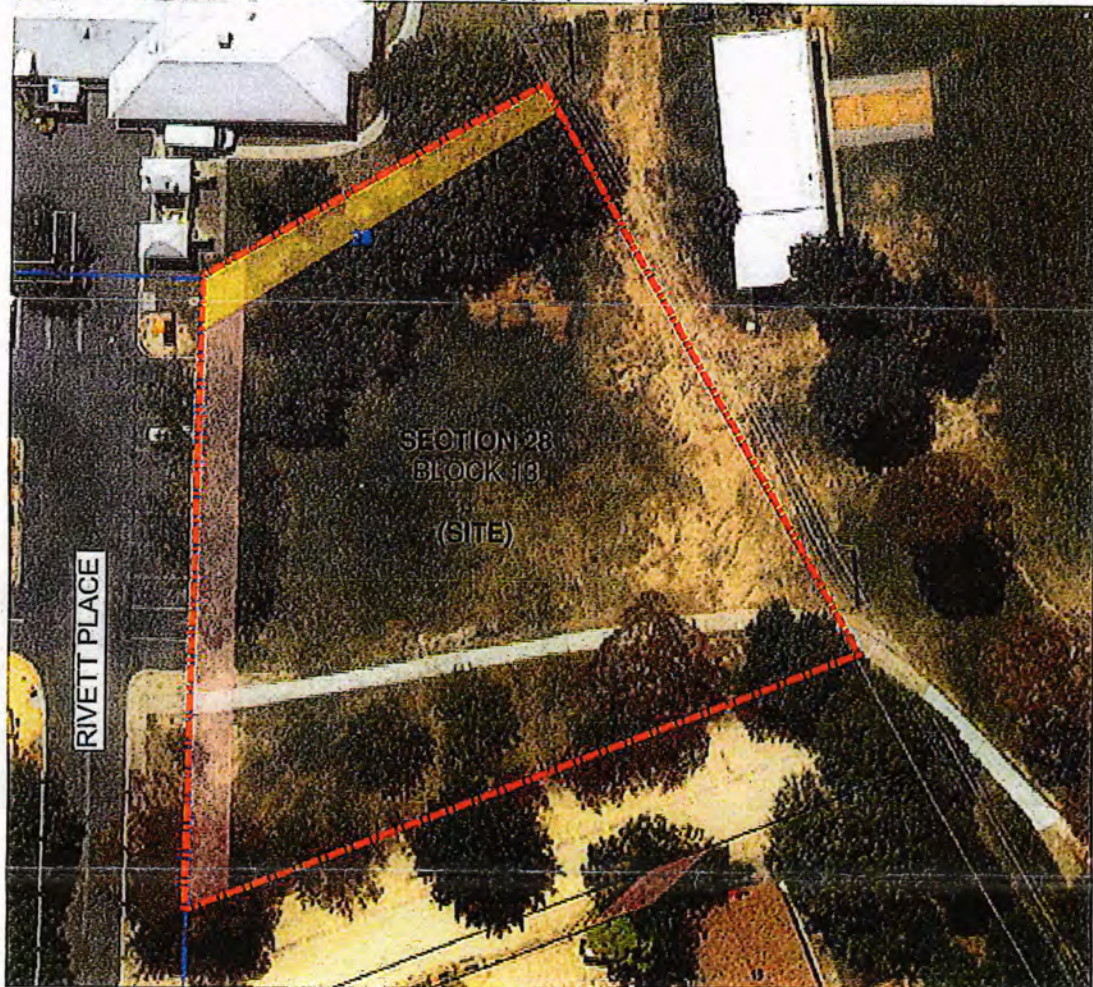
Lucia Carson  
Project Officer  
Site Preparation  
Land Development Agency  
Economic Development Directorate  
Level 7 TransACT House  
70 Northbourne Avenue  
CANBERRA ACT 2602  
T: 6207 9604  
F: 6207 7324  
E: [lucia.carson@act.gov.au](mailto:lucia.carson@act.gov.au)

# 1. Background

## 1.1 Introduction

This report investigates the issues associated with proposed removal of an existing pedestrian path that currently crosses Block 13. Refer Figure 1.1 below.

Figure 1.1: Rivett Section 28 Block 13 Aerial Photograph (^ North)



**Carson, Lucia**

---

**From:** Chappell, Hazel  
**Sent:** Tuesday, 13 May 2014 2:03 PM  
**To:** Carson, Lucia  
**Subject:** RE: Fee Proposal for Rivett Block 13 Section 28  
  
**Importance:** High

Lucia  
Please raise a purchase order to commit the funds for  
Thanks Hazel

---

**From:** Carson, Lucia  
**Sent:** Tuesday, 13 May 2014 1:56 PM  
**To:** Chappell, Hazel  
**Subject:** FW: Fee Proposal for Rivett Block 13 Section 28

Hazel,

We have received in principle support from TAMS for the Pedestrian Assessment for Block 13 Section 28 Rivett. The pedestrian Assessment includes provision for an additional path south of the site. TAMS in principle support is conditional on the new path been constructed within an easement of a minimum of 6 meters wide and removal of the old footpath.

I have spoken to Garry and have decided that it would be best for the boundary to be moved forward by 6 meters so that the new footpath can be undertaken as part of the offsite works.

Attached above is the quote from [redacted] to undertake the site survey for Rivett Block 13 Section 28 for the total sum including GST of [redacted].

Your approval is requested for [redacted] to go ahead and undertake the survey.

Regards,

Lucia

---

**From:** Anthony Quinn  
**Sent:** Tuesday, 13 May 2014 1:15 PM  
**To:** Zamora-Pullin, Joshua  
**Cc:** Carson, Lucia  
**Subject:** RE: Fee Proposal for Rivett Block 13 Section 28

Josh/Lucia,

Please find the survey quote attached.

It doesn't matter about ringing me back Josh - if I am successful with the quote, we can discuss the boundary amendments then.

Thanks



**From:** Zamora-Pullin, Joshua [<mailto:Joshua.Zamora-Pullin@act.gov.au>]  
**Sent:** Tuesday, 13 May 2014 10:20 AM  
**To:** Anthony Quinn  
**Subject:** RE: Fee Proposal for Rivett Block 13 Section 28

We are indeed moving the southern boundary further north.

If you could send the fee proposal to myself and Lucia Carson that would be greatly appreciated,

Kind Regards

Joshua Zamora-Pullin  
Project Officer | Urban Releases | Land Development Agency | Economic Development Directorate  
Phone: 6207 1749 | Email: [joshua.zamora-pullin@act.gov.au](mailto:joshua.zamora-pullin@act.gov.au)  
Level 7 TransACT House, 470 Northbourne Avenue, Dickson ACT 2602  
GPO Box 158, Canberra ACT 2601 | [www.economicdevelopment.act.gov.au](http://www.economicdevelopment.act.gov.au)

---

**From:** Anthony Quinn  
**Sent:** Monday, 12 May 2014 8:15 PM  
**To:** Zamora-Pullin, Joshua  
**Subject:** FW: Fee Proposal for Rivett Block 13 Section 28

P.S. If the southern boundary is being moved further north then my comments below don't apply.

---

**From:** Anthony Quinn |  
**Sent:** Monday, 12 May 2014 8:11 PM  
**To:** 'Zamora-Pullin, Joshua'  
**Subject:** RE: Fee Proposal for Rivett Block 13 Section 28

Josh,

I have the survey search for the block and surrounds. I have attached DP3873 which is for Block 14 to the south of Block 13. Also check out actmapi.

I have never seen anything like it in the whole time I have been doing surveys in the ACT. Block 14 straddles Block 15. If you are taking part of Block 14 it may mean having to survey the remainder of Block 14 which lies on the other side of the battleaxe handle of Block 15. Block 14 is a registered block so I presume it has a lease.

Examinations Section may accept a compilation (no field survey work required) of that part of Block 14 remaining.

Best to get some advice about it - also suggest you have a talk to Ron Jarman.

In the meantime I will have a look at the job tomorrow and give you a call in the afternoon.

Regards

---

**From:** Zamora-Pullin, Joshua [<mailto:Joshua.Zamora-Pullin@act.gov.au>]  
**Sent:** Monday, 12 May 2014 9:24 AM  
**To:** Anthony Quinn  
**Cc:** Carson, Lucia  
**Subject:** Fee Proposal for Rivett Block 13 Section 28

Good Morning

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-----

**Carson, Lucia**

---

**From:**  
**Sent:** Tuesday, 13 May 2014 11:34 AM  
**To:** Carson, Lucia  
**Cc:**  
**Subject:** ENAUBRÁD01286AA - LDA, P2 ESA Block 13 Section 28 Rivett: Reqest for Fee Proposal Cancelled

Hi Lucia,

As discussed yesterday, Coffey understand that LDA do not require a fee proposal for the preparation of a Phase 2 Environmental Site Assessment of Block 13, Section 28, Rivett ACT.

Should you require any further assistance with this matter, please do not hesitate to contact either myself or Ross Redmond in our Fyshwick office.

Kind Regards,

**Senior Environmental Consultant**

16 Mildura Street,  
Fyshwick,  
VIC 3062

t: 02 6260 7288  
m:



---

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**Carson, Lucia**

---

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**Sent:** Tuesday, 13 May 2014 1:15 PM  
**To:** Zamora-Pullin, Joshua  
**Cc:** Carson, Lucia  
**Subject:** RE: Fee Proposal for Rivett Block 13 Section 28  
**Attachments:** ESTIMATE - Rivett Block 13 Section 28.docx

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# Anthony Quinn Surveys Land and Engineering Surveyors

## ESTIMATE OF COSTS FOR SURVEY PROJECT

---

**Client:** Joshua Zamora-Pullin: LDA

**Project:** Rivett - Block 13 Section 28

**Agreed Scope of Work:** AP sketch, field survey, prepare and lodge X Plan with Examinations.

**Our Ref:** .....2658  
**Project Officer:** .....Anthony Quinn  
**Telephone:** .....6255 0824

Survey costs .....  
GST 10% .....  
**Total Amount** .....

Thank you for the opportunity to quote for this project.

If you have any questions regarding this project please contact the project officer.

..... Anthony Quinn 13 May 2014  
.....  
**Signature Name Date**

\*\*\*\*\*

**Client instructions** Please complete section below and email to [tonyq@bigpond.com](mailto:tonyq@bigpond.com)

Estimate approved

Approving officer:

.....  
**Signature Name Date**



# ACT SURVEY PTY LTD

LAND & ENGINEERING SURVEYORS  
A.B.N. 23 108 758 310

## TAX INVOICE

Land Development Agency  
27 Wentworth Ave  
Kingston  
ACT 2603

Invoice #: 19540  
Date: 11<sup>th</sup> May 2014

Client contact: Lucia Carson

Project: Block 13 Section 28, Rivett – Extra Detail Survey

### Description:

Carry out survey as requested and supply data for site:

- 3-D AutoCad digital data
- 2-D AutoCad digital data
- AutoCad triangles
- 1 x pdf plotfile
- XL Tree Assessment File

Cost: Fieldwork

Drafting:

Subtotal: Plus GST

Total amount due this invoice

Please quote INVOICE # on payment advice and email to

Please EFT Payment to: **ACT Survey Pty Ltd.**

Thank you.

Any account inquiries please contact

Phone: ? - Mobile: | - Fax: ;

ACT SURVEY Pty Ltd  
PO Box 378  
Mawson  
ACT 2607



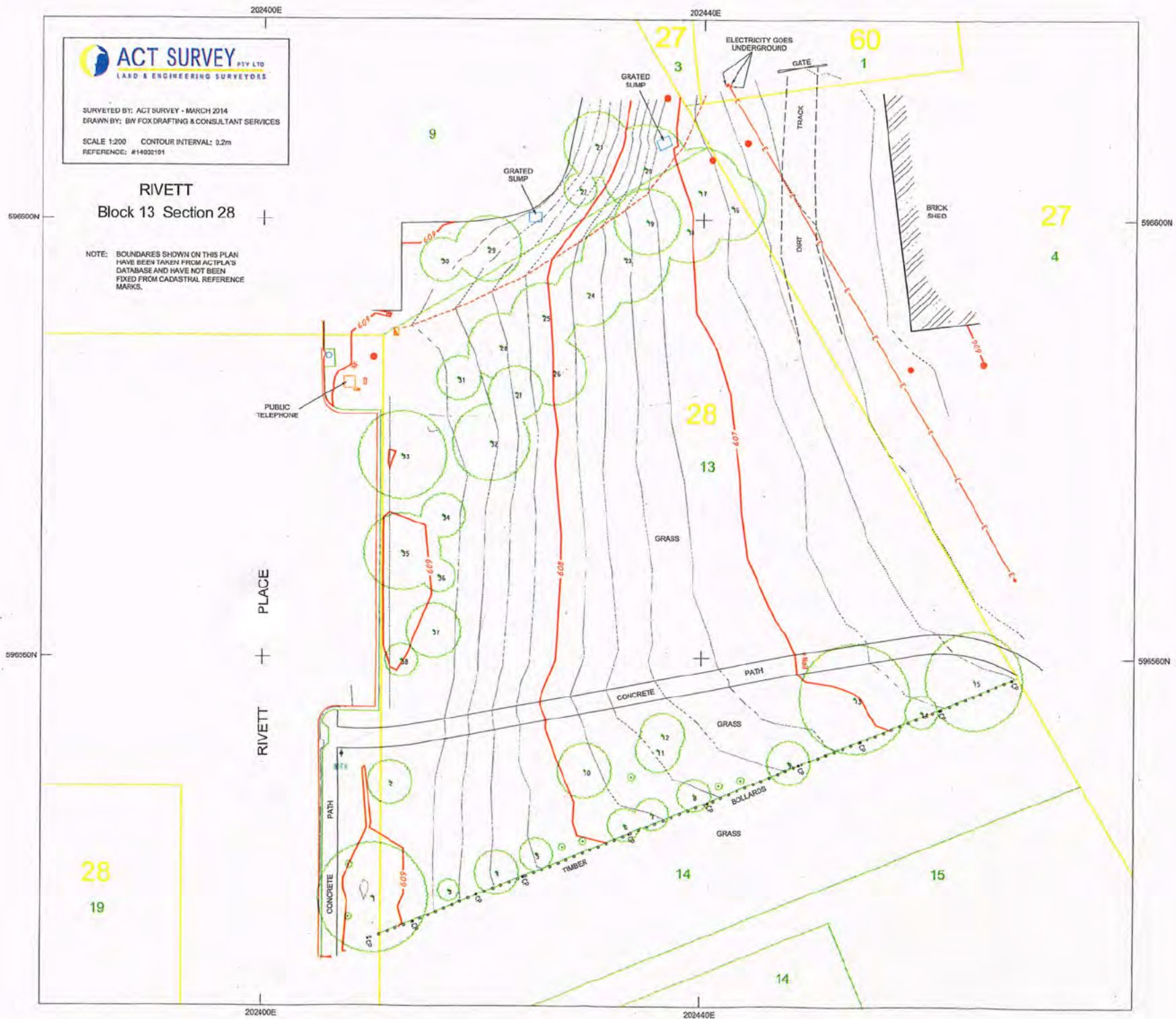


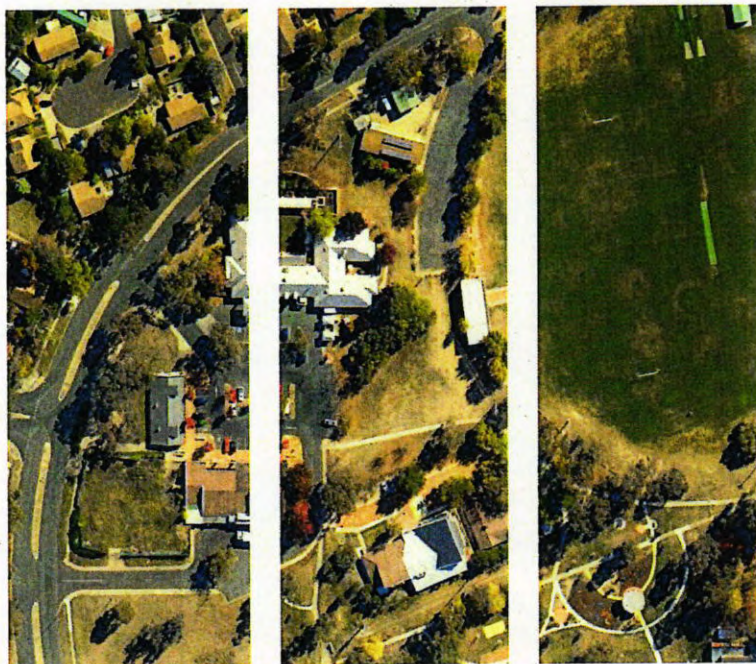
SURVEYED BY: ACT SURVEY - MARCH 2014  
DRAWN BY: BW FOX DRAFTING & CONSULTANT SERVICES

SCALE 1:200 CONTOUR INTERVAL: 0.2m  
REFERENCE: #14932101

### RIVETT Block 13 Section 28

NOTE: BOUNDARIES SHOWN ON THIS PLAN  
HAVE BEEN TAKEN FROM ACT/PLA'S  
DATABASE AND HAVE NOT BEEN  
FIXED FROM CADASTRAL REFERENCE  
MARKS.





# Rivett Section 28 Block 13

Stormwater Investigation

May 2014

Land Development Agency



# Rivett Section 28 Block 13



May 2014

Land Development Agency



# Issue and revision record

Revision	Date	Originator	Checker	Approver	Description
1	26/05/2014	MB	CO	MB	Draft

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## Appendices

Appendix A. Plans

## Executive Summary

Mott MacDonald has been engaged by the Land Development Agency to undertake an investigation of the potential implications of the existing stormwater overland flow path on Rivett Section 28 Block 13.

This report has been prepared in accordance with Mott MacDonald's fee proposal dated 11 April.

The findings of this investigation are as follows:

### Site Survey

The survey confirms that overland flow will pond in the Rivett Place before spilling across the western kerb onto part of Block 13.

### Catchment Flows

The catchment area of 13.5 Ha is a mixture of public roads and existing residential development.

The 100 year ARI flow from the catchment is estimated to be 2.7 m<sup>3</sup>/s

The estimated 100 Year ARI flow at Block 13 in excess of the capacity of the pipe system is 0.5 m<sup>3</sup>/s.

### Existing Overland Flow across Block 13

This assessment has found that the overland flow will overtop the western kerb and verge of Rivett Place over a length of approximately 40m and spill across the southern parts of Block 13 and the gravel carpark in the adjacent Block 14.

The overland flow would generally be broad sheet flow with minimal depth.

### Option to Cater for Overland Flow

It appears feasible to provide a separate reserve at the southern end of Block 13 adjacent to Block 14 to accommodate overland flow.

This reserve could be shaped to accommodate both a path and overland flow.

Detailed design of this reserve would need to incorporate measures to minimise the reduction in developable land.

The existing kerb levels in Rivett Place adjacent to Block 13 would need to be adjusted to assist in the conveyance of the overland flow over a more restricted width than is currently the case.

The location and value of existing trees would need to be considered in the detail design of the reserve.

# 1. Background

## 1.1 Introduction

This report investigates the issues associated a stormwater overland flow path that currently crosses Rivett Section 28 Block 13. Block 13 is bound by :

- North – Existing community facilities building on Block 9 Section 28
- East – Rivett public oval and facilities on Block 4 Section 27
- South – Existing community facilities and associated gravel car park on Block 14 Section 28
- West – public infrastructure of Rivett Place and carpark serving Rivett local shops.

Figure 1.1: Rivett Section 28 Block 13 Aerial Photograph (^ North)



## **1.2 Previous SIR**

The Site Investigation Report of July 2013 for Rivett Section 28 Block 13 identified a potential overland flow path through the block which may be a constraint on development. This overland flow path appears to be aligned through Block 13 from a low point in Rivett Place towards the oval to the east.

The overland flow path had been identified in the Site Investigation report on the basis of a visual assessment on site and contour information of the surrounding area shown on ACTMAPi.

The Site Investigation indicated that to comply with the Design Standards for Urban Infrastructure the overland flow paths should not cross block leases.

## **1.3 Purpose of Report**

The purpose of this report is to assess the potential development implications of the existing stormwater overland flow paths on Block 13 in accordance with the Mott MacDonald Fee Proposal dated 11 April 2014 including the identification of one option to cater for the overland flow.

This investigation report will form an appendix to the main Site Investigation Report completed for this site in July 2013.



## 2. Stormwater Assessment

### 2.1 Topographic Survey

A site survey has been undertaken of Block 13 and surrounds. This survey has assisted in determining the path of the overland flow within both Rivett Place and Block 13. The survey confirms that in the event of flow in excess of the capacity of the stormwater pipes the overland flow will pond in Rivett Place before spilling across the western kerb onto part of Block 13. The survey provides accurate levels of the western kerb which assists in determining the width of flow across the kerb and onto Block 13.

Figure 2.1: Section of Rivett Place kerb adjacent to Block 13

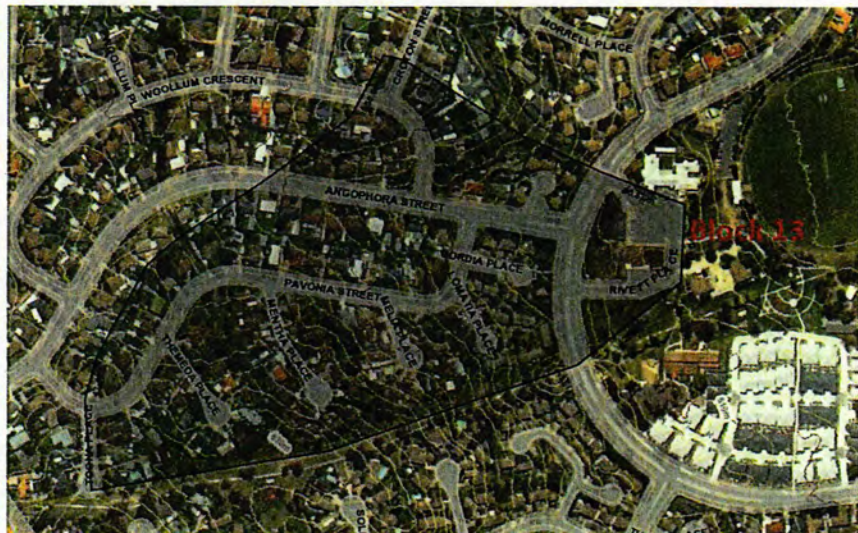


## 2.2 Catchment

A review has been undertaken of existing catchment information including topographic plans and site visit, this check found :

- Catchment Area = 13.5Ha
- Catchment area is a mixture of public roads and existing residential development
- The catchment area is directly west of the Block 13 with the upper reaches of the catchment almost extending to Darwinia Terrace
- The main drainage path towards Block 13 is along Angophora and Pavonia Streets towards Bangalay Crescent into Rivett Place and the Rivett shops carpark.

Figure 2.1: Catchment Area (^ North)



## 2.3 100 Year ARI Flow

An assessment of the 100 year ARI flow has been carried out taking into account catchment size, land uses, slope of terrain etc. On this basis the 100 year ARI flow from the catchment is estimated to be 2.7 m<sup>3</sup>/s.

## 2.4 Overland Flow

Design Standards for Urban Infrastructure Part 1 Stormwater indicates that overland flow can be estimated on the basis of the "gap" flow ie the 100 year ARI flow less a proportion of the design capacity of the pipe system based on an assumed blockage factor.

The "gap" or overland flow directed towards Block 13 is reduced by the following :

- 900mm stormwater pipe in the carriageway of Bangalay Crescent serving the 13.5 Ha catchment.
- 450mm stormwater pipe serving the Rivett Place
- Bangalay Crescent / Rivett Place intersection which splits overland flows and partially diverts overland flow away from Rivett Place.

A blockage factor of 50% has been adopted in accordance the DUS stormwater design standard for both the 900mm and 450mm stormwater pipes.

Based on the grading of the Bangalay Crescent / Rivett Place intersection it is estimated that a majority (approximately 75%) of the overland flow in Bangalay Crescent falls towards Rivett Place and the Rivett shops carpark adjacent to Block 13. On this basis it is estimated that the 100 Year ARI flow in excess of the capacity of the pipe system is 0.5 m<sup>3</sup>/s at Block 13.

**2.5 Extent of 100 Year ARI Flow**

This assessment has found that the estimated overland flow of 0.5 m<sup>3</sup>/s will overtop the western kerb and verge of Rivett Place over a length of approximately 40m and spill across the southern parts of Block 13 and the adjacent Block 14. Block 14 contains an existing gravel carpark serving and adjacent community facility. The overland flow would generally be broad sheet flow with minimal depth. Flow across the kerb is expected to be less than 100mm in depth. Up to a 20m width of the southern end of Block 13 would be affected. The estimated extent of the 100 Year ARI flow on Block 13 is shown on the plan in Appendix A.

Figure 2.2: Overland Flow Path Block 13 & gravel carpark of Block 14



Figure 2.3: Block 14 including gravel carpark and community facilities



## 2.6 Option to Cater for Overland Flow

As part of a separate pedestrian assessment report for Block 13 TAMS required a new path along the southern boundary of the Block 13. TAMS also require that this path be located within a separate reserve of 6 metres minimum width. This reserve could be shaped to accommodate both a path and overland flow.

Detail design would need to be undertaken to determine the exact width of this reserve with the view to minimise the reduction in developable land taking into account :

- The western kerb levels of Rivett Place would need to be adjusted to assist in the conveyance of the overland flow over a more restricted width than is currently the case.
- Alignment of the path and shaped overland flow path would need to take into account the existing trees adjacent to the southern boundary of Block 13. It appears feasible to retain the existing high value tree and remove other trees in order to provide for an overland flow alignment close to the southern boundary of Block 13 thereby limiting the reduction in developable land. Discussion would be required with TAMS regarding the removal of these existing trees.

An indicative arrangement to accommodate overland flow in this manner is shown on plan in Appendix A.

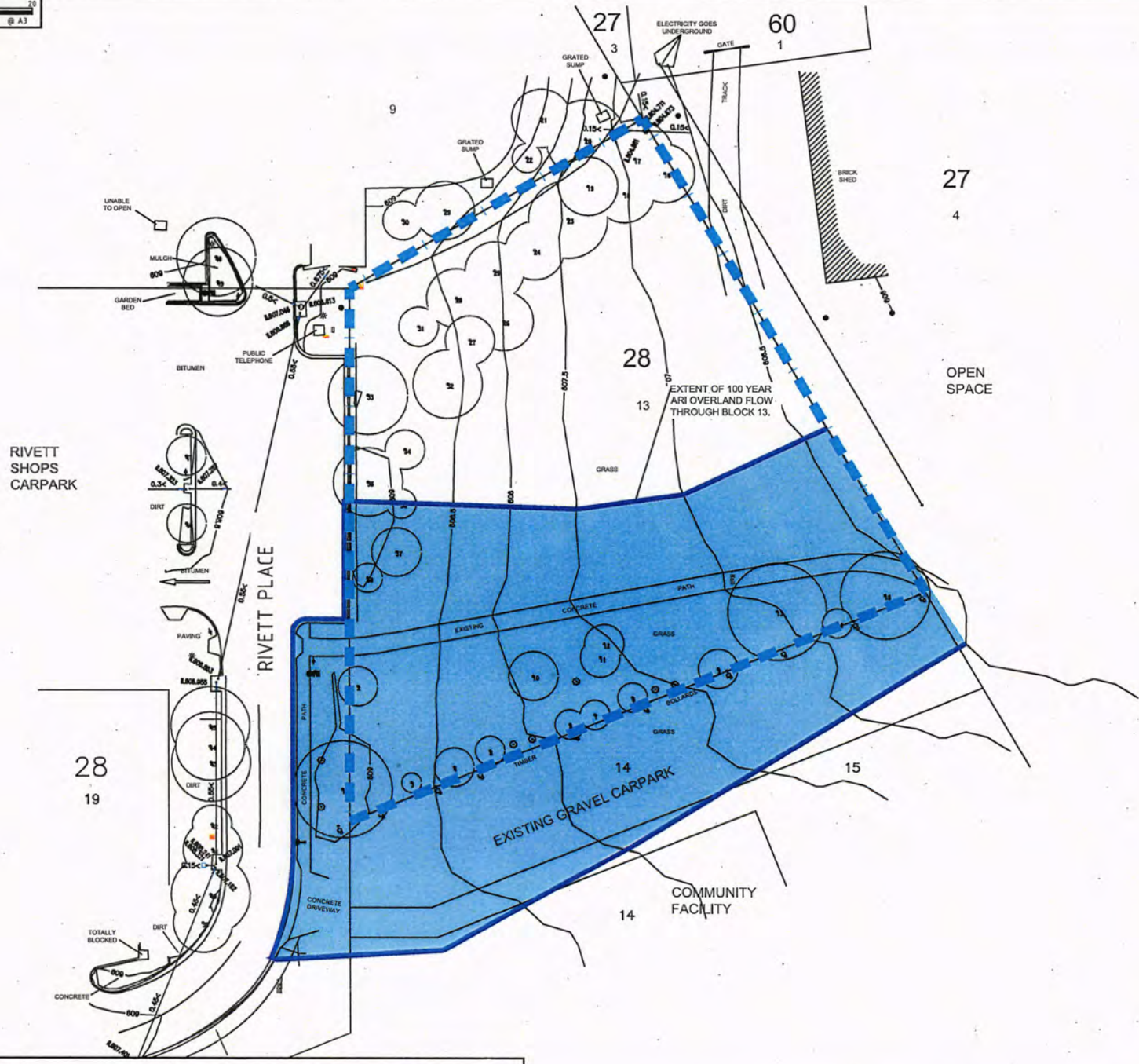
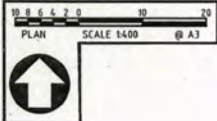


# Appendices

Appendix A. Plans

## Appendix A. Plans

- A.1 Extent of Existing 100 Year ARI Overland Flow
- A.2 Option to Accommodate Overland Flow
- A.3 Existing Stormwater Pipe Layout Rivett



Notes

Key to symbols

**EXISTING FEATURES**

- EXISTING CONTOURS 0.5m INTERVALS
- BOUNDARY BLOCK 13
- EXISTING TREES

Reference drawings

P1	23.05.14	AV	FOR INFORMATION	MB	MB
Rev	Date	Drawn	Description	CHK'd	App'd

Level 4, GAF House  
224 Bourke St, Canberra City ACT 2608  
Canberra  
Australia  
T +61 602 6233 1655  
F  
www.mottmac.com.au

Client  
 Land Development Agency

Title  
RIVETT SECTION 28 BLOCK 13  
EXTENT OF EXISTING  
100 YEAR ARI OVERLAND FLOW

Designed	A Vahel	Eng check	M Breen
Drawn	A Vahel	Coordination	M Breen
Dwg check	M Breen	Approved	M Breen

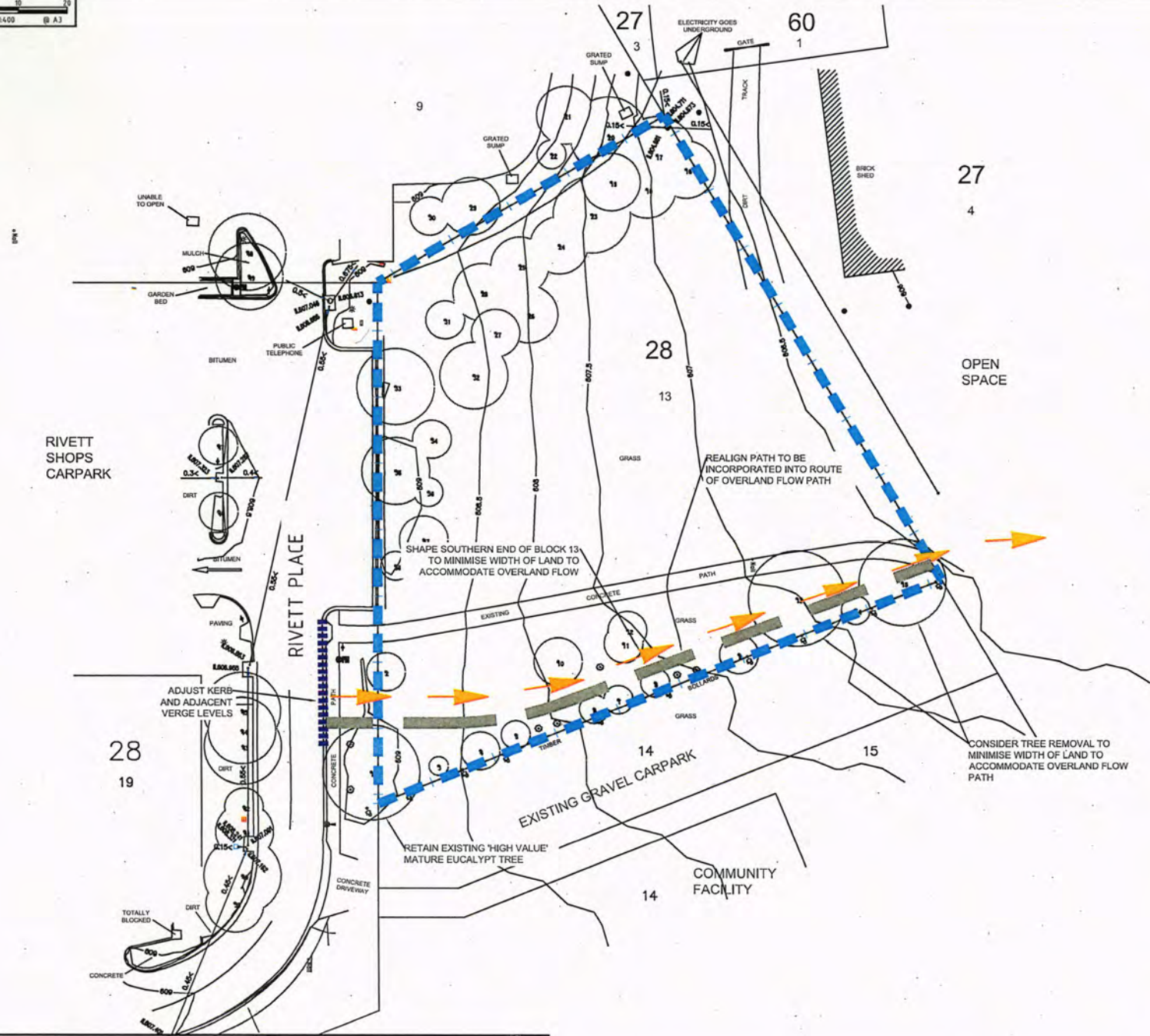
Scale at A3  
1:400    Status: PRE    Rev: P1    Security: STD

Drawing Number  
MMD-311006-C-SK-CC05-XX-0001

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PLAN SCALE 1:400 @ A3



Notes

Key to symbols

**EXISTING FEATURES**

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- BOUNDARY BLOCK 13
- EXISTING TREES

**PROPOSED FEATURES**

- OVERLAND FLOWPATH
- KERB ADJUSTMENT
- NEW PATH

Reference drawings

PI	23.05.14	AV	FOR INFORMATION	MB	MB
Rev	Date	Drawn	Description	CHK'd	App'd

Level 6, SAP House  
224 Burke St, Canberra City ACT 2608  
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Client

Land Development Agency

Title  
RIVETT SECTION 28 BLOCK 13  
OPTION TO ACCOMMODATE OVERLAND FLOW

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A.3 Existing Stormwater Pipe Layout Rivett





# Rivett Section 28 Block 13

Stormwater Investigation

May 2014

Land Development Agency



# Rivett Section 28 Block 13



May 2014

Land Development Agency



# Issue and revision record

<b>Revision</b>	<b>Date</b>	<b>Originator</b>	<b>Checker</b>	<b>Approver</b>	<b>Description</b>
1	26/05/2014	MB	CO	MB	Draft

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## Executive Summary

Mott MacDonald has been engaged by the Land Development Agency to undertake an investigation of the potential implications of the existing stormwater overland flow path on Rivett Section 28 Block 13.

This report has been prepared in accordance with Mott MacDonald's fee proposal dated 11 April.

The findings of this investigation are as follows:

### Site Survey

The survey confirms that overland flow will pond in the Rivett Place before spilling across the western kerb onto part of Block 13.

### Catchment Flows

The catchment area of 13.5 Ha is a mixture of public roads and existing residential development.

The 100 year ARI flow from the catchment is estimated to be 2.7 m<sup>3</sup>/s

The estimated 100 Year ARI flow at Block 13 in excess of the capacity of the pipe system is 0.5 m<sup>3</sup>/s.

### Existing Overland Flow across Block 13

This assessment has found that the overland flow will overtop the western kerb and verge of Rivett Place over a length of approximately 40m and spill across the southern parts of Block 13 and the gravel carpark in the adjacent Block 14.

The overland flow would generally be broad sheet flow with minimal depth.

### Option to Cater for Overland Flow

It appears feasible to provide a separate reserve at the southern end of Block 13 adjacent to Block 14 to accommodate overland flow.

This reserve could be shaped to accommodate both a path and overland flow.

Detailed design of this reserve would need to incorporate measures to minimise the reduction in developable land.

The existing kerb levels in Rivett Place adjacent to Block 13 would need to be adjusted to assist in the conveyance of the overland flow over a more restricted width than is currently the case.

The location and value of existing trees would need to be considered in the detail design of the reserve.

# 1. Background

## 1.1 Introduction

This report investigates the issues associated a stormwater overland flow path that currently crosses Rivett Section 28 Block 13. Block 13 is bound by :

- North – Existing community facilities building on Block 9 Section 28
- East – Rivett public oval and facilities on Block 4 Section 27
- South – Existing community facilities and associated gravel car park on Block 14 Section 28
- West – public infrastructure of Rivett Place and carpark serving Rivett local shops.

Figure 1.1: Rivett Section 28 Block 13 Aerial Photograph (^ North)







**1.2 Previous SIR**

The Site Investigation Report of July 2013 for Rivett Section 28 Block 13 identified a potential overland flow path through the block which may be a constraint on development. This overland flow path appears to be aligned through Block 13 from a low point in Rivett Place towards the oval to the east.

The overland flow path had been identified in the Site Investigation report on the basis of a visual assessment on site and contour information of the surrounding area shown on ACTMAPI.

The Site Investigation indicated that to comply with the Design Standards for Urban Infrastructure the overland flow paths should not cross block leases.

**1.3 Purpose of Report**

The purpose of this report is to assess the potential development implications of the existing stormwater overland flow paths on Block 13 in accordance with the Mott MacDonald Fee Proposal dated 11 April 2014 including the identification of one option to cater for the overland flow.

This investigation report will form an appendix to the main Site Investigation Report completed for this site in July 2013.

## 2. Stormwater Assessment

### 2.1 Topographic Survey

A site survey has been undertaken of Block 13 and surrounds. This survey has assisted in determining the path of the overland flow within both Rivett Place and Block 13. The survey confirms that in the event of flow in excess of the capacity of the stormwater pipes the overland flow will pond in Rivett Place before spilling across the western kerb onto part of Block 13. The survey provides accurate levels of the western kerb which assists in determining the width of flow across the kerb and onto Block 13.

Figure 2.1: Section of Rivett Place kerb adjacent to Block 13



## 2.2 Catchment

A review has been undertaken of existing catchment information including topographic plans and site visit, this check found :

- Catchment Area = 13.5Ha
- Catchment area is a mixture of public roads and existing residential development
- The catchment area is directly west of the Block 13 with the upper reaches of the catchment almost extending to Darwinia Terrace
- The main drainage path towards Block 13 is along Angophora and Pavonia Streets towards Bangalay Crescent into Rivett Place and the Rivett shops carpark.

Figure 2.1: Catchment Area (^ North)



## 2.3 100 Year ARI Flow

An assessment of the 100 year ARI flow has been carried out taking into account catchment size, land uses, slope of terrain etc. On this basis the 100 year ARI flow from the catchment is estimated to be 2.7 m<sup>3</sup>/s.



## 2.4 Overland Flow

Design Standards for Urban Infrastructure Part 1 Stormwater indicates that overland flow can be estimated on the basis of the “gap” flow ie the 100 year ARI flow less a proportion of the design capacity of the pipe system based on an assumed blockage factor.

The “gap” or overland flow directed towards Block 13 is reduced by the following :

- 900mm stormwater pipe in the carriageway of Bangalay Crescent serving the 13.5 Ha catchment.
- 450mm stormwater pipe serving the Rivett Place
- Bangalay Crescent / Rivett Place intersection which splits overland flows and partially diverts overland flow away from Rivett Place.

A blockage factor of 50% has been adopted in accordance the DUS stormwater design standard for both the 900mm and 450mm stormwater pipes.

Based on the grading of the Bangalay Crescent / Rivett Place intersection it is estimated that a majority (approximately 75%) of the overland flow in Bangalay Crescent falls towards Rivett Place and the Rivett shops carpark adjacent to Block 13. On this basis it is estimated that the 100 Year ARI flow in excess of the capacity of the pipe system is 0.5 m<sup>3</sup>/s at Block 13.

**2.5 Extent of 100 Year ARI Flow**

This assessment has found that the estimated overland flow of 0.5 m<sup>3</sup>/s will overtop the western kerb and verge of Rivett Place over a length of approximately 40m and spill across the southern parts of Block 13 and the adjacent Block 14. Block 14 contains an existing gravel carpark serving and adjacent community facility. The overland flow would generally be broad sheet flow with minimal depth. Flow across the kerb is expected to be less than 100mm in depth. Up to a 20m width of the southern end of Block 13 would be affected. The estimated extent of the 100 Year ARI flow on Block 13 is shown on the plan in Appendix A.

Figure 2.2: Overland Flow Path Block 13 & gravel carpark of Block 14



Figure.2.3: Block 14 including gravel carpark and community facilities



## 2.6 Option to Cater for Overland Flow

As part of a separate pedestrian assessment report for Block 13 TAMS required a new path along the southern boundary of the Block 13. TAMS also require that this path be located within a separate reserve of 6 metres minimum width. This reserve could be shaped to accommodate both a path and overland flow.

Detail design would need to be undertaken to determine the exact width of this reserve with the view to minimise the reduction in developable land taking into account :

- The western kerb levels of Rivett Place would need to be adjusted to assist in the conveyance of the overland flow over a more restricted width than is currently the case.
- Alignment of the path and shaped overland flow path would need to take into account the existing trees adjacent to the southern boundary of Block 13. It appears feasible to retain the existing high value tree and remove other trees in order to provide for an overland flow alignment close to the southern boundary of Block 13 thereby limiting the reduction in developable land. Discussion would be required with TAMS regarding the removal of these existing trees.

An indicative arrangement to accommodate overland flow in this manner is shown on plan in Appendix A.



# Appendices

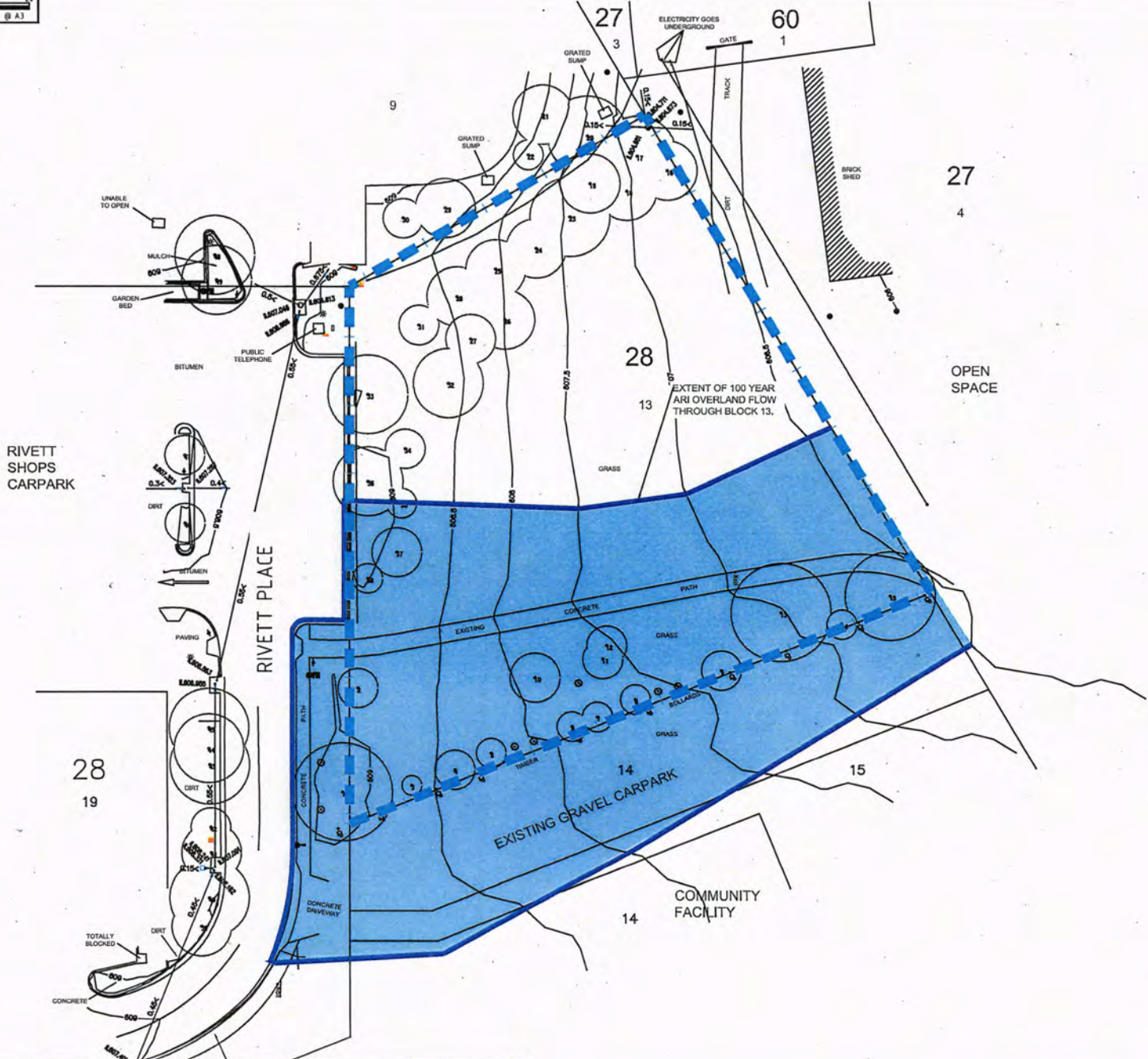
Appendix A. Plans



# Appendix A. Plans

- A.1 Extent of Existing 100 Year ARI Overland Flow
- A.2 Option to Accommodate Overland Flow
- A.3 Existing Stormwater Pipe Layout Rivett





Notes

Key to symbols

**EXISTING FEATURES**

- EXISTING CONTOURS 0.5m INTERVALS
- BOUNDARY BLOCK 13
- EXISTING TREES

Reference drawings

P1	23.05.14	AV	FOR INFORMATION	MB	MB
Rev	Date	Drawn	Description	Ch'k'd	App'd

Level 6, 54P Havelock  
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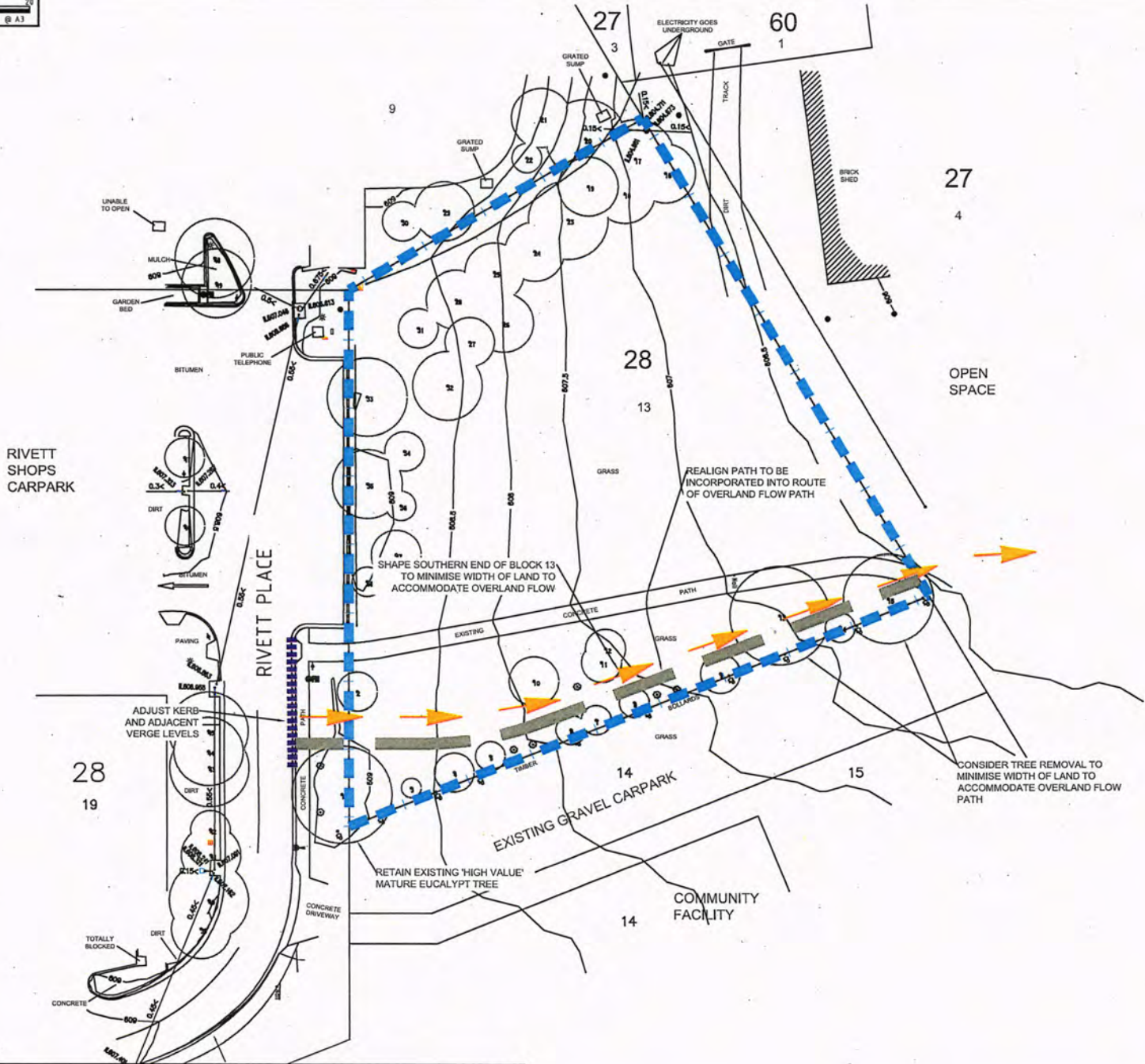
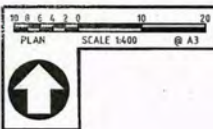
Title

**RIVETT SECTION 28 BLOCK 13**

**EXTENT OF EXISTING 100 YEAR ARI OVERLAND FLOW**

Designed	A. Valeri	Eng check	M. Breen
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Design check	M. Breen	Approved	M. Breen
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Notes

Key to symbols

**EXISTING FEATURES**

- 607 EXISTING CONTOURS 0.5m INTERVALS
- BOUNDARY BLOCK 13
- EXISTING TREES

**PROPOSED FEATURES**

- OVERLAND FLOWPATH
- KERB ADJUSTMENT
- NEW PATH

Reference drawings

Rev	Date	AV	FOR INFORMATION	MB	MB
P1	23.05.14	AV	FOR INFORMATION	MB	MB
		Drawn	Description	CHY/d	App'd

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A.3 Existing Stormwater Pipe Layout Rivett

