SIMTA Intermodal Terminal Facility- Stage 1

Stormwater and Flooding Environmental Impact Assessment

SIMTA

SYDNEY INTERMODAL TERMINAL ALLIANCE

Part 4, Division 4.1, State Significant Development

April 2015

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MOOREBANK INTERMODAL TERMINAL FACILITY - STAGE 1

Stormwater and Flooding Environmental Assessment

SIMTA

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Report No	aa003760FS_stg1	
Date	10/04/2015	

REVISIONS

Revision	Date	Description	Prepared By	Approved By
A	20/03/2015	Draft		
B	10/04/2015	Final	Bruce Caldwell	Greg Huzij
C				
D				
E				

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1 INTRODUCTION

1.1 BACKGROUND

The SIMTA Project involves the development of an intermodal facility, including warehouse and distribution facilities, freight village (ancillary site and operational services), stormwater, landscaping, servicing and associated works on the eastern side of Moorebank Avenue, Moorebank (the SIMTA site). The SIMTA Project also includes a Rail link, within an identified rail corridor (the Rail Corridor), which connects from the southern part of the SIMTA site to the Southern Sydney Freight Line (SSFL) (the entire area, SIMTA site and Rail Corridor referred to as the Project site). The SIMTA Project is to be developed in three key stages:

- Stage 1- Construction of the Intermodal Terminal Facility and Rail link
- Stage 2- Construction of warehouse and Distribution Facilities
- Stage 3- Extension of the Intermodal Terminal Facility and completion of Warehouse and Distribution Facilities.

A summary of the approvals undertaken to date for the SIMTA site, relating to the SIMTA Project, include:

- **EPBC Approval** (No. 2011/6229) granted in March 2014 for the impact of the SIMTA Project on listed threatened species and communities (sections 18 and 18A of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act)) and Commonwealth land (sections 26 and 27A of the EPBC Act).
- **Concept Approval** (No. 10_0193) granted by the Planning Assessment Commission (PAC) on the 29 September 2014 for the 'Concept Approval' of the SIMTA Project under Part 3A of the EP&A Act.

Both of these approvals involved the preparation of design and environmental assessment documentation.

1.2 REPORT PURPOSE AND STRUCTURE

This report has been prepared for approval of the initial stage of the SIMTA Project, known as the Proposal. A summary of the works included in the Proposal is provided below. This report has been prepared to support a State Significant Development (SSD) Application for which approval is sought under Part 4, Division 4.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

This report has been prepared in accordance with the Secretary's Environmental Assessment Requirements (SEARs) (ref: SSD 14-6766 and dated December 2014). Table 1 provides a summary of the SEARs and the section where they have been addressed in this report.

Table 1: SEARS (SSD 14-6766) Compliance for Flooding and Stormwater

SEARs Key Assessment Requirement	Report Section Reference
9. Soil and Water – including but not limited to: An assessment of soil and water impacts for the entire site including rail link. The assessment shall:	Only flooding and stormwater are addressed in this document. Soil items and groundwater risks or impacts are included within the geotechnical and Environmental Site Investigation (ESA) reports.
a) assess impacts on surface and groundwater flows, quality and quantity, with particular reference to any likely impacts on Georges River and Anzac Creek;	Sections 3 and 4 – surface water quantity. Section 6 and 7 – surface water quality (Groundwater is not addressed as part of this report and is discussed in the geotechnical and ESA reports).
b) assess flooding impacts and characteristics, to and from the project (including rail link), with an assessment of the potential changes to flooding behaviour (levels, velocities and direction) and impacts on bed and bank stability, through flood modelling, including: i. hydraulic modelling for a range of flood events; ii. description, justification and assessment of design objectives (including bridge, culvert and embankment design); iii. an assessment of afflux and flood duration (inundation period) on property; and iv. consideration of the effects of climate change, including changes to rainfall frequency and/or intensity, including an assessment of the capacity of stormwater drainage structures.	Sections 3 and 4.
c) include a detailed and consolidated site water balance;	Section 7 – site water balance
d) include details of the water supply source(s) for the proposal including any proposed surface water and groundwater extraction;	Section 7 – site water balance
e) assess potential cumulative impacts on water resources, and any proposed options to manage the cumulative impacts;	Section 7 – site water balance
f) address drainage issues associated with the development / site, including stormwater, drainage infrastructure and incorporation of Water Sensitive Urban Design measures;	Sections 2 and 5 – surface water quantity. Section 6 – surface water quality. (Groundwater is not addressed as part of this report and is discussed in the geotechnical and ESA reports).
g) undertake an assessment of surface water quality during construction (including reference to water quality objectives for the relevant catchment where objectives have been determined), including an identification of works that may impact water quality, and a summary of proposed mitigation measures in accordance with Managing Urban Stormwater – Soils & Construction Volume 1 2004 (Landcom) and Volume 2 (DECC 2008);	Section 6
h) consideration of stormwater management during operation of the site with the objective of maintaining or improving existing water quality.	Sections 6 and 7

1.3 KEY TERMS

Table 2 provides a summary of the key terms which are included within this report. Figure 1 also provides an indication of the site areas discussed in this table.

Table 2- Key terms

Term	Description
Concept Plan Approval	Concept Plan Approval (MP 10_0193) granted on 29 September 2014 for the development of the SIMTA Moorebank Intermodal Terminal Facility at Moorebank. This reference includes the associated Conditions of Approval (CoA) and Statement of Commitments (SoC) which form the approval documentation for the Concept Plan Approval.
EPBC Approval	Approval (No. 2011/6229) granted under the EPBC Act on March 2014 by the Commonwealth Department of Environment for the development of the SIMTA Moorebank Intermodal Terminal Facility at Moorebank.
SIMTA Project	The SIMTA Moorebank Intermodal Terminal Facility at Moorebank as approved by the Concept Plan (MP_10_0913).
SIMTA site	Includes the former Defence National Storage and Distribution Centre (DNSDC) site, the land owned by SIMTA which is subject to the Concept Plan Approval (refer to Figure 1).
Rail Corridor	Area defined as the 'Rail Corridor' within the Concept Plan Approval. The Rail link is also included within this area (refer to Figure 1).
Project site	Includes the SIMTA site and the Rail Corridor, i.e. the entire site area which was approved under the Concept Plan Approval (refer to Figure 1).
Stage 1 site	The subject of this EIS, the western part of the SIMTA site which includes all areas to be disturbed by the Stage 1 Proposal (including the Operational area and Indicative Construction area) (refer to Figure 1). This area does not include the Rail Corridor.
Construction area	Extent of construction works, namely areas to be disturbed during construction of the Stage 1 Proposal (refer to Figure 1).
Operational area	Extent of operational activities for the operation of the Proposal (refer to Figure 1).
Proposal site	Includes the Stage 1 site and the Rail Corridor, i.e. the area for which approval (construction and operation) is sought within this EIS.
Rail link	The Rail link including the area on either side to be impacted by the construction works included in the Stage 1 Proposal.
Former DNSDC South	The land to the south of the operational footprint of the Intermodal Terminal, to the boundary fence of the former DNSDC.
Southern Boot Land	Commonwealth owned land to the south of Former DNSDC South, and to the north of the RailCorp Land (part of the Boot Land in the MIC proposal).
RailCorp Land	Lot 1 DP 825352 (part of the Rail Corridor) and owned by RailCorp.
The Proposal	Stage 1 of the SIMTA Moorebank Intermodal Terminal Facility including construction and operation of the intermodal terminal facility and Rail link, i.e. all works and built form for which approval is sought in this EIS/Technical Report.
MIC Proposal	The development of an intermodal facility, associated commercial infrastructure (warehousing) and a Rail link (3 options have been provided) to be located on the MIC site, for which an approval, under Part 4, Division 4.1 of the *Environmental Planning and Assessment Act 1979.* This proposal is currently under assessment by the Department of Planning and Environment.
MIC site	The former School of Military Engineering site to the immediate west of the SIMTA site, across Moorebank Avenue.

Figure 1 – SIMTA Stage 1 Location Plan and Key Areas

1.4 PROPOSAL OVERVIEW

The Proposal involves the construction and operation of the necessary infrastructure to support a maximum container freight volume of 250,000 TEU (twenty-foot equivalent units) throughput per annum. Specifically, Stage 1 includes the following key components, which together comprise the intermodal terminal facility (IMT):

- Truck processing, holding and loading areas- entrance and exit from Moorebank Avenue.
- Rail loading and container storage areas – installation of four rail sidings with adjacent container storage area serviced by manual handling equipment initially and overhead gantry cranes progressively. .
- Administration facility and associated car parking- light vehicle access from Moorebank Avenue.
- The Rail link – located within the Rail Corridor, including a connection to the intermodal terminal facility, traversing of Moorebank Avenue, Anzac Creek and Georges River and connection to the SSFL.
- Ancillary works- vegetation clearing, remediation, earth works, utilities installation/connection, signage and landscaping.

1.5 SITE DESCRIPTION

The SIMTA site, including the Stage 1 site, is located approximately 27 kilometres south-west of the Sydney Central Business District (CBD) and approximately 26 kilometres west of Port Botany. The SIMTA site is situated within the Liverpool Local Government Area (LGA), in Sydney's South West Sub-Region, approximately 2.5 kilometres from the Liverpool City Centre.

The SIMTA site is located approximately 800 metres south of the intersection of Moorebank Avenue and the M5 Motorway. The M5 Motorway provides the main road link between the SIMTA site and the key employment and industrial areas within the West and South Western Sydney Sub-Regions. The M5 Motorway connects with the M7 Motorway to the west, providing access to the Greater Sydney Metropolitan Region and NSW road network. Similarly the M5 Motorway is the principal connection to Sydney's north and north-east via the Hume Highway.

The Southern Sydney Freight Line (SSFL) is located one kilometre to the west of the proposed SIMTA site. The SSFL is a 36 kilometre dedicated freight line between Macarthur and Chullora.

The SIMTA site was recently operating as the Defence National Storage and Distribution Centre (DNSDC) however Defence has recently relocated this operation and vacated the SIMTA site. The majority of land immediately surrounding the SIMTA site is owned and operated by the Commonwealth and comprises:

- School of Military Engineering (SME), on the western side of Moorebank Avenue directly adjacent to the SIMTA site.
- Holsworthy Military Reserve, to the south of the site on the southern side of the East Hills Passenger Railway Line.
- Commonwealth Residual Land, to the east between the SIMTA site and the Wattle Grove residential area.
- Defence National Storage and Distribution Centre (DNSDC), to the north and north east of the SIMTA site.

The site to immediate west of the SIMTA site which currently includes the SME is the subject of a Development Application (DA) (SSD-5066), under Part 4, Division 4.1 of the EP&A Act, for the

development of an intermodal facility known as the Moorebank Intermodal Terminal Project (MIC Proposal). The EIS for the MIC Proposal has recently been prepared and publically exhibited on 8 October 2014 to 8 December 2014. A Preferred Project Report (PPR) is currently under preparation to respond to submissions received during public exhibition. The MIC Proposal has yet to be determined by the Department of Planning and Environment (DP&E).

A number of residential suburbs are located in proximity to the Stage 1 site, including:

- Wattle Grove, located approximately 600 metres from the Stage 1 site and 750 metres from the Rail link to the east.
- Moorebank, located approximately 1,700 metres from the Stage 1 site and more than 2,700 metres from the Rail link to the north.
- Casula, located approximately 1,100 metres from the Stage 1 site and 250 metres from the Rail link to the west.
- Glenfield, located over 1,700 metres from the Stage 1 site and 750 metres from the Rail link to the south-west.

2 PREVIOUS FLOODING AND STORMWATER PLAN

Previously, Hyder completed the *SIMTA Sydney Intermodal Terminal Alliance: Flood Study and Stormwater Management Part 3A Concept Plan Application* (12/08/2011) (Concept Plan report). The Concept Plan report was completed to support a Concept Plan application for the development of the SIMTA Project.

The Concept Plan report detailed existing catchments, hydrology and hydraulics relevant to the SIMTA Project. The report presented flooding and stormwater management and mitigation measures for the post-development site condition including concept designs for on-site detention (OSD) and options for managing external (neighbouring area) catchment flows.

The main components of that August 2011 report have been summarised in the sections below. However, the 2011 report did not include analysis of the Rail link joining the SIMTA site to the SSFL or an assessment of the first construction stage, which has now been identified as Stage 1 (the Project)

The full Concept Plan report is available online at his location: *http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=4400 Documents 31 – 36 'Flood Study and Stormwater Management'*, and should be read in conjunction with this current report.

This current report summarises the major findings of the Concept Plan report (report Section 2) before addressing the specific flooding and stormwater management items which have now been completed in addition to the Concept Plan report. These include:

(i) Assessment of the Rail link at the crossing of Anzac Creek (report Section 3).

(ii) Assessment of the Rail link at the crossing of Georges River (report Section 4).

(iii) Assessment of the Project in isolation of the overall SIMTA Project (Section 5 Water Quantity, Section Water Quality, and Section 7 Water Balance).

The location of each of these elements is presented in Figure 2.

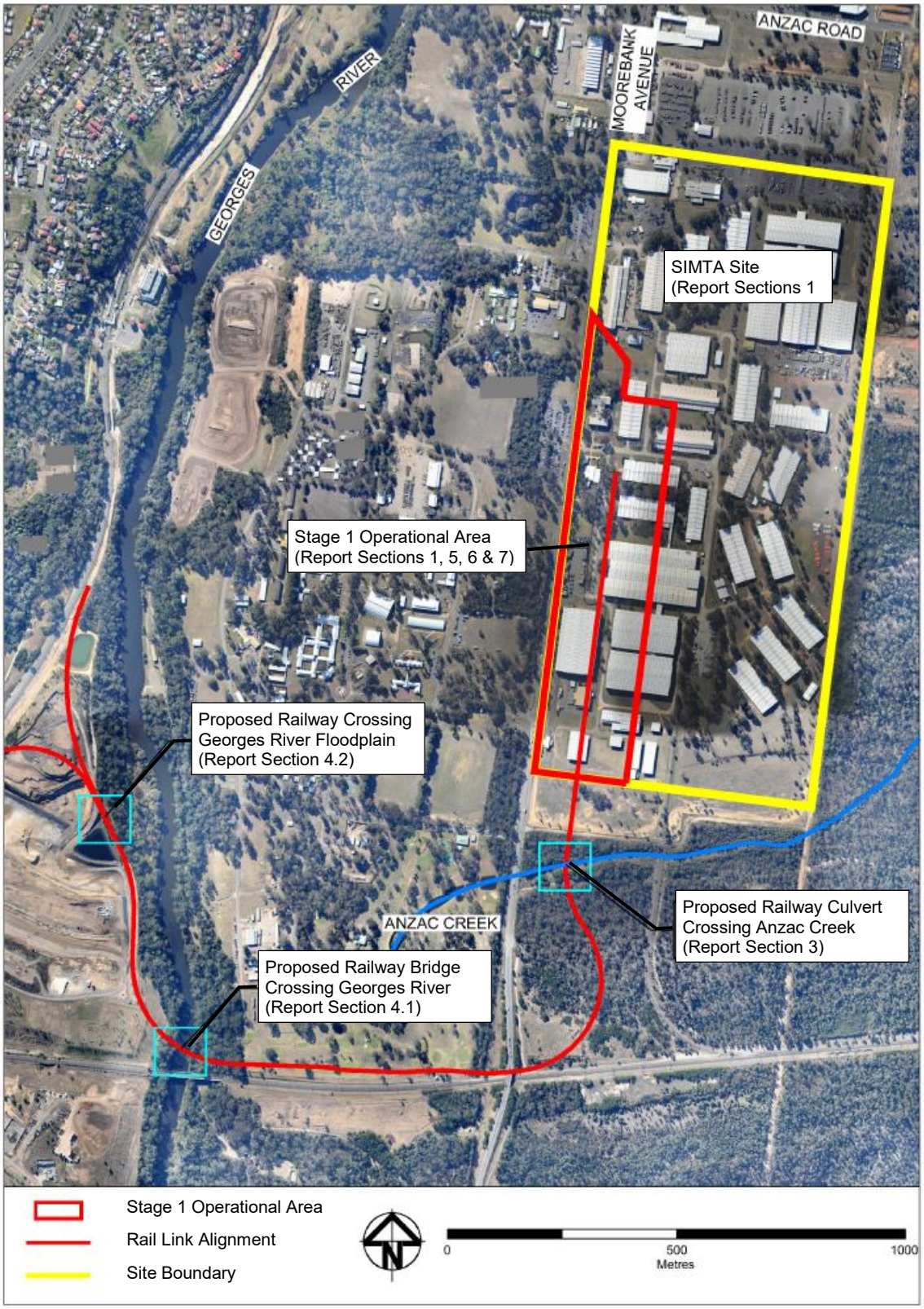


Figure 2 – Flooding & Stormwater Stage 1 Areas

2.1 EXISTING CONDITIONS

The topography of the SIMTA site is relatively flat, with reduced levels (RLs) ranging between 14 and 16 metres Australian Height Datum (mAHD). Along the eastern site boundary, the land rises from about RL14 mAHD at each end to a localised peak of RL22 mAHD about midway along the length. There are three internal catchments within the SIMTA site and a number of small external catchments that discharge into the site. The site catchments are shown in Figure 3.

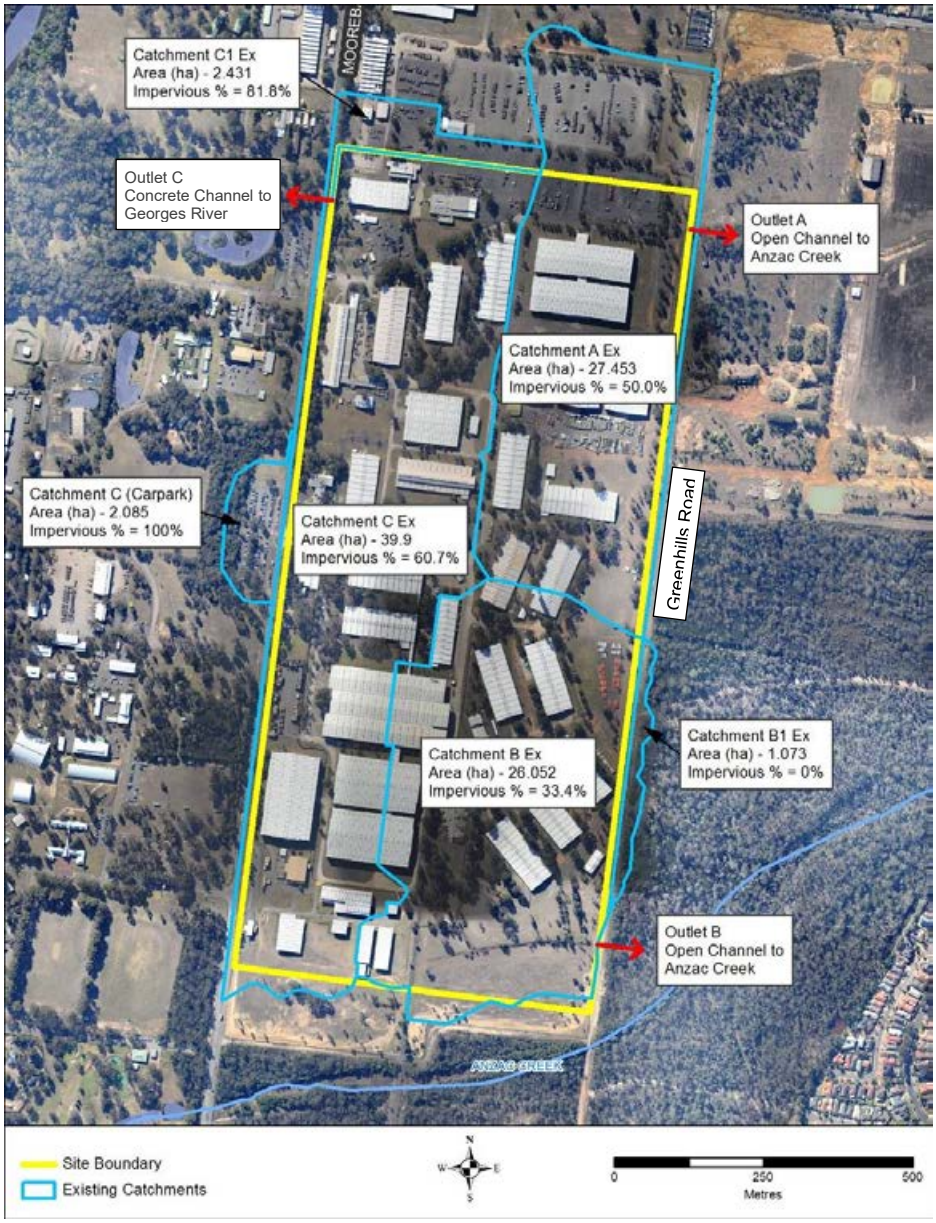


Figure 3 - Existing Catchments of the SITMA Site (Concept Plan 12/08/2011)

There are three existing stormwater culvert outlets from the site. Two outlets discharge eastward to Anzac Creek and cross under the Greenhills Road formation via pipes and headwalls (Outlets A and B). Stormwater to these two culvert outlets is conveyed through the site via formal open grass lined channels. From Greenhills Road to Anzac Creek the channels appear less formalised.

On the western portion of the site water from both the site and the eastern side of Moorebank Avenue is collected in a formal concrete lined channel which runs within the site parallel to

Moorebank Avenue. These channel flows discharge via a culvert under Moorebank Avenue (Outlet C) into a channel which leads to Georges River.

DRAINS software was used to develop a rainfall runoff model to assess the performance of the existing site drainage. The modelled flows at each of the three site discharge points for the 2 year, 20 year, 100 year average recurrence interval (ARI) flood levels and the probable maximum flood (PMF) are summarised in Table 3.

Table 3: Existing Site Condition Peak Flows (Concept Plan 12/08/2011)

Discharge Location	Site Condition	Catchment Area (ha)	Flow (m^3/s)			
			2year	20year	100year	PMF
Outlet A (Greenhills Rd Nth)	Existing	27.45	2.4	6.2	8.3	50
Outlet B (Greenhills Rd Sth)	Existing	27.13	0.4	1.1	2.6	31
Outlet C (Moorebank Avenue)	Existing	42.33	5.7	10.2	12.7	62

2.2 POST-DEVELOPMENT CONDITIONS

The existing conditions within the DRAINS model were adjusted to represent the post-development site conditions. In particular the adjustments included:

- Changes to sub-catchment boundaries to represent the sub-catchments of the SIMTA Project. The amended catchments are shown in Figure 4.
- Adopting a 100 per cent impervious surface percentage within the SIMTA site.
- Reduced flow travel times representative of the SIMTA Project.
- Proposed waterways and detention storages to mitigate potential flow increases (see Figure 5).

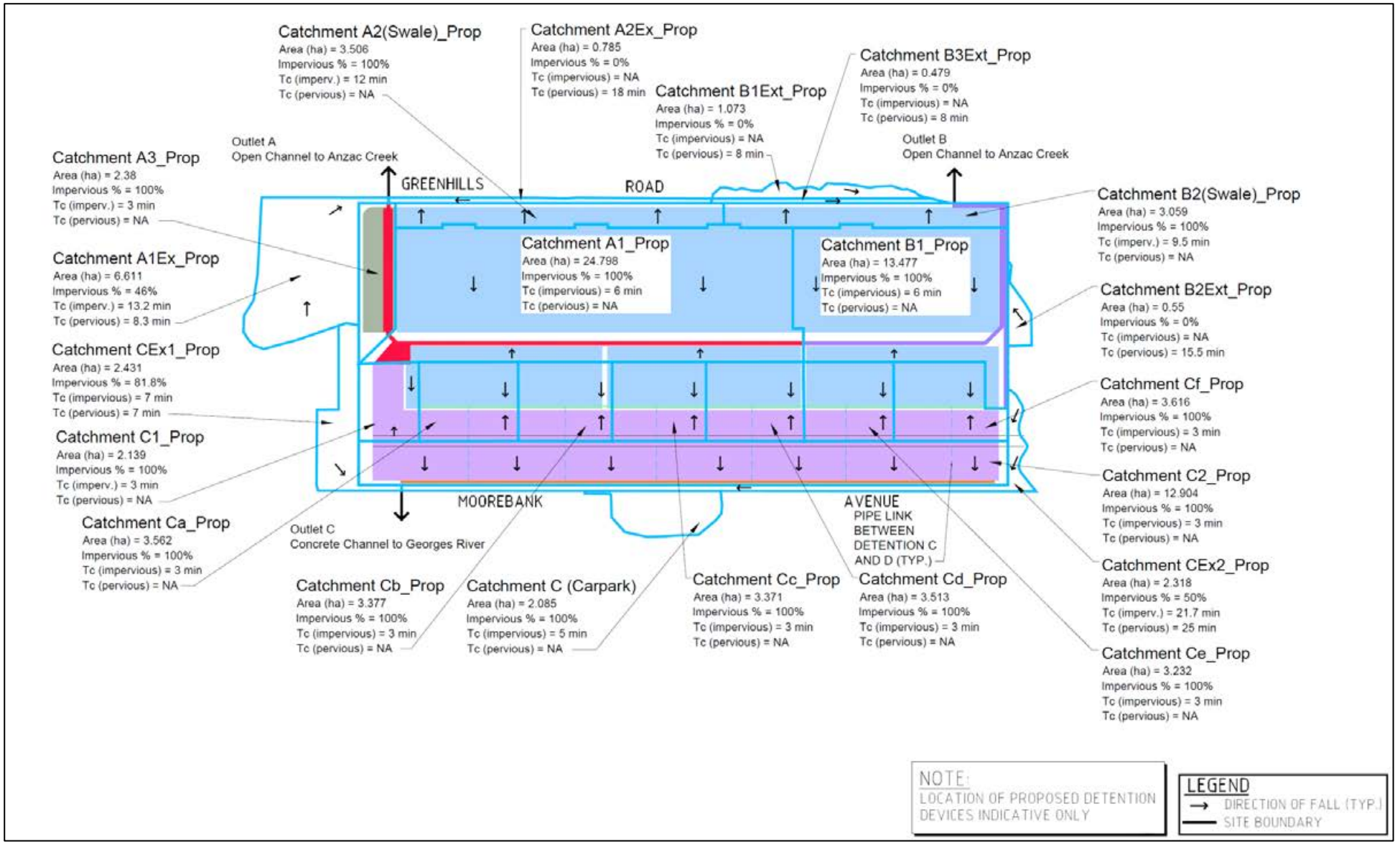


Figure 4 - Post development Catchments (Concept Plan 12/08/2011)

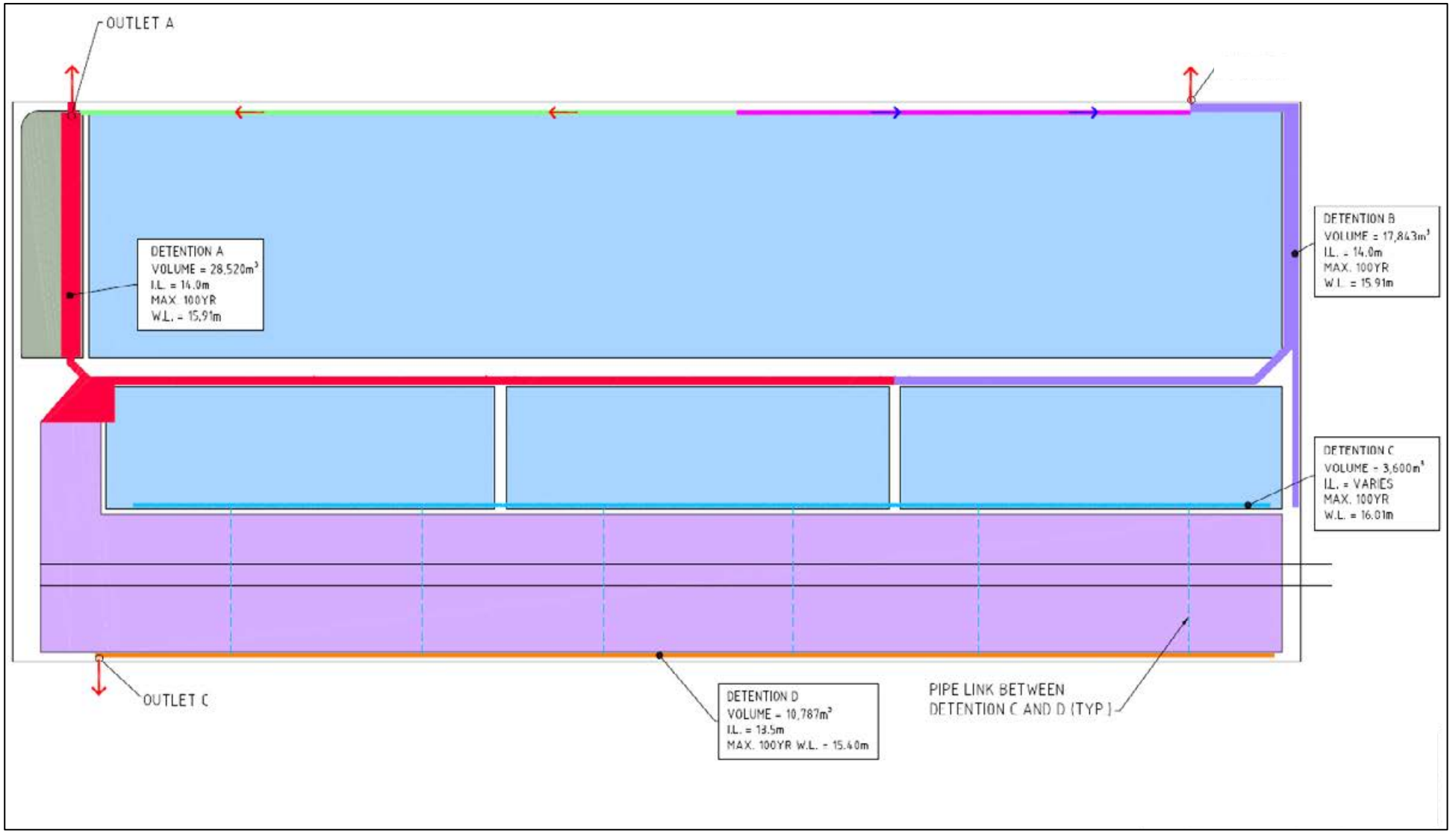


Figure 5 - Post development Site Flow Management (Concept Plan 12/08/2011)

Peak site flows generated from the DRAINS modelling for the post-development site condition are compared with the existing conditions flows in Table 4. Flow results for a fuller range of assessed storm durations are provided in the Concept Plan report. This initial DRAINS modelling indicated that the provision of on-site stormwater detention storages should adequately mitigate potential site runoff flow increases. However, in addition to the DRAINS modelling, a regional catchment wide analysis (using TUFLOW software) was carried out to assess potential impacts on flow regimes on the broader Anzac Creek waterway.

The TUFLOW modelling indicated potential water level increases in Anzac Creek of up to approximately 0.05 metres in the 100 year ARI event. As such the initial DRAINS model estimates of on-site storage were increased from 28,500 m^3 to 35,000 m^3 in the north-eastern portion of the SIMTA site. The post-development TUFLOW model was subsequently re-run and the potential flood level increases were demonstrated to be reduced to match existing.

The TUFLOW model was also run for the PMF one hour event. The modelling results for these assessments are included in the Concept Plan report.

With respect to potential post-development flood impacts on the Anzac Creek floodplain, results indicated:

- Flood level increases would be limited to less than five millimetres in the 100 year ARI nine hour event. Management of local catchment flows from areas immediately neighbouring the site are discussed in the 'Civil Design Options', Section 7, of Concept Plan report.
- For the PMF one hour event, the proposed site raising would result in flood level increases of up to 0.25 metres immediately south of the SIMTA site. Since this area to the south is largely undeveloped there is little current implications for this neighbouring area. Further downstream flood level increases are limited to no more than five millimetres (mm).

Table 4: Comparison of Existing and Post-Development Peak Flows

Discharge Location	Site Condition	Catchment Area (ha)	Flow (m^3/s)			
			2 year	20 year	100 year	PMF
Outlet A (Greenhills Rd Nth)	Existing	27.45	2.4	6.2	8.3	50
	Developed *	38.08	1.7	2.9	3.5	56
Outlet B (Greenhills Rd Sth)	Existing	27.13	0.4	1.1	2.6	31
	Developed *	18.64	0.4	0.9	2.0	27
Outlet C	Existing	42.33	5.7	10.2	12.7	62
	Developed *	40.46	3.4	8.4	9.2	104

* With OSD storage provided (Concept Plan 12/08/2011)

It is anticipated that the mitigating OSD storage would be achieved by adopting the following strategies:

1 Configuring the OSD channels with vertical walls, and horizontal inverts (with rain garden inverts) as outlined in Figure 6.

2 Raising site ground levels.

3 Where necessary, providing above ground storages within or adjacent to proposed buildings.

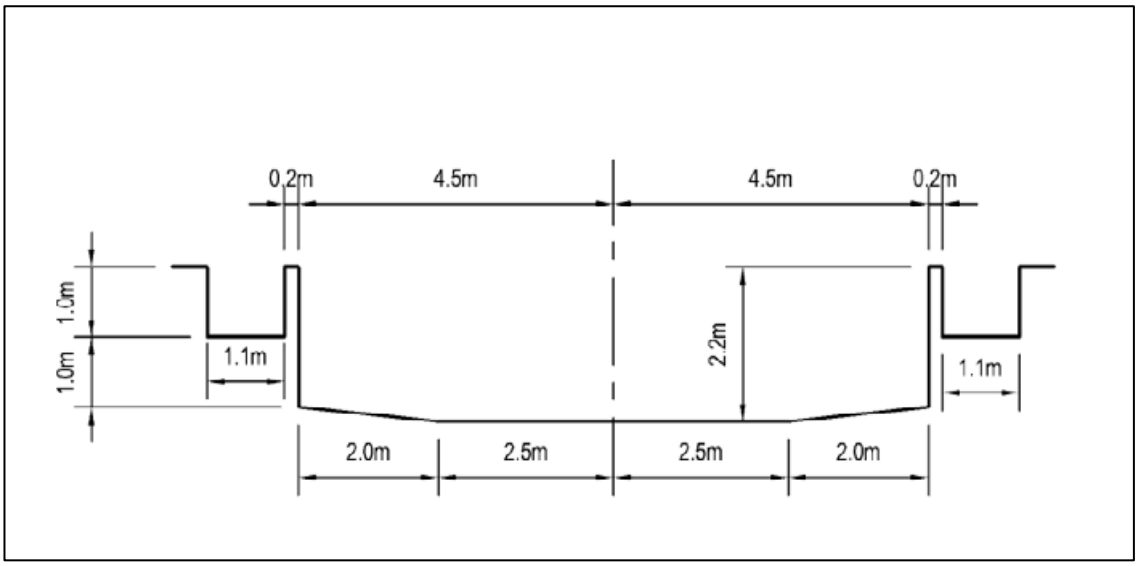


Figure 6 - Indicative OSD Channel Section for Onsite Detention (Concept Plan 12/08/2011)

2.2.1 SUMMARY OF DESIGN INPUTS

Design parameters adopted to mitigate stormwater impacts associated with the SIMTA Project include:

- Design of OSD structures to mitigate potential increases in peak flows discharging from the site up to and including the 100 year ARI.
- Incorporating swales and culverts to adequately convey neighbouring property flows through the SIMTA site in order to prevent adverse flood impacts on adjacent lands as a result of the site development.
- A number of stormwater treatment devices including rainwater tanks, gross-pollutant traps, buffer strips, bio-retention and bio-swales.

3 ANZAC CREEK

Anzac Creek is within the larger Georges River catchment and a sub-catchment of the Liverpool District catchment. The creek is 4 kilometres long, forming in the (former) Royal Australian Engineers Golf Course, owned by the Department of Defence, and flowing northward past the suburb of Wattle Grove and underneath the M5 at the intersection with Heathcote Road. From there the creek continues northwards through Ernie Smith Recreation Reserve, flanked by the Moorebank Industrial Area to the west and the suburb of Moorebank to the east, under Newbridge Road, through McMillan Park, and into Lake Moore at Chipping Norton.

3.1 RAILWAY CULVERT OVER ANZAC CREEK

Existing condition flow regimes along Anzac Creek have been previously determined by Liverpool City Council (Council) in the process of conducting their Anzac Creek Floodplain Risk Management Study and Plan (by BMT WBM Pty Ltd, 30 May 2008), and the Georges River Floodplain Risk Management Study and Plan (by Bewsher Consulting, May 2004).

The Council's RAFTS catchment rainfall runoff model files developed for these studies were reviewed by Hyder. The provided files were re-run by Hyder and the hydrographs for both the 100 year ARI nine-hour event and PMF one-hour used in the Council studies were replicated.

Council also provided Hyder with the 100 year ARI nine-hour event and PMF one-hour event TUFLOW model files. The provided files were re-run by Hyder and the Council's 100 year nine-hour results were reproduced. The PMF TUFLOW modelling results were not provided by Council, nonetheless the provided files were used in developing an adjusted 'existing conditions' Anzac Creek model (see Section 3.1.1).

Council provided a number of TUFLOW run files incorporating various degrees of blockage for the structural elements across the stormwater infrastructure system. For the purposes of this railway culvert assessment, the 25 percent blockage scenario was adopted and was amended to create a base model suitable for the purposes of this assessment.

3.1.1 ASSESSMENT METHODOLOGY

DRAINS modelling of flows

Council's RAFTS model catchments were adjusted to:

- Exclude the subject site area which has been more accurately defined in the site drainage DRAINS software.
- Provide additional sub-catchment areas upstream of Greenhills Road to facilitate assessment of the upstream flow regimes.

Catchment plans are provided in Appendix A. The adjusted RAFTS model was used to generate 100 year ARI hydrographs which served as inputs in the TUFLOW modelling of Anzac Creek for existing and post-development conditions.

TUFLOW Modelling of Flow Regimes

Council's Anzac Creek TUFLOW model was adjusted to include ground information sourced from Aerial Laser Survey data collected in August 2010 by AAMHatch. In the vicinity of the SIMTA site, levels were updated to include the detailed survey data of Hard and Forester Pty Ltd (July 2012), in particular, the Hard and Forester survey covers part of the Anzac Creek floodplain to the south of SIMTA site area across which the Rail link is currently proposed.

The model adopts a 5 m grid using TUFLOW Build: 2006-06-DB. The Council inflow boundary setup was modified to define local catchments to the south of the SIMTA site, taking into account the proposed railway embankment and associated culvert intersecting the floodplain. In addition, outflows from the SIMTA site area were incorporated into the TUFLOW model, and the lag times for RAFTS and DRAINS in relation to the Georges River inflow were adjusted to be consistent with the original setup of the Council model.

To assess the post-development conditions of the area, the railway alignment was included in the TUFLOW digital elevation model along with the proposed Anzac Creek culvert crossing (6, 2.1m x1.8m reinforced concrete box culverts, with two additional fauna crossings assumed fully blocked). A concept design figure of railway alignment and culvert sizing is provided in design drawing 'Anzac Creek Culvert Bridge General Arrangement' Sheets 1 and 2 Dwg Nos.SKR913 and14 (included in Appendix B).

3.1.2 RESULTS AND COMMENTS

RAFTS model output summaries are included in Appendix A.

Existing and post-development condition TUFLOW figures of flood extents and levels are included in Appendix B and indicate the following for Anzac Creek:

- Under existing conditions the 100 year ARI flood level to the south of the SIMTA site is 14.9m Australian height datum (AHD). When modelled with the proposed Rail link culverts and allowing for 50 per cent blockage of those culverts the flood levels to the south of the SIMTA site increase by up to 10mm, upstream of the proposed railway. The post-development condition model was also run with the proposed railway culvert fully unblocked, with the result that the 100 year flood level increase (as a result of the proposed railway crossing) reduced to less than 5mm.
- Under existing conditions the PMF level to the south of the site is approximately 15.6 mAHD. Downstream of the proposed railway culvert crossing there is no anticipated increase to PMF flood levels, however upstream of the proposed Rail link culvert crossing flood levels would increase by approximately 0.15m upstream and across Moorebank Avenue under a 50 per cent blockage scenario.

A sensitivity assessment was also carried out with 100 year rainfall intensities increased by 20%. This resulted in an increase of approximately 0.01m upstream of the proposed railway (compared to 100 year water levels with 50 per cent blockage of the proposed Rail link culverts). This sensitivity assessment is considered representative of potential climate change impacts, being consistent with projected rainfall increases in accordance with the New South Wales Department of Environment and Climate Change (DECC) 'Floodplain Risk Management Guideline Practical Consideration of Climate Change' (October 2007) for Hawkesbury-Nepean catchment.

3.1.3 CONCLUSION

The TUFLOW model results indicate that the impact of the proposed railway and associated culvert would result in negligible flood impacts within the Anzac Creek catchment area.

4 GEORGES RIVER

The SIMTA site is located entirely within the catchment area of the Georges River, which lies approximately 750 m to the west of the site. The Rail Corridor is located within the mid-Georges River catchment and is a Liverpool District sub-catchment. The Georges River enters the Liverpool LGA from the south on the western side of the Defence Lands at Holsworthy and flows to the north, meeting with Glenfield Creek at Casula. The river then continues to flow north past the Liverpool City Centre, under Newbridge Road, past Lighthorse Park and over the Liverpool Weir. Downstream of the Liverpool Weir, the Georges River becomes brackish and is subject to tidal influences. Figure 7 shows the proposed Rail link alignment.

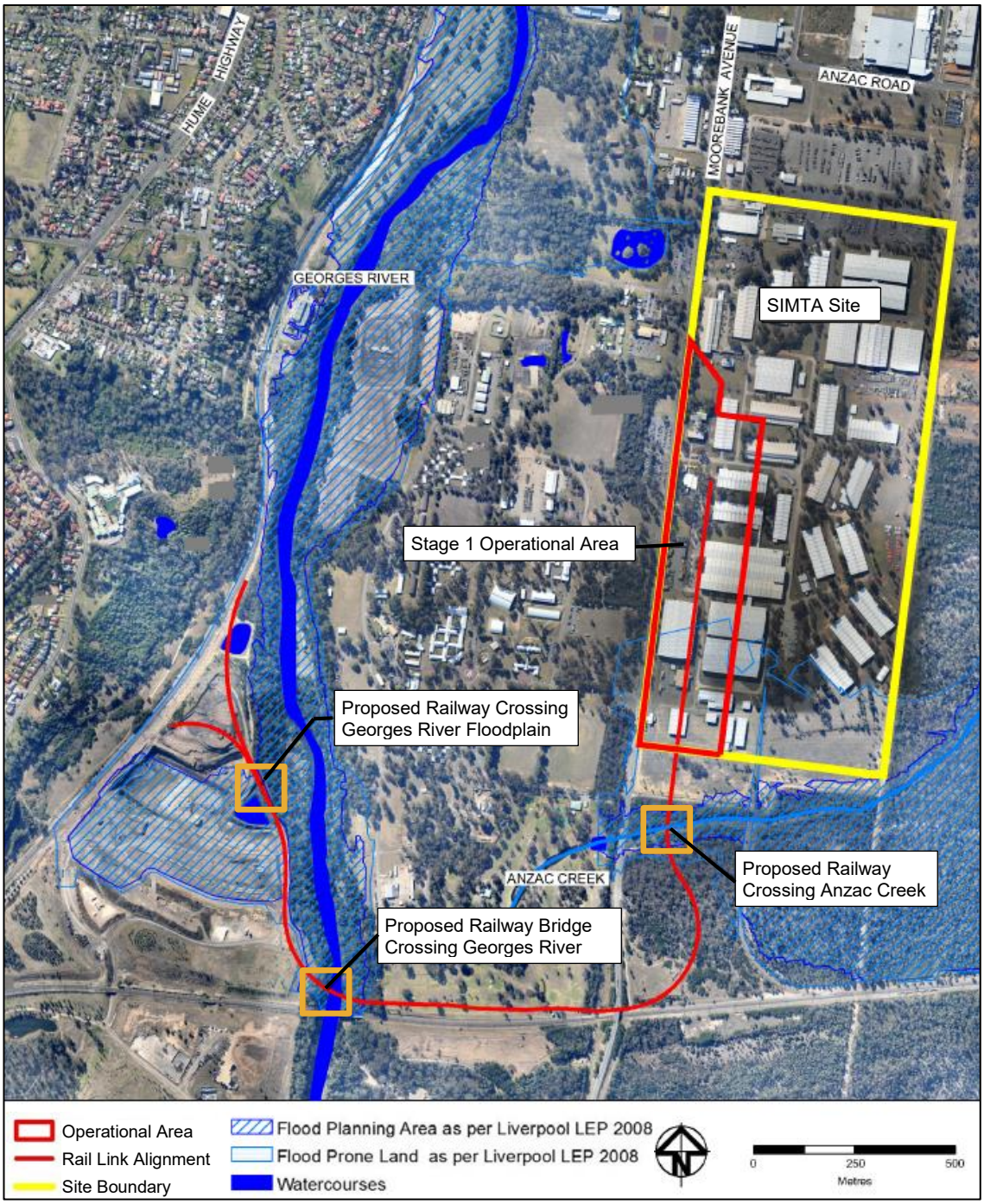


Figure 7 - Proposed Rail Link Alignment (overlaying Liverpool City Council Regional Flood Planning Areas)

The proposed Rail link has the potential to directly impact the Georges River and its immediate floodplain at two locations:

1 Georges River railway bridge.

2 Rail link crossing of the Georges River floodplain (i.e. within GWS facility).

Potential for flooding impacts at these two locations are discussed in the following sections of this report.

4.1 GEORGES RIVER RAILWAY BRIDGE

A flood assessment has been undertaken to analyse potential flooding impacts of the proposed railway bridge crossing of the Georges River for the 100 year ARI and PMF events.

4.1.1 ASSESSMENT METHODOLOGY

The potential flood impact assessment of the proposed Georges River railway bridge was assessed through development of a HEC-RAS model of the Georges River. As an industry standard software for open waterway analysis, HEC-RAS was determined to be appropriate to assess flooding impacts associated with the proposed Georges River railway bridge.

The HEC-RAS model was built using information provided in the 'Upper Georges River Flood Study' prepared by Department of Land and Water Conservation in conjunction with Liverpool City Council (December 2000). Information from the December 2000 study was provided by FloodMit Pty Ltd, and included:

- River section geometry, location and roughness.
- Flow hydrographs.
- Hydraulic boundary conditions.
- Flood levels (generated by MIKE-11 software).

The location of the MIKE 11 and corresponding HEC-RAS sections modelled as part of this assessment are shown in Figure 8 and Appendix C.

Furthermore, since the proposed bridge has a curved alignment (in plan), to represent the bridge in HEC-RAS, section chainages and associated ground levels were projected to represent the bridge section orientation perpendicular to Georges River flows. Sketches of this process are included in Appendix C.

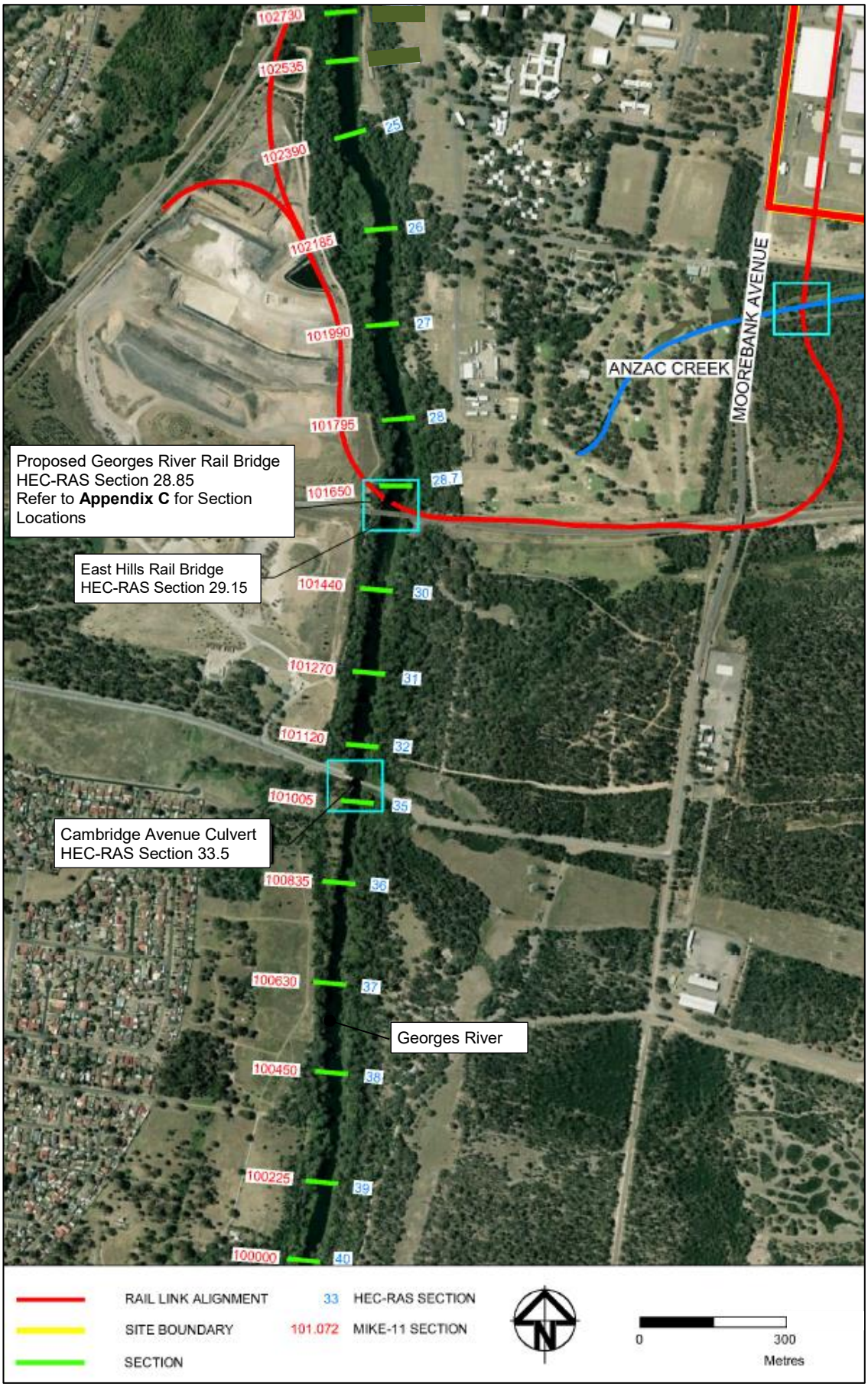


Figure 8 - Location of HEC-RAS Sections

4.1.2 EXISTING CONDITIONS

An initial HEC-RAS model was built to reproduce the MIKE-11 flood levels, generated by the December 2000 model. Modelling undertaken in December 2000 excluded the existing East Hills Railway line bridge as it had not been constructed at that time. The 100 year ARI peak flow adopted from the December 2000 study was 1877 m^3/s and the water levels generated by the initial HEC-RAS model were compared to the December 2000 reported MIKE-11 levels, as shown in Table 5.

Table 5: Comparison of HEC-RAS and Mike 11 Results; Year 2000 Scenario

Mike-11 Section Label	HEC-RAS Section Label	Year 2000 Scenario [No Railway Bridges]	
		MIKE-11	HEC-RAS
100.000 (P1)	40	13.2	13.2
100.225 (P2)	39	13.0	12.9
100.450 (P3)	38	12.9	12.9
100.630 (P4)	37	12.7	12.8
100.835 (P5)	36	12.6	12.6
101.005 (P6)	35	12.5	12.6
101.057 (P6.4)	34	12.5	12.2
Cambridge Ave culvert	33.5 **Cambridge Ave culvert**	-	-
101.072 (P6.6)	33	12.1	12.1
101.120 (P7)	32	12.0	12.0
101.270 (P8)	31	12.0	12.0
101.440 (P9)	30	11.7	11.8
New Section	29.3	-	11.8
New Section	29.2	-	11.7
Existing. Rail Bridge	29.15 **Existing. Rail Bridge**	-	-
New Section	29.1	-	11.7
101.650 (P10)	29	11.6	11.7
New Section	28.9	-	11.7
Proposed Rail Bridge	28.85 **Proposed Rail Bridge**	-	-
New Section	28.8	-	11.7
New section	28.7	-	11.5
101.795 (P11)	28	11.5	11.4
101.990 (P12)	27	11.4	11.4
102.185 (P13)	26	11.3	11.4
102.390 (P14)	25	11.2	11.2

As seen in Table 5, there is a high level of correlation between the two results and it was determined that the HEC-RAS model developed adequately reflected the flooding regime of the George's River.

Subsequently, the HEC-RAS model was adjusted to include the existing East Hills Railway bridge crossing. The existing railway bridge details have been based upon 'WAE' drawing information included in Appendix C. The results of this modelling are presented in Table 6.

Table 6: HEC-RAS Results; Year 2000 scenario and East Hills Railway Bridge Comparison

HEC-RAS Section Label	Year 2000 Scenario [No Railway Bridges]	East Hills Railway Existing Bridge flood level	Flood Level Change* (m)
40	13.21	13.22	0.01
39	12.92	12.94	0.02
38	12.93	12.95	0.02
37	12.77	12.79	0.02
36	12.64	12.66	0.02
35	12.64	12.66	0.02
34	12.23	12.25	0.02
33.5 **Cambridge Ave culvert**	-	-	-
33	12.12	12.14	0.02
32	12.03	12.04	0.01
31	11.95	11.97	0.02
30	11.84	11.85	0.01
29.3	11.78	11.79	0.01
29.2	11.72	11.73	0.01
29.15 **Existing. Rail Bridge**	-	-	-
29.1	11.71	11.71	0.00
29	11.67	11.67	0.00
28.9	11.70	11.70	0.00
28.85 **Proposed Rail Bridge**	-	-	-
28.8	11.69	11.69	0.00
28.7	11.49	11.49	0.00
28	11.35	11.35	0.00
27	11.35	11.35	0.00
26	11.41	11.41	0.00
25	11.20	11.20	0.00

* Due to existing railway bridge

4.1.3 POST-DEVELOPMENT CONDITIONS

The HEC-RAS model was further adjusted to include a proposed Georges River railway bridge, to be located on the downstream side of the existing bridge, as proposed for the Proposal.

Three bridge configurations were modelled, all with triple 1.8m diameter pier sets:

- **Option 1**: a six span bridge with pier sets poorly aligned hydraulically (to simplify design and construction);
- **Option 2**: a six span bridge with pier sets well hydraulically aligned (to limit flood impacts);
- **Option 3**: a five span bridge with pier sets well hydraulically aligned (to limit flood impacts).

The recommended (**Option 2** bridge) is shown in Figure 9 (refer also to design drawings 'Georges River Railway Bridge General Arrangement' Sheets 1 and 2' Dwg No.SKR910/911).

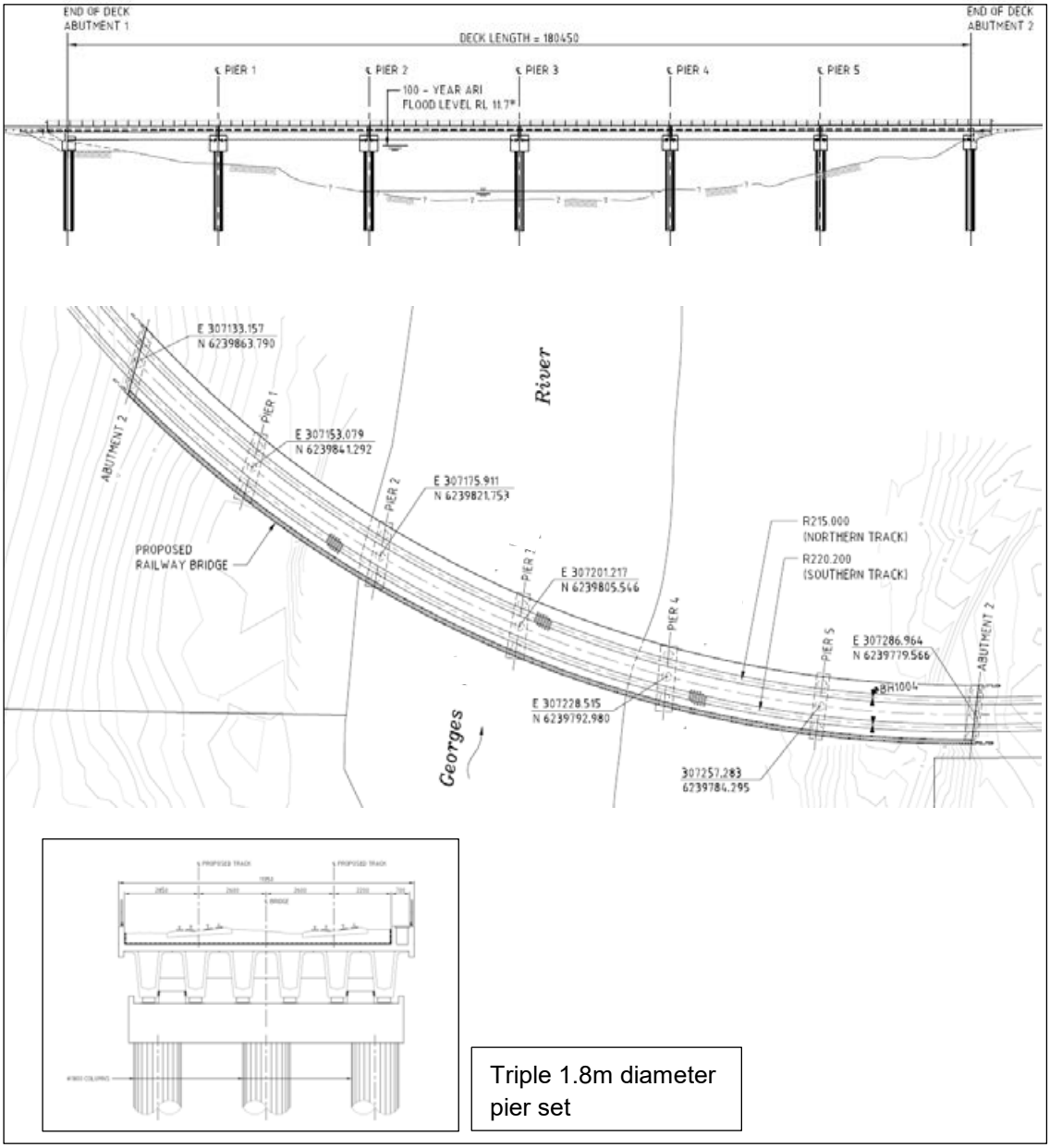


Figure 9 - Six Span Bridge Layout

4.1.4 RESULTS

Table 7 provides a summary of the HEC-RAS results for 100 year ARI water levels along the Georges River for the three bridge options assessed for flood impacts. These results indicate that for 100 year ARI flood events:

- **Option 1**, would introduce an increase in water levels of approximately 70mm upstream of the proposed Georges River railway bridge, reducing to a 40mm increase some 600m upstream, just upstream of the Cambridge Avenue culvert.
- **Option 2**, would introduce an increase in water levels of approximately 30mm upstream of the proposed Georges River railway bridge, reducing to a 10mm increase some 600m upstream, just upstream of the Cambridge Avenue culvert.
- **Option 3**, would result in water level increases of the same order of **Option 2**.

HEC-RAS model details and results are included in Appendix C.

Significantly, a key to minimising hydraulic impacts of the proposed rail bridge upon the Georges River is the design of streamlined bridge piers, discussed in Section 4.1.5). In fact, with well streamlined piers, there would be limited difference in flood impacts whether a six span bridge (as proposed), or a five span bridge were built.

Table 7: Georges River 100 year ARI Flood Levels for Existing & Post Railway Bridge Development

HEC-RAS Section Label	East Hills Railway Existing Bridge only	Inclusive of Proposed Railway Bridge					
		Option 1 - 6 Spans #		Option 2 - 6 Spans #		Option 3 - 5 Spans	
		Flood Level (mAHD)	Flood Level Change* (m)	Flood Level (mAHD)	Flood Level Change* (m)	Flood Level (mAHD)	Flood Level Change* (m)
40	13.22	13.25	**0.03**	13.23	**0.01**	13.23	**0.01**
39	12.94	12.98	**0.04**	12.95	**0.01**	12.95	**0.01**
38	12.95	12.98	**0.03**	12.96	**0.01**	12.96	**0.01**
37	12.79	12.82	**0.03**	12.80	**0.01**	12.80	**0.01**
36	12.66	12.70	**0.04**	12.67	**0.01**	12.67	**0.01**
35	12.66	12.70	**0.04**	12.67	**0.01**	12.67	**0.01**
34	12.25	12.29	**0.04**	12.26	**0.01**	12.26	**0.01**
33.5 **Cambridge Ave culvert**			**-**		**-**		**-**
33	12.14	12.19	**0.05**	12.16	**0.02**	12.16	**0.02**
32	12.04	12.10	**0.06**	12.06	**0.02**	12.06	**0.02**
31	11.97	12.03	**0.06**	11.99	**0.02**	11.99	**0.02**
30	11.85	11.92	**0.07**	11.88	**0.03**	11.88	**0.03**
29.3	11.79	11.86	**0.07**	11.82	**0.03**	11.82	**0.03**
29.2	11.73	11.80	**0.07**	11.76	**0.03**	11.76	**0.03**
29.15 **Existing. Rail Bridge**	-		**-**	-	**-**	-	**-**
29.1	11.71	11.77	**0.06**	11.73	**0.02**	11.73	**0.02**
29	11.67	11.74	**0.07**	11.70	**0.03**	11.70	**0.03**
28.9	11.70	11.76	**0.06**	11.72	**0.02**	11.72	**0.02**
28.85 **Proposed Rail Bridge**	-		**-**	-	**-**	-	**-**
28.8	11.69	11.69	**0.00**	11.69	**0.00**	11.69	**0.00**
28.7	11.49	11.49	**0.00**	11.49	**0.00**	11.49	**0.00**
28	11.35	11.35	**0.00**	11.35	**0.00**	11.35	**0.00**
27	11.35	11.35	**0.00**	11.35	**0.00**	11.35	**0.00**
26	11.41	11.41	**0.00**	11.41	**0.00**	11.41	**0.00**
25	11.20	11.20	**0.00**	11.20	**0.00**	11.20	**0.00**

* Due to proposed railway bridge.

Option 1 hydraulically has poorly aligned piers. **Option 2** has hydraulically well aligned piers

4.1.5 FLOOD MITIGATION MEASURES

Option 2, a six span bridge with pier sets well hydraulically aligned (to limit flood impacts) is the bridge configuration proposed for the Proposal.

In doing so, the following design principles are to be incorporated (shown indicatively in the proposed concept bridge design drawing 'Georges River Railway Bridge General Arrangement Sheet' Dwg No.SKR910 included in Appendix C) during future design stages so as to minimise flooding impacts, and avoid the formation of large-scale turbulence or the erosion of the bed and banks of the waterway.

- The bridge abutments are not to encroach on the existing Georges River waterway area.
- The piers of the Georges River bridge structure are to be hydraulically efficient, i.e. causing minimum disruption to the River flows. This includes piers that are:
  - circular or semi-circular nosed, and
  - oriented parallel to the River flows (which vary in direction across the width of the River). To this end it is recommended that, for future design stages, local two dimensional hydraulic modelling (using say TUFLOW) is carried out to more accurately assess the optimal pier alignments so as to minimise afflux and turbulence.
- The bridge deck structure, including noise/guard rails, is to be no lower than that of the existing railway bridge (immediately south of the Proposal site).

4.1.6 SENSITIVITY ASSESSMENT

A sensitivity assessment was also carried out with 100 year flows increased by 20%. This resulted an increase in 100 year water levels along the modelled length of Georges River varying from approximately 0.3m at the existing rail bridge (immediately south of the Proposal) to 0.6m at Cambridge Avenue under existing conditions.

With the proposed 6 span rail bridge included (with well aligned piers) the incremental flood level increase immediately upstream of the proposed bridge increased by up to 0.01m (compared to 100 year no climate change conditions). This sensitivity assessment is considered representative of potential climate change impacts, being consistent with projected rainfall increases in accordance with the New South Wales Department of Environment and Climate Change (DECC) 'Floodplain Risk Management Guideline Practical Consideration of Climate Change' (October 2007) for Hawkesbury-Nepean catchment.

4.1.7 COMMENTS AND CONCLUSION

With the implementation of the above noted design principles hydraulic impacts, of the proposed rail bridge, upon the Georges River would be minimised.

That said, more accurately determination of optimum pier alignments and potential flood impacts, and quantify bed scour protection requirements, should be carried out in future design stages. Such modelling should incorporate updated survey of the Georges River bathymetry in the vicinity of the proposed bridge, and two dimensional hydraulic modelling of proposed pier impacts.

4.2 PROPOSED RAILWAY FLOODPLAIN CROSSING

Figure 10 indicates a section of the proposed Rail link alignment to be located within the western floodplain of the Georges River.

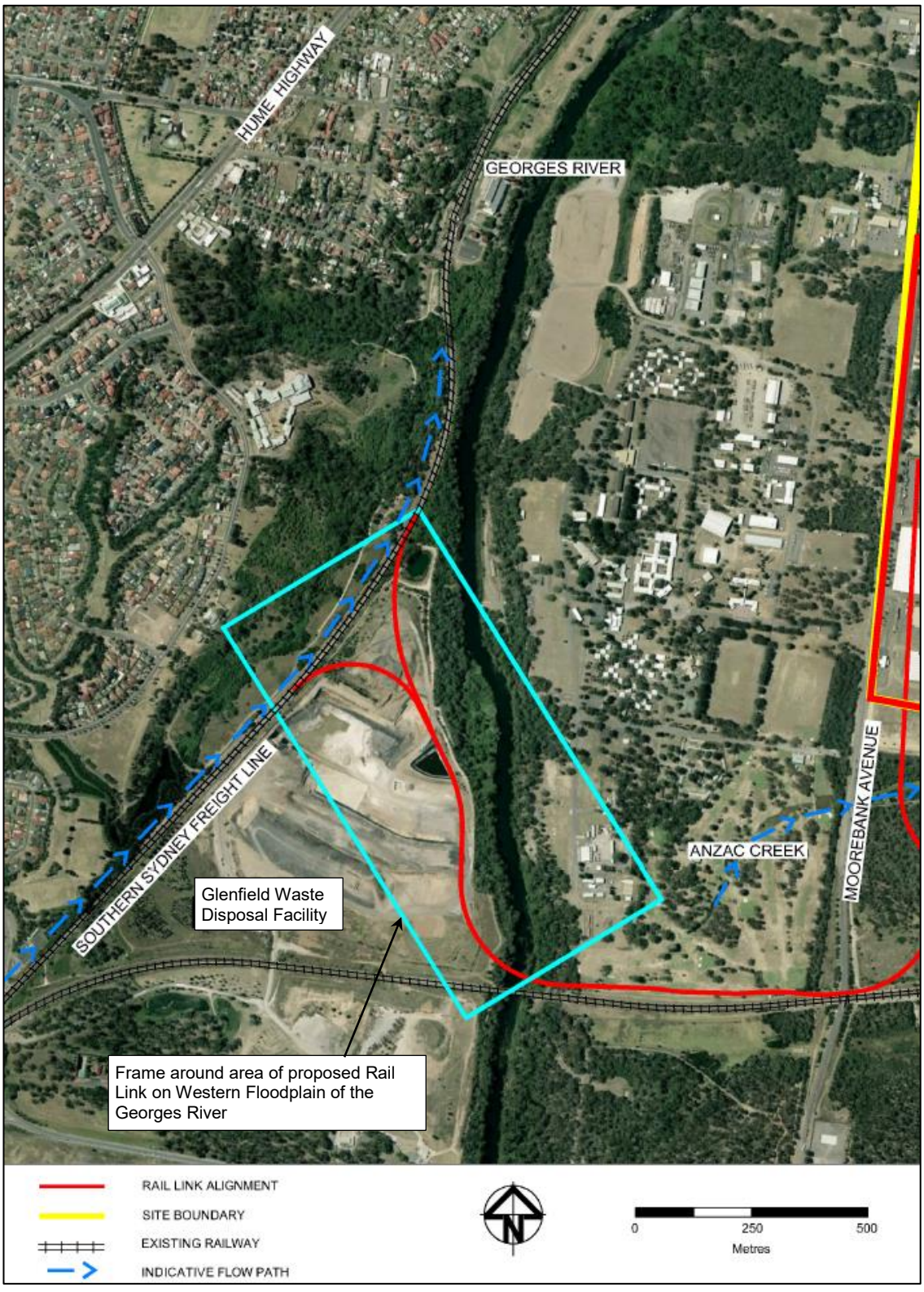


Figure 10 - Proposed Rail Link Alignment on Western Floodplain of the Georges River

Figure 11 shows the George's River floodplain 'flood planning' and flood prone' areas as defined by Liverpool City Council. The flood planning and flood prone areas extend westward, across the overbank of the Georges River and through the existing Glenfield Waste Disposal Facility and quarry.

Ground surveys undertaken by Hard and Forester Pty Ltd in August 2010 and July 2012 have confirmed that the Georges River western top of bank levels are no lower than 11.8 mAHD. This is at least 0.4 m above the Georges River 100 year ARI flood levels in this vicinity, which range from 11.4 mAHD at Mike-11 Section 101.795 (HEC-RAS section 28) to 11.2 mAHD at Mike 11 Section 102.390 (HEC-RAS section 25)(see Figure 8 and Appendix C). As such the Georges River 100 year ARI mainstream flood flows would not extend overbank to the Glenfield Waste Disposal Facility, nor as far west as the proposed Rail link alignment.

In terms of the Georges River PMF, the Mike-11 flood level is 13.9 mAHD at Section 101.795 to 13.3 mAHD at Mike 11 section 102.390. It is noted that the proposed top of rail level in this area would be at approximately 16.0 mAHD. Therefore to avoid adverse flood impacts along the Georges River floodplain (in extreme events larger than the 100 year ARI) as a result of the proposed Rail link, sections of the rail embankment would require a water conveying structure(s) to allow for extreme event flood flows to spread westward across the floodplain, as is currently the case. The necessity for, and sizing of, these structures will be investigated during detailed design.

Also, it appears that under existing conditions, there is little if any catchment runoff impacting on the western side of the proposed railway alignment due to the operations within the Glenfield Waste Disposal Facility. Larger catchment areas to the west of the quarry are cut-off and directed northward to Georges River as indicated in Figure 10.

4.2.1 COMMENTS AND CONCLUSION

The Rail link alignment along the western floodplain of the Georges River would not impact on the 100 year ARI Georges River flooding levels.

To avoid adverse flood impacts along the Georges River floodplain (in extreme events larger than the 100 year ARI), sections of the rail embankment would require a waterway structure(s) to allow for extreme event flood flows to spread westward across the floodplain.

Management of local stormwater runoff from the Rail link itself is discussed in Section 5.2.

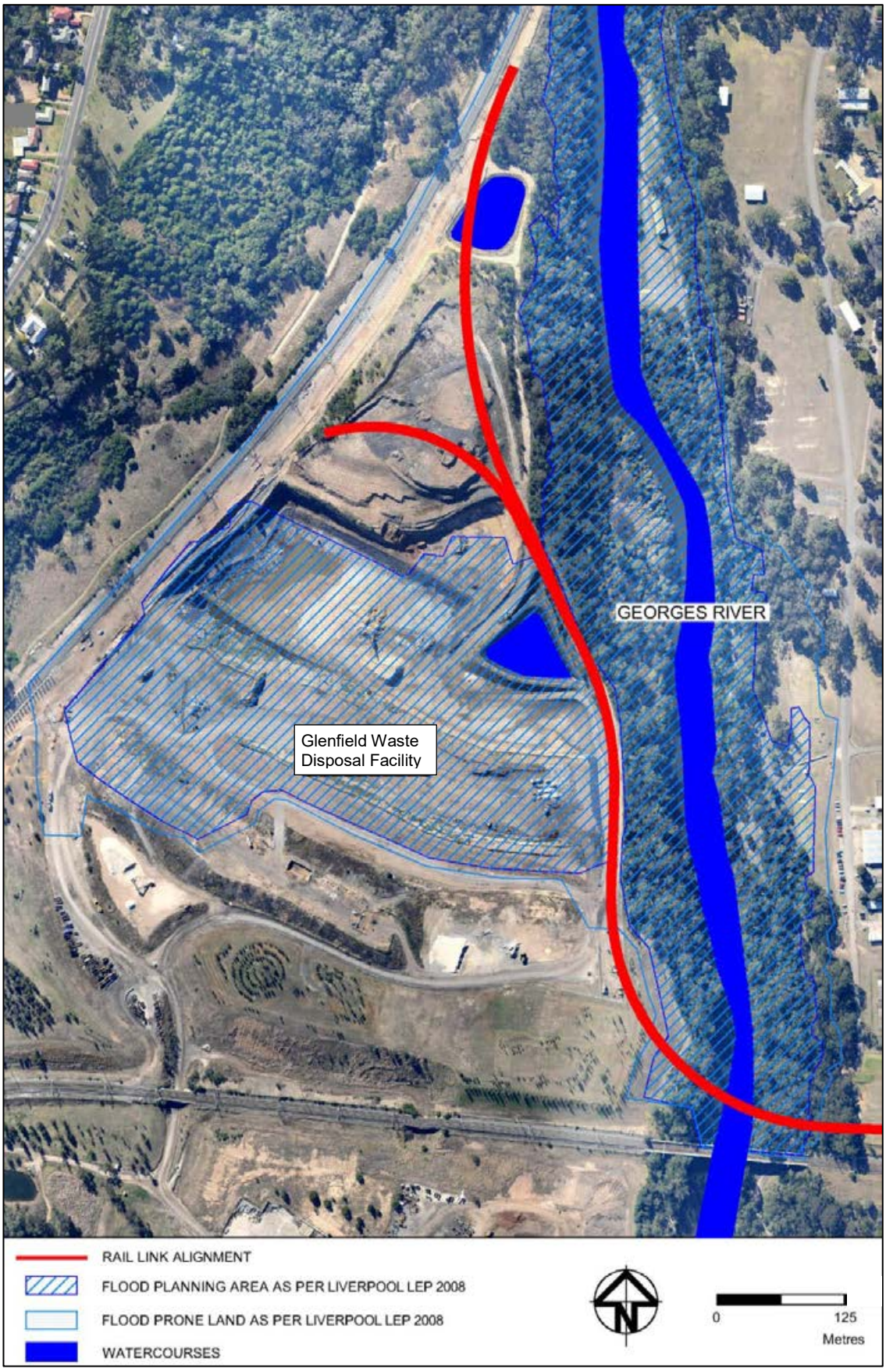


Figure 11 - Liverpool City Council Flood Planning Areas for Existing Catchment Conditions

5 WATER QUANTITY

As shown in Figure 12, the Stage 1 Operational Area is located in the south western corner of the SIMTA site. The proposed Operational Area of the development has the potential to impact upon the existing local area hydrology, Anzac Creek and the Georges River. The potential flood impacts resulting from the Proposal's Stage 1 Operational Area works have been investigated and proposed flooding and stormwater mitigation measures identified in Section 5.1 to minimise adverse impacts. Similarly, commentary on stormwater management and mitigation works for the Rail Link's local embankment drainage is provided in Section 5.2, and for the Construction Phase in Section 5.3. Section 5.4 then turns to the issue of flood emergency response planning.

5.1 OPERATIONAL AREA ANALYSIS AND DESIGN

The methodology used for representing the flow regimes for the Proposal's Stage 1 Operational Area includes use of:

- DRAINS software to develop rainfall runoff models to represent existing and post-development site conditions.
- HEC-RAS software to assess proposed open channel waterways including:
  - along the southern site boundary;
  - along the eastern (and northern) site boundary; and
  - the proposed on-site detention, to be located along the western side of the site.

In demonstrating compliance with the SEARs itemised in Table 1 of this report, the analysis and design includes:

- provision of 10 year ARI minor drainage system capacity for the site in accordance Liverpool City Council's *New south Wales Development Design Specification D5 Stormwater Drainage Design,* January 2003;
- 100 year ARI drainage system depths limited to no greater than 0.2m within the site (excluding open waterways);
- 10 year ARI minor system capacity for the proposed Moorebank Avenue drainage system; and
- mitigation of potential adverse flood impacts that may otherwise result from the Operational Area development by the provision of on-site detention (OSD).

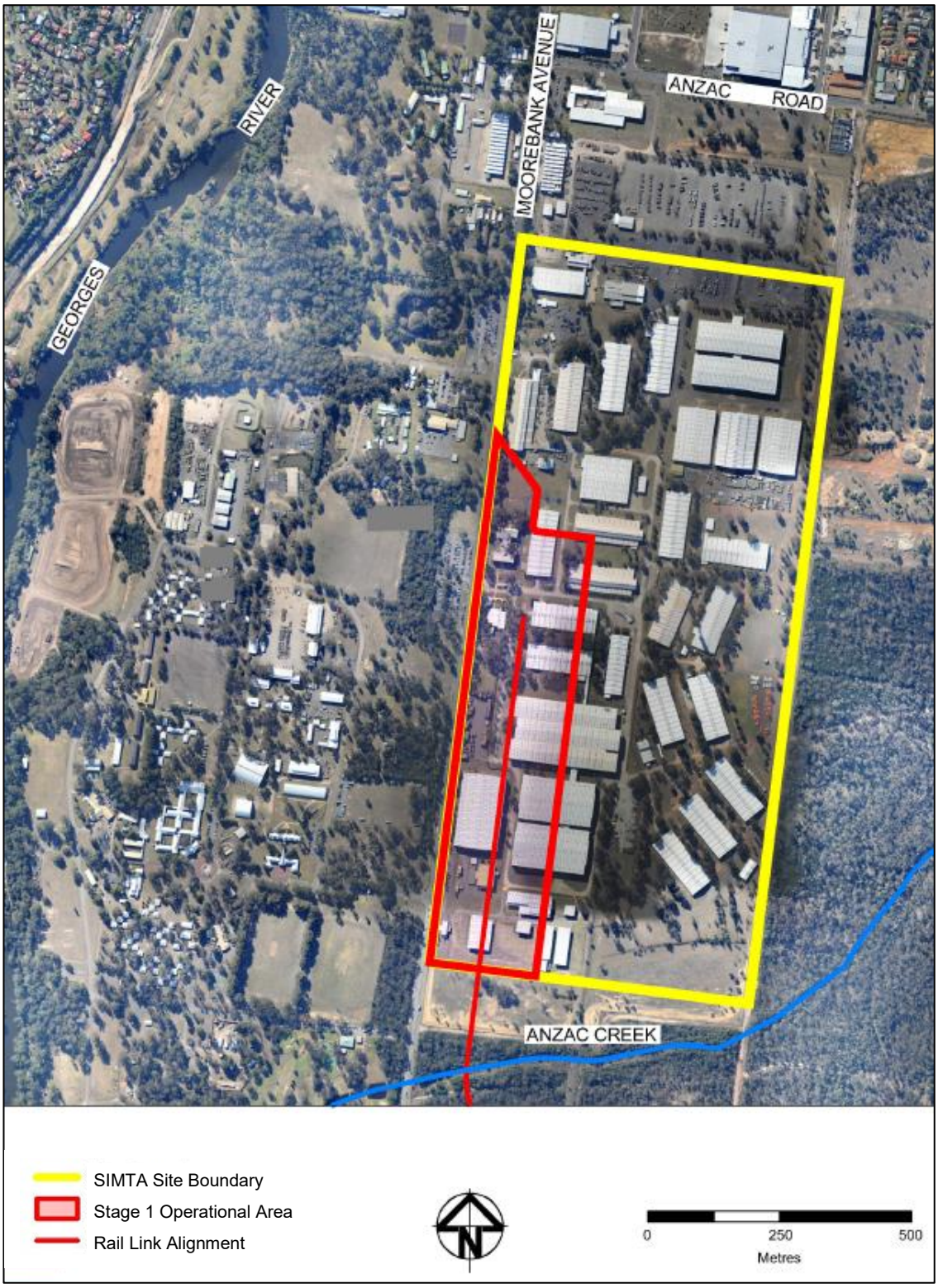


Figure 12 - Stage 1 Operational Area (located within the SIMTA Site)

5.1.1 FLOWS AND STORMWATER

Existing Conditions

DRAINS software has been used to develop rainfall runoff models to represent site flows for existing site and post-development site conditions. The model extents cover the Stage 1 Operational Area portion of the site and neighbouring catchment areas.

The existing conditions catchments and impervious areas have been based on:

- Aerial photography.
- Aerial laser survey for areas external to the site boundary (to the north and west).
- Ground survey for the site, areas to the south, and for specific areas such as details downstream of the site discharge points.
- Site inspection to verify certain surveyed features.

The catchments to Outlet C (see earlier Section 1.1, Figure 3) have been split into further sub-catchments to better represent the distribution of flows over the site, and in particular the Stage 1 Operational Area. A sub-catchment plan that represents the layout adopted for the existing conditions DRAINS model is included in the accompanying design drawings.

The model parameters include:

- Paved area and supplementary area depression storage = 1 mm, and pervious area depression storage = 5mm.
- Soil type = 3.0.
- A fraction impervious (average) for the Stage 1 Operational Area of approximately 60%.

The DRAINS model has been run for storm durations of 5 minute to 24 hours for the 2 year, 10 year, 20 year and 100 year ARIs, and 15 minute to 6 hours for probable maximum precipitation (PMP) events.

A summary of the model input data and outputs for existing conditions is included in Appendix D.

Post-development

The existing conditions DRAINS model was adjusted to represent the post-development site conditions for the Stage 1 Operational Area in accordance with the design drawings attached to this report. The modelling also includes future conceptual development (to the north of the Stage 1 Operational; Area). Model adjustments have included:

- Changes to sub-catchment boundaries. A sub-catchment plan that represents the layout adopted for the proposed conditions DRAINS model is included in the design drawings.
- Adopting a 100% impervious percentage within the Stage 1 Operational Area.
- Reduced flow travel times representative of the proposed development.
- Introduction of stormwater systems to facilitate drainage of the development.
- Detention storage to mitigate potential flow increases.

The DRAINS modelling has involved interfacing with a HEC-RAS model (discussed in the following report Section 5.1.2) to represent the water surface gradient in the proposed on-site detention. Subsequent sizing of site drainage systems that discharge into the on-site detention has allowed for 100 year ARI water levels in the OSD as estimated from the HEC-RAS modelling.

A summary of DRAINS model input data and outputs for post-development conditions is included in Appendix D. The drainage system and detention storage concept layout is included in the accompanying design drawings.

A comparison of DRAINS model existing condition and post-development condition flows at the downstream location of Stage 1 Operational Area is included in Appendix D for a range of durations. This comparison indicates that the proposed detention storage should adequately mitigate potential flow increases (up to the 100 year ARI) leaving the Stage 1 Operational Area.

A summary of the performance of the OSD storage is provided Table 8. A comparison of the peak Operational Area site discharges is included in Table 9.

Table 8: Detention Storage Performance Summary

Average Recurrence Interval (year)	Storage		
	Inflow (m^3/s)	Outflow (m^3/s)	Water Level (mAHD)
10	4.8	1.8	15.1
100	6.4	2.3	15.3
PMF	-	-	16.1*

Storage parameters and outlet configuration are included in Appendix D.
* Assumes OSD spills at 16.0mAHD along wall length of approx. 850m.

Table 9: Summary of Peak Discharges at Stage 1 Operational Area Downstream Boundary

Average Recurrence Interval (year)	Discharge (m^3/s)	
	Existing Conditions (Existing Channel)	Post Development Conditions (FChannel 1)
10	6.4	4.1
100	9.4	5.8
PMF	46	27

( ) Indicated DRAINS model reference

Future SIMTA Staging

The post development model of Stage 1 Operational Area has been extended to the northern boundary of the SIMTA site assuming:

- the Georges River total sub-catchment area within the SIMTA site remains as for existing conditions;
- 100% impervious development; and
- OSD storage, represented in concept, to facilitate OSD water level representation in the Stage 1 Operational Area under future SIMTA site development. The OSD configuration north of the Stage 1 Operational Area has been assumed to be similar in shape to that outlined in the accompanying design drawings for the Stage 1 Operational Area.

This future conditions ('All Stages Scenario') DRAINS modelling has been used to generate 100 year ARI flow inputs for HEC-RAS modelling of water surface levels in the OSD, discussed in Section 5.1.2).

5.1.2 OPEN WATERWAYS

Open waterway modelling has incorporated culvert and terrain survey information carried out within the Stage 1 Operational Area and its immediate surrounds by Hard and Forester Pty Ltd (August 2010 and July 2012). For areas beyond the extent of ground survey, aerial laser survey by AAM Hatch (May 2008) has been adopted where necessary.

To facilitate assessment and design of the Stage 1 Operational Area stormwater management, the following within site open waterways (indicated in the accompanying design drawings) have been formally modelled, the:

- existing channel along the western SIMTA site boundary;
- proposed OSD adjacent to the western Stage 1 boundary, to determine the water surface gradient along its length;
- proposed waterway along the southern Stage 1 Operational Area boundary; and
- proposed waterway along the eastern (and northern) Stage 1 Operational Area boundaries.

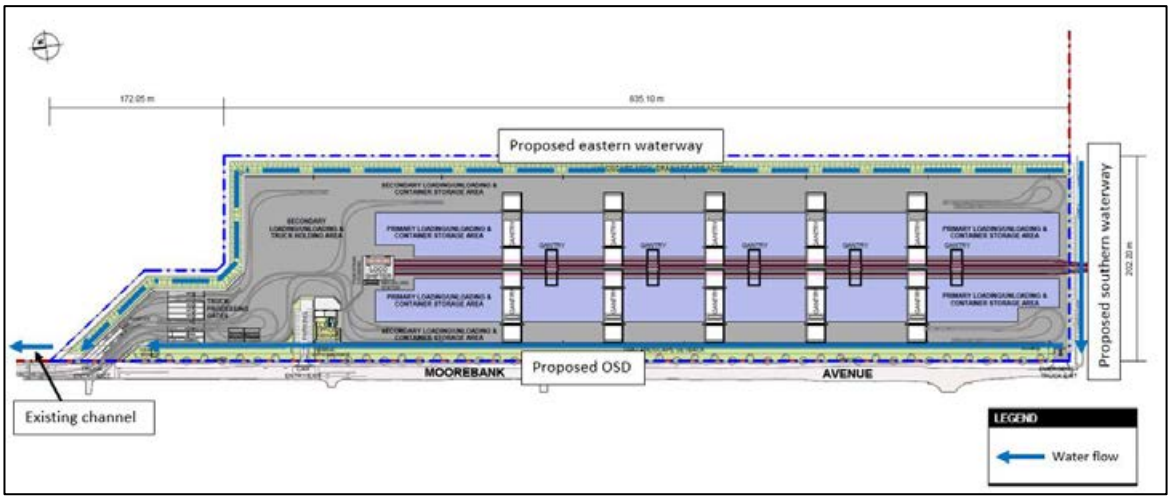


Figure 13: Location of Stage 1 Operational Area Waterways

Flows quantified in the DRAINS modelling have been incorporated into each of the waterways to determine their configurations, flow regimes and water levels. Channel assessments details are discussed as follows.

Existing Conditions

The TUFLOW model developed for the Concept Plan report provided 100 year ARI water levels along the main north western waterway within the SIMTA site (in Appendix G of that August 2011 report). This water level information has been used to facilitate the on-site detention analysis and design for the Stage 1 Operational Area, and in considering ultimate final development of the SIMTA site.

Post-development

OSD Waterway

HEC-RAS modelling of the proposed OSD waterway has been carried out to estimate the water surface gradient along the OSD for a concept All Stages Scenario (which, if configured similar to the Operational Area OSD, may have higher water levels than under the Stage 1 development due to its greater length and inflows).

This All Stages Scenario development assessment assumes:

- flows to the existing northern outlet under Moorebank Avenue would be limited to no greater than for existing conditions;
- the catchment area managed by the OSD would be as for existing conditions (limited to the Georges River catchment area of approximately 35.7ha within the SIMTA site).
- the OSD configuration would be similar to that currently proposed for the Stage 1 Operational Area, subject to adequate flow mitigation performance.

HEC-RAS model input and output details are included in Appendix E.

The model results indicate that water surface gradient along the OSD waterway may have a water surface gradient of the order of 0.3m along its length (approximately 1.3km) in a 100 year ARI event.

This water surface gradient has been taken into account for the initial sizing of the Stage 1 Operational Area drainage systems (discharging into the OSD) to have tailwater levels of 15.7mAHD (to achieve 10 year minor, and 100 year major capacities, as discussed in Section 5.1 above). The potential water surface gradient has also be taken into consideration with respect to achieving a minimum freeboard of 0.3m along the channel walls.

It is however acknowledged that the future OSD to the north of the Stage 1 Operational Area could be provided with alternative configurations of the current stage 1 OSD channel (although potentially requiring more land-take) that may reduce the estimated water surface gradient.

Southern Waterway

Catchment runoff from neighbouring areas along the southern Stage 1 Operational Area boundary are proposed to be managed by an open waterway adjacent to the Stage 1 Operational Area site as indicated in the accompanying design drawings. This waterway extends westward to discharge into the proposed Moorebank Avenue drainage system, and includes a culvert (3, 1.5m(w) x 0.6m(h) reinforced concrete box culverts (RCBCs), assessed with 50% blockage) under the proposed Rail link, immediately south of the Stage 1 site.

Model input and output details for this waterway is included in Appendix E.

Because of the flat gradients along this proposed channel it will be necessary to prevent nuisance ponding by providing an effective soak away/subsoil conveyance system as outlined in the accompanying design drawings.

Eastern Waterway

HEC-RAS modelling of the waterway along the eastern boundary and northern boundaries of the Stage 1 Operational Area demonstrates its adequacy to convey flows (up to a 100 year ARI) from the neighbouring existing conditions sub-catchment areas of the Georges River located to the east of the Stage 1 Operational Area works, (including the proposed 12m wide corridor of landscaping, drainage and fire access road along the eastern and northern extents of the Stage 1 Operational Area).

Concept channel details are provided in the accompanying design drawings and HEC-RAS model input and output details for this waterway is included in Appendix E.

5.1.3 SENSITIVITY ASSESSMENTS

A sensitivity assessment was also carried out with 100 year rainfall intensities increased by 20%. This resulted in an increase in 100 year water levels of approximately 0.1m in the OSD (compared to a 100 year event). This sensitivity assessment is considered representative of potential climate change impacts, being consistent with projected rainfall increases in

accordance with the New South Wales Department of Environment and Climate Change (DECC) 'Floodplain Risk Management Guideline Practical Consideration of Climate Change' (October 2007) for Hawkesbury-Nepean catchment.

A sensitivity assessment of increasing the OSD channel roughness from n=0.04 to n=0.05, within the 2m deep width of channel increased 100 year ARI flood levels by up to 0.01m along its length.

5.1.4 COMMENTS AND CONCLUSION

The DRAINS and HEC-RAS modelling results indicate that the proposed drainage systems and OSD can provide adequate system capacities and mitigate potential adverse flood impacts that may otherwise result from the Stage 1 Operational Area works. However it should be noted that there are several design issues and potential refinements (itemised below) that should be taken into consideration for future design detailing so as to be consistent with the stormwater management proposed in this report and the accompanying design drawings.

Pavement Grades

There are varying and alternative pavements and associated drainage configurations, however a key consideration is the surface grading. To minimise local ponding and breakdown of pavement areas minimum grades are necessary across the Stage 1 Operational Area. For concrete pavements 1% minimum grading is recommended. For pavers and bitumen surfaces, 2% minimum grading, and if gravel surfacing (sometimes suitable in say container areas) horizontal grading has proven adequate.

While steeper than the minimum grades may further limit potential water damage to pavements, the above noted minimum grades limit the potential damage to container units in the handling and operation processes (*UNCTAD Monographs on Port Management 5 Container Terminal Pavement Management,* United Nations, 1996, p53).

On-site detention (OSD) Configuration

Design of the OSD also allows for alternative configurations with respect to landscaping and OSD form (than simply the vertical sided walls indicated on the accompanying design drawings). That said, it should be noted that:

1. Batter slopes of landscape storage systems that would comply with Liverpool City Council (LCC) requirements are 1(V):4(H) (*OSD Stormwater Detention Technical Specification*, LCC, January 2003), noting that basin side slopes should be 'preferably no steeper than 1 in 6 to allow easy egress' (*Development Design Specification D5 Stormwater Drainage Design*, LCC, January 2003)
2. Trees are not to be planted on basin embankments (*Development Design Specification D5 Stormwater Drainage Design*, LCC, January 2003), with trees to located away from the toe of batters.
3. A minimum freeboard of 0.3m above the 100 year water level is necessary.
4. Spillway to manage greater than 100 year ARI events should be located at the northern extent of the OSD to minimise impacts on Moorebank Avenue.

Moorebank Avenue Drainage

Under existing conditions Moorebank Avenue rainfall runoff is served by an open channel system that extends from the southern end of the SIMTA site northward for approximately 1.3km to twin box culverts which convey flows westward under Moorebank Avenue (as outlined

in the accompanying design drawings). This 1.3km length of channel has a very flat grade of 0.2%. From the Moorebank Avenue culverts, flows continue westward in an open channel system for approximately another 1.2km before discharging into the Georges River.

The proposed Moorebank Avenue drainage system is a series of surface runoff capture swales. These swales are to be typically graded at 0.5%, and discharge into a proposed underground conduit system approximately 0.8km in length (extending northward from the southern Stage 1 Operational Area (SIMTA) site boundary before discharging into the existing open channel system. This existing system continues northward to an existing culvert under Moorebank Avenue). The proposed underground conduit system retains a 0.2% grade (similar to the existing drainage system). Minimum velocities in the proposed conduit system are likely to be somewhat less than the desirable minimum velocity of 0.6m/s for self-cleansing, particularly at its downstream where backwater effects from the existing system may slow velocities. That said, silting and sedimentation build-up impacts will be limited by the relatively large culvert sizing, which will also assist maintenance and flushing when necessary.

Works Outside of Site

Landholder consent and approval is currently being sought to carryout out works for the Proposal in the Moorebank Avenue corridor and in the neighbouring areas to the south of the Stage 1 Operational Area, as indicated in the accompany design drawings.

Alternative design options may be to carry out works within the Stage 1 Operational Area. With respect to drainage, which are the primary works within the two neighbouring areas, similar system capacities and waterway areas would be required to adequately manage projected runoff and flows.

5.2 RAIL LINK

The stormwater management of Rail link cross drainage (under the proposed rail embankments) and longitudinal drainage (located along the toe of proposed embankments) is outlined in the accompanying design drawings which indicate proposed scour protection measures and water systems to mitigate potential adverse drainage impacts on existing systems and areas. A description of the proposed drainage is as follows.

East of Moorebank Avenue

This length of Rail link is proposed to be a raised rail embankment except for a short length through an existing fill area (immediately west of Moorebank Avenue) where the rail will be in cut.

Along the embankment length it is proposed to mitigate potential adverse environment impacts, with respect to drainage, by providing scour protection along the toe of the rail embankments to retain existing flow path conditions on the Anzac Creek floodplain.

In the existing fill area (where the rail will be in cut), cut-off embankments are proposed along the top of the cut. Within the cut corridor, the maintenance access zone will facilitate drainage.

Immediately south of the existing fill is a low point (between the fill area and Moorebank Avenue) where local runoff is proposed to be collected by a cross drainage system to convey flow under the proposed rail embankment and discharge into the open channel which serves the local runoff area and existing East Hills Rail Line.

Moorebank Avenue to Georges River

Immediately west of Moorebank Avenue there is an existing culvert which captures and conveys local catchment runoff under the existing East Hills Rail Line embankment in a southerly

direction. To maintain this flow conveyance, it is proposed to provide a new culvert under the proposed Rail link as indicated in the accompanying design drawings.

Further to the west, the Rail link is proposed to transition from being a raised embankment formation to being in cut, so as to grade down to the proposed Georges River bridge crossing. The cut formation diverts a catchment area of about 0.6ha for the upper reaches of Anzac Creek more directly to the Georges River near the proposed rail bridge rather than via Anzac Creek (which itself discharges to the Georges River about 6km downstream of the proposed rail bridge). The runoff generated from the 0.6ha area would be approximately $0.3m^3/s$ in a 100 year event, and hence negligible compared with the 100 year Georges River flow of some $1880m^3/s$.

With respect to the local stormwater management of the Rail Link flows in this area, it is proposed to provide scour protection/energy dissipation and flow distribution to protect the steep areas that grade down to the bridge abutment area and Georges River, and if necessary (to accommodate the minor flow increases) local stormwater system upgrading as indicated in the accompanying design drawings.

Georges River Bridge

Stormwater runoff from the bridge deck is proposed to be collected and conveyed via a suspended pipe system between the bridge girders to each abutment, then discharged into the river

West of Georges River

Immediately west of Georges River it is proposed to provide scour protection and energy dissipation either side of the rail embankment along the steep areas that are to convey flows to the Georges River.

Further west, the Rail link, as shown in the rail drawings by AECOM (2015c) between approximately ch40340 and ch39340, is located within the existing Glenfield Waste Disposal Facility. As such, the stormwater management strategy for this section of the Rail link area is to maintain the discharging of runoff into the Waste Disposal Facility, enabling flows to be managed in accordance with the Waste Disposal Facility's Environmental Protection License. However, a northern portion of the Waste Disposal Facility (as indicated in the accompanying design drawings) currently discharges to the Georges River. As such a culvert cross drainage system is proposed to convey runoff, from this northern area of the Waste Disposal Facility, under the Rail link then via an energy dissipater and scour protection system to the Georges River.

5.3 CONSTRUCTION PHASE

Care will be required on all areas of the Stage 1 Operational Area and associated Proposal areas during the construction phase to avoid potential adverse flood impacts on neighbouring property. Flood mitigation measures necessary to maintain existing condition flow regimes and distributions leaving the Construction Areas (so as to maintain runoff to no greater than for existing conditions) should include such alternatives as:

- maintaining existing site catchment/sub-catchment boundaries;
- limiting site imperviousness and grades to no greater than under existing development conditions;
- provision of OSD.

Furthermore, flood emergency response plans (FERPs) will be necessary for each of the Proposal areas as discussed in Section 5.4.

5.4 FLOOD EMERGENCY RESPONSE PLANS

Part of the approach to the overall stormwater management for the Proposal is the consideration of evacuation and refuge. For this reason site conditions during a probable maximum flood (PMF) is to be considered.

It will be necessary for the operator to develop FERPs for each stage of the Proposal taking into consideration, site flooding and broader flood emergency response plans for the Georges River and Anzac Creek floodplains, and Moorebank area.

For areas impacted by Georges River flooding, flood warning may be available, and FERPs could be quite different in terms of flood readiness, evacuation and recovery, than for say the Stage 1 Operational Area.

5.4.1 STAGE 1 OPERATIONAL AREA

The TUFLOW site model results for Anzac Creek (see Appendix B) indicates that the southern portion of the SIMTA site is impacted by regional flooding under existing conditions, and that proposed filling will raise the Stage 1 Operational Area above the regional PMF levels. However, areas not impacted by regional flooding can still be affected by local PMF flow regimes.

The Stage 1 Operational Area is located within upper catchment areas and, as recognised in the NSW Floodplain Management Manual (April 2005, Section L6.2), there would be little if any available warning time for people to undertake action. As such, in developing an evacuation and refuge plan, it should include safe refuge within the site (above PMF flood levels) until hazardous flows have subsided and safe evacuation is possible.

5.4.2 RAIL LINK

While the Rail Link beyond the Stage 1 Operational Area has top of rail levels above the PMF levels, consideration of evacuation, refuge and recovery, and hence FERP(s) will need to be formalised.

6 WATER QUALITY

6.1 OBJECTIVES AND PERFORMANCE TARGETS

The stormwater quality objectives and performance targets for the Proposal have been derived from the following key documents.

- ***Liverpool Development Control Plan 2008*** (Liverpool City Council, 12 November 2014) – provides general objectives and controls that apply to development within Liverpool LGA.
- ***Georges River Estuary Coastal Zone Management Plan*** (Georges River Combined Council's Committee, July 2013) – provides objectives and targets specifically for the Georges River Estuary and its catchment.
- ***SEARs for SIMTA Intermodal Terminal Facility – Stage 1 SSD*** (NSW Planning & Environment, December 2014) – provides specific environmental assessment requirements and objectives for the Proposal.

6.1.1 OBJECTIVES

The key objectives for stormwater quality management for the Proposal include:

- Maintain or improve existing water quality.
- To protect the aquatic environment of the downstream waterways including the Georges River.
- Prevent bed and bank erosion and instability of waterways.
- Provide sufficient flows to support aquatic environments and ecological processes.
- Incorporate a Water Sensitive Urban Design (WSUD) approach.

6.1.2 PERFORMANCE TARGETS

Water quality performance targets for the Proposal have been derived from the key documents identified previously and are summarised in Table 10.

Table 10: Water Quality Performance Targets

	Liverpool DCP 2008	Georges River Estuary CZMP 2013	SEARs December 2014, (Item 9. h)
Total Suspended Solids (TSS)	80%	**85%**	**NorBE**
Total Phosphorus (TP)	45%	**60%**	**NorBE**
Total Nitrogen (TN)	45%	**45%**	**NorBE**
Gross Pollutants (GP)	90%	**90%**	**NorBE**

Table Key:
- *Percentage (%) values are the pollutant reduction targets relative to post development pollutant loads without any treatment*
- *NorBE = Neutral or Beneficial Effect (ie. 'maintain or improve existing water quality' as required by the SEARs)*
- **Bold** values are the adopted targets

While the percentage reduction targets contained in Georges River Estuary CZMP are more stringent that the targets contained in Liverpool DCP 2008, given that they have been developed specifically for the Georges River catchment it is considered appropriate to adopt these for the SIMTA Stage 1 Operational Area. In addition to these percentage reduction targets, the SEARs require existing water quality to be maintained or improved (ie. 'NorBE' / Neutral or Beneficial Effect). Whether NorBE is more stringent than the percentage reduction targets depends on the existing water quality conditions and it is considered appropriate to check the performance of the proposed WSUD strategy against both targets. Therefore, both the Georges River Estuary CZMP percentage reduction and NorBE targets have been adopted for the site.

For the Rail link, where pollutant loads in stormwater runoff are expected to be low and therefore have no measurable impact on water quality, hence no quantitative treatment targets have been adopted. Pollutant generation is likely to be limited to small sediment loads and therefore treatment measures which target sediment removal, such as vegetated swales, are proposed to be implemented where feasible.

It should also be noted that the percentage reduction targets are considered applicable to the Stage 1 Operational Area of the SIMTA site, but should not necessarily be applied to the remainder of the SIMTA site. Where significant roof areas are proposed (only small roof areas are proposed in Stage 1), it is considered inappropriate to apply percentage reduction targets due to the significant difficulties (and appropriateness of treating relatively clean water to achieve these targets. In these cases the adoption of the NorBE target on its own is considered appropriate.

6.2 PROPOSED STORMWATER QUALITY MEASURES

To address potential impacts on stormwater quality, WSUD principles and a treatment train approach have been applied. Two key treatment measures are proposed for the Stage 1 Operational Area to meet the performance targets:

1. Gross Pollutant Traps (GPTs)
2. Rain gardens (Bioretention systems).

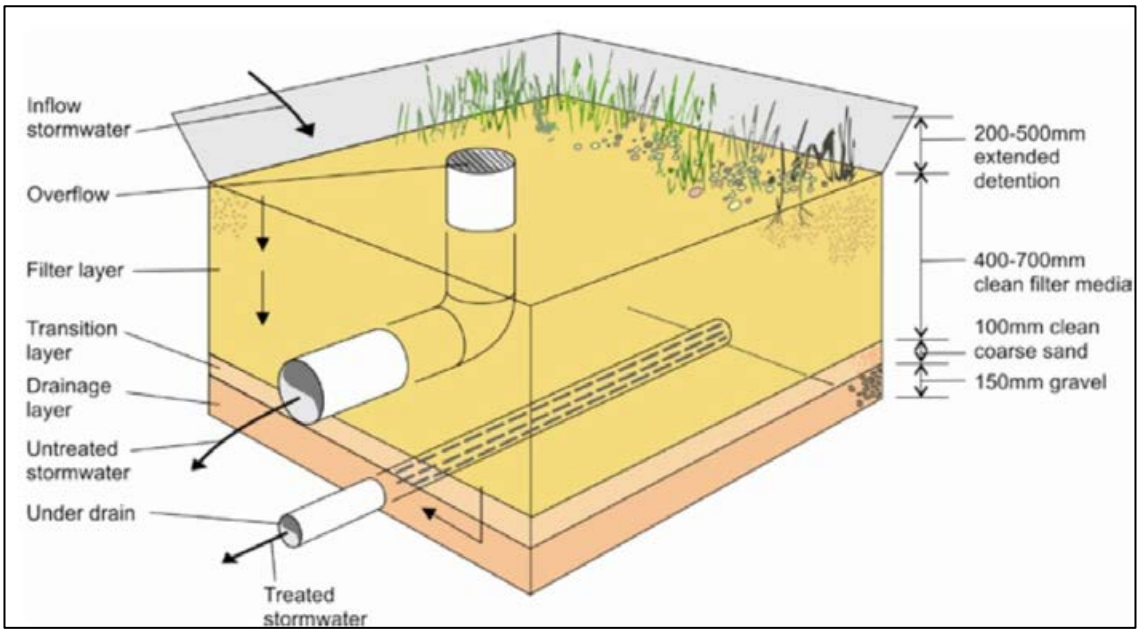
Gross Pollutant Traps

Gross pollutant traps (GPTs) are primary stormwater treatment measures, typically applied as the first measure in a stormwater treatment train. GPTs come in varying forms from simple trash racks through to more complex devices with continuous deflection screens and hydrodynamic separation.

The performance of GPTs varies according to the type of device selected. In this case, a device has been selected with continuous deflection screens and hydrodynamic separation to target the removal of a significant proportion of the Total Suspended Solid (TSS) load. Removal of TSS is important for protecting and minimising maintenance of downstream treatment devices such as rain gardens which are sensitive to high TSS loads.

Rain Gardens

Rain gardens are bioretention systems that comprise a combination of vegetation and filter substrate (refer Figure 14). They provide treatment of stormwater through the processes of settling, filtration and biological uptake and are very effective in the removal of fine sediments and nutrients. Rain gardens are proposed in the base of the OSD basin/channel (refer Section 5).



Source: Using MUSIC in Sydney's Drinking Water Catchment (Sydney Catchment Authority, December 2012)

Figure 14: Typical Rain Garden Concept

In general, rain gardens are lined to protect adjacent structures or if there are known salinity hazards. The SIMTA site is located in an area of 'moderate salinity potential' as defined by the 'Salinity Potential in Western Sydney 2002' map distributed by the NSW Office of Environment and Heritage (OEH). This salinity classification in itself does not mean the proposed rain gardens need to be lined, however the site's soils are predominantly clays and sandy clays which are associated with shrinkage and differential settlement. Lining of the rain gardens will therefore be required when located adjacent to footings of structures such as retaining walls and buildings.

6.3 ASSESSMENT METHODOLOGY

Assessment of the performance of the proposed stormwater quality measures has been undertaken using the Model for Urban Stormwater Improvement Conceptualisation (MUSIC V6.1).

A MUSIC model for the Stage 1 Operational Area has been developed by applying the land uses and imperviousness values for existing and proposed conditions included in Table 11. The MUSIC model layout and other key modelling parameters are included in Appendix F.

Table 11: Stage 1 Operational Area Land Use Areas and Imperviousness

Land use	Existing		Proposed	
	Area (ha)	Imperviousness (%)	Area (ha)	Imperviousness (%)
Roof	5.5	100	0.1	100
Road	2.8	100	8.1	100
Stacking Area	-	-	5.8	100
Other	6.1	5	0.4	0

6.4 RESULTS AND COMMENTS

Based on the proposed stormwater quality measures the performance of the treatment measures included in the Stage 1 Operational Area are presented in Table 12 and Table 13 relative to percentage reduction and NorBE targets respectively.

Table 12: Treatment Performance Relative to Percentage Reduction Targets

Scenario	Pollutant Loads (kg/year)			
	Gross pollutants	TSS	TP	TN
Proposed (no treatment)*	3170	32,000	54	279
Proposed (with treatment)*	28	2,440	9	117
% Reduction Achieved	99	92	83	58
% Reduction Targets	*90*	*85*	*60*	*45*

** Node: "Receiving Node", Model: AA003760_Moorebank_MUSIC6_Stage1EIS_Dev_20150217.sqz*

Table 13: Treatment Performance Relative to NorBE Targets

Scenario	Pollutant Loads (kg/year)			
	Gross pollutants	TSS	TP	TN
Existing[#]	2,010	11,300	25	187
Proposed (with treatment)[+]	28	2,440	9	117
Reduction Achieved	1,982	8,860	16	70

[#] *Node: "Receiving Node", Model: AA003760_Moorebank_MUSIC6_Stage1EIS_Exg_20150217.sqz*

[+] *Node: "Receiving Node", Model: AA003760_Moorebank_MUSIC6_Stage1EIS_Dev_20150217.sqz*

In summary, the water quality assessment has demonstrated that the performance of the proposed treatment measures (i.e. GPTs and rain gardens) complies with the catchment specific targets of the Georges River Estuary CZMP and also the site specific targets contained in the SEARs.

6.5 CONSTRUCTION

The SEARs for the Proposal include a requirement to undertake an assessment of surface water quality during construction, identify works that may impact water quality and provide a summary of proposed mitigation measures.

This section should be read in conjunction with accompanying design drawings.

6.5.1 PROPOSED WORKS

Section 1.4 provides a summary of the construction works for the Stage 1 Proposal. While all construction activities have the potential to impact on water quality, the key activities are:

- vegetation clearing and demolition works;
- bulk earthworks;
- Georges River Bridge construction;
- stormwater and drainage works.

6.5.2 EROSION AND SEDIMENT CONTROLS

Without any mitigation measures and during typical construction activities, site runoff would be expected to convey a significant sediment load. A Soil and Water Management Plan (SWMP) and Erosion and Sediment Control Plan (ESCP), or equivalent, would be implemented for the construction of the Proposal. The SWMP and ESCPs would be developed in accordance with the principles and requirements of *Managing Urban Stormwater – Soils & Construction Volume 1 ('Blue Book')*(Landcom, 2004) and *Volume 2* (DECC 2008).

In accordance with the principles included in the Blue Book, a number of controls have been incorporated into a preliminary ESCP (refer to accompanying Drawings).

The proposed controls include:

Sediment Basins

Sediment basins have been sized and located to ensure sediment concentrations in site runoff are within acceptable limits. Preliminary basin sizes have been calculated in accordance with the *Blue Book* and are based on Berkshire Park Group soils ('Type F'). These soils are fine grained and require a relatively long residence time to allow settling.

As the majority of the Stage 1 Operational Area site drains to the west, the sediment basins have been located generally along the western boundary of the site in the proposed drainage channel. An additional basin is proposed at the northern end of the Eastern Swale to treat any flows that may discharge to the east.

Within the Rail link area, sediment basins are proposed at key discharge points from the site.

Sediment basins for 'Type F' soils are typically wet basins which are pumped out following a rainfall event when suspended solids concentrations of less than 50 mg/L have been achieved.

Sediment Fences

Sediment fences are located around the perimeter of the site to ensure no untreated runoff leaves the site. They have also been located around the existing and proposed drainage channels to minimise sediment migration into waterways and sediment basins.

Stabilised Site Access and Truck Washdown

For the Stage 1 Operational Area, a stabilised site access and truck washdown area is proposed at a single access point on Moorebank Avenue, at the northern end of the site. This will limit the risk of sediment being transported onto Moorebank Avenue and other public roads.

For the Rail link area, access will be required at a number of locations where stabilised site access and truck washdown areas will be provided.

Georges River Bridge Controls

During construction of the Georges River Bridge the Principal Contractor would develop a Project Specific Procedure (PSP), or equivalent, that would specify how works within and adjacent to the river would be managed to minimise environmental impacts. The PSP would specify the following measures:

- Works across the bed of the Georges River would be staged to minimise the total disturbance at any given time and to allow the full bypassing of stream flows around the works to maintain fish passage.
- Scour protection works around piers, along creek banks and on bridge abutments should be installed as early as possible.
- Measures to contain potential pollutants should be installed in-stream, such as silt curtains to contain sediment.
- Material for the formation of piling platforms must be clean material with minimal fines.
- Measures to manage runoff from the bridge approaches / abutments must be established as early as possible.
- Management measures identified in the PSP would be developed to address the requirements for high erosion hazard sites, in accordance with the requirements of the Blue Book.

Anzac Creek Controls

The following management measures would be implemented during works in and adjacent to Anzac Creek to mitigate potential impacts on water quality during construction:

- All reasonable efforts would be taken to program construction activities during those periods when flood flows and fish passage is not likely to occur.
- Temporary side-track crossings would be constructed from clean fill (free of fines) using pipe or box culvert cells to carry flows, or a temporary bridge structure.
- All temporary works, flow diversion barriers and in-stream sediment control barriers would be removed as soon as practicable and in a manner that does not promote future channel erosion.
- The construction site would be left in a condition that promotes native revegetation.
- The management principles outlined in the Blue Book for sites with high erosion potential would be implemented.

Other Management Measures

Other management measures that will be employed are expected to include:

- minimising the extent of disturbed areas across the site at any one time;
- progressive stabilisation of disturbed areas once earthworks are complete;
- regular monitoring and implementation of remedial works to maintain the efficiency of all controls.

It is noted that the controls included in the preliminary ESCP are expected to be reviewed and updated in accordance with the Preliminary Construction Environmental Management Plan (CEMP)(Hyder Consulting, 2015) as the design, staging and construction methodology is further developed for the Proposal.

7 SITE WATER BALANCE

7.1 OBJECTIVES

The objective of the site water balance is to identify any potential impacts on surface water and groundwater resources and assess management options where appropriate. This is in accordance with the SEARs items 9. c, d and e (refer Table 1).

The site water balance focuses on the Stage 1 Operational Area. With respect to the Rail link, under existing conditions the area is essentially 100% pervious. Under proposed development conditions, the Rail link area will effectively remain 100% pervious, noting that the proposed rail bridge over the Georges River will runoff into the River, and the proposed rail structure located within the existing Glenfield Waste Disposal Facility is an area that will continue to discharge into the Waste Disposal Facility, enabling flows to be managed in accordance with the Waste Disposal Facility's Environmental Protection License.

7.2 METHODOLOGY

Given that rainfall-runoff processes dominate the water balance for the site, a site water balance model was established using MUSIC (the same model used to assess water quality impacts, refer Section 6) for both existing and proposed conditions. MUSIC enables a continuous simulation of rainfall-runoff processes to be undertaken for a long time period. In this case, a 10 year period of rainfall was selected which includes a range of rainfall depths across both wet and dry years.

Other components of the site water balance include potable water supply from Sydney Water and wastewater discharge to sewer, although the volumes associated with these are relatively minor and have not been assessed in detail.

7.3 WATER DEMAND & WASTEWATER GENERATION

The water demands for the Stage 1 Operational Area are small relative to the size of the development and are largely associated with the terminal management office. The demands have been estimated by AECOM, the services infrastructure consultant for this project, to be approximately 410 kL / year . This is proposed to be supplied from Sydney Water's potable water supply network. No extraction from any potential surface water or groundwater resources is proposed.

Wastewater generation, allowing for an 80% sewer discharge factor relative to the water demands, is estimated by AECOM to be approximately 330 kL / year. This is proposed to be discharged to sewer.

The water demands and wastewater generation associated with the previous land use for the site (i.e. as the DNSDC) are unknown. However, given that the previous and proposed land uses are relatively similar, it is assumed that previous water demands and wastewater generation would have been of a similar magnitude to those estimated for the proposed conditions.

7.4 RAINFALL RUNOFF PROCESSES

The existing conditions for the site include significant impervious surface areas in the form of roads and roofs. From aerial photos it has been estimated that the existing Stage 1 Operational

Area is approximately 60% impervious. While the remainder of the site is pervious (grassed or treed), it is underlain by predominantly clay soils (refer Appendix G for Geotechnical Interpretative Report extracts) which limit the potential for infiltration.

The proposed conditions for the Proposal are predominantly paved surfaces. It is assumed to be approximately 95% impervious, allowing for some pervious landscaped areas.

The average annual rainfall-runoff volumes for the site are shown in Figure 15.

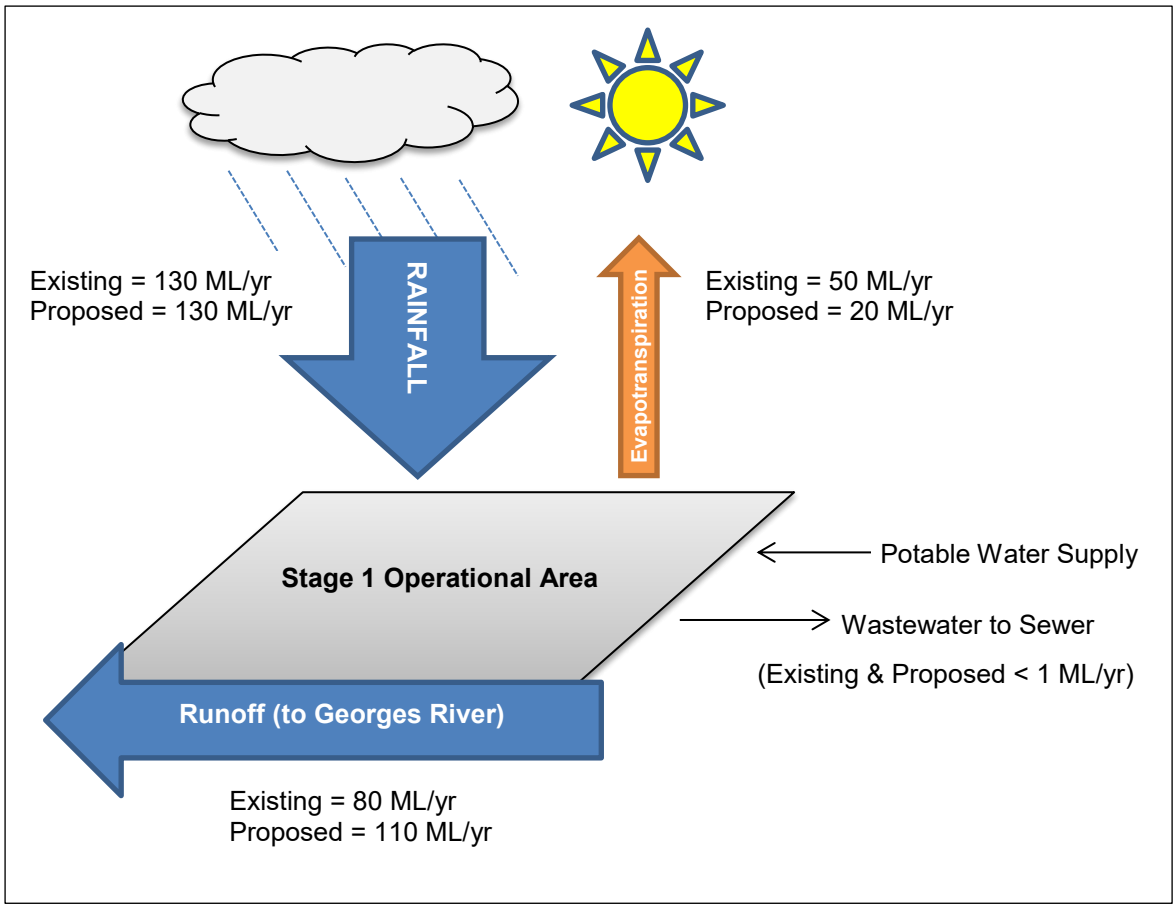


Figure 15: Stage 1 Operational Area Site Water Balance for Existing and Proposed Conditions

7.5 COMMENTS

The key changes to the Stage 1 Operational Area site water balance from existing to proposed conditions are a reduction in evapotranspiration of 30 ML/yr and an increase of the same magnitude to runoff. This is largely a result of the increase in impervious areas from existing conditions (60%) to proposed conditions (95%).

Options considered to reduce the runoff volume from the site included collecting runoff for reuse purposes and/or infiltration. Potential for reuse is limited by the small water demand (< 1 ML/yr) on the Proposal and hence only a very small portion of the runoff volume could be reused. In relation to infiltration, the clay soils would limit infiltration rates and the groundwater is also noted in the *Geotechnical Interpretative Report* (Golder Associates, 2015) as having high levels of salinity. Infiltration is therefore not considered to be practical or desirable.

The potential increase in runoff volume from the site should also be considered in the context of flow volumes conveyed in the Georges River. The total Georges River catchment area is

approximately 960 km^2 and would generate annual flow volumes many orders of magnitude greater than from the SIMTA Stage 1 operational area (which represents less than 0.02% of the total catchment area).

Furthermore, the total pollutant loads contained in the runoff from the site would be less than or equal to loads under existing conditions (refer **Section 6**) and the pollutant concentrations would be significantly less than existing (the total pollutant load is less than or equal to existing conditions and the runoff volume has increased, hence the concentration of pollutants will decrease).

The site water balance has demonstrated that while there would be an increase in runoff from the site following the development, the impacts associated with the increase are expected to be negligible in the context of the Georges River catchment as a whole.

8 CONCLUSION

This Stormwater and Flooding Assessment has been prepared for approval of the initial stage of the SIMTA Project, known as the Proposal. This report has been prepared to support a State Significant Development (SSD) Application for which approval is sought under Part 4, Division 4.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) and in accordance with the Secretary's Environmental Assessment Requirements (SEARs) (ref: SSD 14-6766 and dated December 2014).

The following conclusions and recommendations have been made within this report:

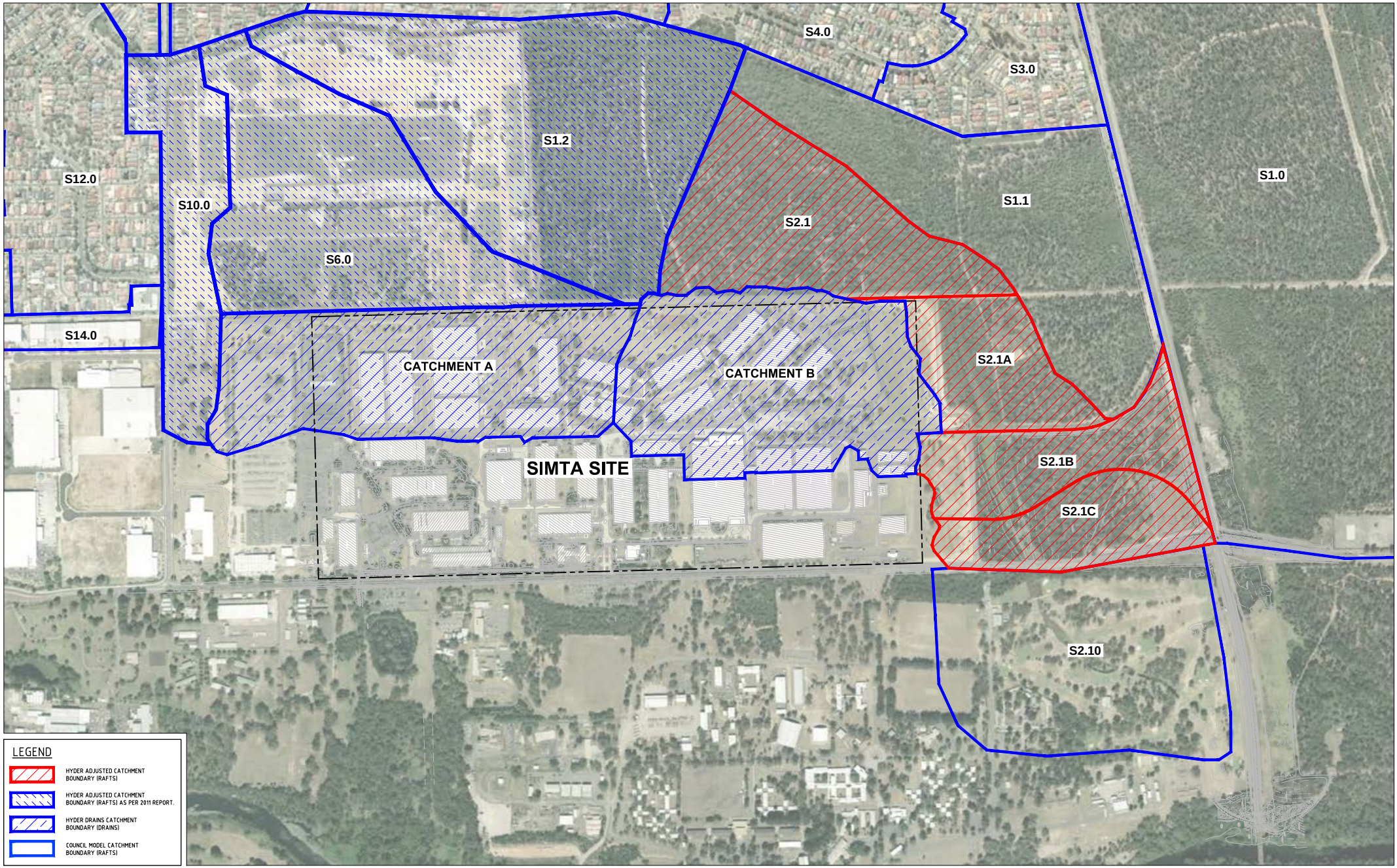
- TUFLOW model results indicated that the impact of the proposed Rail link and associated culvert would result in negligible flood impacts within the Anzac Creek catchment area.
- Design principles were identified to minimise the hydraulic impacts, of the proposed rail bridge, upon the Georges River. Additional modelling would be undertaken to more accurately determine optimum pier alignments and potential flood impacts, and quantify bed scour protection requirements during future design stages. Such modelling should incorporate updated survey of the Georges River bathymetry in the vicinity of the proposed bridge, and two dimensional hydraulic modelling of proposed pier impacts.
- The Rail link alignment along the western floodplain of the Georges River would not impact on the 100 year ARI Georges River flooding levels. To avoid adverse flood impacts along the Georges River floodplain (in extreme events, larger than the 100 year ARI), sections of the rail embankment would require a waterway structure(s) to allow for extreme event flood flows to spread westward across the floodplain.
- The DRAINS and HEC-RAS modelling results indicate that the proposed drainage systems and OSD can provide adequate system capacities and mitigate potential adverse flood impacts that may otherwise result from the Stage 1 Operational Area works. Design considerations to optimise stormwater management on the Stage 1 Operational area were identified.
- Stormwater management structures for the Rail link have been identified to predominantly maintain existing surface water conditions.
- Stormwater quality modelling was undertaken for the Proposal, which demonstrated that implementation of the WSUD measures identified, including the use of gross pollutant traps and rain gardens, would result in a 'net or better effect' on water quality as a result of the Proposal during operation.
- A site water balance was prepared for the Proposal that concluded that the Proposal would result in an increase in surface water runoff of 30 ML. Opportunities for reuse within the Proposal site are limited; however, the impacts associated with the increase are expected to be negligible in the context of the Georges River catchment as a whole.

APPENDIX A:

ANZAC CREEK RAFTS MODEL INFORMATION

RAFTS Model Sub-catchment Plan

Existing Conditions Summary Inputs and Outputs for 100 year ARI and PMF



Hyder

SIMTA MOOREBANK INTERMODAL TERMINAL FACILITY

TITLE:

ANZAC CREEK CATCHMENT PLAN

DRAWN BY: RD

DATUM: AHD

0 100 200 300 400m

1 : 4000

SCALE (A1):	DRAWING NO:	PROJECT NO:	ISSUE DATE:	REV:
1 : 4000	SKC151	AA003760	27/09/12	01

Date Plotted: 27 Sep 2012 - 02:35PM File Name: F:\AA003760\E-CAD\C-Civil\B-Sketches\SKC151-Anzac_Creek_Catchment_Plan.dwg V1

Run started at: 6th August 2012 16:33:26

##########
RUNTIME RESULTS
##########

Max. no. of links allowed = 1500

Max. no. of routng increments allowed = 250000

Max. no. of rating curve points = 250000

Max. no. of storm temporal points = 250000

Max. no. of channel subreaches = 25

Max link stack level = 50

Input Version number = 800
##########

ROUTING INCREMENT (MINS) = 1
STORM DURATION (MINS) = 540
RETURN PERIOD (YRS) = 100
BX = 1
TOTAL OF FIRST SUB-AREAS (ha) = 689.58
TOTAL OF SECOND SUB-AREAS (ha) = 386.68
TOTAL OF ALL SUB-AREAS (ha) = 1076.25

SUMMARY OF CATCHMENT AND RAINFALL DATA

Link Label	Catch. Area #1 (ha)	Area #2 (%)	Slope #1 (%)	Slope #2 (%)	% Impervious #1	% Impervious #2	Pern #1	B #2	Link #1	Link #2 No.
S19.0	2.72	24.44	0.6	0.6	5	100	0.05	0.015	0.0757	0.0101	1
S20.0	18.18	8.27	3	3	5	100	0.05	0.015	0.091	0.0026	2
S17.0	21.6	49.34	0.8	0.8	5	100	0.05	0.015	0.1925	0.0126	3
S17.1	2.32	20.92	0.5	0.5	5	100	0.05	0.015	0.0763	0.0102	3.001
S18.0	19.32	7.47	1.9	1.9	5	100	0.05	0.015	0.118	0.0031	4
S16.0	4.43	39.83	0.6	0.6	5	100	0.05	0.015	0.0975	0.0131	5
S15.0	11.55	6.72	2.7	2.7	5	100	0.05	0.015	0.0758	0.0024	6
S13.0	45.84	45.84	1.5	1.5	5	100	0.05	0.015	0.208	0.0089	7
S14.0	0.4	3.59	0.4	0.4	5	100	0.05	0.015	0.0342	0.0046	8
S14.1	3.59	3.59	0.5	0.5	5	100	0.05	0.025	0.0957	0.0082	8.001
S12.0	14.35	14.35	0.6	0.6	5	100	0.05	0.015	0.1797	0.0077	9
S11.0	7.37	7.37	1.1	1.1	5	100	0.05	0.015	0.0939	0.004	10
S10.0	12.89	0	0.6	0	5	0	0.05	0	0.1699	0	11
S9.0	3.96	3.96	1.2	1.2	5	100	0.05	0.015	0.0651	0.0028	12
A	13.232	14.221	0.7	0.7	0	100	0.05	0.025	0.1983	0.0142	13
S6.0	28.014	1.474	0.7	0.7	0	100	0.05	0.025	0.2928	0.0044	13
S1.2	42.887	0	0.7	0	5	0	0.05	0	0.294	0	14
B	17.35	8.701	0.5	0.5	0	100	0.05	0.015	0.27	0.0065	15
B1	1.073	0	0.5	0	5	0	0.05	0	0.0511	0	16
S2.0	28	0	0.3	0	5	0	0.05	0	0.3594	0	17
S2.1C	9.063	0.477	0.5	0.5	5	100	0.05	0.015	0.1549	0.0014	17
S2.1B	10.336	0.544	0.5	0.5	5	100	0.05	0.015	0.1659	0.0015	17
S2.1A	9.23	0.49	0.5	0.5	5	100	0.05	0.015	0.1564	0.0015	17
S2.1	19.16	1.01	0.5	0.5	5	100	0.05	0.015	0.2287	0.0021	15

S4.0	10.15	10.15	0.7	0.7	5	100	0.05	0.015	0.1389	0.0059	18
S1.0	189	0	1.7	0	5	0	0.05	0	0.4083	0	19
S3.0	6.84	6.84	1.2	1.2	5	100	0.05	0.015	0.0865	0.0037	20
D1	0.00001	0	0.001	0	0	0	0.025	0	0.0021	0	19
S1.1	29.65	0	0.3	0	5	0	0.05	0	0.3703	0	21
D2	0.00001	0	0.001	0	0	0	0.025	0	0.0021	0	15
S5.0	6.43	6.43	1.2	1.2	5	100	0.05	0.015	0.0837	0.0036	22
D3	0.00001	0	0.001	0	0	0	0.025	0	0.0021	0	15
S7.0	73.18	73.18	0.5	0.5	5	100	0.05	0.015	0.4591	0.0196	23
D4	0.00001	0	0.001	0	0	0	0.025	0	0.0021	0	14
D5	0.00001	0	0.001	0	0	0	0.025	0	0.0021	0	12
S8.0	22.36	22.36	0.4	0.4	5	100	0.05	0.015	0.277	0.0118	24
S8.1	5.1	5.11	0.4	0.4	5	100	0.05	0.015	0.1284	0.0055	24
D6	0.00001	0	0.001	0	0	0	0.025	0	0.0021	0	11
D7	0.00001	0	0.001	0	0	0	0.025	0	0.0021	0	9.001
D8	0.00001	0	0.001	0	0	0	0.025	0	0.0021	0	7.001
D9	0.00001	0	0.001	0	0	0	0.025	0	0.0021	0	5.001
D10	0.00001	0	0.001	0	0	0	0.025	0	0.0021	0	3.002
Outlet	0.00001	0	0.001	0	0	0	0.025	0	0.0021	0	1.001

	Link Label	Average Intensity	Init. Loss #1		Cont. Loss #2		Excess Rain #1		Peak #2	Time Inflow	Link to Lag
	(mm/h)	(	mm	)	(mm/h)	(	mm	)	(m^3/s)	Peak	mins
S19.0	18.8	20	1.5	2.5	0	130.07	167.7	4.324	300	0	
S20.0	18.8	20	1.5	2.5	0	130.07	167.7	3.763	300	0	
S17.0	18.8	20	1.5	2.5	0	130.07	167.7	10.101	300	0	
S17.1	18.8	20	1.5	2.5	0	130.07	167.7	13.796	300	0	
S18.0	18.8	20	1.5	2.5	0	130.07	167.7	3.481	300	0	
S16.0	18.8	20	1.5	2.5	0	130.07	167.7	7.029	300	0	
S15.0	18.8	20	1.5	2.5	0	130.07	167.7	2.673	300	0	
S13.0	18.8	20	1.5	2.5	0	130.07	167.7	11.923	300	0	
S14.0	18.8	20	1.5	2.5	0	130.07	167.7	0.638	300	0	
S14.1	18.8	20	1.5	2.5	0	130.07	167.7	1.571	300	9	
S12.0	18.8	20	1.5	2.5	0	130.07	167.7	3.612	300	0	
S11.0	18.8	20	1.5	2.5	0	130.07	167.7	2.046	300	0	
S10.0	18.8	20	0	2.5	0	130.07	0	1.412	331	0	
S9.0	18.8	20	1.5	2.5	0	130.07	167.7	1.157	300	0	
A	18.8	20	1.5	2.5	0	130.07	167.7	3.433	300	0	
S6.0	18.8	20	1.5	2.5	0	130.07	167.7	5.858	330	0	
S1.2	18.8	20	0	2.5	0	130.07	0	4.21	331	0	
B	18.8	20	1.5	2.5	0	130.07	167.7	2.662	300	0	
B1	18.8	20	0	2.5	0	130.07	0	0.1352	317	0	
S2.0	18.8	20	0	2.5	0	130.07	0	2.31	351	1	
S2.1C	18.8	20	1.5	2.5	0	130.07	167.7	3.319	331	2	
S2.1B	18.8	20	1.5	2.5	0	130.07	167.7	4.468	332	3.5	
S2.1A	18.8	20	1.5	2.5	0	130.07	167.7	5.485	335	7.5	
S2.1	18.8	20	1.5	2.5	0	130.07	167.7	9.968	330	10	
S4.0	18.8	20	1.5	2.5	0	130.07	167.7	2.645	300	0	
S1.0	18.8	20	0	2.5	0	130.07	0	19.911	331	5	
S3.0	18.8	20	1.5	2.5	0	130.07	167.7	1.926	300	5	
D1	18.8	20	0	2.5	0	130.07	0	21.589	335	5	
S1.1	18.8	20	0	2.5	0	130.07	0	2.421	355	0	
D2	18.8	20	0	2.5	0	130.07	0	35.694	340	7	
S5.0	18.8	20	1.5	2.5	0	130.07	167.7	1.815	300	0	
D3	18.8	20	0	2.5	0	130.07	0	36.713	347	3	
S7.0	18.8	20	1.5	2.5	0	130.07	167.7	16.841	300	1	
D4	18.8	20	0	2.5	0	130.07	0	53.272	331	1.5	
D5	18.8	20	0	2.5	0	130.07	0	59.435	333	1.5	
S8.0	18.8	20	1.5	2.5	0	130.07	167.7	5.322	300	0	
S8.1	18.8	20	1.5	2.5	0	130.07	167.7	6.613	300	9	
D6	18.8	20	0	2.5	0	130.07	0	66.786	335	6	
D7	18.8	20	0	2.5	0	130.07	0	70.404	341	2.5	
D8	18.8	20	0	2.5	0	130.07	0	80.019	330	2.5	
D9	18.8	20	0	2.5	0	130.07	0	86.109	330	5	
D10	18.8	20	0	2.5	0	130.07	0	98.791	330	4.3	
Outlet	18.8	20	0	2.5	0	130.07	0	105.2	327	0	

Run started at: 9th August 2012 16:44:56

##
RUNTIME RESULTS
##

Max. no. of links allowed = 1500

Max. no. of routng increments allowed = 250000

Max. no. of rating curve points = 250000

Max. no. of storm temporal points = 250000

Max. no. of channel subreaches = 25

Max link stack level = 50

Input Version number = 800

##
PMF

Results for period from 0: 0.0 1/ 1/1990
to 8:20.0 1/ 1/1990
##

ROUTING INCREMENT (MINS) = 1.00
STORM DURATION (MINS) = 60.
RETURN PERIOD (YRS) = 100000.
BX = 1.0000
TOTAL OF FIRST SUB-AREAS (ha) = 689.58
TOTAL OF SECOND SUB-AREAS (ha) = 386.68
TOTAL OF ALL SUB-AREAS (ha) = 1076.25

SUMMARY OF CATCHMENT AND RAINFALL DATA

Link Label	Catch. Area #1 (ha)	Catch. Area #2 (ha)	Slope #1 (%)	Slope #2 (%)	% Impervious #1 (%)	% Impervious #2 (%)	Pern #1	Pern #2	B #1	B #2	Link No.
S1.0	189.00	0.000	1.700	0.000	5.000	0.000	.050	0.00	.4083	0.000	1.000
S3.0	6.840	6.840	1.200	1.200	5.000	100.0	.050	.015	.0865	.0037	2.000
D1	.00001	0.000	.0010	0.000	0.000	0.000	.025	0.00	.0021	0.000	1.001
B	17.350	8.701	.5000	.5000	0.000	100.0	.050	.015	.2700	.0065	3.000
B1	1.073	0.000	.5000	0.000	5.000	0.000	.050	0.00	.0511	0.000	4.000
S2.0	28.000	0.000	.3000	0.000	5.000	0.000	.050	0.00	.3594	0.000	5.000
S2.1C	9.063	0.4770	.5000	.5000	5.000	100.0	.050	.015	.1549	.0014	5.001
S2.1B	10.336	0.5440	.5000	.5000	5.000	100.0	.050	.015	.1659	.0015	5.002
S2.1A	9.230	0.4900	.5000	.5000	5.000	100.0	.050	.015	.1564	.0015	5.003
S2.1	19.160	1.010	.5000	.5000	5.000	100.0	.050	.015	.2287	.0021	3.001
S4.0	10.150	10.150	.7000	.7000	5.000	100.0	.050	.015	.1389	.0059	6.000
S1.1	29.650	0.000	.3000	0.000	5.000	0.000	.050	0.00	.3703	0.000	7.000
D2	.00001	0.000	.0010	0.000	0.000	0.000	.025	0.00	.0021	0.000	1.002
S5.0	6.430	6.430	1.200	1.200	5.000	100.0	.050	.015	.0837	.0036	8.000
D3	.00001	0.000	.0010	0.000	0.000	0.000	.025	0.00	.0021	0.000	1.003
S1.2	42.887	0.000	.7000	0.000	5.000	0.000	.050	0.00	.2940	0.000	9.000
S7.0	73.180	73.180	.5000	.5000	5.000	100.0	.050	.015	.4591	.0196	10.00
D4	.00001	0.000	.0010	0.000	0.000	0.000	.025	0.00	.0021	0.000	1.004
S9.0	3.960	3.960	1.200	1.200	5.000	100.0	.050	.015	.0651	.0028	11.00

A	13.232	14.221	.7000	.7000	0.000	100.0	.050	.025	.1983	.0142	12.00
S6.0	28.014	1.474	.7000	.7000	0.000	100.0	.050	.025	.2928	.0044	12.00
D5	.00001	0.000	.0010	0.000	0.000	0.000	.025	0.00	.0021	0.000	1.005
S10.0	12.890	0.000	.6000	0.000	5.000	0.000	.050	0.00	.1699	0.000	13.00
S8.0	22.360	22.360	.4000	.4000	5.000	100.0	.050	.015	.2770	.0118	14.00
S8.1	5.100	5.110	.4000	.4000	5.000	100.0	.050	.015	.1284	.0055	14.00
D6	.00001	0.000	.0010	0.000	0.000	0.000	.025	0.00	.0021	0.000	1.006
S12.0	14.350	14.350	.6000	.6000	5.000	100.0	.050	.015	.1797	.0077	15.00
S11.0	7.370	7.370	1.100	1.100	5.000	100.0	.050	.015	.0939	.0040	16.00
D7	.00001	0.000	.0010	0.000	0.000	0.000	.025	0.00	.0021	0.000	1.007
S13.0	45.840	45.840	1.500	1.500	5.000	100.0	.050	.015	.2080	.0089	17.00
S14.0	0.4000	3.590	.4000	.4000	5.000	100.0	.050	.015	.0342	.0046	18.00
S14.1	3.590	3.590	.5000	.5000	5.000	100.0	.050	.025	.0957	.0082	18.00
D8	.00001	0.000	.0010	0.000	0.000	0.000	.025	0.00	.0021	0.000	1.008
S16.0	4.430	39.830	.6000	.6000	5.000	100.0	.050	.015	.0975	.0131	19.00
S15.0	11.550	6.720	2.700	2.700	5.000	100.0	.050	.015	.0758	.0024	20.00
D9	.00001	0.000	.0010	0.000	0.000	0.000	.025	0.00	.0021	0.000	1.009
S17.0	21.600	49.340	.8000	.8000	5.000	100.0	.050	.015	.1925	.0126	21.00
S17.1	2.320	20.920	.5000	.5000	5.000	100.0	.050	.015	.0763	.0102	21.00
S18.0	19.320	7.470	1.900	1.900	5.000	100.0	.050	.015	.1180	.0031	22.00
D10	.00001	0.000	.0010	0.000	0.000	0.000	.025	0.00	.0021	0.000	1.010
S19.0	2.720	24.440	.6000	.6000	5.000	100.0	.050	.015	.0757	.0101	23.00
S20.0	18.180	8.270	3.000	3.000	5.000	100.0	.050	.015	.0910	.0026	24.00
Outlet	.00001	0.000	.0010	0.000	0.000	0.000	.025	0.00	.0021	0.000	1.011

Link Label	Average Intensity (mm/h)	Init. Loss #1 (mm)	Init. Loss #2 (mm)	Cont. Loss #1 (mm/h)	Cont. Loss #2 (mm/h)	Excess Rain #1 (mm)	Excess Rain #2 (mm)	Peak Inflow (m^3/s)	Time to Peak	Link Lag mins
S1.0	330.00	20.00	0.000	2.500	0.000	307.67	0.000	139.02	52.00	5.000
S3.0	330.00	20.00	1.500	2.500	0.000	307.67	328.50	14.597	27.00	5.000
D1	330.00	20.00	0.000	2.500	0.000	307.67	0.000	148.39	56.00	5.000
B	330.00	20.00	1.500	2.500	0.000	307.67	328.50	16.028	42.00	0.000
B1	330.00	20.00	0.000	2.500	0.000	307.67	0.000	1.099	39.00	0.000
S2.0	330.00	20.00	0.000	2.500	0.000	307.67	0.000	13.342	60.00	1.000
S2.1C	330.00	20.00	1.500	2.500	0.000	307.67	328.50	20.134	57.00	2.000
S2.1B	330.00	20.00	1.500	2.500	0.000	307.67	328.50	27.982	55.00	3.500
S2.1A	330.00	20.00	1.500	2.500	0.000	307.67	328.50	35.068	57.00	7.500
S2.1	330.00	20.00	1.500	2.500	0.000	307.67	328.50	60.710	57.00	10.00
S4.0	330.00	20.00	1.500	2.500	0.000	307.67	328.50	18.443	27.00	0.000
S1.1	330.00	20.00	0.000	2.500	0.000	307.67	0.000	13.840	61.00	0.000
D2	330.00	20.00	0.000	2.500	0.000	307.67	0.000	229.14	61.00	7.000
S5.0	330.00	20.00	1.500	2.500	0.000	307.67	328.50	13.822	27.00	0.000
D3	330.00	20.00	0.000	2.500	0.000	307.67	0.000	231.91	68.00	3.000
S1.2	330.00	20.00	0.000	2.500	0.000	307.67	0.000	28.924	56.00	0.000
S7.0	330.00	20.00	1.500	2.500	0.000	307.67	328.50	107.35	27.00	1.000
D4	330.00	20.00	0.000	2.500	0.000	307.67	0.000	300.55	61.00	1.500
S9.0	330.00	20.00	1.500	2.500	0.000	307.67	328.50	8.873	27.00	0.000
A	330.00	20.00	1.500	2.500	0.000	307.67	328.50	22.254	27.00	0.000
S6.0	330.00	20.00	1.500	2.500	0.000	307.67	328.50	36.798	43.00	0.000
D5	330.00	20.00	0.000	2.500	0.000	307.67	0.000	330.16	61.00	1.500
S10.0	330.00	20.00	0.000	2.500	0.000	307.67	0.000	10.300	51.00	0.000
S8.0	330.00	20.00	1.500	2.500	0.000	307.67	328.50	34.321	27.00	0.000
S8.1	330.00	20.00	1.500	2.500	0.000	307.67	328.50	43.172	27.00	9.000
D6	330.00	20.00	0.000	2.500	0.000	307.67	0.000	367.11	63.00	6.000
S12.0	330.00	20.00	1.500	2.500	0.000	307.67	328.50	24.456	27.00	0.000
S11.0	330.00	20.00	1.500	2.500	0.000	307.67	328.50	15.304	27.00	0.000
D7	330.00	20.00	0.000	2.500	0.000	307.67	0.000	381.75	57.00	2.500
S13.0	330.00	20.00	1.500	2.500	0.000	307.67	328.50	84.262	27.00	0.000
S14.0	330.00	20.00	1.500	2.500	0.000	307.67	328.50	5.325	9.000	0.000
S14.1	330.00	20.00	1.500	2.500	0.000	307.67	328.50	11.595	27.00	9.000
D8	330.00	20.00	0.000	2.500	0.000	307.67	0.000	431.46	57.00	2.500
S16.0	330.00	20.00	1.500	2.500	0.000	307.67	328.50	57.474	9.000	0.000
S15.0	330.00	20.00	1.500	2.500	0.000	307.67	328.50	21.344	27.00	0.000
D9	330.00	20.00	0.000	2.500	0.000	307.67	0.000	453.29	58.00	5.000
S17.0	330.00	20.00	1.500	2.500	0.000	307.67	328.50	72.664	27.00	0.000
S17.1	330.00	20.00	1.500	2.500	0.000	307.67	328.50	102.99	9.000	0.000
S18.0	330.00	20.00	1.500	2.500	0.000	307.67	328.50	27.542	33.00	0.000
D10	330.00	20.00	0.000	2.500	0.000	307.67	0.000	531.32	50.00	4.300

S19.0	330.00	20.00	1.500	2.500	0.000	307.67	328.50	35.678	9.000	0.000
S20.0	330.00	20.00	1.500	2.500	0.000	307.67	328.50	30.017	27.00	0.000
Outlet	330.00	20.00	0.000	2.500	0.000	307.67	0.000	559.48	54.00	0.000

APPENDIX B:

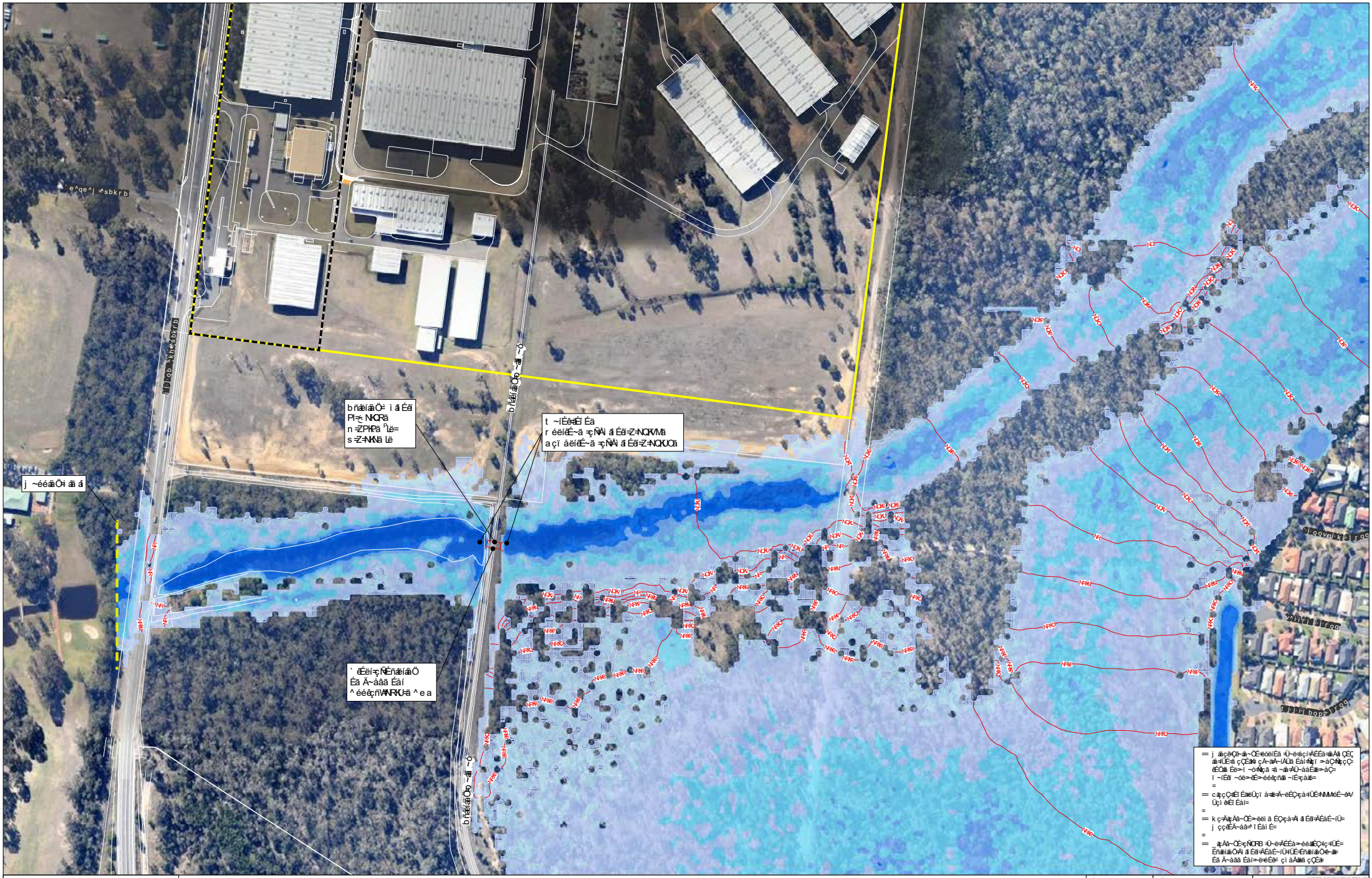
ANZAC CREEK TUFLOW MODEL INFORMATION

Existing Conditions Results for 100 year ARI and PMF

Post-development Conditions Results for 100 year ARI and PMF

Proposed Railway Culvert Drawing

Existing Conditions Information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HYDER CONSULTING PTY LTD
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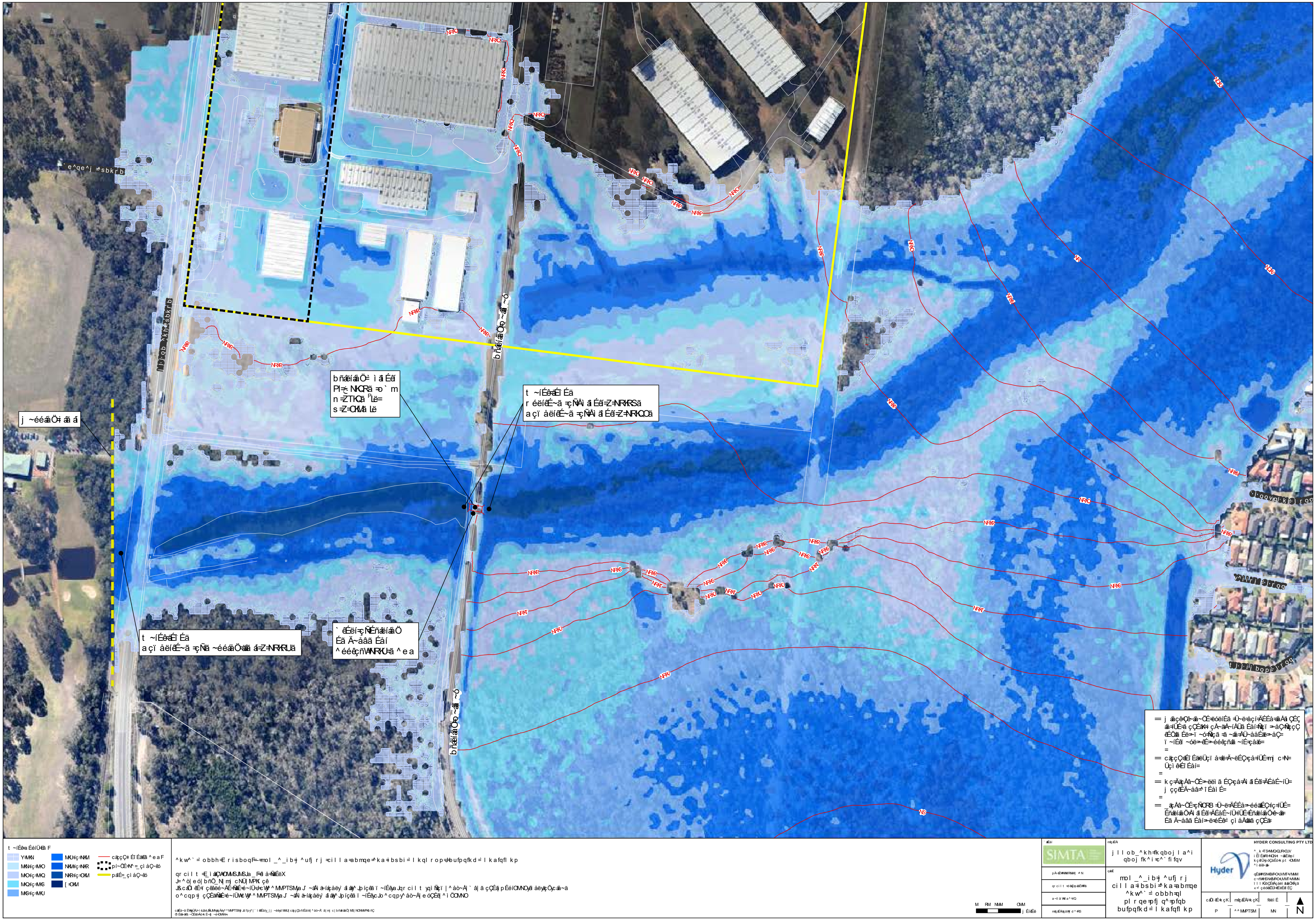

SIMTA
Hyder
HYDER CONSULTING PTY LTD
N

Post-development Information

LEGEND

- LESS THAN -0.50
- -0.50 to -0.40
- -0.40 to -0.30
- -0.30 to -0.20
- -0.20 to -0.10
- -0.10 to -0.05
- -0.05 to -0.02
- -0.02 to -0.01
- -0.01 to 0.01
- 0.01 to 0.02
- 0.02 to 0.05
- 0.05 to 0.10
- 0.10 to 0.20
- 0.20 to 0.30
- SITE BOUNDARY

MINOR DRAINAGE SYSTEM HAS NOT BEEN INCLUDED IN THE MODEL. LOCAL CATCHMENT FLOW AND FLOOD REGIMES AWAY FROM MAIN CHANNELS AND WATERWAYS ARE APPROXIMATE ONLY.

FLOOD LEVEL SHOWN IS BASED ON THE 100 YEAR 9 HOUR EVENT.

NO BLOCKAGE ASSUMED ON CULVERT BENEATH MOOREBANK AVENUE.

BLOCKAGE OF 25% HAS BEEN APPLIED TO THE EXISTING CULVERT BENEATH THE EXISTING RAIL EMBANKMENT AS PER COUNCIL MODEL.

BLOCKAGE ON PROPOSED CULVERT ASSUMED 50% BLOCKAGE ON 6 CELLS AND 100% BLOCKAGE ON FAUNA PASSAGE (2 CELLS)

DRAFT

Issue	Description	Date
01	ISSUE FOR INFORMATION	06/02/15

0 50 100 150 200m

1 : 2000

ANZAC CREEK (CULVERT) - 100 YEAR ARI FLOOD - CHANGE IN FLOODING DEPTH AND EXTENTS - POST DEVELOPMENT CONDITIONS.

TUFLOW (BUILD: 2006-06-DB) RUN FILES,
- Az_Hy_ProB1_PMF1h_10.wor
- TUFLOW WORKSPACE FILE PATH - F:\AA003760\D-Calculations\Civil\A-Stormwater\D-TUFLOW\Tuflow_Anzac_Ck_model_Sept2012\runs\
RAFTS MODEL FILE PATH: F:\AA003760\D-Calculations\Civil\A-Stormwater\F-R TAFTS\Anzac_Hyder_Aug2012.

Client: SIMTA SYDNEY INTERMODAL TERMINAL ALLIANCE; TACTICAL GROUP

Status: PRELIMINARY
NOT TO BE USED FOR CONSTRUCTION

		Current Issue Signatures	
Scales	AS SHOWN	Drawn	A.ZHAO
Original Size	A1	Designed	VINCENT NG
Height Datum	AHD	Checked	BRUCE CALDWELL
Grid	MGA	Approved	B.LUSTY
Filename:			

Project: MOOREBANK INTERMODAL TERMINAL FACILITY (MITF) STAGE 1

Title: CHANGE IN 100 YEAR ARI FLOOD LEVEL ANZAC CREEK TO SOUTH SIMTA SITE POST DEVELOPMENT CONDITIONS

HYDER CONSULTING PTY LTD
ABN 76 104 485 289
Level 5, 141 Walker St
North Sydney NSW 2060
Australia
Tel: +61 (0)2 8907 9000
Fax: +61 (0)2 8907 9001
www.hyderconsulting.com

Drawing No.	Project No.	Issue
SKCS1022	AA003760	01

100mm on Original

Date Plotted: 10 Feb 2015 - 10:58AM File Name: F:\AA003760\E-CAD\C-Civil\B-Sketches\SKCS1022-AA003760-NSD-StormwaterFloodingAnalysisSheet1.dwg V1

MINOR DRAINAGE SYSTEM HAS NOT BEEN INCLUDED IN THE MODEL. LOCAL CATCHMENT FLOW AND FLOOD REGIMES AWAY FROM MAIN CHANNELS AND WATERWAYS ARE APPROXIMATE ONLY.

FLOOD LEVEL SHOWN IS BASED ON THE PMF 1 HOUR EVENT.

NO BLOCKAGE ASSUMED ON CULVERT BENEATH MOOREBANK AVENUE.

BLOCKAGE OF 25% HAS BEEN APPLIED TO THE EXISTING CULVERT BENEATH THE EXISTING RAIL EMBANKMENT AS PER COUNCIL MODEL.

BLOCKAGE ON PROPOSED CULVERT ASSUMED 50% BLOCKAGE ON 6 CELLS AND 100% BLOCKAGE ON FAUNA PASSAGE (2 CELLS)

DRAFT

Issue	Description	Date
01	ISSUE FOR INFORMATION	06/02/15

0 50 100 150 200m

1 : 2000

ANZAC CREEK (CULVERT) - PROBABLE MAXIMUM FLOOD - CHANGE IN FLOOODING DEPTH AND EXTENTS - POST DEVELOPMENT CONDITIONS.

TUFLOW (BUILD: 2006-06-DB) RUN FILES,
- Az_Hy_ProB1_PMF1h_10.wor
- TUFLOW WORKSPACE FILE PATH - F:\AA003760\D-Calculations\Civil\A-Stormwater\D-TUFLOW\Tuflow_Anzac_Ck_model_Sept2012runs\
RAFTS MODEL FILE PATH: F:\AA003760\D-Calculations\Civil\A-Stormwater\F-R :\AFTS\Anzac_Hyder_Aug2012.

Client: SIMTA (Sydney Intermodal Terminal Alliance) / TACTICAL GROUP

Status: PRELIMINARY
NOT TO BE USED FOR CONSTRUCTION

Scales	AS SHOWN	Current Issue Signatures	
		Drawn	A.ZHAO
Original Size	A1	Designed	VINCENT NG
Height Datum	AHD	Checked	BRUCE CALDWELL
Grid	MGA	Approved	B.LUSTY
Filename:			

Project: MOOREBANK INTERMODAL TERMINAL FACILITY (MITF) STAGE 1

Title: CHANGE IN PROBABLE MAXIMUM FLOOD LEVEL ANZAC CREEK TO SOUTH SIMTA SITE POST DEVELOPMENT CONDITIONS

HYDER CONSULTING PTY LTD
ABN 76 104 485 289
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North Sydney NSW 2060
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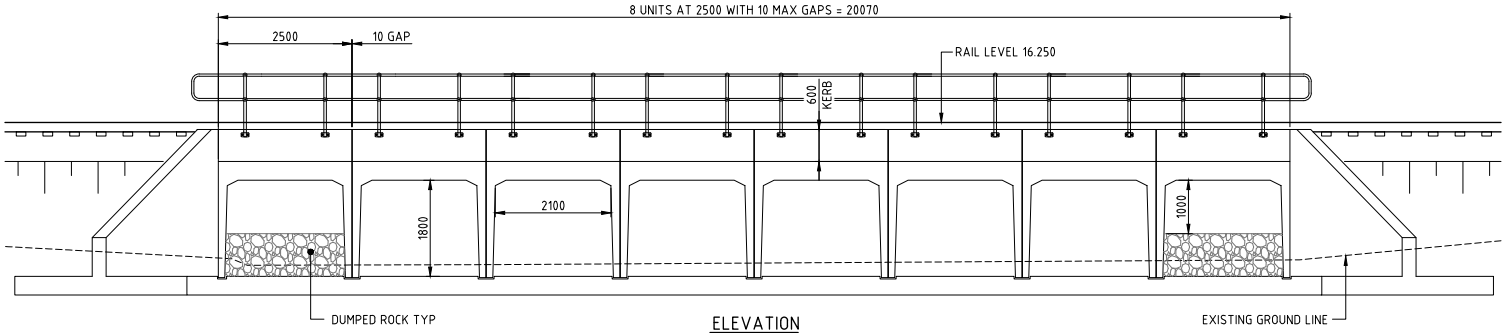
Tel: +61 (0)2 8907 9000
Fax: +61 (0)2 8907 9001
www.hyderconsulting.com

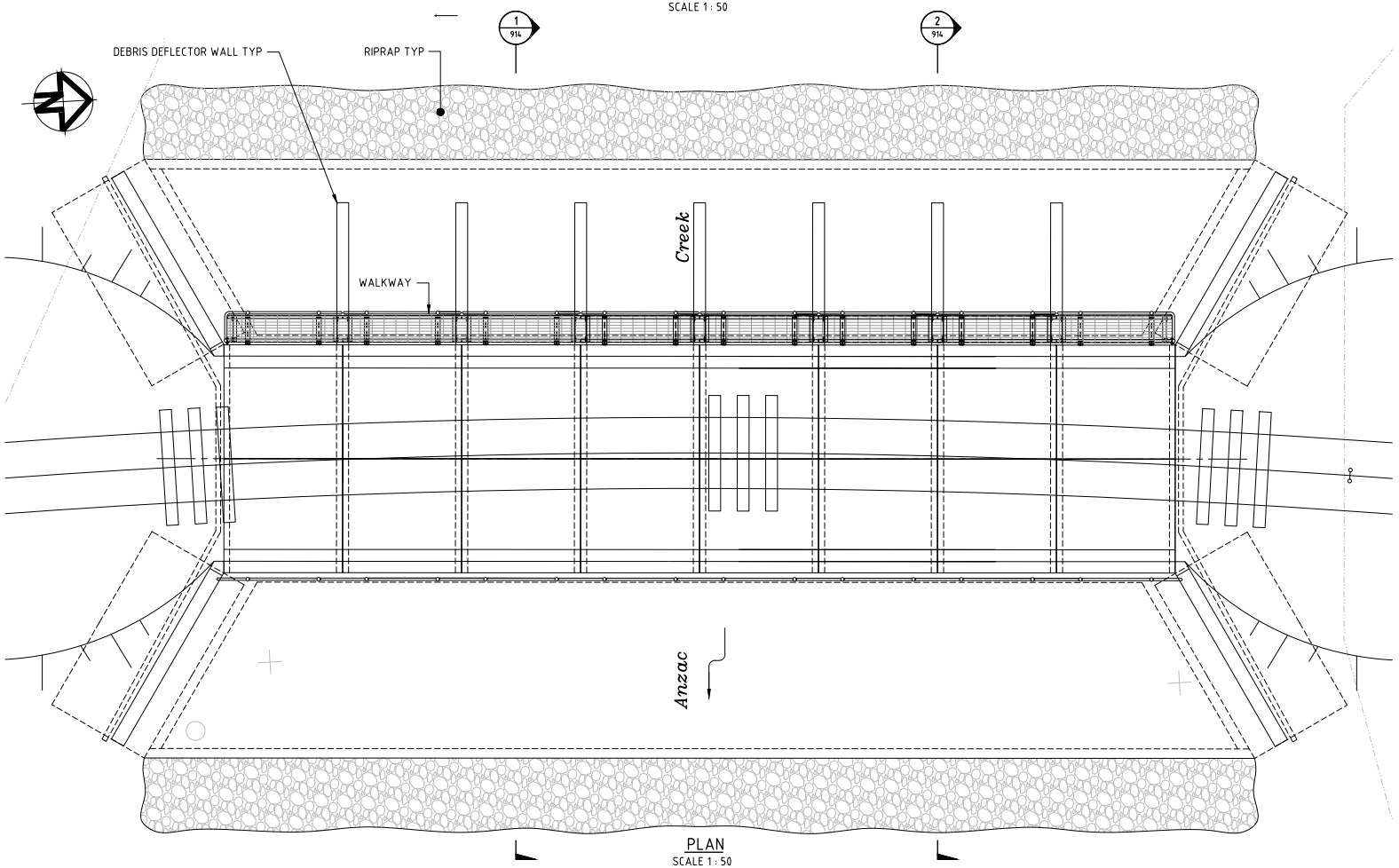
Drawing No.	Project No.	Issue
SKCS1023	AA003760	01

100mm on Original

Date Plotted: 10 Feb 2015 - 11:02AM File Name: F:\AA003760\E-CAD\C-Civil\B-Sketches\SKCS1023-AA003760-NSD-StormwaterFloodingAnalysisSheet2.dwg V1



ELEVATION
SCALE 1 : 50



PLAN
SCALE 1 : 50

0 1 2 3 4 5m
1 : 50

Issue	Description	Date

100mm on Original

Client: SIMTA

Status: **PRELIMINARY ONLY**
NOT TO BE USED FOR CONSTRUCTION

		Current Issue Signatures	
Scales	– 1:50 –	Drawn M.KARKOUR	
Original Size	A1	Designed K.MAXWELL	
Height Datum	–	Checked	
Grid	–	Approved –	

Filename: SKR913-Anzac_Creek_Proposed_Box_Culvert.dwg

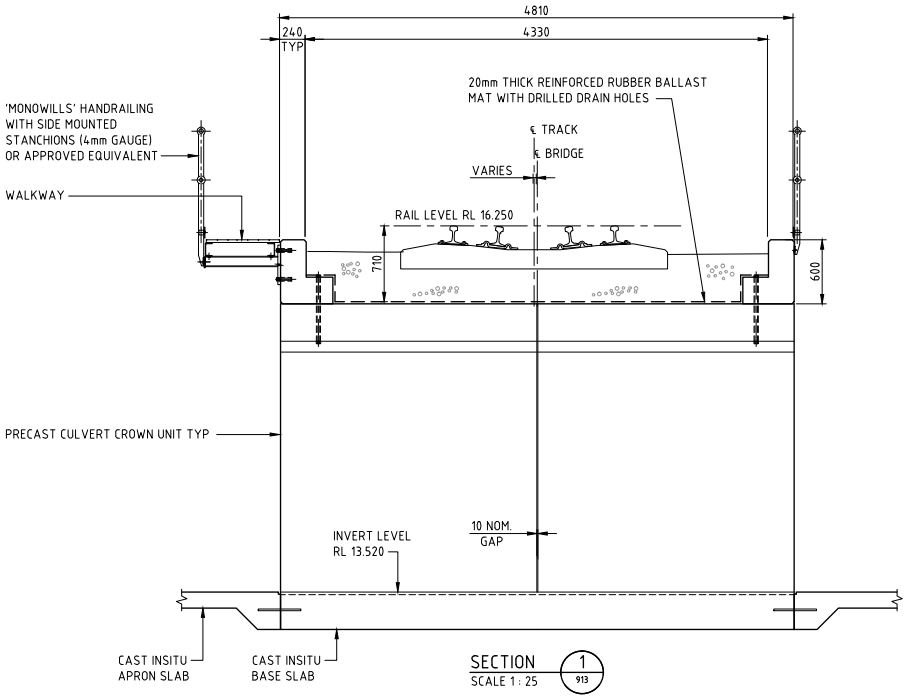
Project: SIMTA MOOREBANK INTERMODAL TERMINAL FACILITY

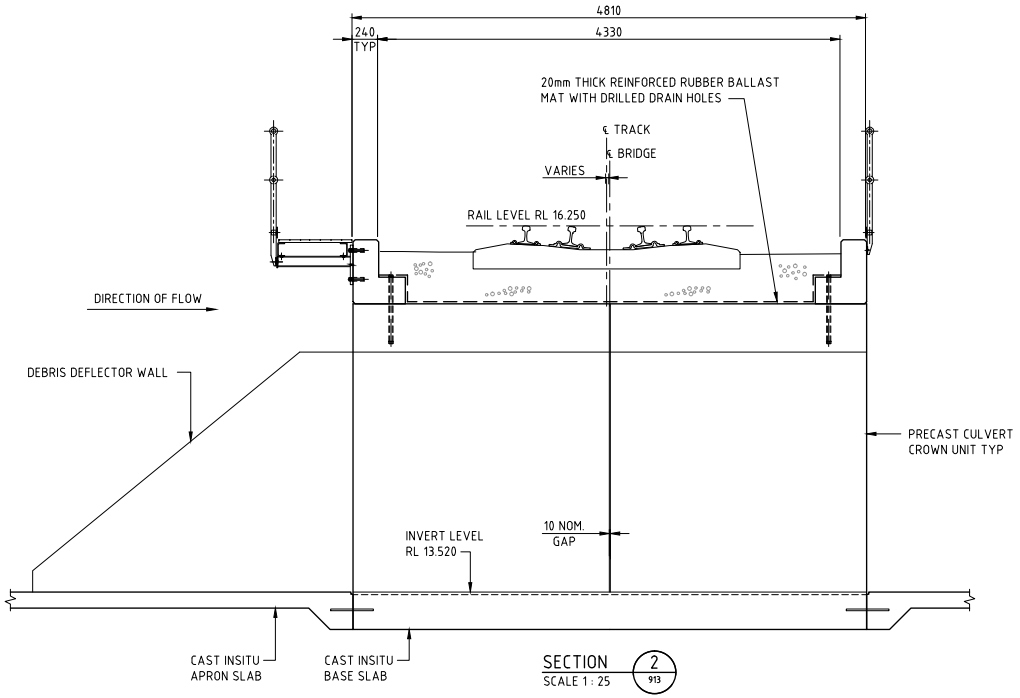
Title: ANZAC CREEK CULVERT BRIDGE GENERAL ARRANGEMENT SHEET 1

HYDER CONSULTING PTY LTD
ABN 76 104 485 289
Level 5, 141 Walker St
North Sydney NSW 2060
Australia
Tel: +61 (0)2 8907 9000
Fax: +61 (0)2 8907 9001
www.hyderconsulting.com

Drawing No.	Project No.	Issue
SKR913	AA003760	P1

Date Plotted: 17 Feb 2015 - 09:36AM File Name: F:\AA003760\E-CAD\C-Civil\B-Sketches\SKR913-Anzac_Creek_Proposed_Box_Culvert.dwg V1





Issue	Description	Date

100mm on Original

0 0.5 1 1.5 2 2.5m

1 : 25

Client: SIMTA

Status: **PRELIMINARY ONLY**
NOT TO BE USED FOR CONSTRUCTION

		Current Issue Signatures	
Scales	– 1:25 –	Drawn M.KARKOUR	
Original Size	A1	Designed K.MAXWELL	
Height Datum	–	Checked	
Grid	–	Approved –	

Filename: SKR914-Anzac_Creek_Proposed_Box_Culvert.dwg

Project: SIMTA MOOREBANK INTERMODAL TERMINAL FACILITY

Title: ANZAC CREEK CULVERT BRIDGE GENERAL ARRANGEMENT SHEET 2

HYDER CONSULTING PTY LTD
ABN 76 104 485 289
Level 5, 141 Walker St
North Sydney NSW 2060
Australia
Tel: +61 (0)2 8907 9000
Fax: +61 (0)2 8907 9001
www.hyderconsulting.com

Drawing No.	Project No.	Issue
SKR914	AA003760	P1

Date Plotted: 17 Feb 2015 - 10:46AM File Name: F:\AA003760\E-CAD\C-Civil\B-Sketches\SKR914-Anzac_Creek_Proposed_Box_Culvert.dwg V1

APPENDIX C:

GEORGES RIVER HEC-RAS MODEL INFORMATION

Existing Railway Bridge WAE Drawing,

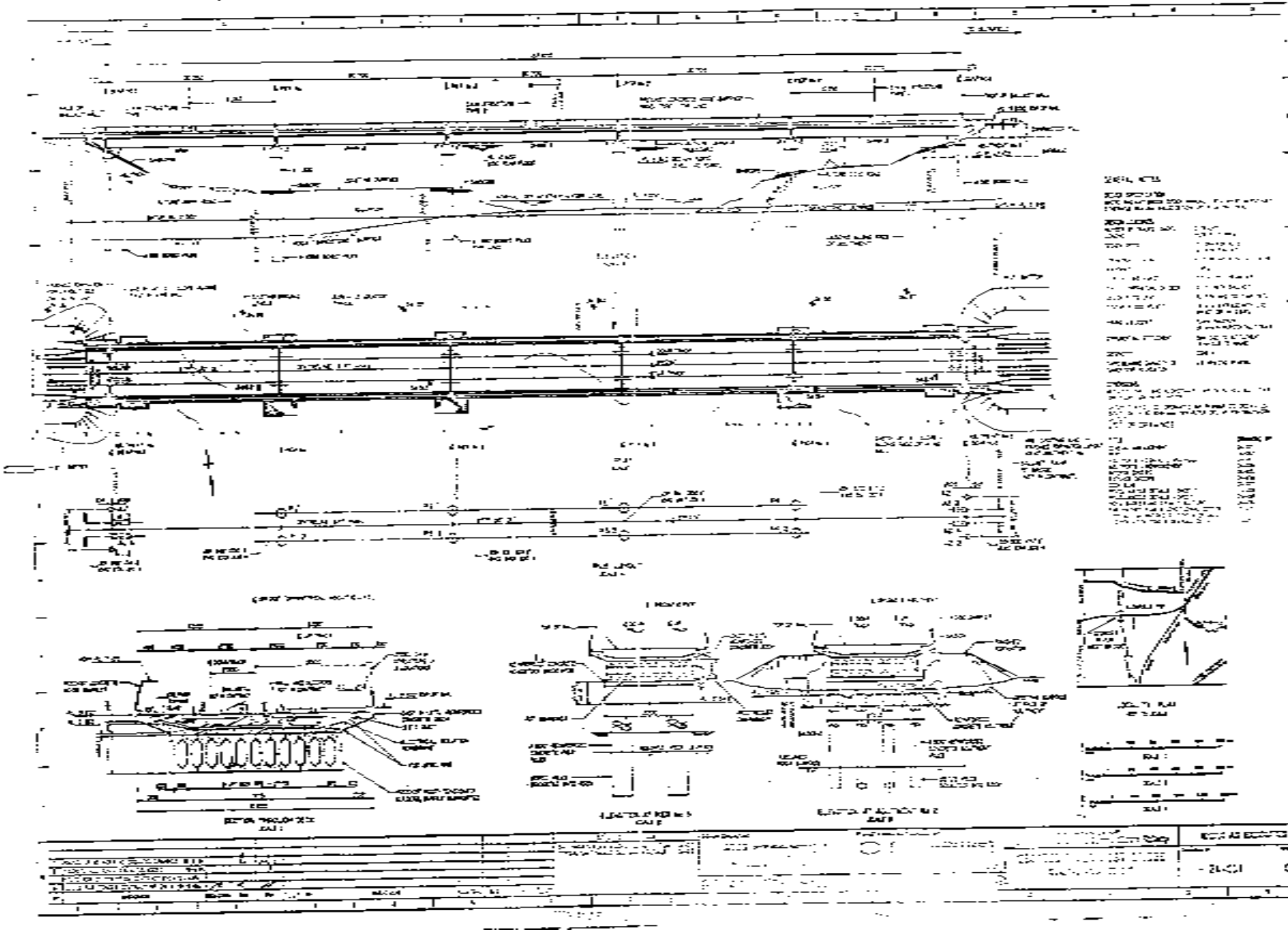
Existing Conditions Inputs and Outputs

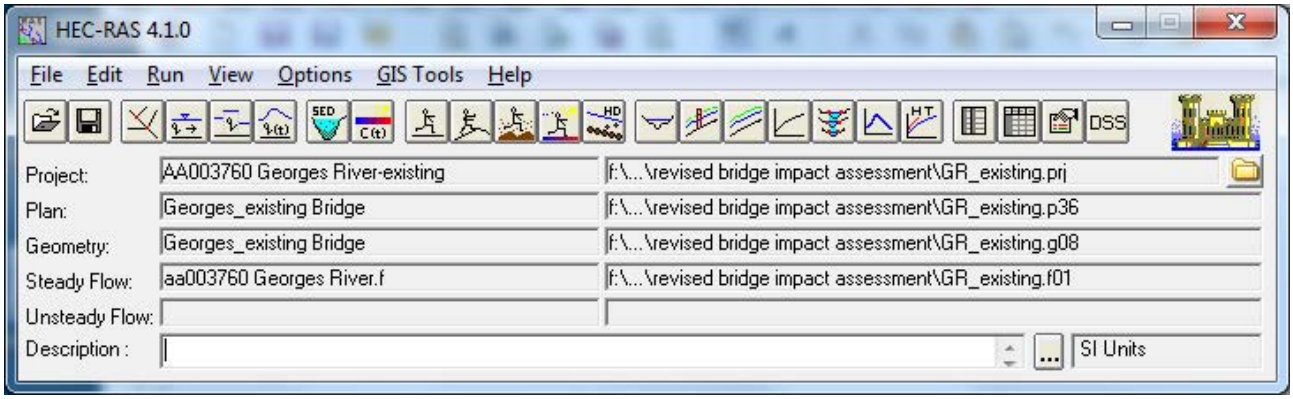
Post-development Conditions Inputs and Outputs

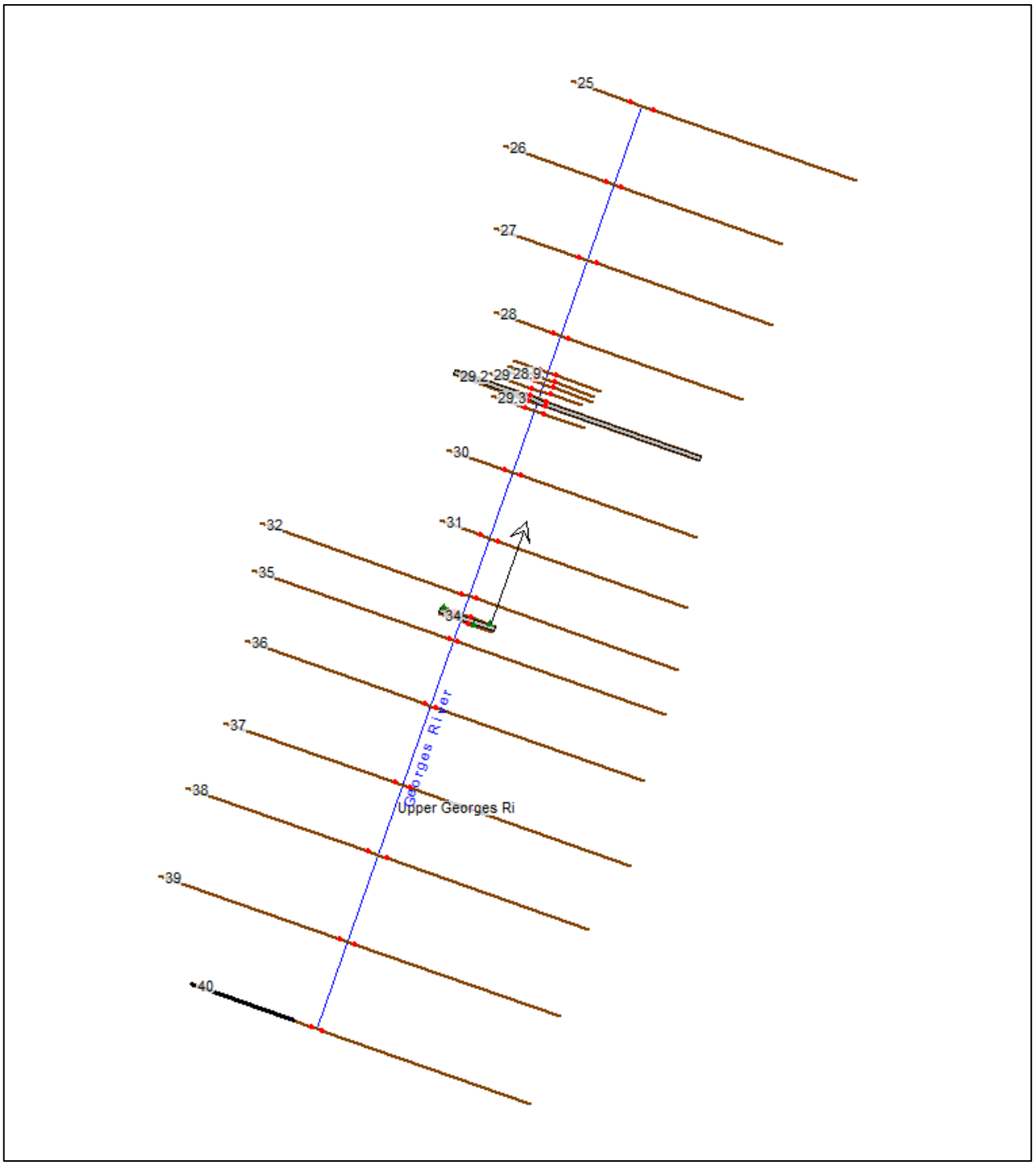
Cross-Section locations

Proposed Railway Bridge Drawings

Existing Bridge Information




HEC-RAS 4.1.0
File Edit Run View Options GIS Tools Help
Project: AA003760 Georges River-existing
f:\...\revised bridge impact assessment\GR_existing.prj
Plan: Georges_existing Bridge
f:\...\revised bridge impact assessment\GR_existing.p36
Geometry: Georges_existing Bridge
f:\...\revised bridge impact assessment\GR_existing.g08
Steady Flow: aa003760 Georges River.f
f:\...\revised bridge impact assessment\GR_existing.f01
Unsteady Flow:
Description :
SI Units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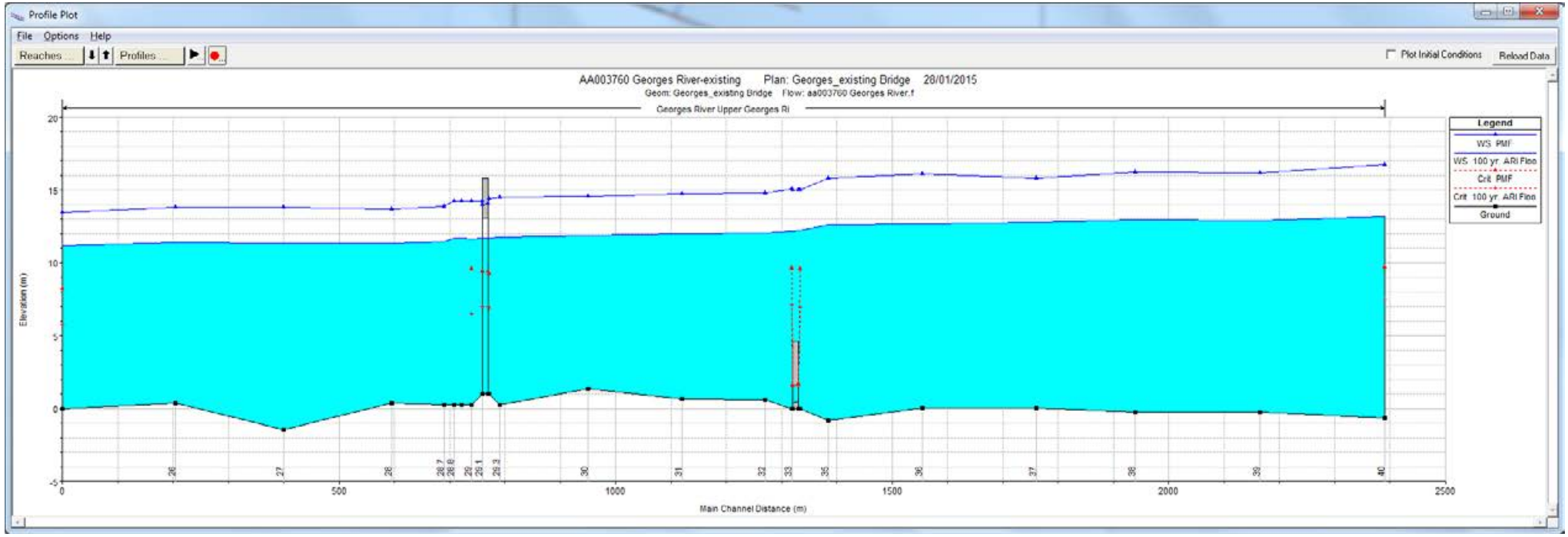
Georges River
Upper Georges Ri


Profile Plot
File Options Help
Reaches
Profiles
Plot Initial Conditions
Reload Data
AA003760 Georges River-existing Plan: Georges_existing Bridge 28/01/2015
Geom: Georges_existing Bridge Flow: aa003760 Georges River.f
Georges River Upper Georges Ri
Legend
WS PMF
WS 100 yr ARI Flow
Crit PMF
Crit 100 yr ARI Flow
Ground
Elevation (m)
Main Channel Distance (m)

Profile Output Table - Standard Table 1

File Options Std. Tables User Tables Locations Help

HEC-RAS Plan: exist bridge River: Georges River Reach: Upper Georges Ri Profile: 100 yr. ARI Floo

Reload Data

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(m3/s)	(m)	(m)	(m)	(m)	(m/m)	(m/s)	(m2)	(m)	
Upper Georges Ri	40	100 yr. ARI Floo	1877.00	-0.65	13.21	7.50	13.46	0.00	2.84	1587.13	236.53	0.26
Upper Georges Ri	39	100 yr. ARI Floo	1877.00	-0.25	12.93		13.39	0.00	3.21	852.77	116.15	0.29
Upper Georges Ri	38	100 yr. ARI Floo	1877.00	-0.25	12.94		13.26	0.00	2.72	1032.84	141.57	0.25
Upper Georges Ri	37	100 yr. ARI Floo	1877.00	0.05	12.78		13.21	0.00	3.16	861.53	108.13	0.29
Upper Georges Ri	36	100 yr. ARI Floo	1877.00	0.05	12.65		13.10	0.00	3.58	1074.56	224.85	0.34
Upper Georges Ri	35	100 yr. ARI Floo	1877.00	-0.85	12.65		12.91	0.00	3.12	1297.63	171.12	0.29
Upper Georges Ri	34	100 yr. ARI Floo	1877.00	0.00	12.24	6.94	12.88	0.00	3.68	633.10	135.38	0.35
Upper Georges Ri	33.5		Culvert									
Upper Georges Ri	33	100 yr. ARI Floo	1877.00	0.00	12.13	7.15	12.56	0.00	3.19	933.66	135.18	0.30
Upper Georges Ri	32	100 yr. ARI Floo	1877.00	0.62	12.04		12.51	0.00	3.49	1031.79	153.99	0.34
Upper Georges Ri	31	100 yr. ARI Floo	1877.00	0.65	11.96		12.38	0.00	3.19	1034.45	154.87	0.32
Upper Georges Ri	30	100 yr. ARI Floo	1877.00	1.35	11.85		12.27	0.00	3.32	1157.25	165.48	0.33
Upper Georges Ri	29.3	100 yr. ARI Floo	1877.00	0.25	11.79		12.19	0.00	3.06	1059.16	153.10	0.30
Upper Georges Ri	29.2	100 yr. ARI Floo	1877.00	1.00	11.73	6.89	12.17	0.00	3.26	1029.51	151.49	0.32
Upper Georges Ri	29.15		Bridge									
Upper Georges Ri	29.1	100 yr. ARI Floo	1877.00	1.00	11.71		12.16	0.00	3.26	1026.38	151.44	0.32
Upper Georges Ri	29	100 yr. ARI Floo	1877.00	0.25	11.67	6.52	12.14	0.00	3.25	942.21	166.72	0.32
Upper Georges Ri	28.9	100 yr. ARI Floo	1877.00	0.25	11.70		12.12	0.00	3.14	1025.04	154.85	0.31
Upper Georges Ri	28.8	100 yr. ARI Floo	1877.00	0.25	11.69		12.12	0.00	3.14	1023.87	154.80	0.31
Upper Georges Ri	28.7	100 yr. ARI Floo	1877.00	0.25	11.49		12.09	0.00	3.71	894.16	156.42	0.37
Upper Georges Ri	28	100 yr. ARI Floo	1877.00	0.35	11.35		12.01	0.00	3.89	800.09	150.66	0.38
Upper Georges Ri	27	100 yr. ARI Floo	1877.00	-1.45	11.35		11.83	0.00	3.23	885.05	181.01	0.30
Upper Georges Ri	26	100 yr. ARI Floo	1877.00	0.35	11.41		11.68	0.00	2.90	1298.90	194.23	0.29
Upper Georges Ri	25	100 yr. ARI Floo	1877.00	-0.05	11.20	5.75	11.58	0.00	2.86	1025.95	177.27	0.29

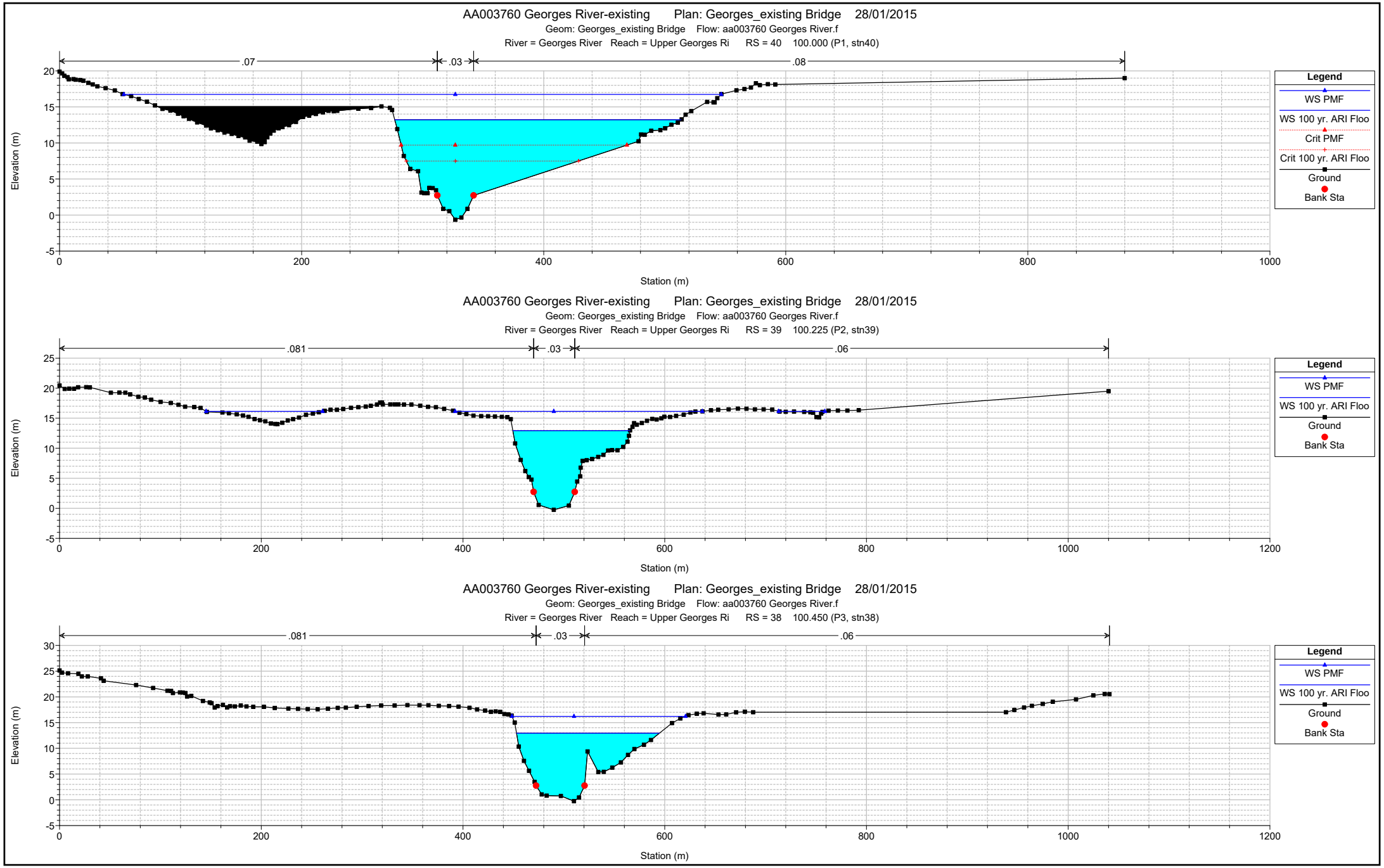
Profile Output Table - Standard Table 1

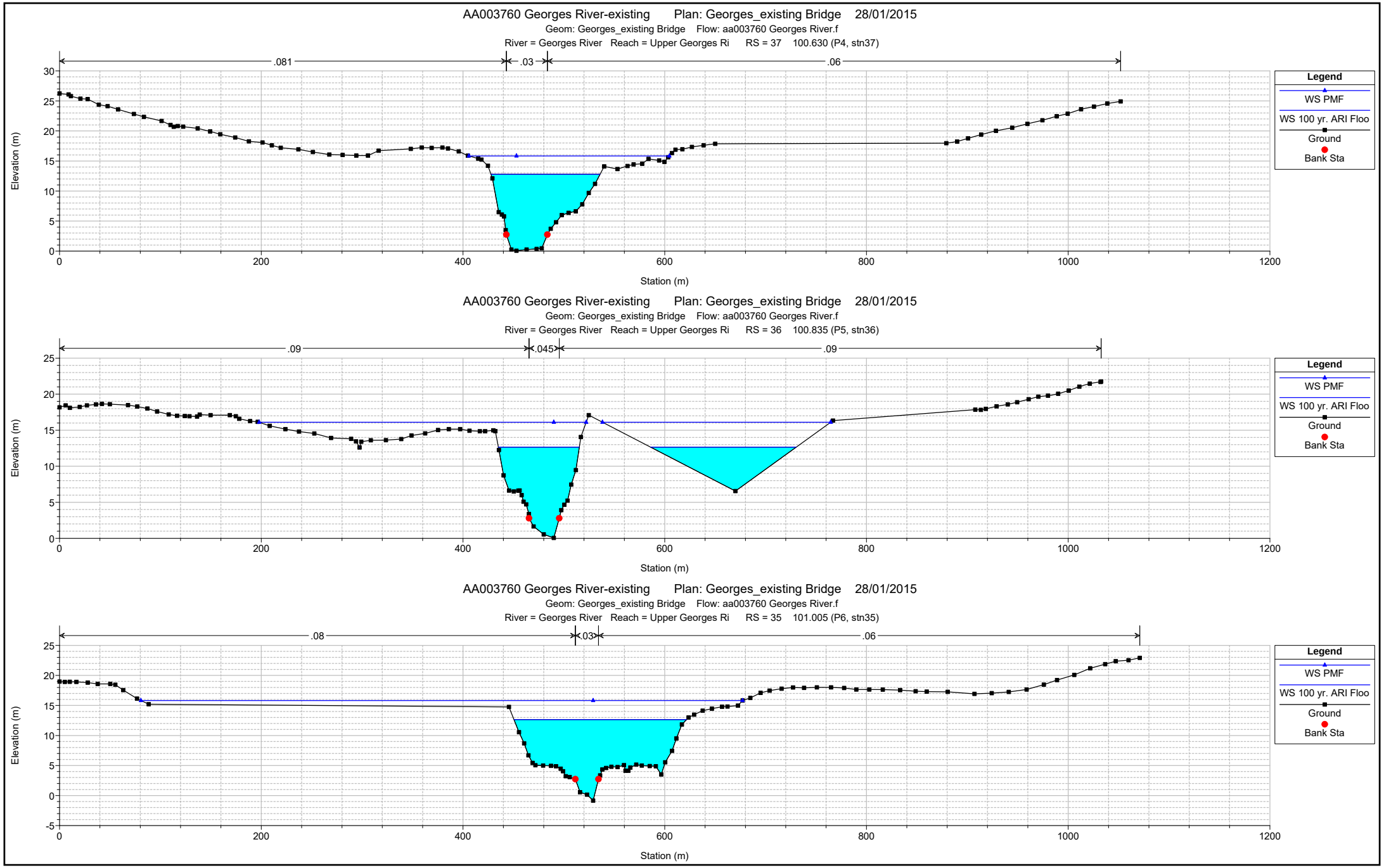
File Options Std. Tables User Tables Locations Help

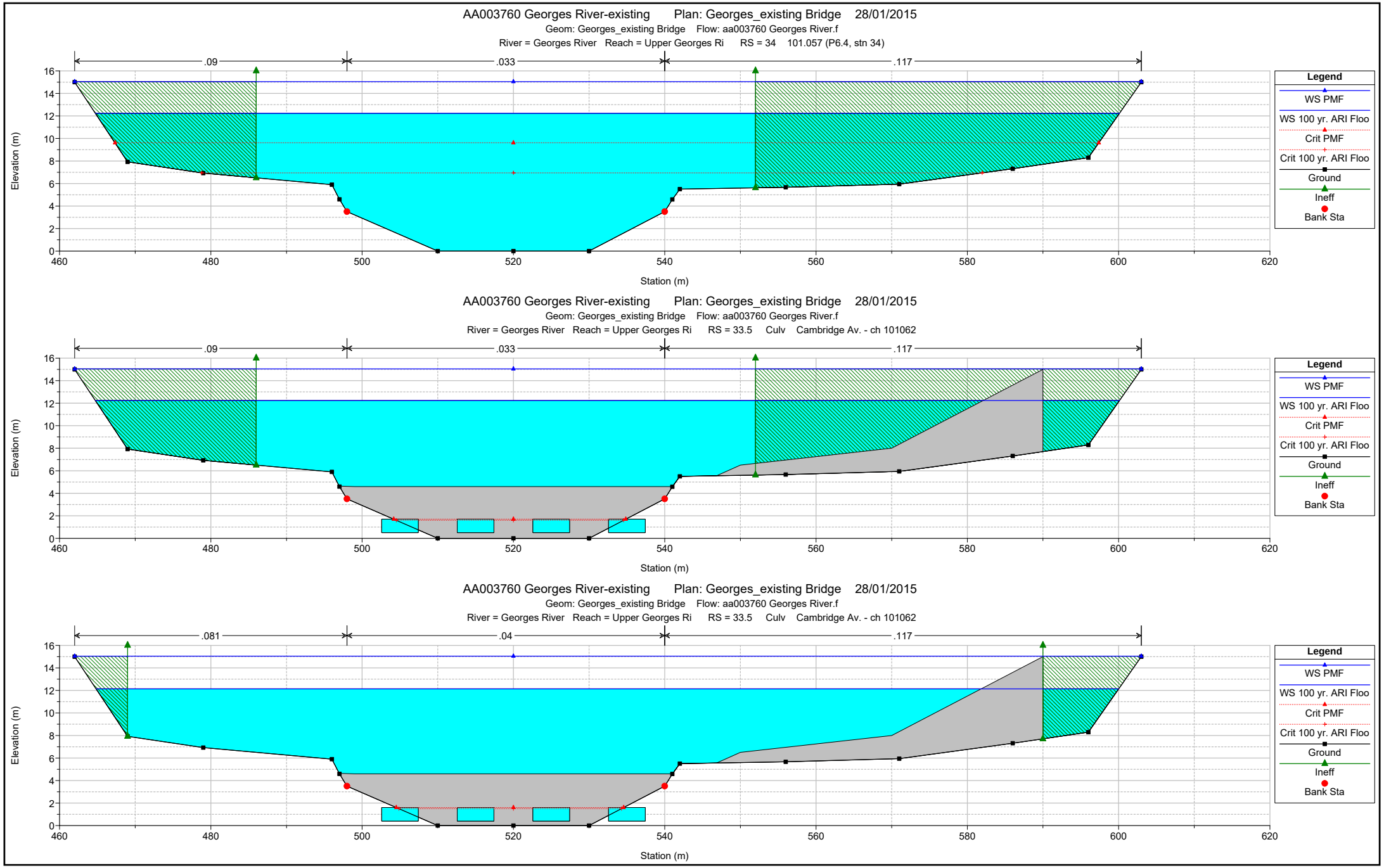
HEC-RAS Plan: exist bridge River: Georges River Reach: Upper Georges Ri Profile: PMF

Reload Data

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(m3/s)	(m)	(m)	(m)	(m)	(m/m)	(m/s)	(m2)	(m)	
Upper Georges Ri	40	PMF	3407.00	-0.65	16.74	9.70	17.07	0.00	3.52	2829.69	493.56	0.28
Upper Georges Ri	39	PMF	3407.00	-0.25	16.14		16.99	0.00	4.46	1458.15	406.35	0.36
Upper Georges Ri	38	PMF	3407.00	-0.25	16.21		16.75	0.00	3.62	1539.01	172.03	0.29
Upper Georges Ri	37	PMF	3407.00	0.05	15.83		16.68	0.00	4.48	1304.30	198.78	0.37
Upper Georges Ri	36	PMF	3407.00	0.05	16.11		16.54	0.00	3.95	2386.06	550.52	0.33
Upper Georges Ri	35	PMF	3407.00	-0.85	15.82		16.38	0.00	4.63	2236.03	596.56	0.38
Upper Georges Ri	34	PMF	3407.00	0.00	15.04	9.61	16.35	0.00	5.27	818.39	141.00	0.45
Upper Georges Ri	33.5		Culvert									
Upper Georges Ri	33	PMF	3407.00	0.00	15.07	9.66	15.80	0.00	4.29	1289.44	141.00	0.36
Upper Georges Ri	32	PMF	3407.00	0.62	14.78		15.73	0.00	4.98	1508.56	232.87	0.43
Upper Georges Ri	31	PMF	3407.00	0.65	14.72		15.51	0.00	4.44	1531.67	222.80	0.39
Upper Georges Ri	30	PMF	3407.00	1.35	14.58		15.36	0.00	4.58	1640.69	206.21	0.41
Upper Georges Ri	29.3	PMF	3407.00	0.25	14.50		15.23	0.00	4.24	1510.41	182.72	0.37
Upper Georges Ri	29.2	PMF	3407.00	1.00	14.40	9.27	15.21	0.00	4.50	1470.76	184.39	0.39
Upper Georges Ri	29.15		Bridge									
Upper Georges Ri	29.1	PMF	3407.00	1.00	14.21		15.06	0.00	4.58	1435.84	182.62	0.40
Upper Georges Ri	29	PMF	3407.00	0.25	14.22	9.56	15.04	0.00	4.43	1368.85	203.46	0.39
Upper Georges Ri	28.9	PMF	3407.00	0.25	14.22		15.02	0.00	4.38	1437.83	176.18	0.39
Upper Georges Ri	28.8	PMF	3407.00	0.25	14.21		15.01	0.00	4.39	1435.79	176.00	0.39
Upper Georges Ri	28.7	PMF	3407.00	0.25	13.88		14.96	0.00	5.15	1296.05	186.66	0.46
Upper Georges Ri	28	PMF	3407.00	0.35	13.71		14.85	0.00	5.32	1194.06	186.28	0.47
Upper Georges Ri	27	PMF	3407.00	-1.45	13.82		14.56	0.00	4.26	1672.15	386.13	0.36
Upper Georges Ri	26	PMF	3407.00	0.35	13.82		14.37	0.00	4.20	1909.21	302.26	0.38
Upper Georges Ri	25	PMF	3407.00	-0.05	13.50	8.20	14.21	0.00	4.03	1448.23	189.97	0.36


AA003760 Georges River-existing Plan: Georges_existing Bridge 28/01/2015
Geom: Georges_existing Bridge Flow: aa003760 Georges River.f
River = Georges River Reach = Upper Georges Ri RS = 40 100.000 (P1, stn40)
.07
.03
.08
Elevation (m)
Station (m)
Legend
WS PMF
WS 100 yr. ARI Floo
Crit PMF
Crit 100 yr. ARI Floo
Ground
Bank Sta
AA003760 Georges River-existing Plan: Georges_existing Bridge 28/01/2015
Geom: Georges_existing Bridge Flow: aa003760 Georges River.f
River = Georges River Reach = Upper Georges Ri RS = 39 100.225 (P2, stn39)
.081
.03
.06
Elevation (m)
Station (m)
Legend
WS PMF
WS 100 yr. ARI Floo
Ground
Bank Sta
AA003760 Georges River-existing Plan: Georges_existing Bridge 28/01/2015
Geom: Georges_existing Bridge Flow: aa003760 Georges River.f
River = Georges River Reach = Upper Georges Ri RS = 38 100.450 (P3, stn38)
.081
.03
.06
Elevation (m)
Station (m)
Legend
WS PMF
WS 100 yr. ARI Floo
Ground
Bank Sta

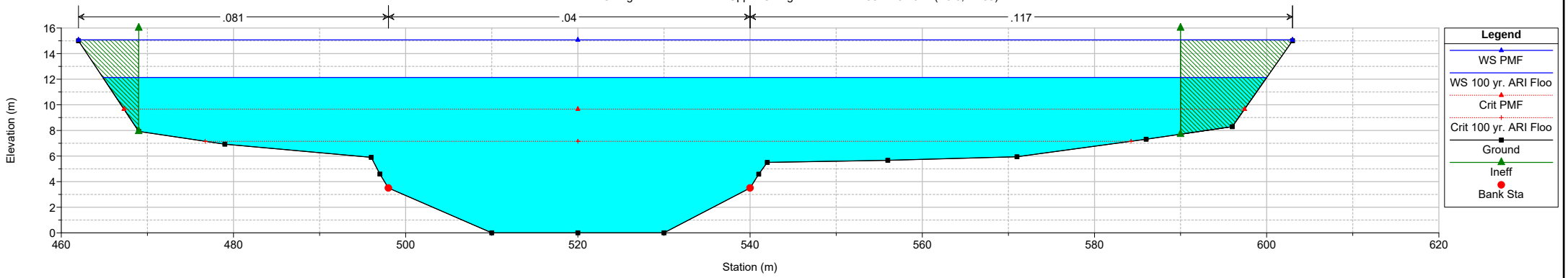

AA003760 Georges River-existing Plan: Georges_existing Bridge 28/01/2015
Geom: Georges_existing Bridge Flow: aa003760 Georges River.f
River = Georges River Reach = Upper Georges Ri RS = 37 100.630 (P4, stn37)
.081
.03
.06
Elevation (m)
Station (m)
Legend
WS PMF
WS 100 yr. ARI Floo
Ground
Bank Sta
AA003760 Georges River-existing Plan: Georges_existing Bridge 28/01/2015
Geom: Georges_existing Bridge Flow: aa003760 Georges River.f
River = Georges River Reach = Upper Georges Ri RS = 36 100.835 (P5, stn36)
.09
.045
.09
Elevation (m)
Station (m)
Legend
WS PMF
WS 100 yr. ARI Floo
Ground
Bank Sta
AA003760 Georges River-existing Plan: Georges_existing Bridge 28/01/2015
Geom: Georges_existing Bridge Flow: aa003760 Georges River.f
River = Georges River Reach = Upper Georges Ri RS = 35 101.005 (P6, stn35)
.08
.03
.06
Elevation (m)
Station (m)
Legend
WS PMF
WS 100 yr. ARI Floo
Ground
Bank Sta


AA003760 Georges River-existing Plan: Georges_existing Bridge 28/01/2015
Geom: Georges_existing Bridge Flow: aa003760 Georges River.f
River = Georges River Reach = Upper Georges Ri RS = 34 101.057 (P6.4, stn 34)
.09
.033
.117
Elevation (m)
Station (m)
Legend
WS PMF
WS 100 yr. ARI Floo
Crit PMF
Crit 100 yr. ARI Floo
Ground
Ineff
Bank Sta
AA003760 Georges River-existing Plan: Georges_existing Bridge 28/01/2015
Geom: Georges_existing Bridge Flow: aa003760 Georges River.f
River = Georges River Reach = Upper Georges Ri RS = 33.5 Culv Cambridge Av. - ch 101062
.09
.033
.117
Elevation (m)
Station (m)
Legend
WS PMF
WS 100 yr. ARI Floo
Crit PMF
Crit 100 yr. ARI Floo
Ground
Ineff
Bank Sta
AA003760 Georges River-existing Plan: Georges_existing Bridge 28/01/2015
Geom: Georges_existing Bridge Flow: aa003760 Georges River.f
River = Georges River Reach = Upper Georges Ri RS = 33.5 Culv Cambridge Av. - ch 101062
.081
.04
.117
Elevation (m)
Station (m)
Legend
WS PMF
WS 100 yr. ARI Floo
Crit PMF
Crit 100 yr. ARI Floo
Ground
Ineff
Bank Sta

AA003760 Georges River-existing Plan: Georges_existing Bridge 28/01/2015

Geom: Georges_existing Bridge Flow: aa003760 Georges River.f

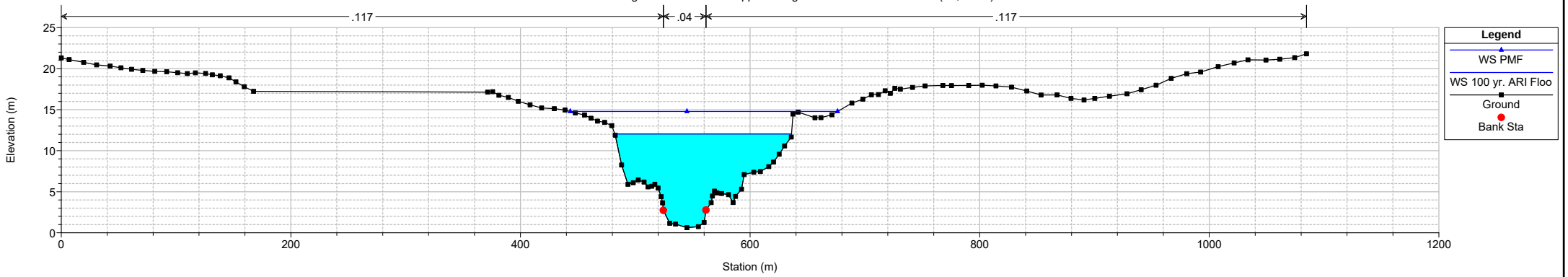
River = Georges River Reach = Upper Georges Ri RS = 33 101.072 (P6.6, stn33)



AA003760 Georges River-existing Plan: Georges_existing Bridge 28/01/2015

Geom: Georges_existing Bridge Flow: aa003760 Georges River.f

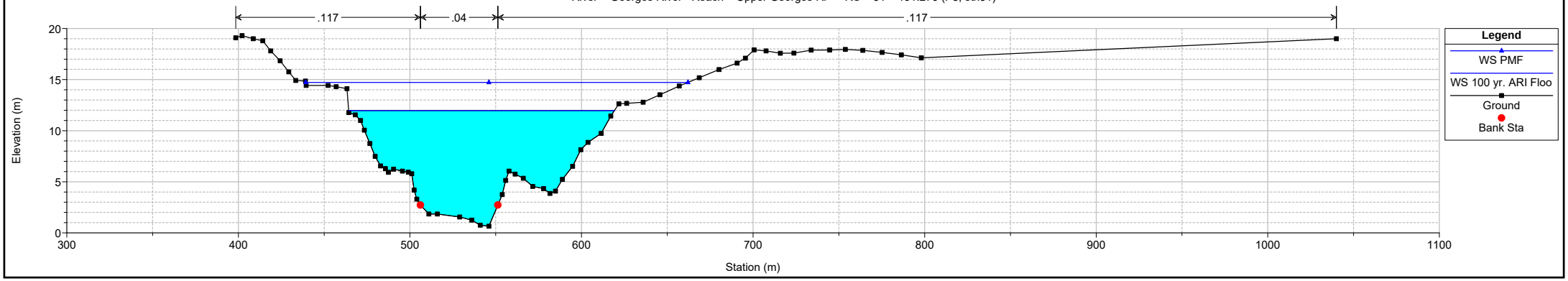
River = Georges River Reach = Upper Georges Ri RS = 32 101.120 (P7, stn32)

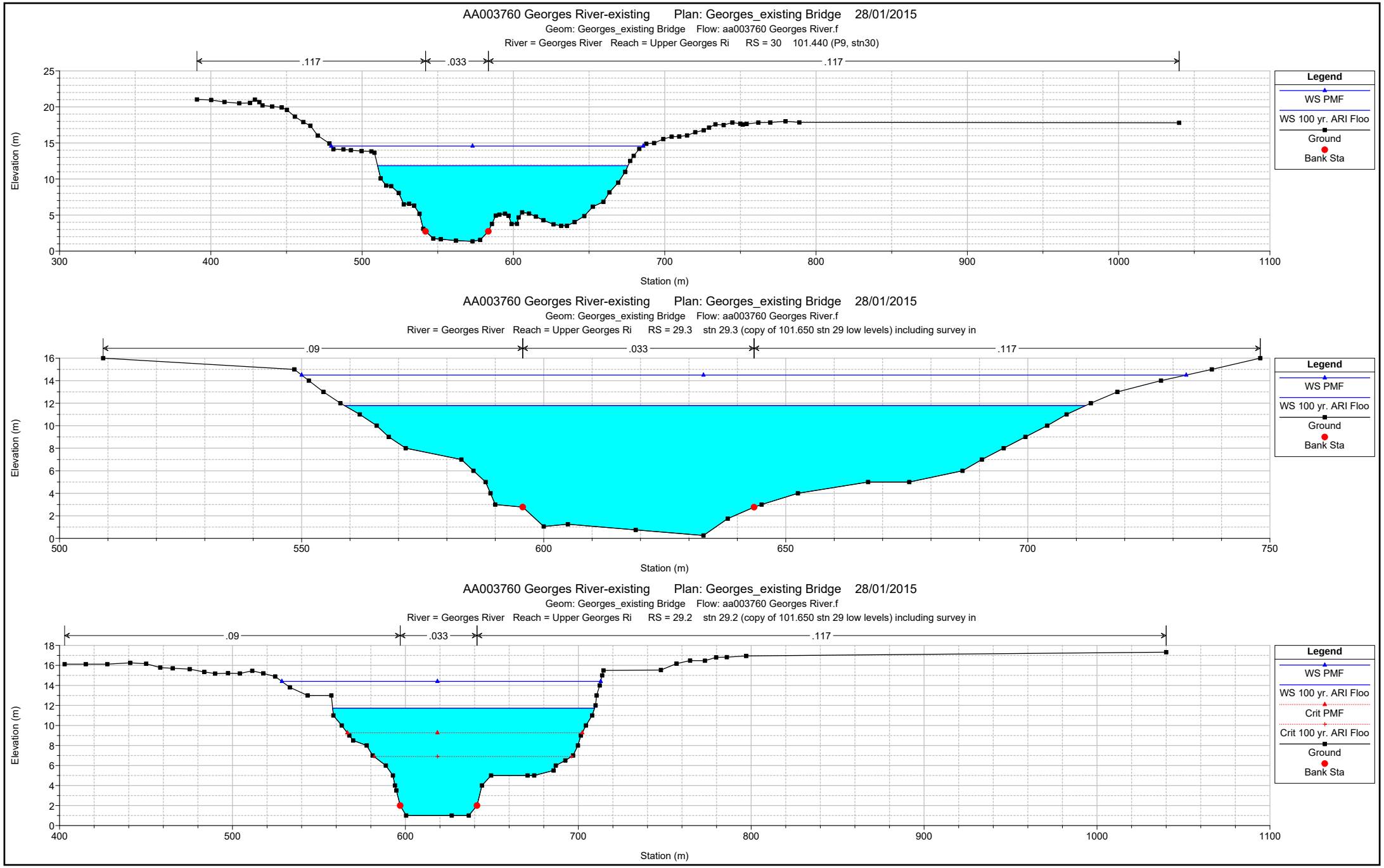


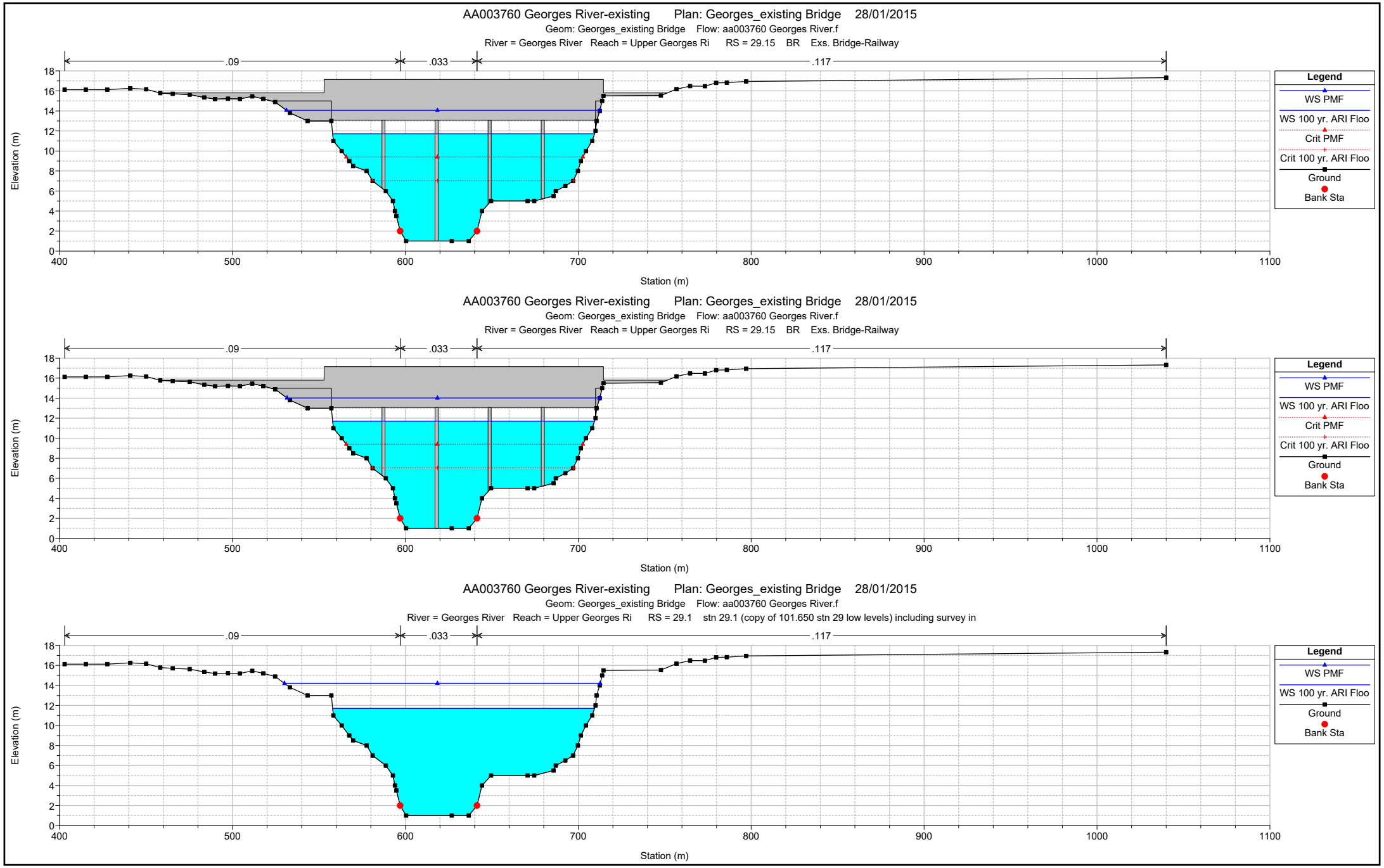
AA003760 Georges River-existing Plan: Georges_existing Bridge 28/01/2015

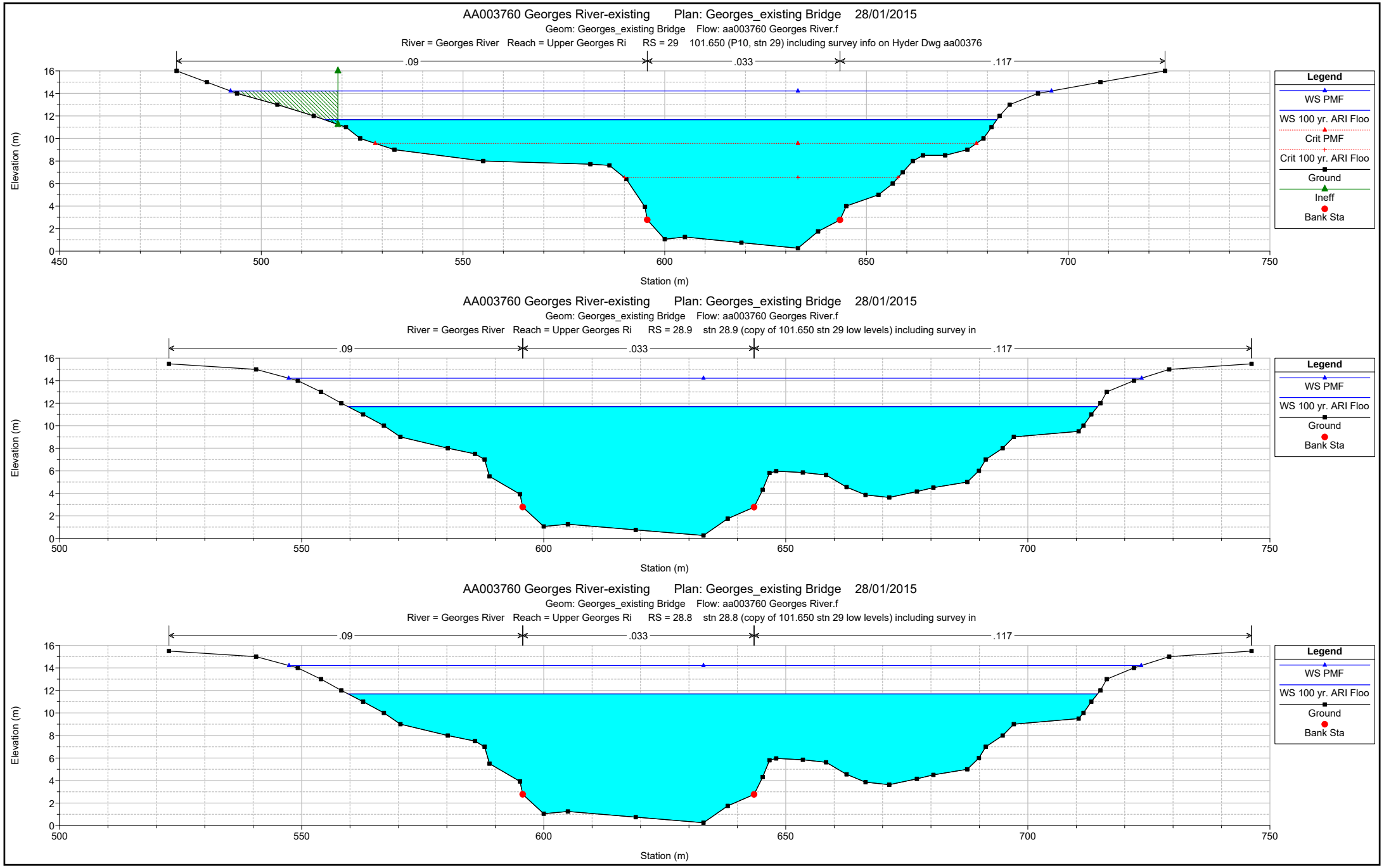
Geom: Georges_existing Bridge Flow: aa003760 Georges River.f

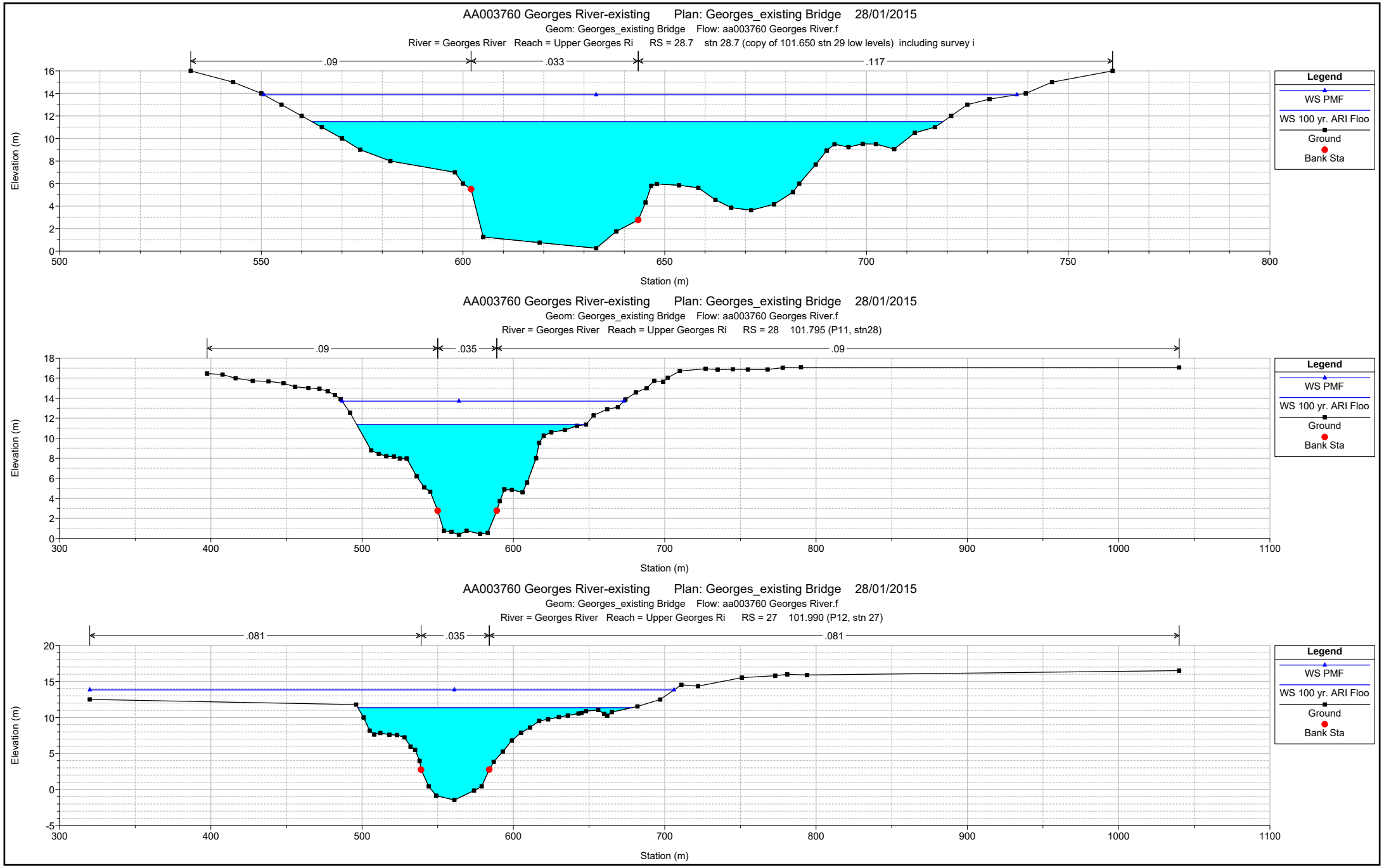
River = Georges River Reach = Upper Georges Ri RS = 31 101.270 (P8, stn31)




AA003760 Georges River-existing Plan: Georges_existing Bridge 28/01/2015
Geom: Georges_existing Bridge Flow: aa003760 Georges River.f
River = Georges River Reach = Upper Georges Ri RS = 30 101.440 (P9, stn30)
.117
.033
.117
Elevation (m)
Station (m)
Legend
WS PMF
WS 100 yr. ARI Floo
Ground
Bank Sta
AA003760 Georges River-existing Plan: Georges_existing Bridge 28/01/2015
Geom: Georges_existing Bridge Flow: aa003760 Georges River.f
River = Georges River Reach = Upper Georges Ri RS = 29.3 stn 29.3 (copy of 101.650 stn 29 low levels) including survey in
.09
.033
.117
Elevation (m)
Station (m)
Legend
WS PMF
WS 100 yr. ARI Floo
Ground
Bank Sta
AA003760 Georges River-existing Plan: Georges_existing Bridge 28/01/2015
Geom: Georges_existing Bridge Flow: aa003760 Georges River.f
River = Georges River Reach = Upper Georges Ri RS = 29.2 stn 29.2 (copy of 101.650 stn 29 low levels) including survey in
.09
.033
.117
Elevation (m)
Station (m)
Legend
WS PMF
WS 100 yr. ARI Floo
Crit PMF
Crit 100 yr. ARI Floo
Ground
Bank Sta


AA003760 Georges River-existing Plan: Georges_existing Bridge 28/01/2015
Geom: Georges_existing Bridge Flow: aa003760 Georges River.f
River = Georges River Reach = Upper Georges Ri RS = 29.15 BR Exs. Bridge-Railway
.09
.033
.117
Elevation (m)
Station (m)
Legend
WS PMF
WS 100 yr. ARI Floo
Crit PMF
Crit 100 yr. ARI Floo
Ground
Bank Sta
AA003760 Georges River-existing Plan: Georges_existing Bridge 28/01/2015
Geom: Georges_existing Bridge Flow: aa003760 Georges River.f
River = Georges River Reach = Upper Georges Ri RS = 29.15 BR Exs. Bridge-Railway
.09
.033
.117
Elevation (m)
Station (m)
Legend
WS PMF
WS 100 yr. ARI Floo
Crit PMF
Crit 100 yr. ARI Floo
Ground
Bank Sta
AA003760 Georges River-existing Plan: Georges_existing Bridge 28/01/2015
Geom: Georges_existing Bridge Flow: aa003760 Georges River.f
River = Georges River Reach = Upper Georges Ri RS = 29.1 stn 29.1 (copy of 101.650 stn 29 low levels) including survey in
.09
.033
.117
Elevation (m)
Station (m)
Legend
WS PMF
WS 100 yr. ARI Floo
Ground
Bank Sta

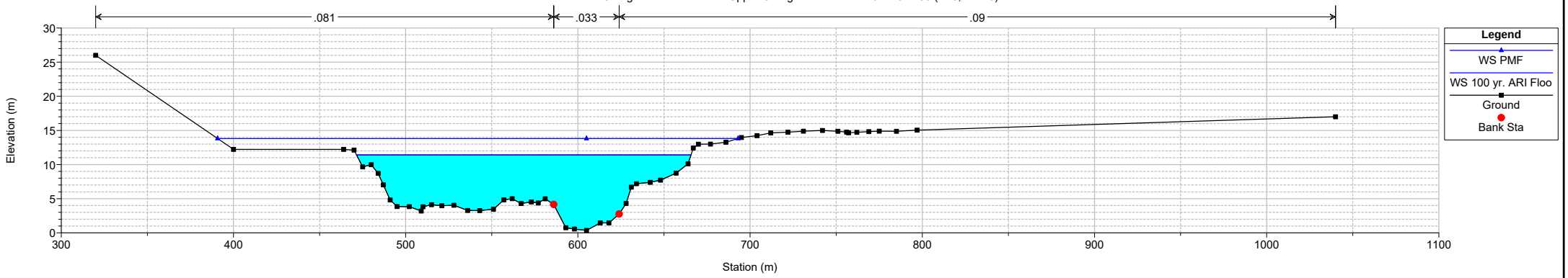

AA003760 Georges River-existing Plan: Georges_existing Bridge 28/01/2015
Geom: Georges_existing Bridge Flow: aa003760 Georges River.f
River = Georges River Reach = Upper Georges Ri RS = 29 101.650 (P10, stn 29) including survey info on Hyder Dwg aa00376
.09
.033
.117
Elevation (m)
Station (m)
Legend
WS PMF
WS 100 yr. ARI Floo
Crit PMF
Crit 100 yr. ARI Floo
Ground
Ineff
Bank Sta
AA003760 Georges River-existing Plan: Georges_existing Bridge 28/01/2015
Geom: Georges_existing Bridge Flow: aa003760 Georges River.f
River = Georges River Reach = Upper Georges Ri RS = 28.9 stn 28.9 (copy of 101.650 stn 29 low levels) including survey in
.09
.033
.117
Elevation (m)
Station (m)
Legend
WS PMF
WS 100 yr. ARI Floo
Ground
Bank Sta
AA003760 Georges River-existing Plan: Georges_existing Bridge 28/01/2015
Geom: Georges_existing Bridge Flow: aa003760 Georges River.f
River = Georges River Reach = Upper Georges Ri RS = 28.8 stn 28.8 (copy of 101.650 stn 29 low levels) including survey in
.09
.033
.117
Elevation (m)
Station (m)
Legend
WS PMF
WS 100 yr. ARI Floo
Ground
Bank Sta


AA003760 Georges River-existing Plan: Georges_existing Bridge 28/01/2015
Geom: Georges_existing Bridge Flow: aa003760 Georges River.f
River = Georges River Reach = Upper Georges Ri RS = 28.7 stn 28.7 (copy of 101.650 stn 29 low levels) including survey i
.09
.033
.117
Elevation (m)
Station (m)
Legend
WS PMF
WS 100 yr. ARI Floo
Ground
Bank Sta
AA003760 Georges River-existing Plan: Georges_existing Bridge 28/01/2015
Geom: Georges_existing Bridge Flow: aa003760 Georges River.f
River = Georges River Reach = Upper Georges Ri RS = 28 101.795 (P11, stn28)
.09
.035
.09
Elevation (m)
Station (m)
Legend
WS PMF
WS 100 yr. ARI Floo
Ground
Bank Sta
AA003760 Georges River-existing Plan: Georges_existing Bridge 28/01/2015
Geom: Georges_existing Bridge Flow: aa003760 Georges River.f
River = Georges River Reach = Upper Georges Ri RS = 27 101.990 (P12, stn 27)
.081
.035
.081
Elevation (m)
Station (m)
Legend
WS PMF
WS 100 yr. ARI Floo
Ground
Bank Sta

AA003760 Georges River-existing Plan: Georges_existing Bridge 28/01/2015

Geom: Georges_existing Bridge Flow: aa003760 Georges River.f

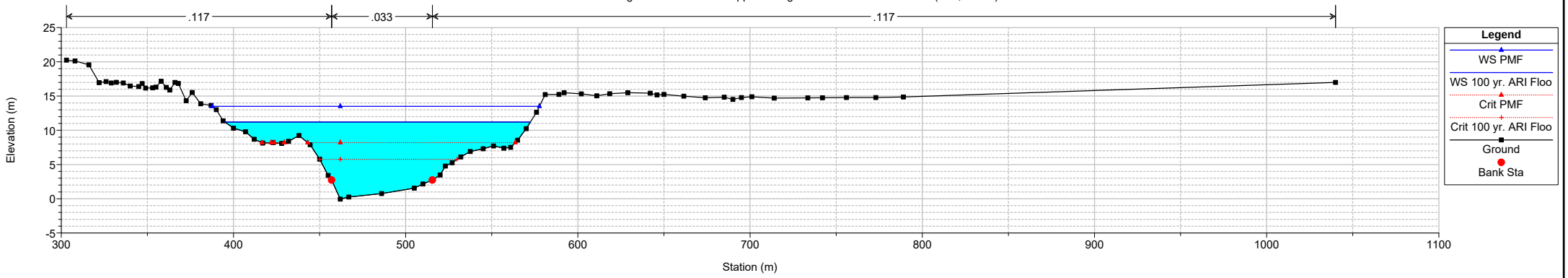
River = Georges River Reach = Upper Georges Ri RS = 26 102.185 (P13, stn 26)



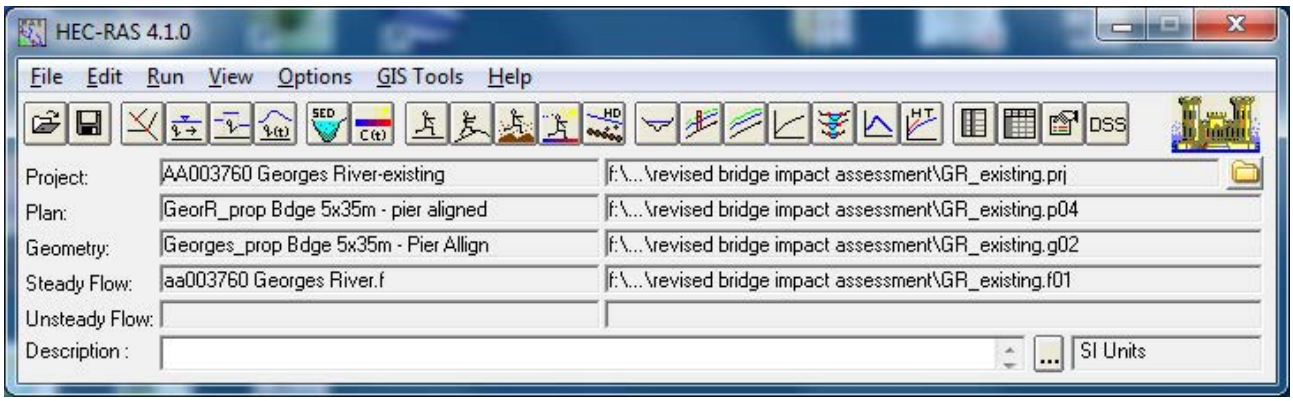
AA003760 Georges River-existing Plan: Georges_existing Bridge 28/01/2015

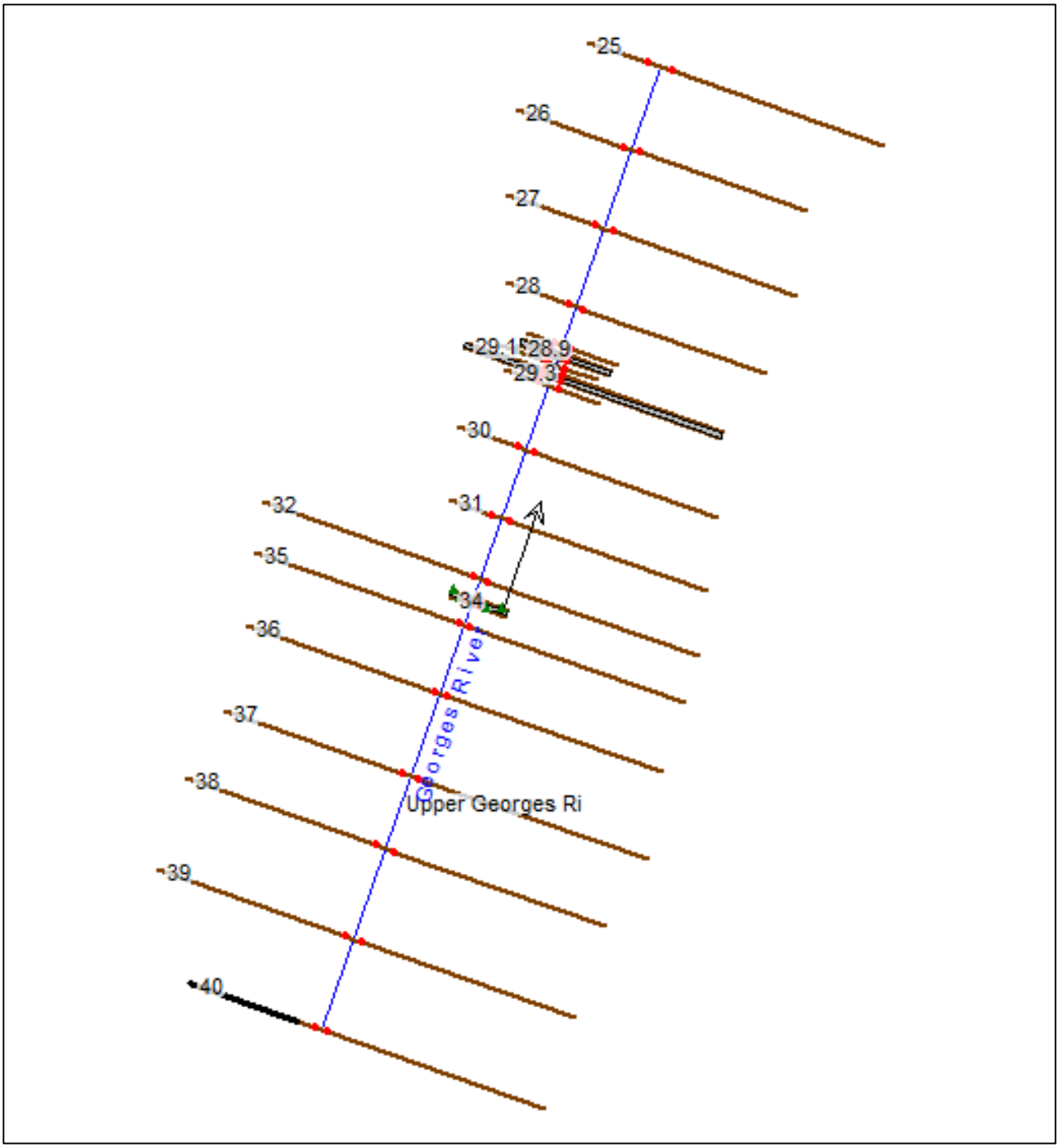
Geom: Georges_existing Bridge Flow: aa003760 Georges River.f

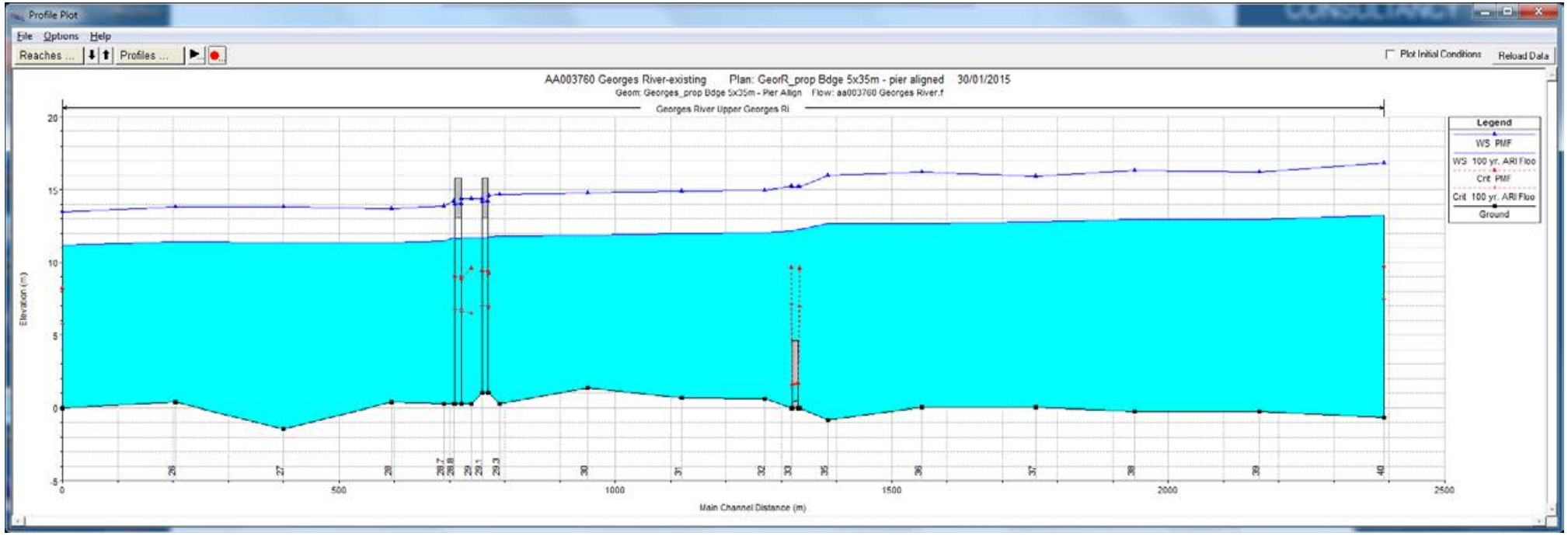
River = Georges River Reach = Upper Georges Ri RS = 25 102.390 (P14, stn 25)

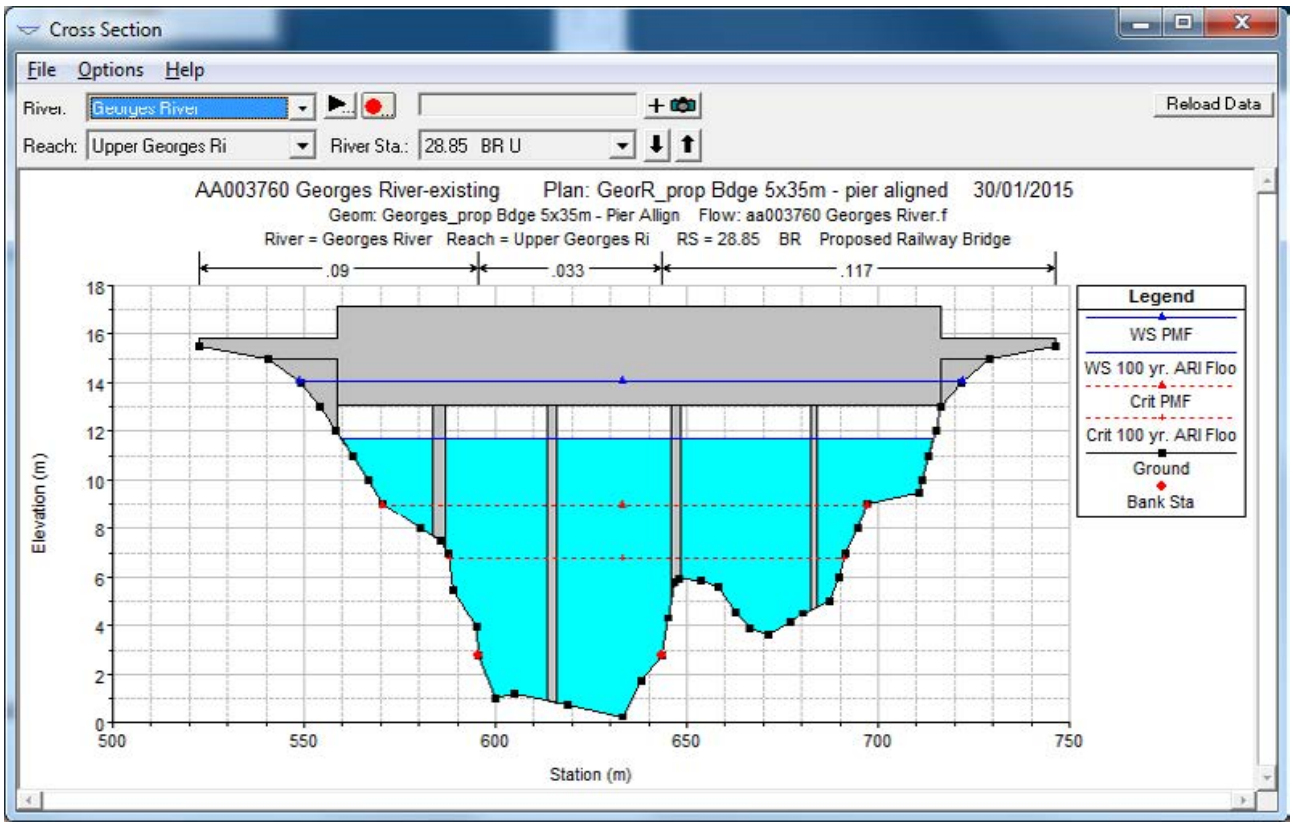


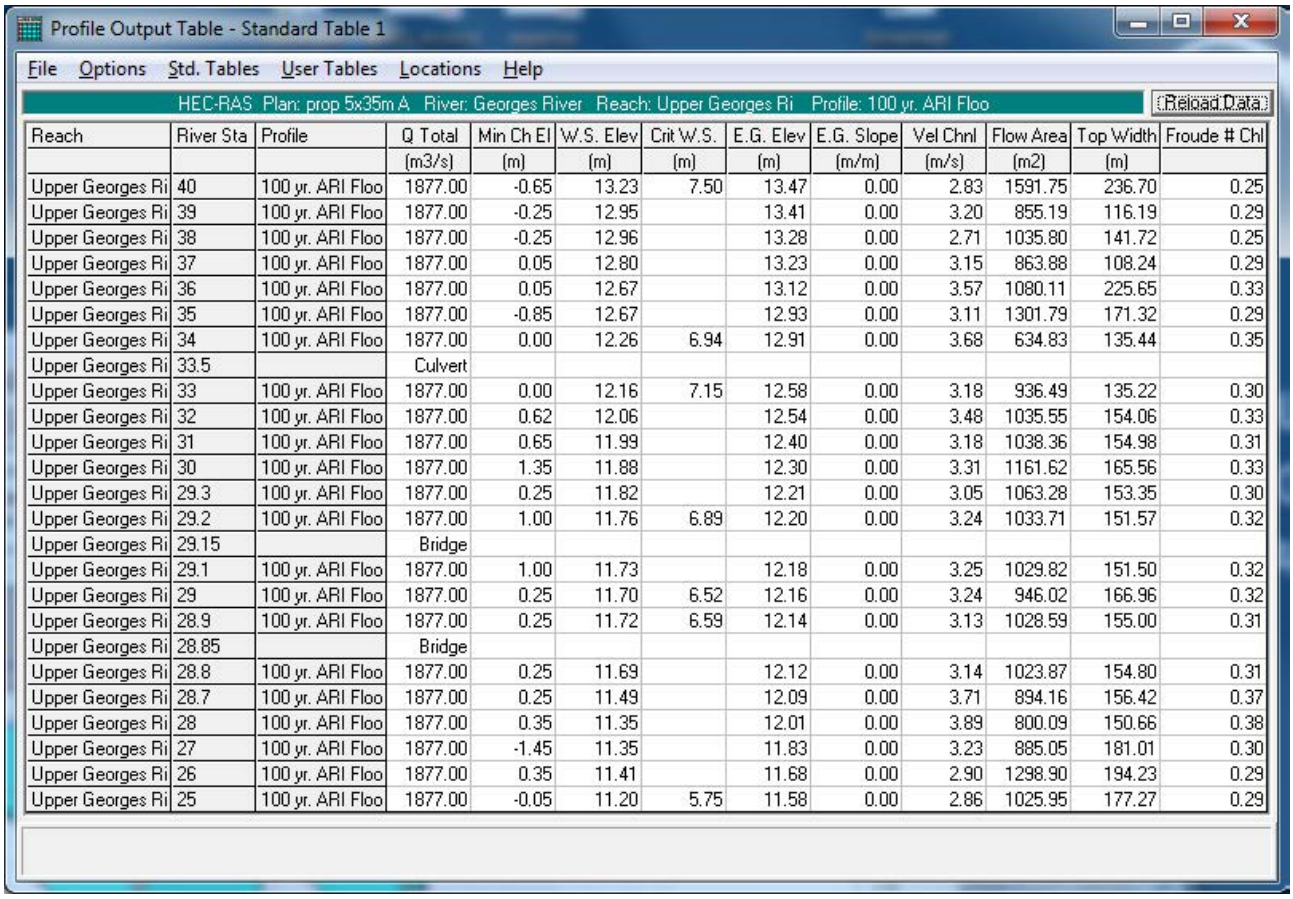
Proposed Bridge Information


HEC-RAS 4.1.0
File Edit Run View Options GIS Tools Help
Project: AA003760 Georges River-existing f:\...\revised bridge impact assessment\GR_existing.prj
Plan: GeorR_prop Bdge 5x35m - pier aligned f:\...\revised bridge impact assessment\GR_existing.p04
Geometry: Georges_prop Bdge 5x35m - Pier Allign f:\...\revised bridge impact assessment\GR_existing.g02
Steady Flow: aa003760 Georges River.f f:\...\revised bridge impact assessment\GR_existing.f01
Unsteady Flow:
Description :
SI Units

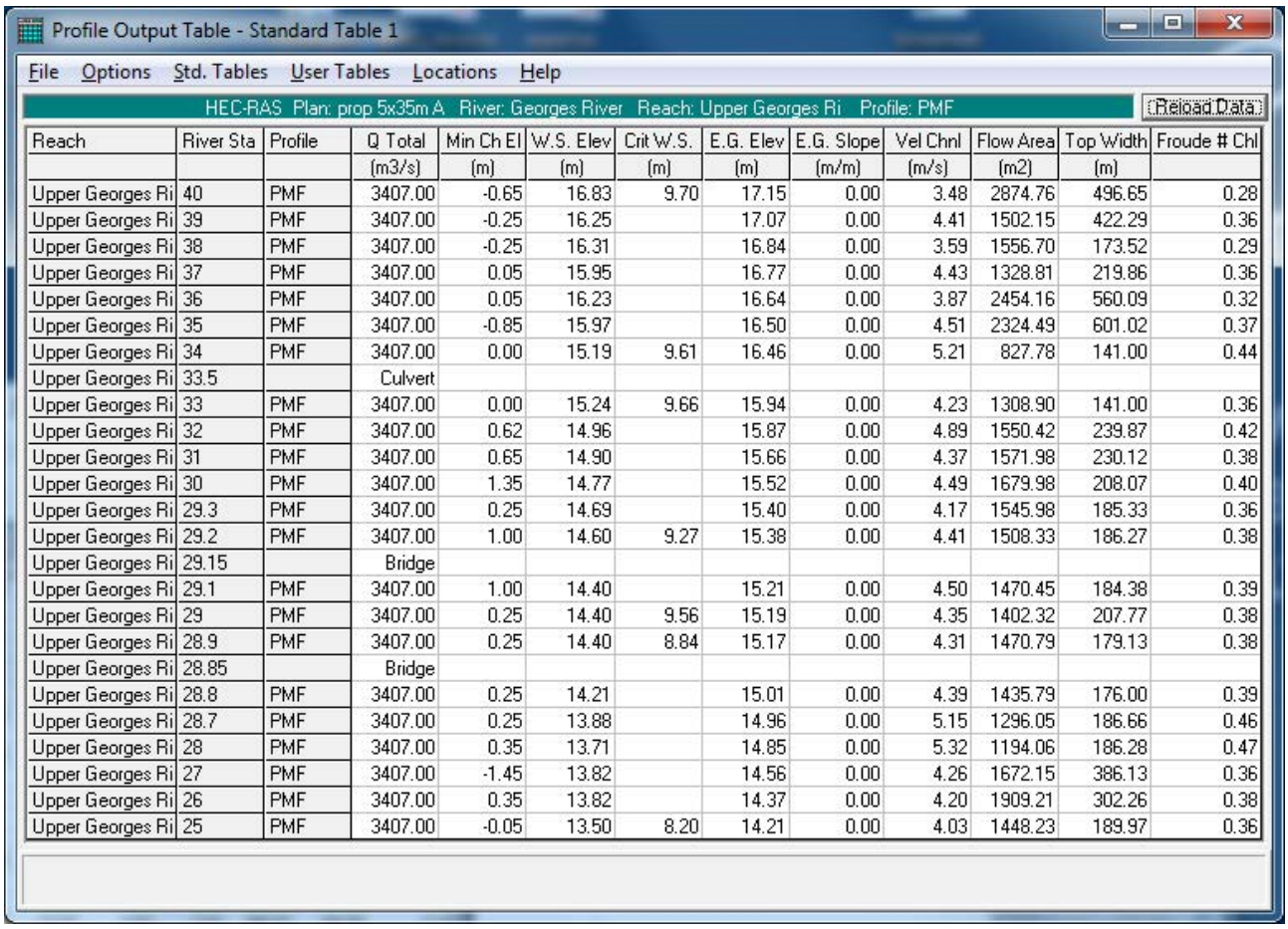

25
26
27
28
29.1
28.9
29.3
30
32
31
35
34
36
37
38
39
40
Georges River
Upper Georges Ri


Profile Plot
File Options Help
Reaches ...
Profiles ...
Plot Initial Conditions
Reload Data
AA003760 Georges River-existing Plan: GeorR_prop Bdge 5x35m - pier aligned 30/01/2015
Geom: Georges_prop Bdge 5x35m - Pier Align Flow: aa003760 Georges River.f
Georges River Upper Georges Ri
Legend
WS PMF
WS 100 yr. ARI Floo
Crit PMF
Crit 100 yr. ARI Floo
Ground
Elevation (m)
Main Channel Distance (m)

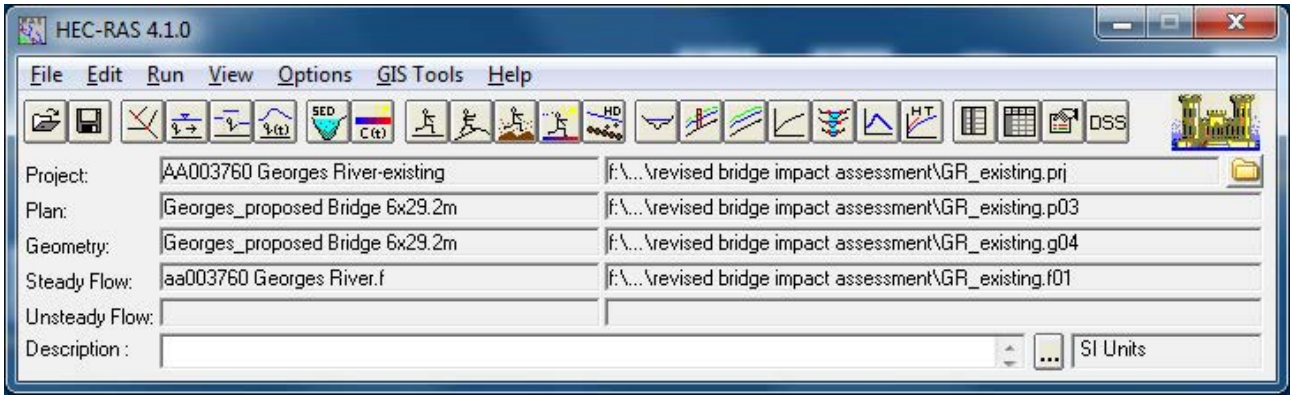




Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(m3/s)	(m)	(m)	(m)	(m)	(m/m)	(m/s)	(m2)	(m)	
Upper Georges Ri	40	100 yr. ARI Floo	1877.00	-0.65	13.23	7.50	13.47	0.00	2.83	1591.75	236.70	0.25
Upper Georges Ri	39	100 yr. ARI Floo	1877.00	-0.25	12.95		13.41	0.00	3.20	855.19	116.19	0.29
Upper Georges Ri	38	100 yr. ARI Floo	1877.00	-0.25	12.96		13.28	0.00	2.71	1035.80	141.72	0.25
Upper Georges Ri	37	100 yr. ARI Floo	1877.00	0.05	12.80		13.23	0.00	3.15	863.88	108.24	0.29
Upper Georges Ri	36	100 yr. ARI Floo	1877.00	0.05	12.67		13.12	0.00	3.57	1080.11	225.65	0.33
Upper Georges Ri	35	100 yr. ARI Floo	1877.00	-0.85	12.67		12.93	0.00	3.11	1301.79	171.32	0.29
Upper Georges Ri	34	100 yr. ARI Floo	1877.00	0.00	12.26	6.94	12.91	0.00	3.68	634.83	135.44	0.35
Upper Georges Ri	33.5		Culvert									
Upper Georges Ri	33	100 yr. ARI Floo	1877.00	0.00	12.16	7.15	12.58	0.00	3.18	936.49	135.22	0.30
Upper Georges Ri	32	100 yr. ARI Floo	1877.00	0.62	12.06		12.54	0.00	3.48	1035.55	154.06	0.33
Upper Georges Ri	31	100 yr. ARI Floo	1877.00	0.65	11.99		12.40	0.00	3.18	1038.36	154.98	0.31
Upper Georges Ri	30	100 yr. ARI Floo	1877.00	1.35	11.88		12.30	0.00	3.31	1161.62	165.56	0.33
Upper Georges Ri	29.3	100 yr. ARI Floo	1877.00	0.25	11.82		12.21	0.00	3.05	1063.28	153.35	0.30
Upper Georges Ri	29.2	100 yr. ARI Floo	1877.00	1.00	11.76	6.89	12.20	0.00	3.24	1033.71	151.57	0.32
Upper Georges Ri	29.15		Bridge									
Upper Georges Ri	29.1	100 yr. ARI Floo	1877.00	1.00	11.73		12.18	0.00	3.25	1029.82	151.50	0.32
Upper Georges Ri	29	100 yr. ARI Floo	1877.00	0.25	11.70	6.52	12.16	0.00	3.24	946.02	166.96	0.32
Upper Georges Ri	28.9	100 yr. ARI Floo	1877.00	0.25	11.72	6.59	12.14	0.00	3.13	1028.59	155.00	0.31
Upper Georges Ri	28.85		Bridge									
Upper Georges Ri	28.8	100 yr. ARI Floo	1877.00	0.25	11.69		12.12	0.00	3.14	1023.87	154.80	0.31
Upper Georges Ri	28.7	100 yr. ARI Floo	1877.00	0.25	11.49		12.09	0.00	3.71	894.16	156.42	0.37
Upper Georges Ri	28	100 yr. ARI Floo	1877.00	0.35	11.35		12.01	0.00	3.89	800.09	150.66	0.38
Upper Georges Ri	27	100 yr. ARI Floo	1877.00	-1.45	11.35		11.83	0.00	3.23	885.05	181.01	0.30
Upper Georges Ri	26	100 yr. ARI Floo	1877.00	0.35	11.41		11.68	0.00	2.90	1298.90	194.23	0.29
Upper Georges Ri	25	100 yr. ARI Floo	1877.00	-0.05	11.20	5.75	11.58	0.00	2.86	1025.95	177.27	0.29



Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(m3/s)	(m)	(m)	(m)	(m)	(m/m)	(m/s)	(m2)	(m)	
Upper Georges Ri	40	PMF	3407.00	-0.65	16.83	9.70	17.15	0.00	3.48	2874.76	496.65	0.28
Upper Georges Ri	39	PMF	3407.00	-0.25	16.25		17.07	0.00	4.41	1502.15	422.29	0.36
Upper Georges Ri	38	PMF	3407.00	-0.25	16.31		16.84	0.00	3.59	1556.70	173.52	0.29
Upper Georges Ri	37	PMF	3407.00	0.05	15.95		16.77	0.00	4.43	1328.81	219.86	0.36
Upper Georges Ri	36	PMF	3407.00	0.05	16.23		16.64	0.00	3.87	2454.16	560.09	0.32
Upper Georges Ri	35	PMF	3407.00	-0.85	15.97		16.50	0.00	4.51	2324.49	601.02	0.37
Upper Georges Ri	34	PMF	3407.00	0.00	15.19	9.61	16.46	0.00	5.21	827.78	141.00	0.44
Upper Georges Ri	33.5		Culvert									
Upper Georges Ri	33	PMF	3407.00	0.00	15.24	9.66	15.94	0.00	4.23	1308.90	141.00	0.36
Upper Georges Ri	32	PMF	3407.00	0.62	14.96		15.87	0.00	4.89	1550.42	239.87	0.42
Upper Georges Ri	31	PMF	3407.00	0.65	14.90		15.66	0.00	4.37	1571.98	230.12	0.38
Upper Georges Ri	30	PMF	3407.00	1.35	14.77		15.52	0.00	4.49	1679.98	208.07	0.40
Upper Georges Ri	29.3	PMF	3407.00	0.25	14.69		15.40	0.00	4.17	1545.98	185.33	0.36
Upper Georges Ri	29.2	PMF	3407.00	1.00	14.60	9.27	15.38	0.00	4.41	1508.33	186.27	0.38
Upper Georges Ri	29.15		Bridge									
Upper Georges Ri	29.1	PMF	3407.00	1.00	14.40		15.21	0.00	4.50	1470.45	184.38	0.39
Upper Georges Ri	29	PMF	3407.00	0.25	14.40	9.56	15.19	0.00	4.35	1402.32	207.77	0.38
Upper Georges Ri	28.9	PMF	3407.00	0.25	14.40	8.84	15.17	0.00	4.31	1470.79	179.13	0.38
Upper Georges Ri	28.85		Bridge									
Upper Georges Ri	28.8	PMF	3407.00	0.25	14.21		15.01	0.00	4.39	1435.79	176.00	0.39
Upper Georges Ri	28.7	PMF	3407.00	0.25	13.88		14.96	0.00	5.15	1296.05	186.66	0.46
Upper Georges Ri	28	PMF	3407.00	0.35	13.71		14.85	0.00	5.32	1194.06	186.28	0.47
Upper Georges Ri	27	PMF	3407.00	-1.45	13.82		14.56	0.00	4.26	1672.15	386.13	0.36
Upper Georges Ri	26	PMF	3407.00	0.35	13.82		14.37	0.00	4.20	1909.21	302.26	0.38
Upper Georges Ri	25	PMF	3407.00	-0.05	13.50	8.20	14.21	0.00	4.03	1448.23	189.97	0.36


HEC-RAS 4.1.0
File Edit Run View Options GIS Tools Help
Project: AA003760 Georges River-existing
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Plan: Georges_proposed Bridge 6x29.2m
f:\...\revised bridge impact assessment\GR_existing.p03
Geometry: Georges_proposed Bridge 6x29.2m
f:\...\revised bridge impact assessment\GR_existing.g04
Steady Flow: aa003760 Georges River.f
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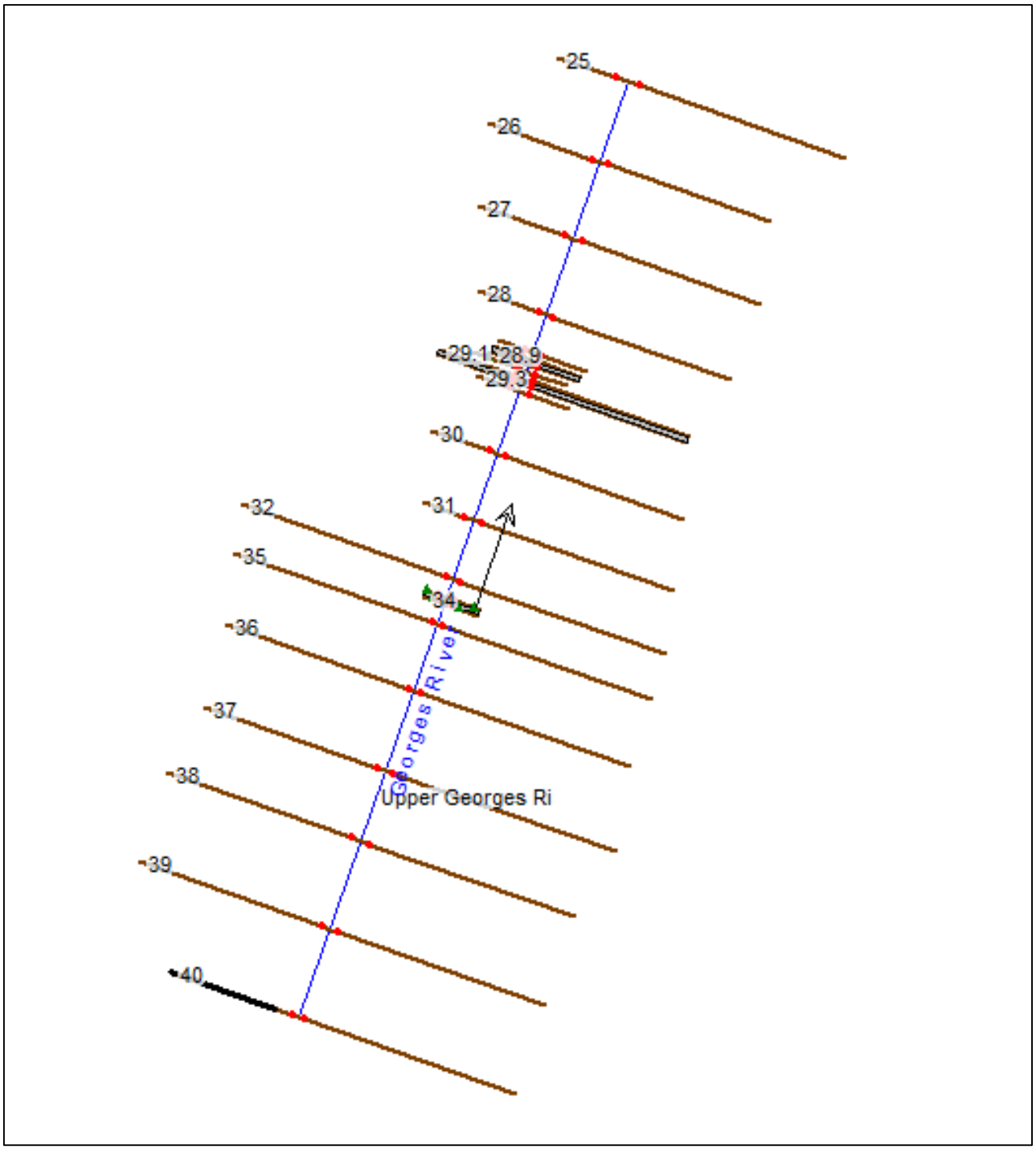
Unsteady Flow:
Description :
SI Units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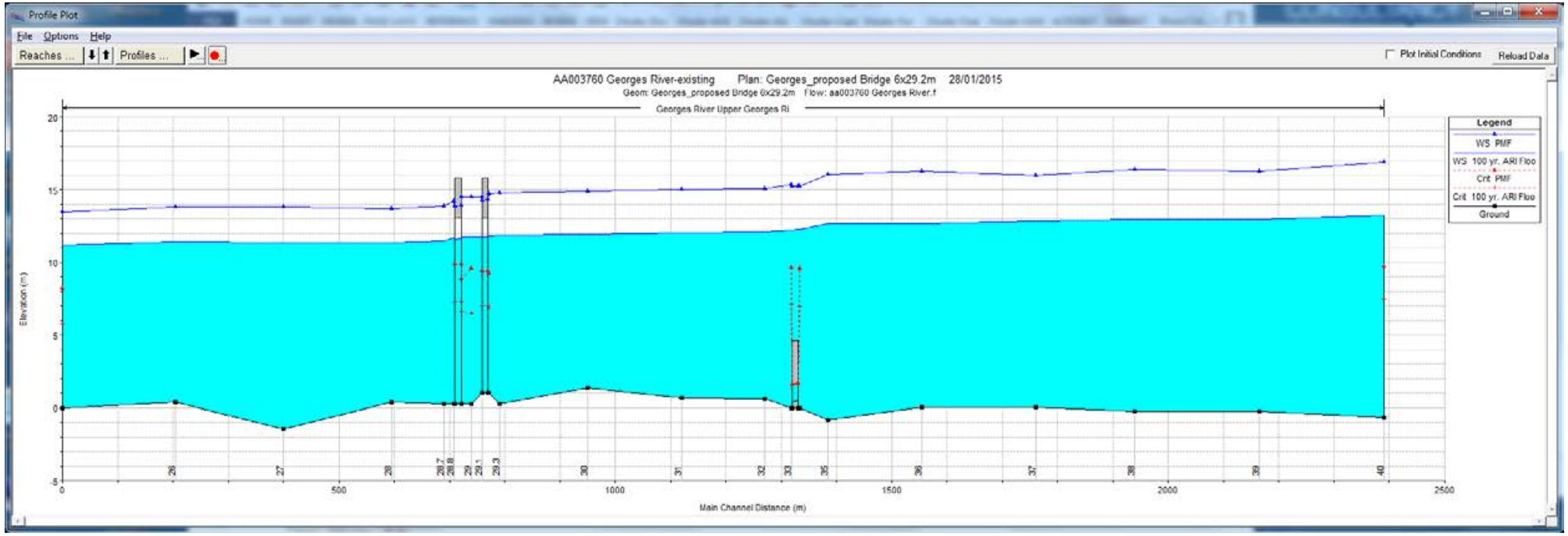
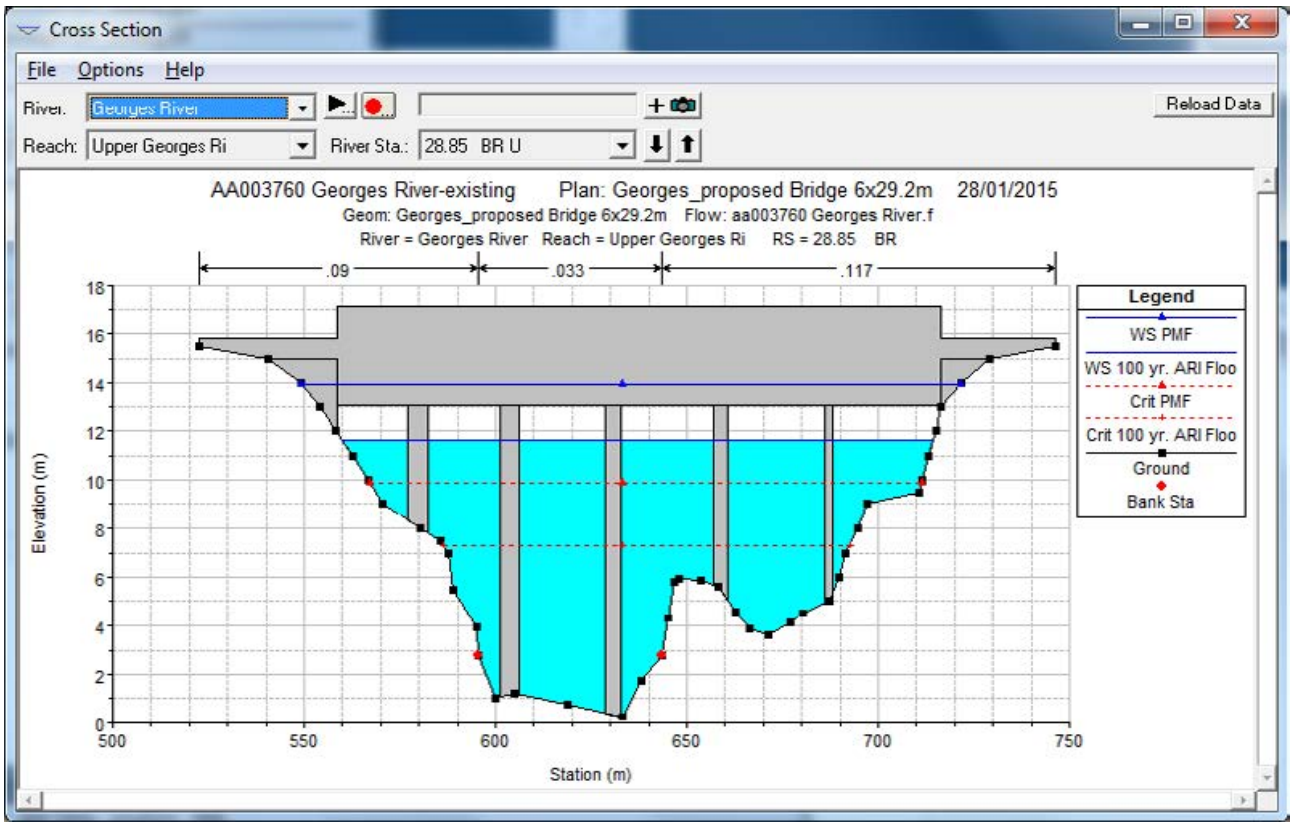
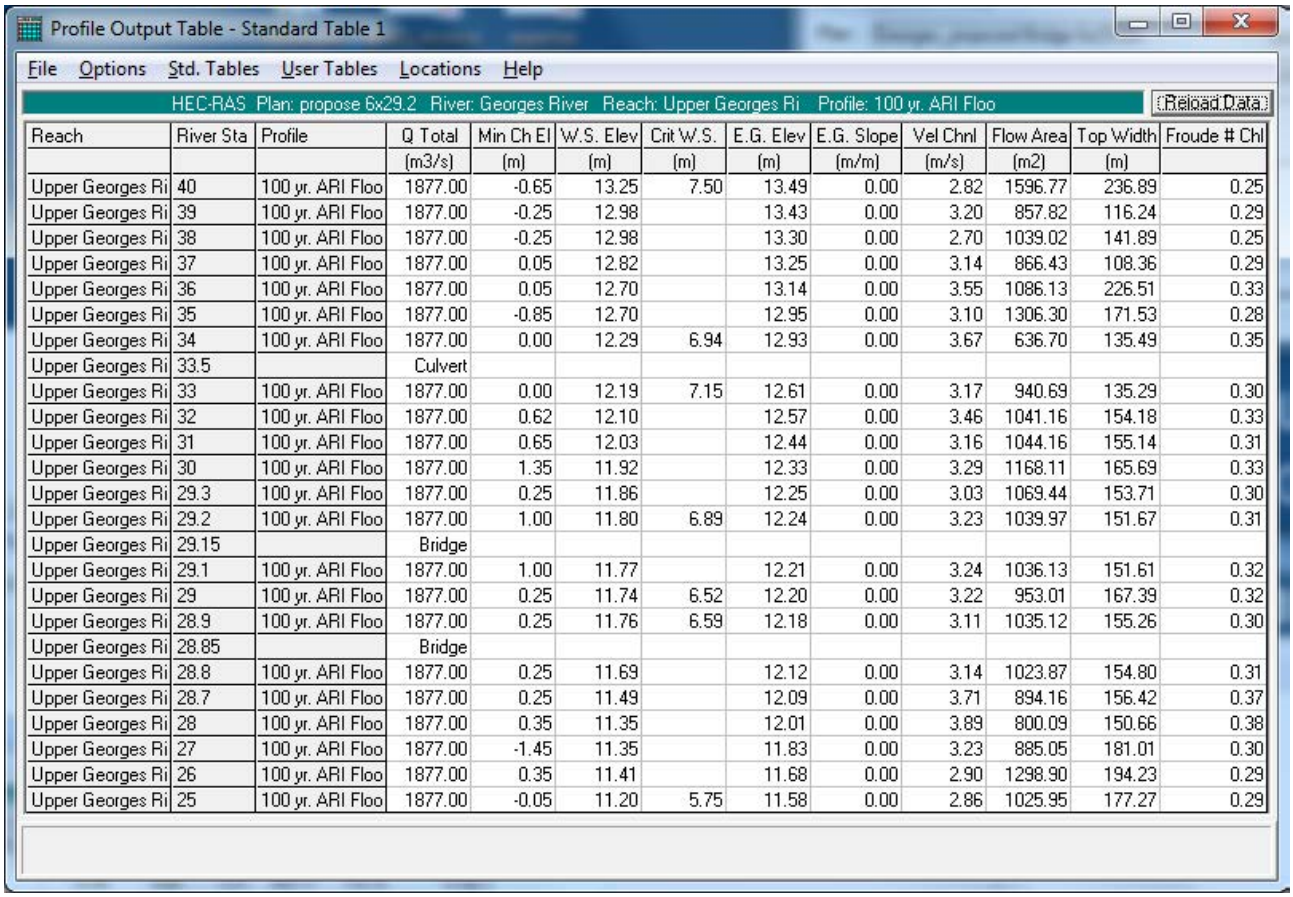
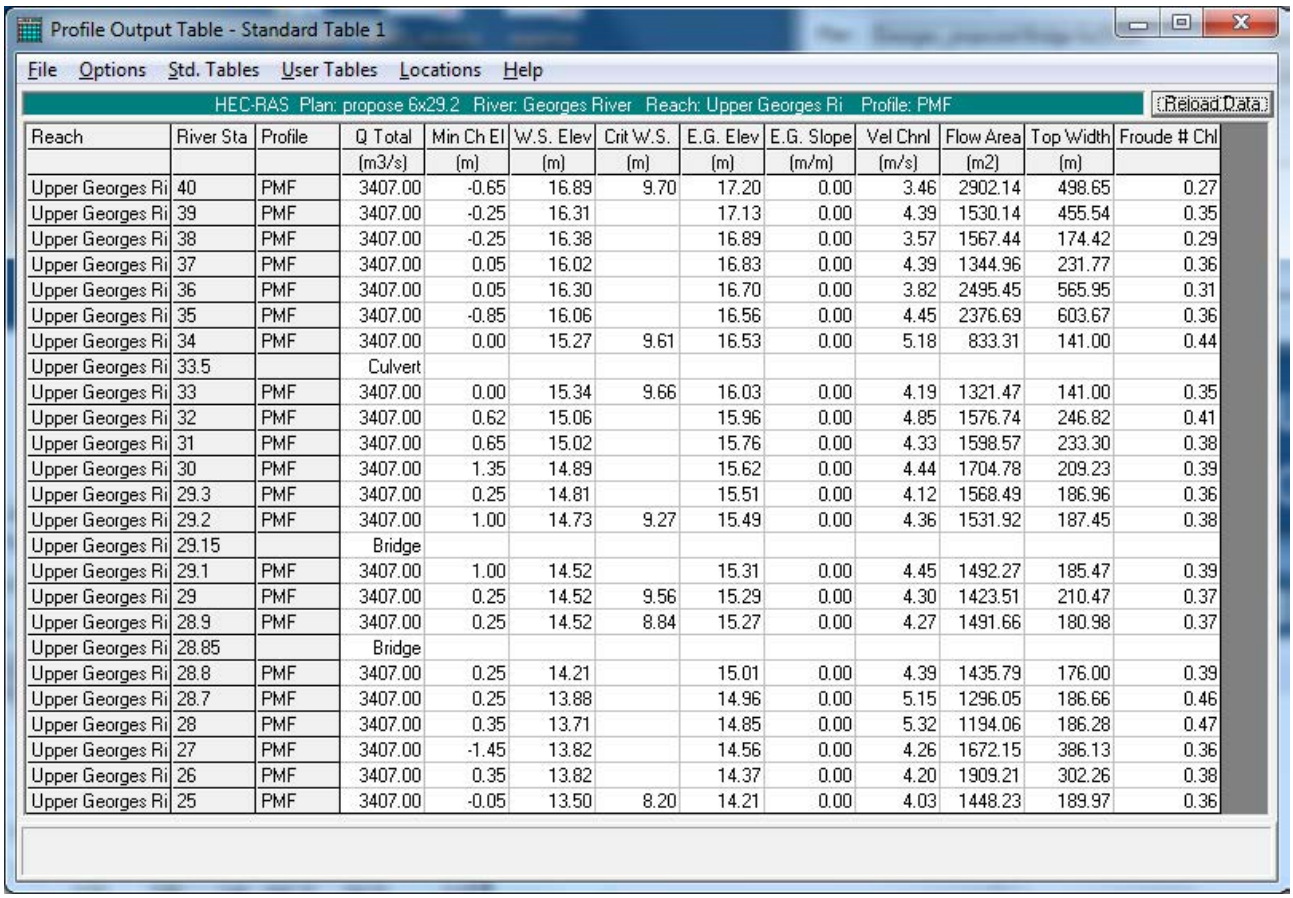
Georges River
Upper Georges Ri


Profile Plot
File Options Help
Reaches ...
Profiles ...
Plot Initial Conditions
Reload Data
AA003760 Georges River-existing Plan: Georges_proposed Bridge 6x29.2m 28/01/2015
Geom: Georges_proposed Bridge 6x29.2m Flow: aa003760 Georges River.f
Georges River Upper Georges Ri
Legend
WS PMF
WS 100 yr. ARI Floo
Crit PMF
Crit 100 yr. ARI Floo
Ground
Elevation (m)
Main Channel Distance (m)

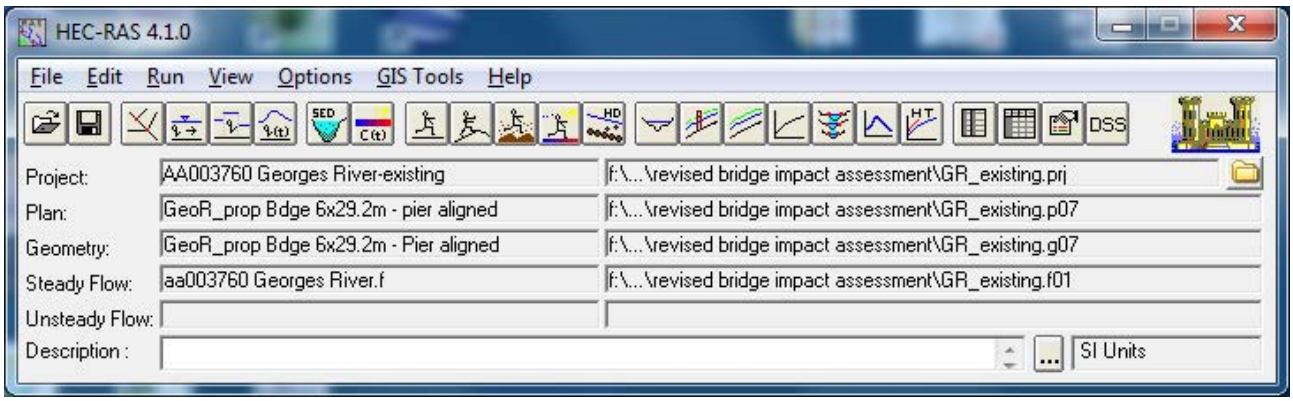




Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(m3/s)	(m)	(m)	(m)	(m)	(m/m)	(m/s)	(m2)	(m)	
Upper Georges Ri	40	100 yr. ARI Floo	1877.00	-0.65	13.25	7.50	13.49	0.00	2.82	1596.77	236.89	0.25
Upper Georges Ri	39	100 yr. ARI Floo	1877.00	-0.25	12.98		13.43	0.00	3.20	857.82	116.24	0.29
Upper Georges Ri	38	100 yr. ARI Floo	1877.00	-0.25	12.98		13.30	0.00	2.70	1039.02	141.89	0.25
Upper Georges Ri	37	100 yr. ARI Floo	1877.00	0.05	12.82		13.25	0.00	3.14	866.43	108.36	0.29
Upper Georges Ri	36	100 yr. ARI Floo	1877.00	0.05	12.70		13.14	0.00	3.55	1086.13	226.51	0.33
Upper Georges Ri	35	100 yr. ARI Floo	1877.00	-0.85	12.70		12.95	0.00	3.10	1306.30	171.53	0.28
Upper Georges Ri	34	100 yr. ARI Floo	1877.00	0.00	12.29	6.94	12.93	0.00	3.67	636.70	135.49	0.35
Upper Georges Ri	33.5		Culvert									
Upper Georges Ri	33	100 yr. ARI Floo	1877.00	0.00	12.19	7.15	12.61	0.00	3.17	940.69	135.29	0.30
Upper Georges Ri	32	100 yr. ARI Floo	1877.00	0.62	12.10		12.57	0.00	3.46	1041.16	154.18	0.33
Upper Georges Ri	31	100 yr. ARI Floo	1877.00	0.65	12.03		12.44	0.00	3.16	1044.16	155.14	0.31
Upper Georges Ri	30	100 yr. ARI Floo	1877.00	1.35	11.92		12.33	0.00	3.29	1168.11	165.69	0.33
Upper Georges Ri	29.3	100 yr. ARI Floo	1877.00	0.25	11.86		12.25	0.00	3.03	1069.44	153.71	0.30
Upper Georges Ri	29.2	100 yr. ARI Floo	1877.00	1.00	11.80	6.89	12.24	0.00	3.23	1039.97	151.67	0.31
Upper Georges Ri	29.15		Bridge									
Upper Georges Ri	29.1	100 yr. ARI Floo	1877.00	1.00	11.77		12.21	0.00	3.24	1036.13	151.61	0.32
Upper Georges Ri	29	100 yr. ARI Floo	1877.00	0.25	11.74	6.52	12.20	0.00	3.22	953.01	167.39	0.32
Upper Georges Ri	28.9	100 yr. ARI Floo	1877.00	0.25	11.76	6.59	12.18	0.00	3.11	1035.12	155.26	0.30
Upper Georges Ri	28.85		Bridge									
Upper Georges Ri	28.8	100 yr. ARI Floo	1877.00	0.25	11.69		12.12	0.00	3.14	1023.87	154.80	0.31
Upper Georges Ri	28.7	100 yr. ARI Floo	1877.00	0.25	11.49		12.09	0.00	3.71	894.16	156.42	0.37
Upper Georges Ri	28	100 yr. ARI Floo	1877.00	0.35	11.35		12.01	0.00	3.89	800.09	150.66	0.38
Upper Georges Ri	27	100 yr. ARI Floo	1877.00	-1.45	11.35		11.83	0.00	3.23	885.05	181.01	0.30
Upper Georges Ri	26	100 yr. ARI Floo	1877.00	0.35	11.41		11.68	0.00	2.90	1298.90	194.23	0.29
Upper Georges Ri	25	100 yr. ARI Floo	1877.00	-0.05	11.20	5.75	11.58	0.00	2.86	1025.95	177.27	0.29



Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(m3/s)	(m)	(m)	(m)	(m)	(m/m)	(m/s)	(m2)	(m)	
Upper Georges Ri	40	PMF	3407.00	-0.65	16.89	9.70	17.20	0.00	3.46	2902.14	498.65	0.27
Upper Georges Ri	39	PMF	3407.00	-0.25	16.31		17.13	0.00	4.39	1530.14	455.54	0.35
Upper Georges Ri	38	PMF	3407.00	-0.25	16.38		16.89	0.00	3.57	1567.44	174.42	0.29
Upper Georges Ri	37	PMF	3407.00	0.05	16.02		16.83	0.00	4.39	1344.96	231.77	0.36
Upper Georges Ri	36	PMF	3407.00	0.05	16.30		16.70	0.00	3.82	2495.45	565.95	0.31
Upper Georges Ri	35	PMF	3407.00	-0.85	16.06		16.56	0.00	4.45	2376.69	603.67	0.36
Upper Georges Ri	34	PMF	3407.00	0.00	15.27	9.61	16.53	0.00	5.18	833.31	141.00	0.44
Upper Georges Ri	33.5		Culvert									
Upper Georges Ri	33	PMF	3407.00	0.00	15.34	9.66	16.03	0.00	4.19	1321.47	141.00	0.35
Upper Georges Ri	32	PMF	3407.00	0.62	15.06		15.96	0.00	4.85	1576.74	246.82	0.41
Upper Georges Ri	31	PMF	3407.00	0.65	15.02		15.76	0.00	4.33	1598.57	233.30	0.38
Upper Georges Ri	30	PMF	3407.00	1.35	14.89		15.62	0.00	4.44	1704.78	209.23	0.39
Upper Georges Ri	29.3	PMF	3407.00	0.25	14.81		15.51	0.00	4.12	1568.49	186.96	0.36
Upper Georges Ri	29.2	PMF	3407.00	1.00	14.73	9.27	15.49	0.00	4.36	1531.92	187.45	0.38
Upper Georges Ri	29.15		Bridge									
Upper Georges Ri	29.1	PMF	3407.00	1.00	14.52		15.31	0.00	4.45	1492.27	185.47	0.39
Upper Georges Ri	29	PMF	3407.00	0.25	14.52	9.56	15.29	0.00	4.30	1423.51	210.47	0.37
Upper Georges Ri	28.9	PMF	3407.00	0.25	14.52	8.84	15.27	0.00	4.27	1491.66	180.98	0.37
Upper Georges Ri	28.85		Bridge									
Upper Georges Ri	28.8	PMF	3407.00	0.25	14.21		15.01	0.00	4.39	1435.79	176.00	0.39
Upper Georges Ri	28.7	PMF	3407.00	0.25	13.88		14.96	0.00	5.15	1296.05	186.66	0.46
Upper Georges Ri	28	PMF	3407.00	0.35	13.71		14.85	0.00	5.32	1194.06	186.28	0.47
Upper Georges Ri	27	PMF	3407.00	-1.45	13.82		14.56	0.00	4.26	1672.15	386.13	0.36
Upper Georges Ri	26	PMF	3407.00	0.35	13.82		14.37	0.00	4.20	1909.21	302.26	0.38
Upper Georges Ri	25	PMF	3407.00	-0.05	13.50	8.20	14.21	0.00	4.03	1448.23	189.97	0.36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Geometry: GeoR_prop Bdge 6x29.2m - Pier aligned
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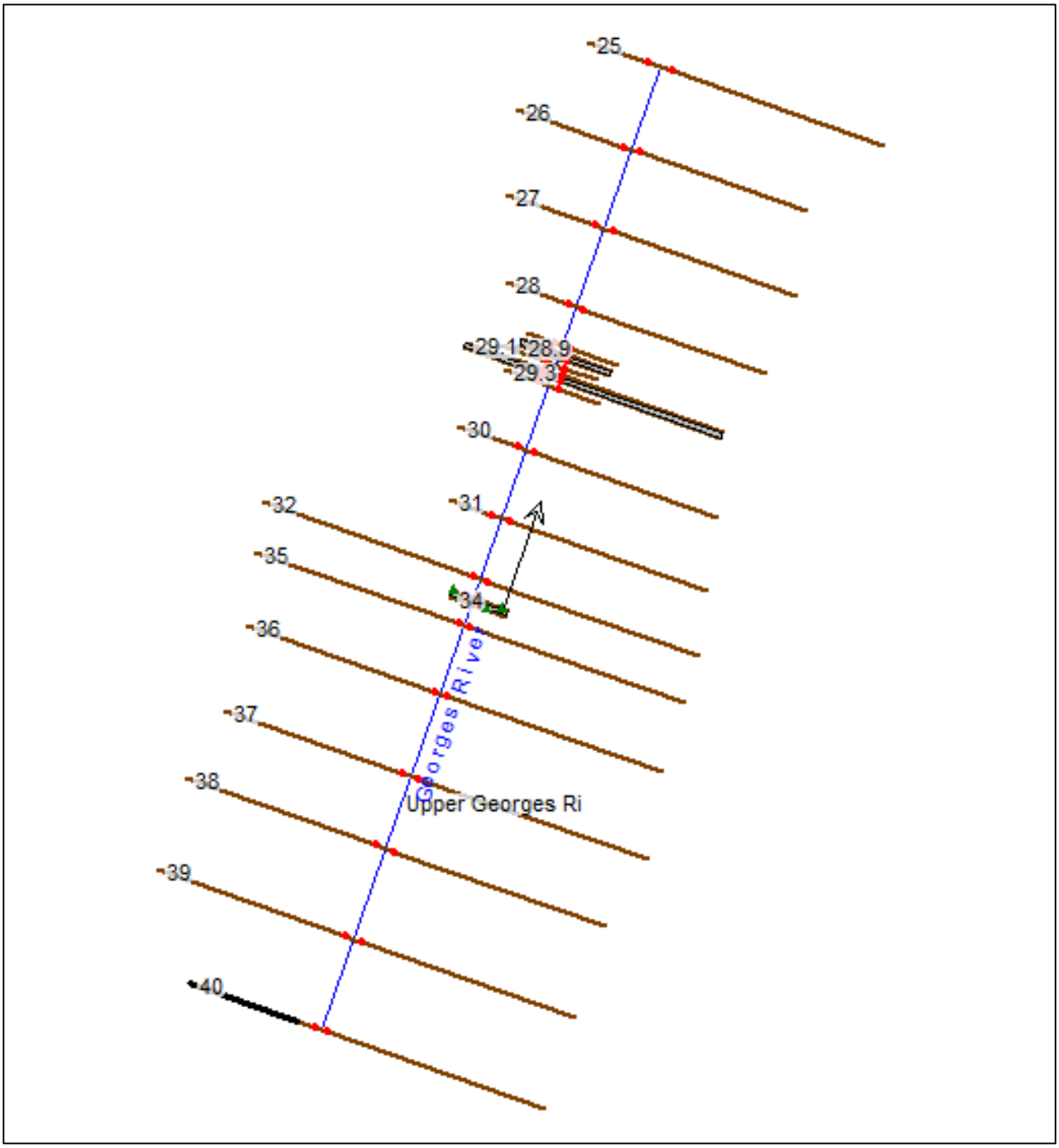
Steady Flow: aa003760 Georges River.f
f:\...\revised bridge impact assessment\GR_existing.f01
Unsteady Flow:
Description :
SI Units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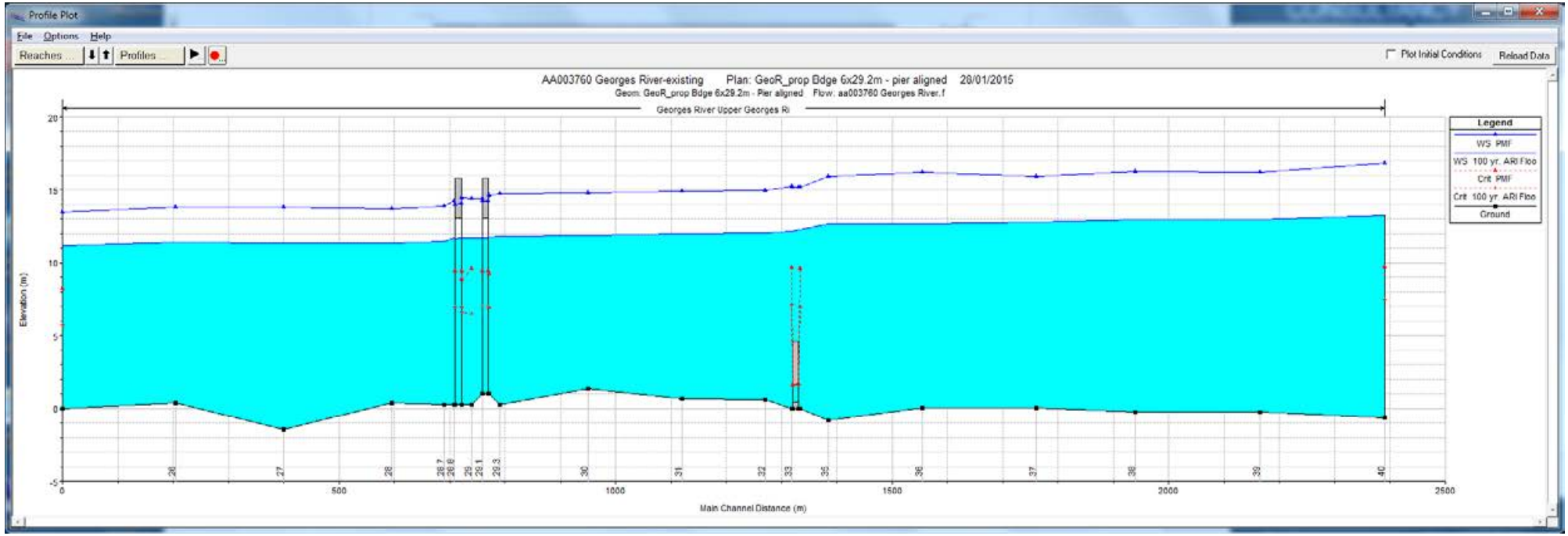
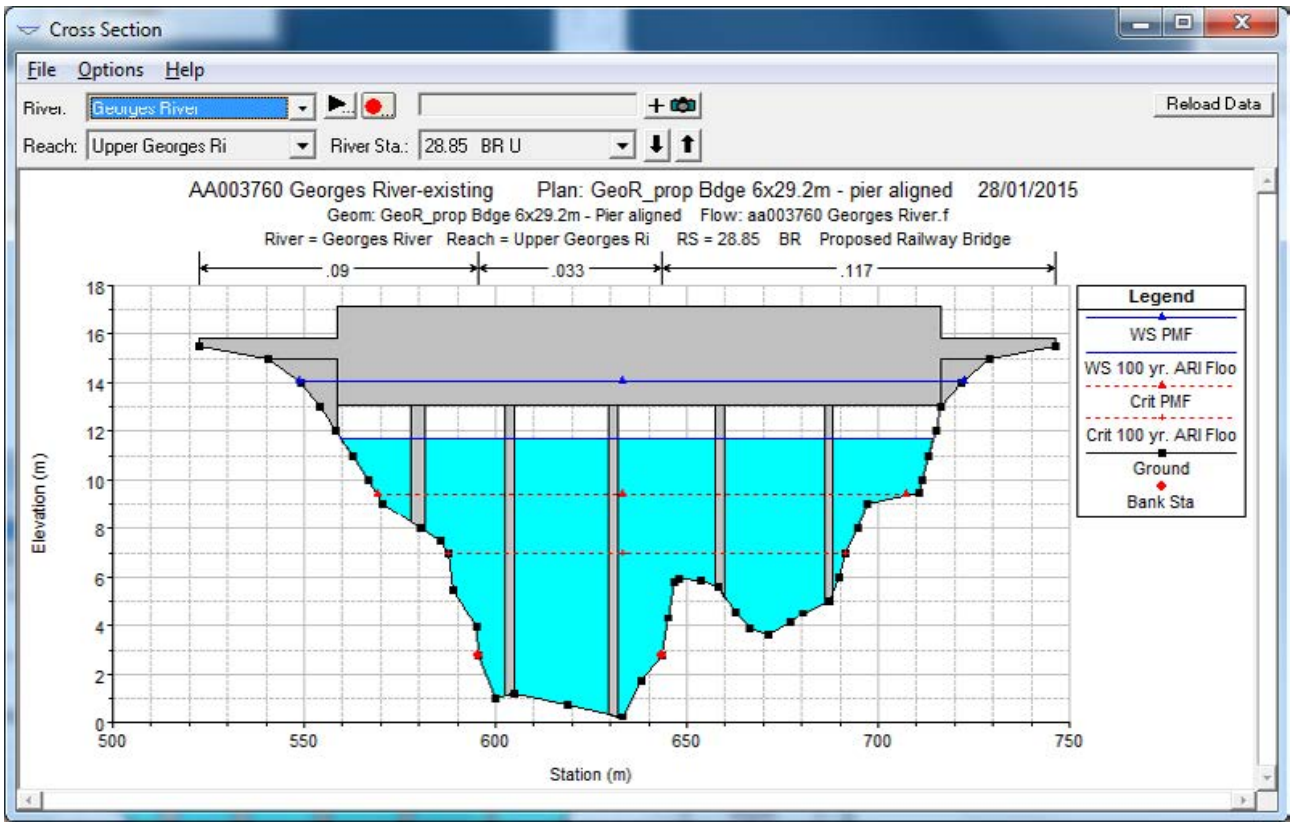
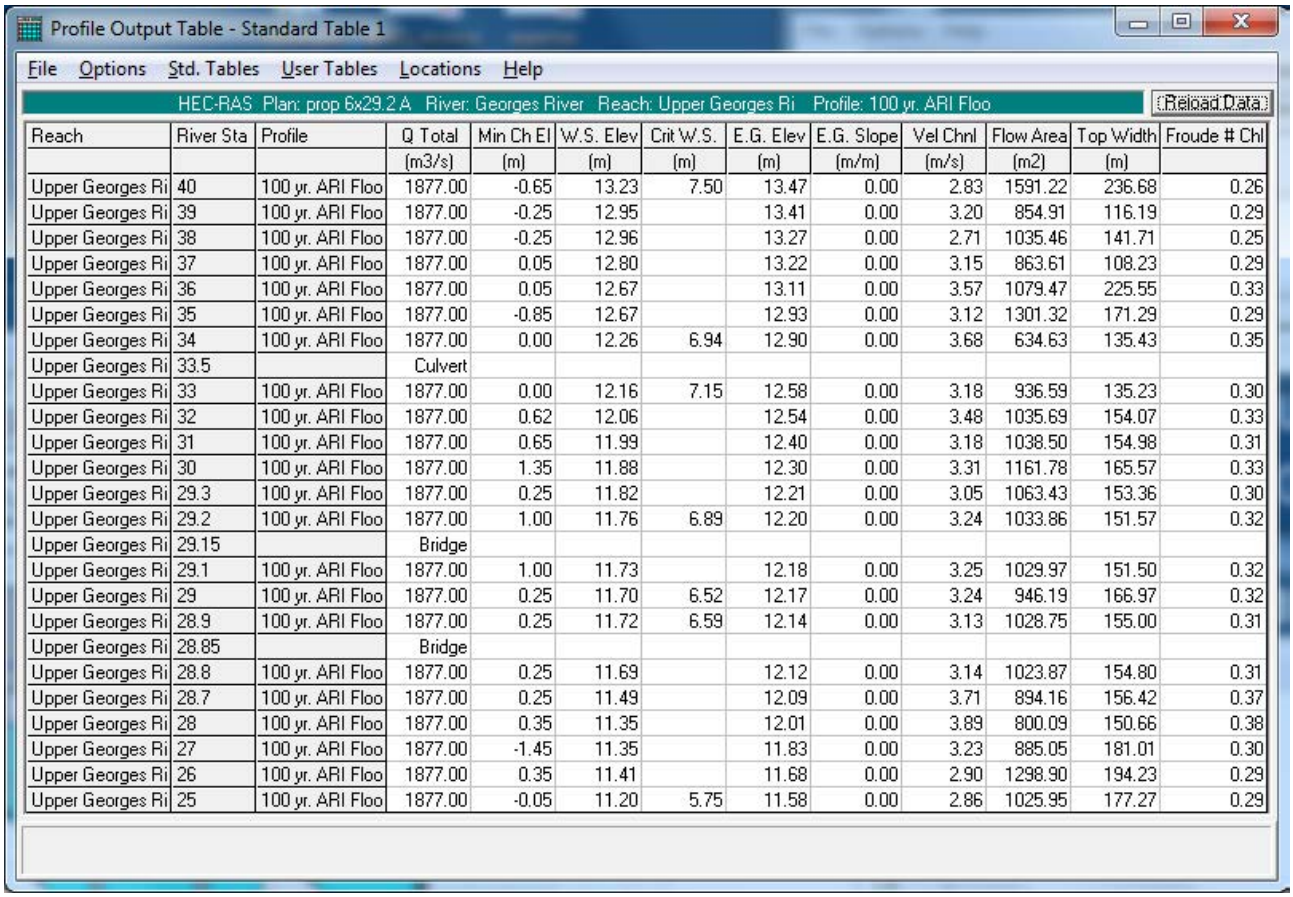
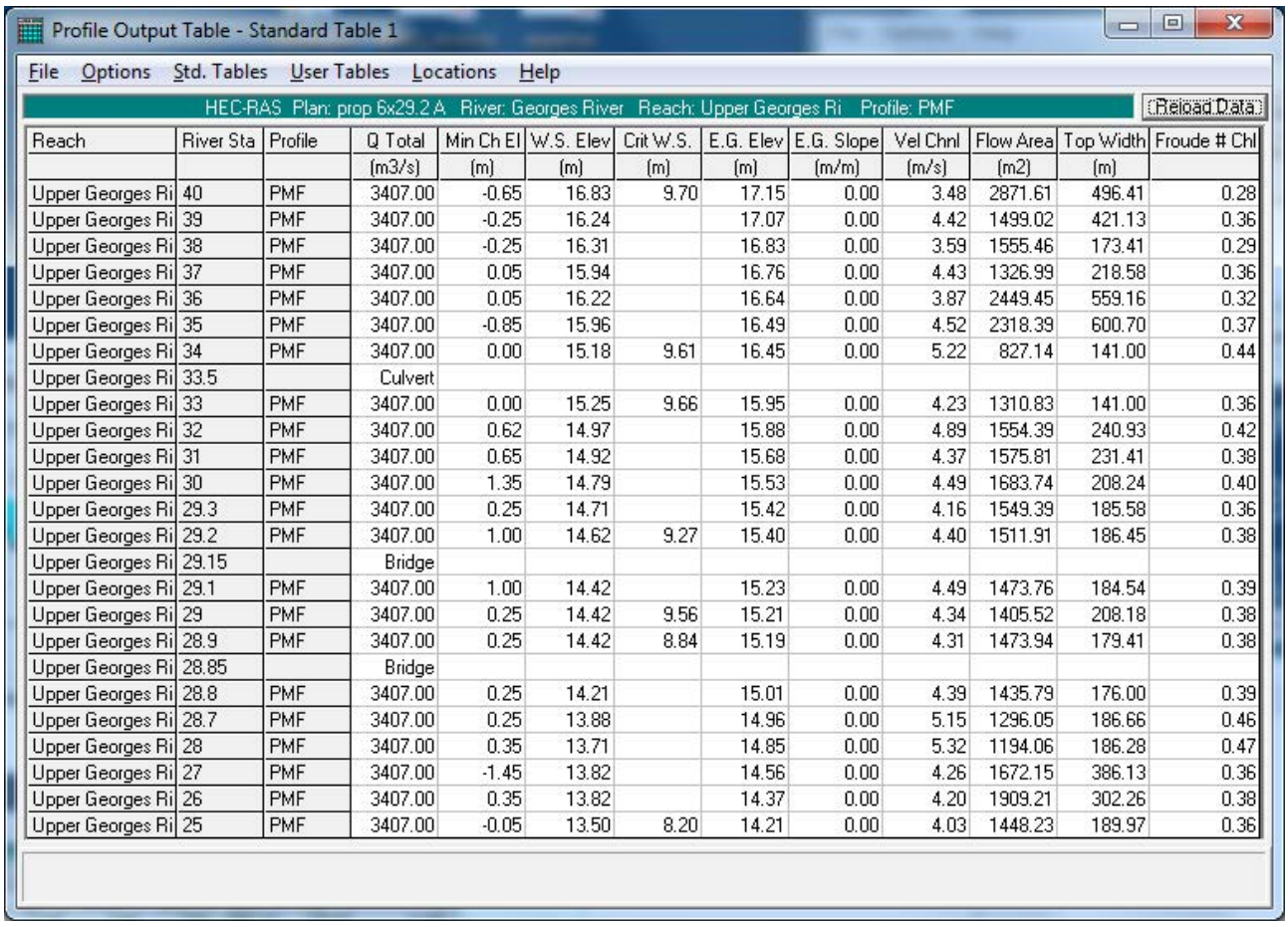
Georges River
Upper Georges Ri


Profile Plot
File Options Help
Reaches
Profiles
Plot Initial Conditions
Reload Data
AA003760 Georges River-existing Plan: GeoR_prop Bdge 6x29.2m - pier aligned 28/01/2015
Geom: GeoR_prop Bdge 6x29.2m - Pier aligned Flow: aa003760 Georges River.f
Georges River Upper Georges Ri
Legend
WS PMF
WS 100 yr ARI Floo
Crit PMF
Crit 100 yr ARI Floo
Ground
Elevation (m)
Main Channel Distance (m)





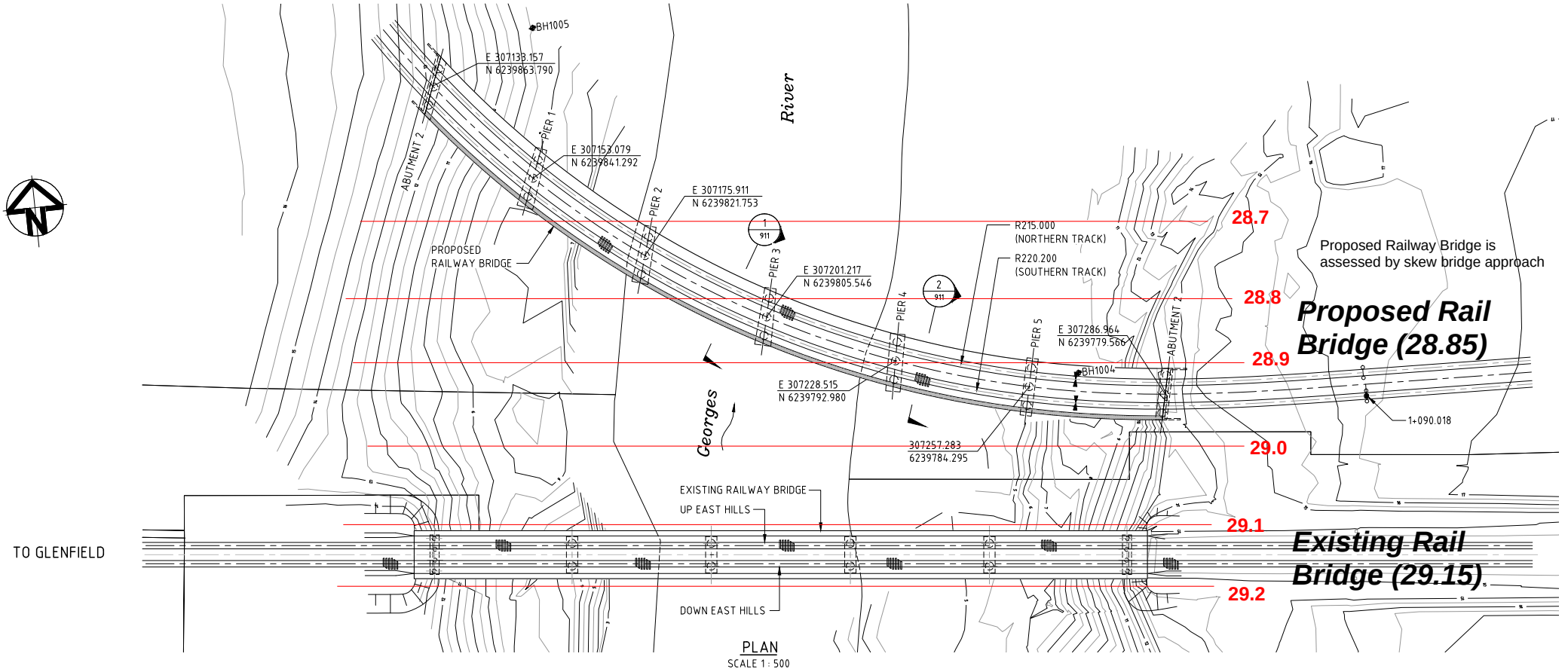
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(m3/s)	(m)	(m)	(m)	(m)	(m/m)	(m/s)	(m2)	(m)	
Upper Georges Ri	40	100 yr. ARI Floo	1877.00	-0.65	13.23	7.50	13.47	0.00	2.83	1591.22	236.68	0.26
Upper Georges Ri	39	100 yr. ARI Floo	1877.00	-0.25	12.95		13.41	0.00	3.20	854.91	116.19	0.29
Upper Georges Ri	38	100 yr. ARI Floo	1877.00	-0.25	12.96		13.27	0.00	2.71	1035.46	141.71	0.25
Upper Georges Ri	37	100 yr. ARI Floo	1877.00	0.05	12.80		13.22	0.00	3.15	863.61	108.23	0.29
Upper Georges Ri	36	100 yr. ARI Floo	1877.00	0.05	12.67		13.11	0.00	3.57	1079.47	225.55	0.33
Upper Georges Ri	35	100 yr. ARI Floo	1877.00	-0.85	12.67		12.93	0.00	3.12	1301.32	171.29	0.29
Upper Georges Ri	34	100 yr. ARI Floo	1877.00	0.00	12.26	6.94	12.90	0.00	3.68	634.63	135.43	0.35
Upper Georges Ri	33.5		Culvert									
Upper Georges Ri	33	100 yr. ARI Floo	1877.00	0.00	12.16	7.15	12.58	0.00	3.18	936.59	135.23	0.30
Upper Georges Ri	32	100 yr. ARI Floo	1877.00	0.62	12.06		12.54	0.00	3.48	1035.69	154.07	0.33
Upper Georges Ri	31	100 yr. ARI Floo	1877.00	0.65	11.99		12.40	0.00	3.18	1038.50	154.98	0.31
Upper Georges Ri	30	100 yr. ARI Floo	1877.00	1.35	11.88		12.30	0.00	3.31	1161.78	165.57	0.33
Upper Georges Ri	29.3	100 yr. ARI Floo	1877.00	0.25	11.82		12.21	0.00	3.05	1063.43	153.36	0.30
Upper Georges Ri	29.2	100 yr. ARI Floo	1877.00	1.00	11.76	6.89	12.20	0.00	3.24	1033.86	151.57	0.32
Upper Georges Ri	29.15		Bridge									
Upper Georges Ri	29.1	100 yr. ARI Floo	1877.00	1.00	11.73		12.18	0.00	3.25	1029.97	151.50	0.32
Upper Georges Ri	29	100 yr. ARI Floo	1877.00	0.25	11.70	6.52	12.17	0.00	3.24	946.19	166.97	0.32
Upper Georges Ri	28.9	100 yr. ARI Floo	1877.00	0.25	11.72	6.59	12.14	0.00	3.13	1028.75	155.00	0.31
Upper Georges Ri	28.85		Bridge									
Upper Georges Ri	28.8	100 yr. ARI Floo	1877.00	0.25	11.69		12.12	0.00	3.14	1023.87	154.80	0.31
Upper Georges Ri	28.7	100 yr. ARI Floo	1877.00	0.25	11.49		12.09	0.00	3.71	894.16	156.42	0.37
Upper Georges Ri	28	100 yr. ARI Floo	1877.00	0.35	11.35		12.01	0.00	3.89	800.09	150.66	0.38
Upper Georges Ri	27	100 yr. ARI Floo	1877.00	-1.45	11.35		11.83	0.00	3.23	885.05	181.01	0.30
Upper Georges Ri	26	100 yr. ARI Floo	1877.00	0.35	11.41		11.68	0.00	2.90	1298.90	194.23	0.29
Upper Georges Ri	25	100 yr. ARI Floo	1877.00	-0.05	11.20	5.75	11.58	0.00	2.86	1025.95	177.27	0.29

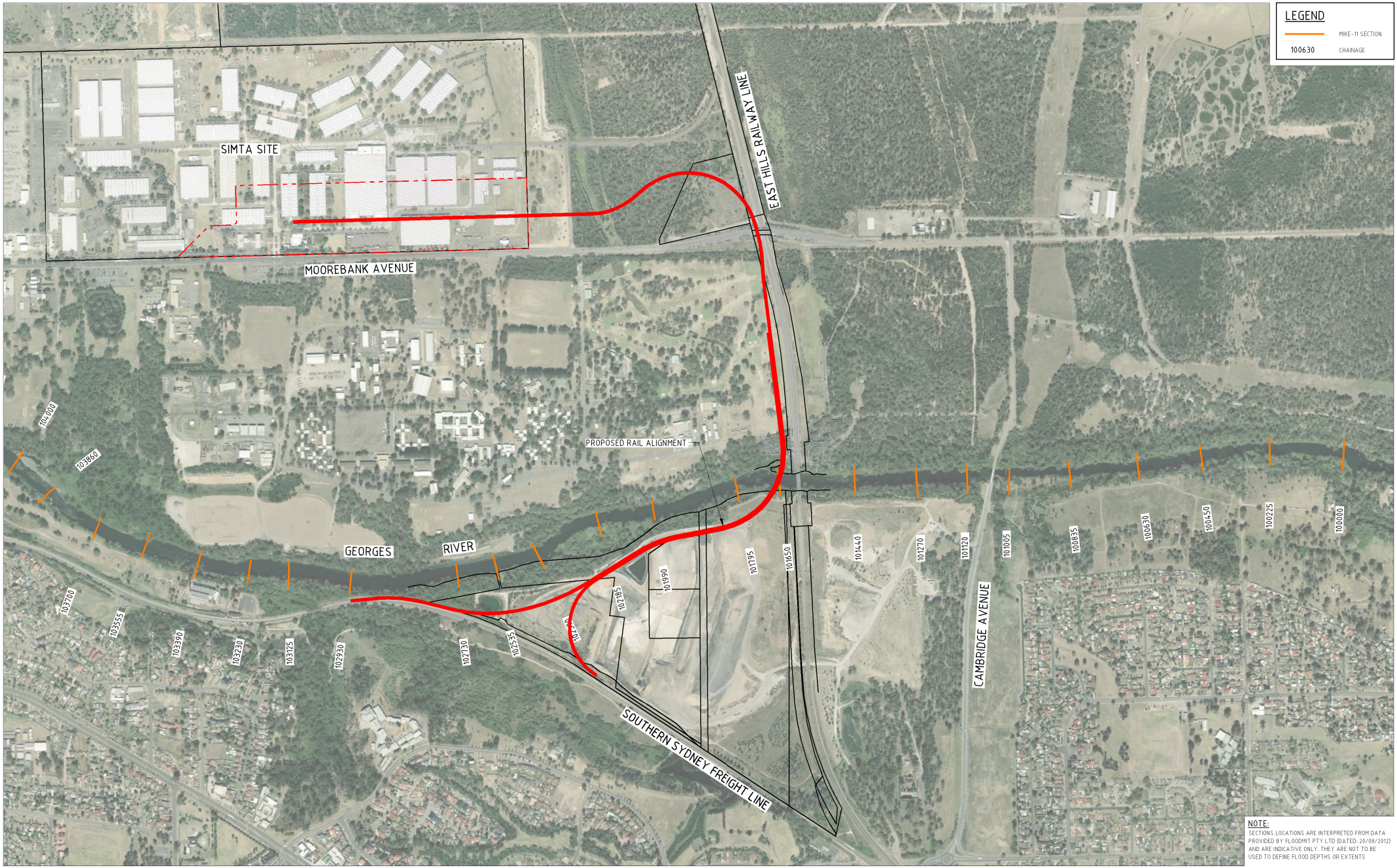


Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(m3/s)	(m)	(m)	(m)	(m)	(m/m)	(m/s)	(m2)	(m)	
Upper Georges Ri	40	PMF	3407.00	-0.65	16.83	9.70	17.15	0.00	3.48	2871.61	496.41	0.28
Upper Georges Ri	39	PMF	3407.00	-0.25	16.24		17.07	0.00	4.42	1499.02	421.13	0.36
Upper Georges Ri	38	PMF	3407.00	-0.25	16.31		16.83	0.00	3.59	1555.46	173.41	0.29
Upper Georges Ri	37	PMF	3407.00	0.05	15.94		16.76	0.00	4.43	1326.99	218.58	0.36
Upper Georges Ri	36	PMF	3407.00	0.05	16.22		16.64	0.00	3.87	2449.45	559.16	0.32
Upper Georges Ri	35	PMF	3407.00	-0.85	15.96		16.49	0.00	4.52	2318.39	600.70	0.37
Upper Georges Ri	34	PMF	3407.00	0.00	15.18	9.61	16.45	0.00	5.22	827.14	141.00	0.44
Upper Georges Ri	33.5		Culvert									
Upper Georges Ri	33	PMF	3407.00	0.00	15.25	9.66	15.95	0.00	4.23	1310.83	141.00	0.36
Upper Georges Ri	32	PMF	3407.00	0.62	14.97		15.88	0.00	4.89	1554.39	240.93	0.42
Upper Georges Ri	31	PMF	3407.00	0.65	14.92		15.68	0.00	4.37	1575.81	231.41	0.38
Upper Georges Ri	30	PMF	3407.00	1.35	14.79		15.53	0.00	4.49	1683.74	208.24	0.40
Upper Georges Ri	29.3	PMF	3407.00	0.25	14.71		15.42	0.00	4.16	1549.39	185.58	0.36
Upper Georges Ri	29.2	PMF	3407.00	1.00	14.62	9.27	15.40	0.00	4.40	1511.91	186.45	0.38
Upper Georges Ri	29.15		Bridge									
Upper Georges Ri	29.1	PMF	3407.00	1.00	14.42		15.23	0.00	4.49	1473.76	184.54	0.39
Upper Georges Ri	29	PMF	3407.00	0.25	14.42	9.56	15.21	0.00	4.34	1405.52	208.18	0.38
Upper Georges Ri	28.9	PMF	3407.00	0.25	14.42	8.84	15.19	0.00	4.31	1473.94	179.41	0.38
Upper Georges Ri	28.85		Bridge									
Upper Georges Ri	28.8	PMF	3407.00	0.25	14.21		15.01	0.00	4.39	1435.79	176.00	0.39
Upper Georges Ri	28.7	PMF	3407.00	0.25	13.88		14.96	0.00	5.15	1296.05	186.66	0.46
Upper Georges Ri	28	PMF	3407.00	0.35	13.71		14.85	0.00	5.32	1194.06	186.28	0.47
Upper Georges Ri	27	PMF	3407.00	-1.45	13.82		14.56	0.00	4.26	1672.15	386.13	0.36
Upper Georges Ri	26	PMF	3407.00	0.35	13.82		14.37	0.00	4.20	1909.21	302.26	0.38
Upper Georges Ri	25	PMF	3407.00	-0.05	13.50	8.20	14.21	0.00	4.03	1448.23	189.97	0.36

Cross-Section locations

HECRAS CROSS SECTIONS FOR THE EXISTING AND THE PROPOSED RAILWAY BRIDGE





NOTE:
SECTIONS LOCATIONS ARE INTERPRETED FROM DATA PROVIDED BY FLOODMIT PTY LTD (DATED: 20/08/2012) AND ARE INDICATIVE ONLY. THEY ARE NOT TO BE USED TO DEFINE FLOOD DEPTHS OR EXTENTS

Hyder

SIMTA MOOREBANK INTERMODAL TERMINAL FACILITY

TITLE:

GEORGES RIVER FLOOD MODEL SECTIONS

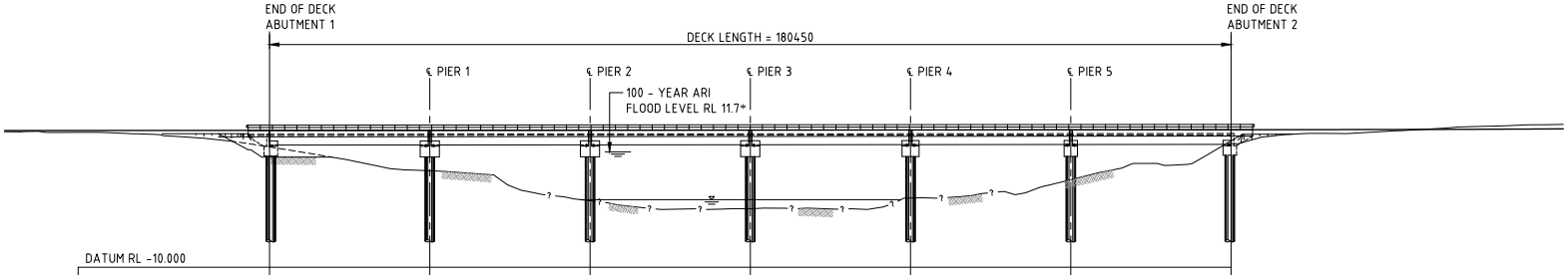
DRAWN BY: RD
DATUM: AHD

0 100 200 300 400 500m
1 : 5000

SCALE (A1):	DRAWING NO:	PROJECT NO:	ISSUE DATE:	REV:
AS SHOWN	SKC150	AA003760	06/02/15	01

Date Plotted: 12 Feb 2015 - 09:06AM File Name: F:\AA003760\E-CAD\C-Civil\B-Sketches\SKC150-Georges_River_Flood_Model_Sections.dwg V1

Proposed Railway Bridge Drawings

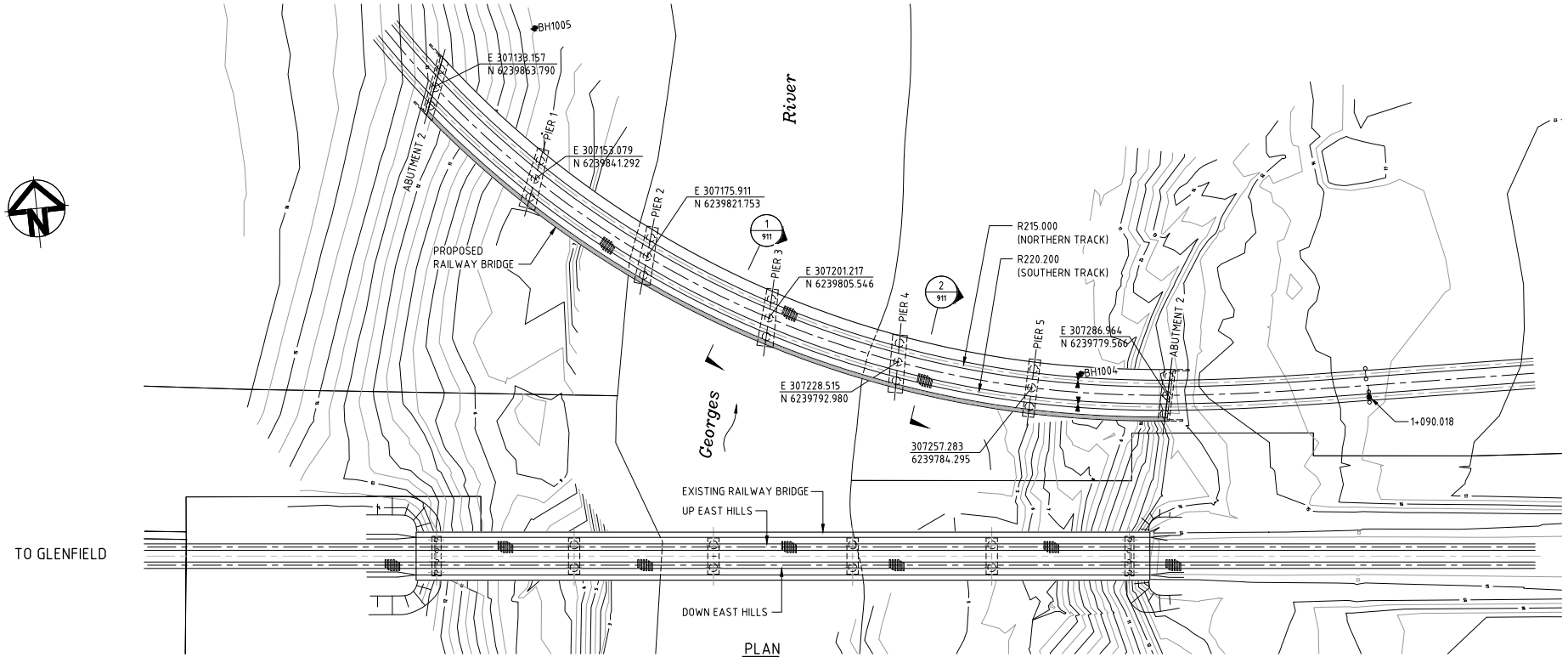


DATUM RL -10.000

DESIGN SURFACE LEVEL ON SOUTHERN TRACK	15.721	15.744	15.766	15.788	15.810	15.833	15.855
APPROXIMATE EXISTING SURFACE LEVEL ON SOUTHERN TRACK	10.7	8.1				6.5	13.7
CHAINAGE ON SOUTHERN TRACK	0+865.087	0+895.162	0+925.237	0+955.312	0+985.387	1+015.462	1+045.537

ELEVATION - PROPOSED RAILWAY BRIDGE
SCALE 1 : 500

* PRE BRIDGE CONSTRUCTION LEVEL



PLAN
SCALE 1 : 500

Issue	Description	Date

0 10 20 30 40 50m
1 : 500

Client: SIMTA

Status: **PRELIMINARY ONLY**
NOT TO BE USED FOR CONSTRUCTION

Scales	– / 1:250 / –	Current Issue Signatures	
		Drawn M.WOHLFIEL	
Original Size	A1	Designed K.MAXWELL	
Height Datum	–	Checked	
Grid	–	Approved –	
Filename:	SKR910-AA003760-NSK-00_GeorgesRiver.dwg		

Project: SIMTA MOOREBANK INTERMODAL TERMINAL FACILITY

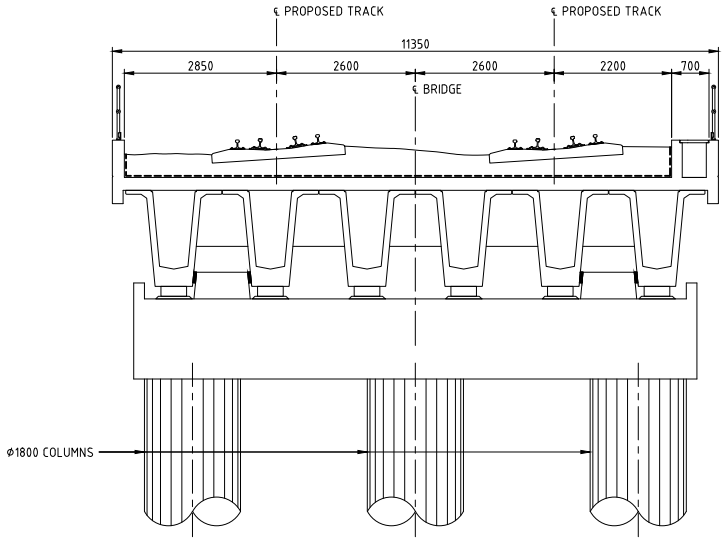
Title: GEORGES RIVER RAILWAY BRIDGE GENERAL ARRANGEMENT SHEET 1

HYDER CONSULTING PTY LTD
ABN 76 104 485 289
Level 5, 141 Walker St
North Sydney NSW 2060
Australia
Tel: +61 (0)2 8907 9000
Fax: +61 (0)2 8907 9001
www.hyderconsulting.com

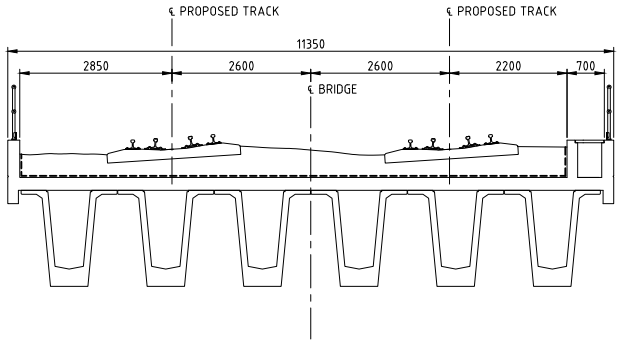
Drawing No.	Project No.	Issue
SKR910	AA003760	P1

100mm on Original

Date Plotted: 17 Feb 2015 - 09:35AM File Name: F:\AA003760\E-CAD\C-Civil\B-Sketches\SKR910-AA003760-NSK-00_GeorgesRiver.dwg V1



SECTION 1 / 910
SCALE 1 : 50



SECTION 2 / 910
SCALE 1 : 50

Issue	Description	Date

100mm on Original

0 1 2 3 4 5m

1 : 50

Client: SIMTA

Status: **PRELIMINARY ONLY**
NOT TO BE USED FOR CONSTRUCTION

		Current Issue Signatures	
Scales	– 1:50 –	Drawn M.WOHLFIEL	
Original Size	A1	Designed K.MAXWELL	
Height Datum	–	Checked	
Grid	–	Approved –	

Filename: SKR911-AA003760-NSK-00_GeorgesRiver.dwg

Project: SIMTA MOOREBANK INTERMODAL TERMINAL FACILITY

Title: GEORGES RIVER RAILWAY BRIDGE GENERAL ARRANGEMENT SHEET 2

HYDER CONSULTING PTY LTD
ABN 76 104 485 289
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www.hyderconsulting.com

Drawing No.	Project No.	Issue
SKR911	AA003760	P1

Date Plotted: 17 Feb 2015 - 09:35AM File Name: F:\AA003760\E-CAD\C-Civil\B-Sketches\SKR911-AA003760-NSK-00_GeorgesRiver.dwg V1

APPENDIX D:

OPERATIONAL AREA DRAINS MODEL INFORMATION

DRAINS Modelling Inputs and Outputs Summaries

DRAINS Model Comparison of Existing and Post-Development Flows for Stage 1

Stage 1 DRAINS Modelling (OSD performance)

Calculation Sheet

Job	SIMTA	Design	Concept	Office	Sydney
	Moorebank Intermodal	Date	Feb-15	Job No	AA003760
	Stage 1	Checked	Bruce Caldwell		
		Date	Feb-15		

SIMTA

MOOREBANK INTERMODAL

STAGE 1

OSD CONNECTED

CONCEPT DESIGN

DRAINS OUTPUT

February 2015

PROJECT	SIMTA					
TITLE	DRAINS DATA	JOB No		AA003760		**DATA**
		PREPARED	GD	DATE	18/02/2015	
		CHECKED	BC	DATE	18/02/2015	

DRAINS File Path:	F:\AA003760\D-Calcs\A-Civil\A-Stormwater\A-DRAINS
DRAINS Version:	DRAINS Version 2015.02 - 4 Februrary 2015
Modeller's Name:	George Dunstan
Description:	Existing and Proposed

PIT / NODE DETAILS			Version 12											
Name	Type	Family	Size	Ponding Volume (cu.m)	Pressure Change Coeff. Ku	Surface Elev (m)	Max Pond Depth (m)	Base Inflow (cu.m/s)	Blocking Factor	x	y	Bolt-down lid	id	Part Full Shock Loss
CA\11	Sag	Surface Inlet Pits	Trench Grate	15	4.0	16.44	0.1	0	0.5	308182.48	6240833.37	No	12508221	1 x Ku
CA\10	Sag	Surface Inlet Pits	Trench Grate	15	1.5	16.44	0.1	0	0.5	308186.28	6240863.13	No	12508220	1 x Ku
CA\09	Sag	Surface Inlet Pits	Trench Grate	15	1.1	16.44	0.1	0	0.5	308190.07	6240892.85	No	12508219	1 x Ku
CA\08	Sag	Surface Inlet Pits	Trench Grate	15	1.2	16.44	0.1	0	0.5	308193.88	6240922.65	No	12508218	1 x Ku
CA\07	Sag	Surface Inlet Pits	Trench Grate	15	2.0	16.42	0.1	0	0.5	308160.15	6240926.95	No	12508217	1 x Ku
CA\06	Sag	Surface Inlet Pits	Trench Grate	15	1.6	16.5	0.1	0	0.5	308132.37	6240930.48	No	12508216	1 x Ku
CA\05	Sag	Surface Inlet Pits	Trench Grate	15	1.5	16.5	0.1	0	0.5	308112.54	6240933.03	No	12508215	1 x Ku
CA\04	Sag	Surface Inlet Pits	Trench Grate	15	1.5	16.42	0.1	0	0.5	308084.76	6240936.56	No	12508214	1 x Ku
CA\03	Sag	Surface Inlet Pits	Trench Grate	15	1.0	16.4	0.1	0	0.5	308048.96	6240941.14	No	12508213	1 x Ku
CA\02	OnGrade	Gross Pollutant T	GPT		3.0	16.363		0	0.3	308047.61	6240941.30	No	12508212	1 x Ku
CB\03	Sag	Surface Inlet Pits	Trench Grate	15	4.0	16.44	0.1	0	0.5	308205.28	6241011.92	No	12508224	1 x Ku
CB\02	Sag	Surface Inlet Pits	Trench Grate	15	1.5	16.44	0.1	0	0.5	308201.48	6240982.16	No	12508223	1 x Ku
CB\01	Sag	Surface Inlet Pits	Trench Grate	15	1.1	16.44	0.1	0	0.5	308197.67	6240952.36	No	12508222	1 x Ku
CC\03	Sag	Surface Inlet Pits	Trench Grate	15	4.0	16.42	0.1	0	0.5	308171.55	6241016.23	No	12508227	1 x Ku
CC\02	Sag	Surface Inlet Pits	Trench Grate	15	1.5	16.42	0.1	0	0.5	308167.75	6240986.42	No	12508226	1 x Ku
CC\01	Sag	Surface Inlet Pits	Trench Grate	15	1.1	16.42	0.1	0	0.5	308163.95	6240956.71	No	12508225	1 x Ku
CD\03	Sag	Surface Inlet Pits	Trench Grate	15	4.0	16.42	0.1	0	0.5	308148.75	6240837.68	No	12508230	1 x Ku
CD\02	Sag	Surface Inlet Pits	Trench Grate	15	1.5	16.42	0.1	0	0.5	308152.55	6240867.44	No	12508229	1 x Ku
CD\01	Sag	Surface Inlet Pits	Trench Grate	15	1.1	16.42	0.1	0	0.5	308156.35	6240897.20	No	12508228	1 x Ku
CE\03	Sag	Surface Inlet Pits	Trench Grate	15	4.0	16.5	0.1	0	0.5	308143.78	6241019.78	No	12508233	1 x Ku
CE\02	Sag	Surface Inlet Pits	Trench Grate	15	1.6	16.5	0.1	0	0.5	308139.98	6240990.02	No	12508232	1 x Ku
CE\01	Sag	Surface Inlet Pits	Trench Grate	15	1.4	16.5	0.1	0	0.5	308136.18	6240960.26	No	12508231	1 x Ku
CF\03	Sag	Surface Inlet Pits	Trench Grate	15	4.0	16.5	0.1	0	0.5	308120.98	6240841.22	No	12508236	1 x Ku
CF\02	Sag	Surface Inlet Pits	Trench Grate	15	1.6	16.5	0.1	0	0.5	308124.78	6240870.98	No	12508235	1 x Ku
CF\01	Sag	Surface Inlet Pits	Trench Grate	15	1.4	16.5	0.1	0	0.5	308128.57	6240900.71	No	12508234	1 x Ku
CG\03	Sag	Surface Inlet Pits	Trench Grate	15	4.0	16.5	0.1	0	0.5	308123.94	6241022.31	No	12508239	1 x Ku
CG\02	Sag	Surface Inlet Pits	Trench Grate	15	1.6	16.5	0.1	0	0.5	308120.14	6240992.55	No	12508238	1 x Ku
CG\01	Sag	Surface Inlet Pits	Trench Grate	15	1.4	16.5	0.1	0	0.5	308116.34	6240962.79	No	12508237	1 x Ku
CH\03	Sag	Surface Inlet Pits	Trench Grate	15	4.0	16.501	0.1	0	0.5	308101.03	6240843.75	No	12508242	1 x Ku
CH\02	Sag	Surface Inlet Pits	Trench Grate	15	1.6	16.5	0.1	0	0.5	308104.94	6240873.52	No	12508241	1 x Ku
CH\01	Sag	Surface Inlet Pits	Trench Grate	15	1.4	16.5	0.1	0	0.5	308108.74	6240903.28	No	12508240	1 x Ku
CJ\03	Sag	Surface Inlet Pits	Trench Grate	15	4.0	16.42	0.1	0	0.5	308096.16	6241025.86	No	12508245	1 x Ku
CJ\02	Sag	Surface Inlet Pits	Trench Grate	15	1.5	16.42	0.1	0	0.5	308092.36	6240996.10	No	12508244	1 x Ku
CJ\01	Sag	Surface Inlet Pits	Trench Grate	15	1.4	16.42	0.1	0	0.5	308088.56	6240966.34	No	12508243	1 x Ku
CK\03	Sag	Surface Inlet Pits	Trench Grate	15	4.0	16.42	0.1	0	0.5	308073.36	6240847.31	No	12508248	1 x Ku
CK\02	Sag	Surface Inlet Pits	Trench Grate	15	1.5	16.42	0.1	0	0.5	308077.16	6240877.07	No	12508247	1 x Ku
CK\01	Sag	Surface Inlet Pits	Trench Grate	15	1.4	16.42	0.1	0	0.5	308080.96	6240906.82	No	12508246	1 x Ku
CL\03	Sag	Surface Inlet Pits	Trench Grate	15	4.0	16.4	0.1	0	0.5	308060.36	6241030.40	No	12508251	1 x Ku
CL\02	Sag	Surface Inlet Pits	Trench Grate	15	1.6	16.4	0.1	0	0.5	308056.56	6241000.66	No	12508250	1 x Ku
CL\01	Sag	Surface Inlet Pits	Trench Grate	15	1.4	16.4	0.1	0	0.5	308052.76	6240970.90	No	12508249	1 x Ku
CM\03	Sag	Surface Inlet Pits	Trench Grate	15	9.0	16.4	0.1	0	0.5	308037.55	6240851.80	No	12508254	1 x Ku
CM\02	Sag	Surface Inlet Pits	Trench Grate	15	1.6	16.4	0.1	0	0.5	308041.35	6240881.60	No	12508253	1 x Ku
CM\01	Sag	Surface Inlet Pits	Trench Grate	15	1.4	16.4	0.1	0	0.5	308045.15	6240911.37	No	12508252	1 x Ku
DA\11	Sag	Surface Inlet Pits	Trench Grate	15	4.0	16.44	0.1	0	0.5	308155.87	6240625.06	No	12508265	1 x Ku
DA\10	Sag	Surface Inlet Pits	Trench Grate	15	1.5	16.44	0.1	0	0.5	308159.67	6240654.82	No	12508264	1 x Ku
DA\09	Sag	Surface Inlet Pits	Trench Grate	15	1.1	16.44	0.1	0	0.5	308163.47	6240684.58	No	12508263	1 x Ku
DA\08	Sag	Surface Inlet Pits	Trench Grate	15	1.2	16.44	0.1	0	0.5	308167.27	6240714.34	No	12508262	1 x Ku
DA\07	Sag	Surface Inlet Pits	Trench Grate	15	2.0	16.42	0.1	0	0.5	308133.54	6240718.61	No	12508261	1 x Ku
DA\06	Sag	Surface Inlet Pits	Trench Grate	15	1.6	16.5	0.1	0	0.5	308105.77	6240722.17	No	12508260	1 x Ku
DA\05	Sag	Surface Inlet Pits	Trench Grate	15	1.5	16.5	0.1	0	0.5	308085.93	6240724.73	No	12508259	1 x Ku
DA\04	Sag	Surface Inlet Pits	Trench Grate	15	1.5	16.42	0.1	0	0.5	308058.16	6240728.25	No	12508258	1 x Ku
DA\03	Sag	Surface Inlet Pits	Trench Grate	15	1.0	16.4	0.1	0	0.5	308022.35	6240732.81	No	12508257	1 x Ku
DA\02	OnGrade	Gross Pollutant T	GPT		3.0	16.363		0	0.3	308021.01	6240732.99	No	12508256	1 x Ku
DB\03	Sag	Surface Inlet Pits	Trench Grate	15	4.0	16.44	0.1	0	0.5	308178.67	6240803.56	No	12508268	1 x Ku
DB\02	Sag	Surface Inlet Pits	Trench Grate	15	1.5	16.44	0.1	0	0.5	308174.88	6240773.86	No	12508267	1 x Ku
DB\01	Sag	Surface Inlet Pits	Trench Grate	15	1.1	16.44	0.1	0	0.5	308171.08	6240744.10	No	12508266	1 x Ku
DC\03	Sag	Surface Inlet Pits	Trench Grate	15	4.0	16.42	0.1	0	0.5	308144.95	6240807.92	No	12508271	1 x Ku
DC\02	Sag	Surface Inlet Pits	Trench Grate	15	1.5	16.42	0.1	0	0.5	308141.15	6240778.16	No	12508270	1 x Ku
DC\01	Sag	Surface Inlet Pits	Trench Grate	15	1.1	16.42	0.1	0	0.5	308137.35	6240748.40	No	12508269	1 x Ku
DD\03	Sag	Surface Inlet Pits	Trench Grate	15	4.0	16.42	0.1	0	0.5	308122.15	6240629.37	No	12508274	1 x Ku
DD\02	Sag	Surface Inlet Pits	Trench Grate	15	1.5	16.42	0.1	0	0.5	308125.95	6240659.13	No	12508273	1 x Ku
DD\01	Sag	Surface Inlet Pits	Trench Grate	15	1.1	16.42	0.1	0	0.5	308129.75	6240688.88	No	12508272	1 x Ku
DE\03	Sag	Surface Inlet Pits	Trench Grate	15	4.0	16.5	0.1	0	0.5	308117.18	6240811.47	No	12508277	1 x Ku
DE\02	Sag	Surface Inlet Pits	Trench Grate	15	1.6	16.5	0.1	0	0.5	308113.37	6240781.71	No	12508276	1 x Ku
DE\01	Sag	Surface Inlet Pits	Trench Grate	15	1.4	16.5	0.1	0	0.5	308109.57	6240751.95	No	12508275	1 x Ku
DF\03	Sag	Surface Inlet Pits	Trench Grate	15	4.0	16.5	0.1	0	0.5	308094.37	6240632.92	No	12508280	1 x Ku
DF\02	Sag	Surface Inlet Pits	Trench Grate	15	1.6	16.5	0.1	0	0.5	308098.17	6240662.66	No	12508279	1 x Ku
DF\01	Sag	Surface Inlet Pits	Trench Grate	15	1.4	16.5	0.1	0	0.5	308101.97	6240692.43	No	12508278	1 x Ku
DG\03	Sag	Surface Inlet Pits	Trench Grate	15	4.0	16.5	0.1	0	0.5	308097.34	6240814.00	No	12508283	1 x Ku
DG\02	Sag	Surface Inlet Pits	Trench Grate	15	1.6	16.5	0.1	0	0.5	308093.53	6240784.21	No	12508282	1 x Ku
DG\01	Sag	Surface Inlet Pits	Trench Grate	15	1.4	16.5	0.1	0	0.5	308089.73	6240754.42	No	12508281	1 x Ku
DH\03	Sag	Surface Inlet Pits	Trench Grate	15	4.0	16.5	0.1	0	0.5	308074.53	6240635.45	No	12508286	1 x Ku
DH\02	Sag	Surface Inlet Pits	Trench Grate	15	1.6	16.5	0.1	0	0.5	308078.33	6240665.17	No	12508285	1 x Ku
DH\01	Sag	Surface Inlet Pits	Trench Grate	15	1.4	16.5	0.1	0	0.5	308082.13	6240694.92	No	12508284	1 x Ku
DJ\03	Sag	Surface Inlet Pits	Trench Grate	15	4.0	16.42	0.1	0	0.5	308069.56	6240817.52	No	12508289	1 x Ku
DJ\02	Sag	Surface Inlet Pits	Trench Grate	15	1.5	16.42	0.1	0	0.5	308065.76	6240787.79	No	12508288	1 x Ku
DJ\01	Sag	Surface Inlet Pits	Trench Grate	15	1.4	16.42	0.1	0	0.5	308061.96	6240757.95	No	12508287	1 x Ku
DK\03	Sag	Surface Inlet Pits	Trench Grate	15	4.0	16.42	0.1	0	0.5	308046.76	6240639.00	No	12508292	1 x Ku
DK\02	Sag	Surface Inlet Pits	Trench Grate	15	1.5	16.42	0.1	0	0.5	308050.56	6240668.76	No	12508291	1 x Ku
DK\01	Sag	Surface Inlet Pits	Trench Grate	15	1.4	16.42	0.1	0	0.5	308054.36	6240698.52	No	12508290	1 x Ku
DL\03	Sag	Surface Inlet Pits	Trench Grate	15	4.0	16.4	0.1	0	0.5	308033.76	6240822.11	No	12508295	1 x Ku
DL\02	Sag	Surface Inlet Pits	Trench Grate	15	1.6	16.4	0.1	0	0.5	308029.95	6240792.34	No	12508294	1 x Ku
DL\01	Sag	Surface Inlet Pits	Trench Grate	15	1.4	16.4	0.1	0	0.5	308026.15	6240762.58	No	12508293	1 x Ku
DM\03	Sag	Surface Inlet Pits	Trench Grate	15	9.0	16.4	0.1	0	0.5	308010.95	6240643.57	No	12508298	1 x Ku
DM\02	Sag	Surface Inlet Pits	Trench Grate	15	1.6	16.4	0.1	0	0.5	308014.74	6240673.25	No	12508297	1 x Ku
DM\01	Sag	Surface Inlet Pits	Trench Grate	15	1.4	16.4	0.1	0	0.5	308018.55	6240703.06	No	12508296	1 x Ku
EA\11	Sag	Surface Inlet Pits	Trench Grate	30	4.0	16.44	0.1	0	0.5	308129.27	6240416.76	No	12508310	1 x Ku
EA\10	Sag	Surface Inlet Pits	Trench Grate	15	1.5	16.44	0.1	0	0.5	308133.07	6240446.51	No	12508309	1 x Ku
EA\09	Sag	Surface Inlet Pits	Trench Grate	15	1.1	16.44	0.1	0	0.5	308136.87	6240476.27	No	12508308	1 x Ku
EA\08	Sag	Surface Inlet Pits	Trench Grate	15	1.2	16.44	0.1	0	0.5	308140.67	6240506.03	No	12508307	1 x Ku
EA\07	Sag	Surface Inlet Pits	Trench Grate	15	2.0	16.42	0.1	0	0.5	308106.95	6240510.34	No	12508306	1 x Ku
EA\06	Sag	Surface Inlet Pits	Trench Grate	15	1.6	16.5	0.1	0	0.5	308079.17	6240513.88	No	12508305	1 x Ku
EA\05	Sag	Surface Inlet Pits	Trench Grate	15	1.5	16.5	0.1	0	0.5	308059.33	6240516.39	No	12508304	1 x Ku
EA\04	Sag	Surface Inlet Pits	Trench Grate	15	1.5	16.42	0.1	0	0.5	308031.56	6240519.97	No	12508303	1 x Ku
EA\03	Sag	Surface Inlet Pits	Trench Grate	15	1.0	16.4	0.1	0	0.5	307995.76	6240524.57	No	12508302	1 x Ku
EA\02	OnGrade	Gross Pollutant T	GPT		3.0	16.363		0	0.3	307994.41	6240524.68	No	12508301	1 x Ku
EB\03	Sag	Surface Inlet Pits	Trench Grate	15	4.0	16.44	0.1	0	0.5	308152.07	6240595.31	No	12508313	1 x Ku
EB\02	Sag	Surface Inlet Pits	Trench Grate	15	1.5	16.44	0.1	0	0.5	308148.27	6240565.55	No	12508312	1 x Ku
EB\01	Sag	Surface Inlet Pits	Trench Grate	15	1.1	16.44	0.1	0	0.5	308144.47	6240535.79	No	12508311	1 x Ku
EC\03	Sag	Surface Inlet Pits	Trench Grate	15	4.0	16.42	0.1	0	0.5	308118.35	6240599.61	No	12508316	1 x Ku
EC\02	Sag	Surface Inlet Pits	Trench Grate	15	1.5	16.42	0.1	0	0.5	308114.55	6240569.85	No	12508315	1 x Ku
EC\01	Sag	Surface Inlet Pits	Trench Grate	15	1.1	16.42	0.1	0	0.5	308110.74	6240540.07	No	12508314	1 x Ku
ED\03	Sag	Surface Inlet Pits	Trench Grate	30	4.0	16.42	0.1	0	0.5	308095.54	6240421.06	No	12508319	1 x Ku
ED\02	Sag	Surface Inlet Pits	Trench Grate	15	1.5	16.42	0.1	0	0.5	308099.35	6240450.82	No	12508318	1 x Ku
ED\01	Sag	Surface Inlet Pits	Trench Grate	15	1.1	16.42	0.1	0	0.5	308103.15	6240480.58	No	12508317	1 x Ku
EE\03	Sag	Surface Inlet Pits	Trench Grate	15	4.0	16.5	0.1	0	0.5	308090.57	6240603.12	No	12508322	1 x Ku
EE\02	Sag	Surface Inlet Pits	Trench Grate	15	1.6	16.5	0.1	0	0.5	308086.77	6240573.40	No	12508321	1 x Ku
EE\01	Sag	Surface Inlet Pits	Trench Grate	15	1.4	16.5	0.1	0	0.5	308082.97	6240543.64	No	12508320	1 x Ku
EF\03	Sag	Surface Inlet Pits	Trench Grate	15	4.0	16.5	0.1	0	0.5	308067.77	6240424.61	No	12508325	1 x Ku
EF\02	Sag	Surface Inlet Pits	Trench Grate	15	1.6	16.5	0.1	0	0.5	308071.57	6240454.37	No	12508324	1 x Ku
EF\01	Sag	Surface Inlet Pits	Trench Grate	15	1.4	16.5	0.1	0	0.5	308075.37	6240484.13	No	12508323	1 x Ku
EG\03	Sag	Surface Inlet Pits	Trench Grate	15	4.0	16.5	0.1	0	0.5	308070.73	6240605.65	No	12508328	1 x Ku
EG\02	Sag	Surface Inlet Pits	Trench Grate	15	1.6	16.5	0.1	0	0.5	308066.93	6240575.93	No	12508327	1 x Ku
EG\01	Sag	Surface Inlet Pits	Trench Grate	15	1.4	16.5	0.1	0	0.5	308063.13	6240546.18	No	12508326	1 x Ku
EH\03	Sag	Surface Inlet Pits	Trench Grate	15	4.0	16.5	0.1	0	0.5	308047.93	6240427.14	No	12508331	1 x Ku
EH\02	Sag	Surface Inlet Pits	Trench Grate	15	1.6	16.5	0.1	0	0.5	308051.73	6240456.90	No	12508330	1 x Ku
EH\01	Sag	Surface Inlet Pits	Trench Grate	15	1.4	16.5	0.1	0	0.5	308055.53	6240486.66	No	12508329	1 x Ku
EJ\03	Sag	Surface Inlet Pits	Trench Grate	15	4.0	16.42	0.1	0	0.5	308042.96	6240609.24	No	12508334	1 x Ku
EJ\02	Sag	Surface Inlet Pits	Trench Grate	15	1.5	16.42	0.1	0	0.5	308039.16	6240579.48	No	12508333	1 x Ku
EJ\01	Sag	Surface Inlet Pits	Trench Grate	15	1.4	16.42	0.1	0	0.5	308035.36	6240549.72	No	12508332	1 x Ku
EK\03	Sag	Surface Inlet Pits	Trench Grate	30	4.0	16.42	0.1	0	0.5	308020.15	6240430.65	No	12508337	1 x Ku
EK\02	Sag	Surface Inlet Pits	Trench Grate	15	1.5	16.42	0.1	0	0.5	308023.96	6240460.45	No	12508336	1 x Ku
EK\01	Sag	Surface Inlet Pits	Trench Grate	15	1.4	16.42	0.1	0	0.5	308027.75	6240490.17	No	12508335	1 x Ku
EL\03	Sag	Surface Inlet Pits	Trench Grate	15	4.0	16.4	0.1	0	0.5	308007.14	6240613.73	No	12508340	1 x Ku
EL\02	Sag	Surface Inlet Pits	Trench Grate	15	1.6	16.4	0.1	0	0.5	308003.34	6240583.97	No	12508339	1 x Ku
EL\01	Sag	Surface Inlet Pits	Trench Grate	15	1.4	16.4	0.1	0	0.5	307999.54	6240554.22	No	12508338	1 x Ku
EM\03	Sag	Surface Inlet Pits	Trench Grate	15	9.0	16.4	0.1	0	0.5	307984.34	6240435.18	No	12508343	1 x Ku
EM\02	Sag	Surface Inlet Pits	Trench Grate	15	1.6	16.4	0.1	0	0.5	307988.14	6240464.94	No	12508342	1 x Ku
EM\01	Sag	Surface Inlet Pits	Trench Grate	15	1.4	16.4	0.1	0	0.5	307991.94	6240494.70	No	12508341	1 x Ku
BA Outlet	Node					16.7		0		308015.59	6241204.041		12508345	
O CA\02	Node					15.872		0		308052.61	6240946.303		12508348	
O DA\02	Node					15.872		0		308026.01	6240737.995		12508350	
Dummy Pit	OnGrade	Surface Inlet Pits	Unlimited Entry Pit		1.5	16.5		0	0.3	308056.36	6241348.04	No	12508876	1 x Ku
Channel1	Node					16		0		308059.66	6241393.987		18018004	
N60922	Node							0		307769.42	6241322.256		18017974	
N60923	Node					15		0		307547.46	6241114.390		18017975	
HW Moore	Headwall				0.5	14.2		0		307698.20	6241217.700		18017976	
Full Existing	Node					16		0		307600.08	6241260.808		18017979	

N60936	Node							0		308423.90	6241280.100		18018008	
Moore HW	Headwall				0.5	14.2		0		308053.08	6241550.898		18018021	
P Georges R	Node					16		0		307944.47	6241553.756		18018035	
N98596	Node							0		308136.67	6241627.350		36081885	
N103004	Node							0		308020.33	6241500.025		43098404	
EA Outlet	Node					16.5		0		307928.29	6240533.990		63490708	
N147106	Node					16.4		0		308034.88	6241211.105		63827506	
HW4	Headwall				0.5	14.2		0		307707.26	6241440.006		63827547	
Ex Georges R	Node					16		0		307604.37	6241484.306		63827550	
N147129	Node							0		307795.85	6241416.428		63827554	
N147132	Node							0		307795.85	6241545.753		63827566	
Carpark HW	Headwall				0.5	14.7		0		307921.59	6241236.948		64604924	
Pr Carpark Junc	Sag	Surface Inlet Pits	Surface Inlet Pit 900x900	5	1.5	14.55	0.1	0	0.5	307981.63	6241325.76	No	64604927	1 x Ku
F\03	Sag	Surface Inlet Pits	Surface Inlet Pit 900x900	15	1.0	14.4	0.1	0	0.5	308077.92	6241321.98	No	129747956	1 x Ku
F\02	Sag	Surface Inlet Pits	Surface Inlet Pit 900x900	15	2.5	14.5	0.15	0	0.5	308088.86	6241401.64	No	129747955	1 x Ku
Channel2	Node					16		0		308077.85	6241400.208		79918486	
Prop Carpark Node	Node					15		0		307851.13	6241236.948		64605377	
HW46	Headwall				0.5	14.7		0		307625.86	6241093.550		65725035	
Pit144889	OnGrade	Surface Inlet Pits	Surface Inlet Pit 900x900		1.5	14.55		0	0.3	307719.14	6241116.37	No	65725059	1 x Ku
N159649	Node					16		0		307716.17	6241191.299		65725084	
HW57	Headwall				0.5	14.7		0		307592.62	6241333.704		65725114	
Pit144901	OnGrade	Surface Inlet Pits	Surface Inlet Pit 900x900		1.5	14.55		0	0.3	307686.40	6241342.13	No	65725140	1 x Ku
Ex Existing Channe	Node					16		0		307700.79	6241394.238		63827558	
EX Carpark Node	Node					15		0		307522.16	6241331.223		65725181	
N214245	Node							0		308237.66	6240484.235		79909199	
N214246	Node							0		308247.18	6240590.816		79909200	
N214247	Node							0		308259.09	6240715.854		79909201	
N214248	Node							0		308271.60	6240836.129		79909202	
N214249	Node							0		308285.89	6240998.084		79909203	
N214250	Node							0		308300.77	6241177.306		79909204	
N214256	Node							0		308275.45	6241269.223		79909248	
N214257	Node							0		308192.75	6241338.424		79909250	
DA Outlet	Node					16.5		0		307948.46	6240735.801		82738235	
CA Outlet	Node					16.5		0		307981.96	6240951.228		103214600	
AA Outlet	Node					16.7		0		308031.80	6241231.939		103214619	
N304196	Node							0		308102.63	6241414.796		104333901	
AA\06	OnGrade	Standard Pits	1.8m lintel		4.0	15.988		0	0.3	308132.48	6241320.76	No	129747765	1 x Ku
AA\05	Sag	Surface Inlet Pits	Surface Inlet Pit 1200x1200	15	2.0	16.27	0.15	0	0.5	308126.72	6241278.53	No	129747764	1 x Ku
AA\04	Sag	Surface Inlet Pits	Surface Inlet Pit 1200x1200	15	2.0	16.264	0.15	0	0.5	308120.86	6241235.58	No	129747763	1 x Ku
AA\03	Sag	Surface Inlet Pits	Surface Inlet Pit 1200x1200	15	2.0	16.314	0.15	0	0.5	308095.63	6241238.85	No	129747762	1 x Ku
AA\02	OnGrade	Gross Pollutant T	GPT		2.0	16.4		0	0.3	308087.10	6241239.88	No	129747761	1 x Ku
AB\02	OnGrade	Standard Pits	1.8m lintel		4.0	15.737		0	0.3	308117.60	6241340.94	No	129747767	1 x Ku
AB\01	Sag	Surface Inlet Pits	Surface Inlet Pit 1200x1200	15	2.0	16.318	0.15	0	0.5	308100.73	6241281.80	No	129747766	1 x Ku
BA\11	Sag	Surface Inlet Pits	Surface Inlet Pit 1200x1200	15	4.0	16.44	0.1	0	0.5	308210.09	6241049.62	No	129747778	1 x Ku
BA\10	Sag	Surface Inlet Pits	Surface Inlet Pit 1200x1200	15	1.5	16.44	0.1	0	0.5	308214.78	6241086.32	No	129747777	1 x Ku
BA\09	Sag	Surface Inlet Pits	Surface Inlet Pit 1200x1200	15	1.2	16.5	0.1	0	0.5	308223.08	6241128.02	No	129747776	1 x Ku
BA\08	Sag	Surface Inlet Pits	Surface Inlet Pit 1200x1200	15	2.5	16.5	0.1	0	0.5	308229.17	6241175.68	No	129747775	1 x Ku
BA\07	Sag	Surface Inlet Pits	Surface Inlet Pit 1200x1200	15	2.0	16.446	0.1	0	0.5	308200.11	6241179.40	No	129747774	1 x Ku
BA\06	Sag	Surface Inlet Pits	Surface Inlet Pit 1200x1200	15	2.0	16.393	0.1	0	0.5	308171.04	6241183.13	No	129747773	1 x Ku
BA\05	Sag	Surface Inlet Pits	Surface Inlet Pit 1200x1200	15	2.0	16.339	0.1	0	0.5	308141.98	6241186.83	No	129747772	1 x Ku
BA\04	Sag	Surface Inlet Pits	Surface Inlet Pit 1200x1200	15	1.5	16.326	0.1	0	0.5	308115.92	6241190.15	No	129747771	1 x Ku
BA\03	Sag	Surface Inlet Pits	Surface Inlet Pit 1200x1200	15	0.5	16.286	0.1	0	0.5	308092.64	6241193.16	No	129747770	1 x Ku
BA\02	Sag	Surface Inlet Pits	Surface Inlet Pit 1200x1200	15	0.5	16.4	0.1	0	0.5	308081.32	6241194.60	No	129747769	1 x Ku
BA\01	OnGrade	Gross Pollutant T	GPT		2.0	16.4		0	0.3	308078.84	6241194.89	No	129747922	1 x Ku
BB\03	Sag	Surface Inlet Pits	Surface Inlet Pit 1200x1200	15	4.0	16.421	0.1	0	0.5	308176.25	6241053.42	No	129747781	1 x Ku
BB\02	Sag	Surface Inlet Pits	Surface Inlet Pit 1200x1200	15	2.0	16.42	0.1	0	0.5	308181.05	6241090.62	No	129747780	1 x Ku
BB\01	Sag	Surface Inlet Pits	Surface Inlet Pit 1200x1200	15	1.2	16.446	0.1	0	0.5	308194.02	6241131.74	No	129747779	1 x Ku
BC\03	Sag	Surface Inlet Pits	Surface Inlet Pit 1200x1200	15	4.0	16.5	0.1	0	0.5	308148.59	6241057.47	No	129747784	1 x Ku
BC\02	Sag	Surface Inlet Pits	Surface Inlet Pit 1200x1200	15	2.0	16.5	0.1	0	0.5	308153.41	6241095.16	No	129747783	1 x Ku
BC\01	Sag	Surface Inlet Pits	Surface Inlet Pit 1200x1200	15	1.2	16.392	0.1	0	0.5	308164.96	6241135.45	No	129747782	1 x Ku
BD\03	Sag	Surface Inlet Pits	Surface Inlet Pit 1200x1200	15	4.0	16.5	0.1	0	0.5	308128.75	6241060.00	No	129747787	1 x Ku
BD\02	Sag	Surface Inlet Pits	Surface Inlet Pit 1200x1200	15	2.0	16.5	0.1	0	0.5	308133.57	6241097.70	No	129747786	1 x Ku
BD\01	Sag	Surface Inlet Pits	Surface Inlet Pit 1200x1200	15	1.2	16.339	0.1	0	0.5	308135.89	6241139.16	No	129747785	1 x Ku
BE\03	Sag	Surface Inlet Pits	Surface Inlet Pit 1200x1200	15	4.0	16.42	0.1	0	0.5	308100.98	6241063.55	No	129747790	1 x Ku
BE\02	Sag	Surface Inlet Pits	Surface Inlet Pit 1200x1200	15	1.5	16.42	0.1	0	0.5	308105.79	6241101.24	No	129747789	1 x Ku
BE\01	Sag	Surface Inlet Pits	Surface Inlet Pit 1200x1200	15	1.2	16.453	0.1	0	0.5	308113.74	6241162.23	No	129747788	1 x Ku
BF\02	Sag	Surface Inlet Pits	Surface Inlet Pit 1200x1200	15	5.0	16.012	0.1	0	0.5	308096.27	6241158.16	No	129747792	1 x Ku
BF\01	Sag	Surface Inlet Pits	Surface Inlet Pit 1200x1200	15	2.0	15.751	0.1	0	0.5	308077.01	6241160.56	No	129747791	1 x Ku
BG\02	Sag	Surface Inlet Pits	Surface Inlet Pit 1200x1200	15	2.0	16.4	0.1	0	0.5	308065.17	6241068.10	No	129747794	1 x Ku
BG\01	Sag	Surface Inlet Pits	Surface Inlet Pit 1200x1200	15	2.0	16.4	0.1	0	0.5	308070.24	6241107.83	No	129747793	1 x Ku
F\21	Sag	Surface Inlet Pits	Surface Inlet Pit 5000x1000	50	4.0	14.85	0.3	0	0.5	307962.28	6240407.25	No	129747974	1 x Ku
F\20	Sag	Surface Inlet Pits	Surface Inlet Pit 900x900	15	1.1	14.995	0.1	0	0.5	307966.68	6240451.30	No	129747973	1 x Ku
F\19	Sag	Surface Inlet Pits	Surface Inlet Pit 900x900	15	0.6	14.925	0.1	0	0.5	307971.74	6240490.98	No	129747972	1 x Ku
F\18	Sag	Surface Inlet Pits	Surface Inlet Pit 900x900	15	0.6	14.9	0.1	0	0.5	307976.82	6240530.72	No	129747971	1 x Ku
F\17	Sag	Surface Inlet Pits	Surface Inlet Pit 900x900	15	0.6	14.75	0.1	0	0.5	307984.42	6240590.20	No	129747970	1 x Ku
F\16	Sag	Surface Inlet Pits	Surface Inlet Pit 900x900	15	0.6	14.825	0.1	0	0.5	307992.02	6240649.71	No	129747969	1 x Ku
F\15	Sag	Surface Inlet Pits	Surface Inlet Pit 900x900	15	0.5	14.705	0.1	0	0.5	307999.61	6240709.19	No	129747968	1 x Ku
F\14	Sag	Surface Inlet Pits	Surface Inlet Pit 900x900	15	0.5	14.686	0.1	0	0.5	308007.23	6240768.82	No	129747967	1 x Ku
F\13	Sag	Surface Inlet Pits	Surface Inlet Pit 900x900	15	0.5	14.525	0.1	0	0.5	308017.35	6240848.12	No	129747966	1 x Ku
F\12	Sag	Surface Inlet Pits	Surface Inlet Pit 900x900	15	0.5	14.475	0.1	0	0.5	308027.49	6240927.46	No	129747965	1 x Ku
F\11	Sag	Surface Inlet Pits	Surface Inlet Pit 900x900	15	0.4	14.55	0.1	0	0.5	308035.09	6240986.98	No	129747964	1 x Ku
F\10	Sag	Surface Inlet Pits	Surface Inlet Pit 900x900	15	0.4	14.525	0.1	0	0.5	308040.16	6241026.67	No	129747963	1 x Ku
F\09	Sag	Surface Inlet Pits	Surface Inlet Pit 900x900	15	0.0	14.5	0.1	0	0.5	308045.22	6241066.33	No	129747962	1 x Ku
F\08	Sag	Surface Inlet Pits	Surface Inlet Pit 900x900	15	0.4	14.475	0.1	0	0.5	308050.28	6241105.94	No	129747961	1 x Ku
F\07	Sag	Surface Inlet Pits	Surface Inlet Pit 900x900	15	0.4	14.45	0.1	0	0.5	308055.43	6241146.26	No	129747960	1 x Ku
F\06	Sag	Surface Inlet Pits	Surface Inlet Pit 900x900	15	0.4	14.431	0.1	0	0.5	308060.16	6241183.24	No	129747959	1 x Ku
F\05	Sag	Surface Inlet Pits	Surface Inlet Pit 900x900	15	0.4	14.4	0.1	0	0.5	308065.04	6241222.31	No	129747958	1 x Ku
F\04	Sag	Surface Inlet Pits	Surface Inlet Pit 900x900	15	0.4	14.369	0.1	0	0.5	308071.48	6241271.88	No	129747957	1 x Ku

DETENTION BASIN DETAILS

Name	Elev	Surf. Area	Not Used	Outlet Type	K	Dia(mm)	Centre RL	Pit Family	Pit Type	x	y	HED	Crest RL	Crest Length
Stage1	13.499	0		None						308048.66	6241246.44	No		
	13.5	4386												
	15	4386												
	15.01	7017												
	15.5	7017												
	16	7017												
	16.01	1												
	20	1												

SUB-CATCHMENT DETAILS

Name	Pit or Node	Total Area (ha)	Paved Area %	Grass Area %	Supp Area %	Paved Time (min)	Grass Time (min)	Supp Time (min)	Paved Length (m)	Grass Length (m)	Supp Length (m)	Paved Slope(%) %	Grass Slope %	Supp Slope %
C CA\11	CA\11	0.1008	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C CA\10	CA\10	0.1008	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C CA\09	CA\09	0.1008	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C CA\08	CA\08	0.1008	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C CA\07	CA\07	0.1080	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C CA\06	CA\06	0.0600	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C CA\05	CA\05	0.0600	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C CA\04	CA\04	0.1080	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C CA\03	CA\03	0.0618	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C OSD 2	Stage1	0.1140	0.0	100.0	0.0	5	1	0						
C CB\03	CB\03	0.1008	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C CB\02	CB\02	0.1008	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C CB\01	CB\01	0.1008	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C CC\03	CC\03	0.1080	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C CC\02	CC\02	0.1080	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C CC\01	CC\01	0.1080	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C CD\03	CD\03	0.1080	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C CD\02	CD\02	0.1080	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C CD\01	CD\01	0.1080	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C CE\03	CE\03	0.0600	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C CE\02	CE\02	0.0600	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C CE\01	CE\01	0.0600	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C CF\03	CF\03	0.0600	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C CF\02	CF\02	0.0600	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C CF\01	CF\01	0.0600	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C CG\03	CG\03	0.0600	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C CG\02	CG\02	0.0600	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C CG\01	CG\01	0.0600	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C CH\03	CH\03	0.0600	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C CH\02	CH\02	0.0600	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C CH\01	CH\01	0.0600	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C CJ\03	CJ\03	0.1080	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C CJ\02	CJ\02	0.1080	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C CJ\01	CJ\01	0.1080	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C CK\03	CK\03	0.1080	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C CK\02	CK\02	0.1080	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C CK\01	CK\01	0.1080	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C CL\03	CL\03	0.0618	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C CL\02	CL\02	0.0618	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C CL\01	CL\01	0.0618	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C CM\03	CM\03	0.0618	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C CM\02	CM\02	0.0618	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C CM\01	CM\01	0.0618	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C DA\11	DA\11	0.1008	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C DA\10	DA\10	0.1008	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C DA\09	DA\09	0.1008	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C DA\08	DA\08	0.1008	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C DA\07	DA\07	0.1080	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1

C DA\06	DA\06	0.0600	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C DA\05	DA\05	0.0600	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C DA\04	DA\04	0.1080	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C DA\03	DA\03	0.0618	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C DB\03	DB\03	0.1008	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C DB\02	DB\02	0.1008	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C DB\01	DB\01	0.1008	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C DC\03	DC\03	0.1080	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C DC\02	DC\02	0.1080	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C DC\01	DC\01	0.1080	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C DD\03	DD\03	0.1080	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C DD\02	DD\02	0.1080	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C DD\01	DD\01	0.1080	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C DE\03	DE\03	0.0600	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C DE\02	DE\02	0.0600	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C DE\01	DE\01	0.0600	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C DF\03	DF\03	0.0600	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C DF\02	DF\02	0.0600	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C DF\01	DF\01	0.0600	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C DG\03	DG\03	0.0600	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C DG\02	DG\02	0.0600	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C DG\01	DG\01	0.0600	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C DH\03	DH\03	0.0600	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C DH\02	DH\02	0.0600	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C DH\01	DH\01	0.0600	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C DJ\03	DJ\03	0.1080	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C DJ\02	DJ\02	0.1080	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C DJ\01	DJ\01	0.1080	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C DK\03	DK\03	0.1080	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C DK\02	DK\02	0.1080	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C DK\01	DK\01	0.1080	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C DL\03	DL\03	0.0618	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C DL\02	DL\02	0.0618	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C DL\01	DL\01	0.0618	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C DM\03	DM\03	0.0618	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C DM\02	DM\02	0.0618	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C DM\01	DM\01	0.0618	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C EA\11	EA\11	0.1347	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C EA\10	EA\10	0.1008	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C EA\09	EA\09	0.1008	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C EA\08	EA\08	0.1008	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C EA\07	EA\07	0.1080	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C EA\06	EA\06	0.0600	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C EA\05	EA\05	0.0600	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C EA\04	EA\04	0.1080	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C EA\03	EA\03	0.0618	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C EB\03	EB\03	0.1008	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C EB\02	EB\02	0.1008	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C EB\01	EB\01	0.1008	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C EC\03	EC\03	0.1080	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C EC\02	EC\02	0.1080	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C EC\01	EC\01	0.1080	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C ED\03	ED\03	0.1445	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C ED\02	ED\02	0.1080	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C ED\01	ED\01	0.1080	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C EE\03	EE\03	0.0600	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C EE\02	EE\02	0.0600	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C EE\01	EE\01	0.0600	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C EF\03	EF\03	0.0800	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C EF\02	EF\02	0.0600	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C EF\01	EF\01	0.0600	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C EG\03	EG\03	0.0600	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C EG\02	EG\02	0.0600	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C EG\01	EG\01	0.0600	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C EH\03	EH\03	0.0800	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C EH\02	EH\02	0.0600	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C EH\01	EH\01	0.0600	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C EJ\03	EJ\03	0.1080	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C EJ\02	EJ\02	0.1080	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C EJ\01	EJ\01	0.1080	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C EK\03	EK\03	0.1441	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C EK\02	EK\02	0.1080	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C EK\01	EK\01	0.1080	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C EL\03	EL\03	0.0618	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C EL\02	EL\02	0.0618	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C EL\01	EL\01	0.0618	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C EM\03	EM\03	0.0361	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C EM\02	EM\02	0.0618	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C EM\01	EM\01	0.0618	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
CatchC1Ex	N60922	2.4310	81.8	18.2	-0.0	7	7	0						
CatchCEx	HW Moore	39.9000	60.7	39.3	0.0	25	30	0						
Eastern Swale	N60936	9.7500	100.0	0.0	0.0	10	0	0						
CatC1Ex	N98596	2.4310	81.8	18.2	-0.0	7	7	0						
CatCEx Remaining	N103004	12.2900	60.7	39.3	0.0	10	15	0						
C OSD 1	N147106	0.5750	0.0	100.0	0.0	5	1	0						
Existing Remaing	HW4	12.2900	60.7	39.3	0.0	12	15	5						
Existing S1	N147129	27.6100	60.9	39.1	0.0	15	20	5						
CatC1	N147132	2.4310	81.8	18.2	-0.0	7	7	0						
Pr Carpark	Carpark HW	2.0850	100.0	0.0	0.0	5	0	0						
C F\03	F\03	0.1019	40.0	60.0	0.0	5	5	0						
C F\02	F\02	0.2304	90.0	10.0	0.0	5	10	0						
Cat Carpark Ex	HW46	2.0850	100.0	0.0	0.0	5	0	0						
Ex Carpark	HW57	2.0850	100.0	0.0	0.0	5	0	0						
Cat 1	N214245	0.2390	0.0	100.0	0.0	5	6	0						
Cat 2	N214246	0.6000	7.5	92.5	0.0	4	6	0						
Cat 3	N214247	0.4840	41.0	59.0	0.0	4	6	0						
Cat 4	N214248	0.3480	9.5	90.5	0.0	4	6	0						
Cat 5	N214249	1.8000	26.5	73.5	0.0	4	6	0						
Cat 6	N214250	1.2100	34.0	66.0	0.0	4	6	0						
Cat 7	N214256	1.1400	52.0	48.0	0.0	4	6	0						
ES Cat 8	N214257	2.3100	35.0	65.0	0.0	4	8	0						
ES Cat 9	N304196	1.6120	60.7	39.3	0.0	8	12	0						
C AA\06	AA\06	0.0331	100.0	0.0	0.0	4	10	0	17.5	0	0	1	1	1
C AA\05	AA\05	0.1456	100.0	0.0	0.0	4	10	0	17.5	0	0	1	1	1
C AA\04	AA\04	0.1631	100.0	0.0	0.0	4	10	0	17.5	0	0	1	1	1
C AA\03	AA\03	0.0853	100.0	0.0	0.0	4	10	0	17.5	0	0	1	1	1
C AB\02	AB\02	0.0453	100.0	0.0	0.0	5	10	0	17.5	0	0	1	1	1
C AB\01	AB\01	0.0858	100.0	0.0	0.0	4	10	0	17.5	0	0	1	1	1
C BA\11	BA\11	0.1661	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C BA\10	BA\10	0.1148	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C BA\09	BA\09	0.1527	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C BA\08	BA\08	0.1528	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C BA\07	BA\07	0.1408	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C BA\06	BA\06	0.1408	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C BA\05	BA\05	0.1408	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C BA\04	BA\04	0.1157	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C BA\03	BA\03	0.1296	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C BB\03	BB\03	0.1651	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C BB\02	BB\02	0.1149	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C BB\01	BB\01	0.1408	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C BC\03	BC\03	0.0924	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C BC\02	BC\02	0.0686	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C BC\01	BC\01	0.1408	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C BD\03	BD\03	0.0918	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C BD\02	BD\02	0.0690	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C BD\01	BD\01	0.1401	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C BE\03	BE\03	0.1657	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C BE\02	BE\02	0.1136	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C BF\02	BF\02	0.0821	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C BF\01	BF\01	0.1355	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C BG\02	BG\02	0.0950	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C BG\01	BG\01	0.0668	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C F\21	F\21	0.7998	0.0	100.0	0.0	5	7	0						
C F\20	F\20	0.1835	40.0	60.0	0.0	5	5	0						
C F\19	F\19	0.0824	90.0	10.0	0.0	5	10	0						
C F\18	F\18	0.0834	40.0	60.0	0.0	5	5	0						
C F\17	F\17	0.1652	90.0	10.0	0.0	5	10	0						
C F\16	F\16	0.0825	40.0	60.0	0.0	5	5	0						
C F\15	F\15	0.1636	40.0	60.0	0.0	5	5	0						
C F\14	F\14	0.1220	40.0	60.0	0.0	5	5	0						
C F\13	F\13	0.1621	40.0	60.0	0.0	5	5	0						
C F\12	F\12	0.1627	40.0	60.0	0.0	5	5	0						
C F\11	F\11	0.0811	40.0	60.0	0.0	5	5	0						
C F\10	F\10	0.0806	40.0	60.0	0.0	5	5	0						
C F\09	F\09	0.0808	40.0	60.0	0.0	5	5	0						
C F\08	F\08	0.0814	40.0	60.0	0.0	5	5	0						
C F\07	F\07	0.0853	40.0	60.0	0.0	5	5	0						
C F\06	F\06	0.0940	40.0	60.0	0.0	5	5	0						
C F\05	F\05	0.0903	40.0	60.0	0.0	5	5	0						
C F\04	F\04	0.1005	40.0	60.0	0.0	5	5	0						
PIPE DETAILS														

Name	From	To	Length	U/S IL	D/S IL	Slope	Type	Dia	I.D.	Rough	Pipe Is	No. Pipes	Chg From	At Chg
			(m)	(m)	(m)	(%)		(mm)	(mm)					
P CA\11	CA\11	CA\10	30.001	15.530	15.230	1.00	RCP Class 2	375	375	0.3	New	1	CA\11	0
P CA\10	CA\10	CA\09	30	15.210	14.910	1.00	RCP Class 2	450	450	0.3	New	1	CA\10	0
P CA\09	CA\09	CA\08	30	14.890	14.590	1.00	RCP Class 2	525	525	0.3	New	1	CA\09	0
P CA\08	CA\08	CA\07	34	14.570	14.230	1.00	Box Culverts	1.5W x 0.6H		0.3	NewFixed	1	CA\08	0
P CA\07	CA\07	CA\06	28	14.210	14.070	0.50	Box Culverts	1.5W x 0.6H		0.3	NewFixed	1	CA\07	0
P CA\06	CA\06	CA\05	20.001	14.050	13.950	0.50	Box Culverts	1.5W x 0.9H		0.3	NewFixed	1	CA\06	0
P CA\05	CA\05	CA\04	28	13.930	13.790	0.50	Box Culverts	1.5W x 0.9H		0.3	NewFixed	1	CA\05	0
P CA\04	CA\04	CA\03	36.096	13.770	13.590	0.50	Box Culverts	1.5W x 1.2H		0.3	NewFixed	1	CA\04	0
P CA\03	CA\03	CA\02	6	13.570	13.563	0.12	Box Culverts	1.5W x 1.2H		0.3	NewFixed	1	CA\03	0
P CA\02	CA\02	Stage1	6	13.543	13.500	0.72	Box Culverts	1.5W x 1.2H		0.3	NewFixed	1	CA\02	0
P CB\03	CB\03	CB\02	30	15.530	15.230	1.00	RCP Class 2	375	375	0.3	New	1	CB\03	0
P CB\02	CB\02	CB\01	30	15.210	14.910	1.00	RCP Class 2	450	450	0.3	New	1	CB\02	0
P CB\01	CB\01	CA\08	30.001	14.890	14.590	1.00	RCP Class 2	525	525	0.3	New	1	CB\01	0
P CC\03	CC\03	CC\02	30	15.510	15.210	1.00	RCP Class 2	375	375	0.3	New	1	CC\03	0
P CC\02	CC\02	CC\01	30	15.190	14.890	1.00	RCP Class 2	450	450	0.3	New	1	CC\02	0
P CC\01	CC\01	CA\07	30.001	14.870	14.570	1.00	RCP Class 2	525	525	0.3	New	1	CC\01	0
P CD\03	CD\03	CD\02	30.001	15.510	15.210	1.00	RCP Class 2	375	375	0.3	New	1	CD\03	0
P CD\02	CD\02	CD\01	30	15.190	14.890	1.00	RCP Class 2	450	450	0.3	New	1	CD\02	0
P CD\01	CD\01	CA\07	30	14.870	14.570	1.00	RCP Class 2	525	525	0.3	New	1	CD\01	0
P CE\03	CE\03	CE\02	30	15.590	15.290	1.00	RCP Class 2	375	375	0.3	New	1	CE\03	0
P CE\02	CE\02	CE\01	30	15.270	14.970	1.00	RCP Class 2	375	375	0.3	New	1	CE\02	0
P CE\01	CE\01	CA\06	30.001	14.950	14.650	1.00	RCP Class 2	375	375	0.3	New	1	CE\01	0
P CF\03	CF\03	CF\02	30	15.590	15.290	1.00	RCP Class 2	375	375	0.3	New	1	CF\03	0
P CF\02	CF\02	CF\01	30	15.270	14.970	1.00	RCP Class 2	375	375	0.3	New	1	CF\02	0
P CF\01	CF\01	CA\06	30	14.950	14.650	1.00	RCP Class 2	375	375	0.3	New	1	CF\01	0
P CG\03	CG\03	CG\02	30	15.590	15.290	1.00	RCP Class 2	375	375	0.3	New	1	CG\03	0
P CG\02	CG\02	CG\01	30.001	15.270	14.970	1.00	RCP Class 2	375	375	0.3	New	1	CG\02	0
P CG\01	CG\01	CA\05	30	14.950	14.650	1.00	RCP Class 2	375	375	0.3	New	1	CG\01	0
P CH\03	CH\03	CH\02	30	15.590	15.290	1.00	RCP Class 2	375	375	0.3	New	1	CH\03	0
P CH\02	CH\02	CH\01	30.001	15.270	14.970	1.00	RCP Class 2	375	375	0.3	New	1	CH\02	0
P CH\01	CH\01	CA\05	30	14.950	14.650	1.00	RCP Class 2	375	375	0.3	New	1	CH\01	0
P CJ\03	CJ\03	CJ\02	30	15.510	15.210	1.00	RCP Class 2	375	375	0.3	New	1	CJ\03	0
P CJ\02	CJ\02	CJ\01	30.001	15.190	14.890	1.00	RCP Class 2	450	450	0.3	New	1	CJ\02	0
P CJ\01	CJ\01	CA\04	30	14.870	14.570	1.00	RCP Class 2	450	450	0.3	New	1	CJ\01	0
P CK\03	CK\03	CK\02	30.001	15.510	15.210	1.00	RCP Class 2	375	375	0.3	New	1	CK\03	0
P CK\02	CK\02	CK\01	30	15.190	14.890	1.00	RCP Class 2	450	450	0.3	New	1	CK\02	0
P CK\01	CK\01	CA\04	30	14.870	14.570	1.00	RCP Class 2	450	450	0.3	New	1	CK\01	0
P CL\03	CL\03	CL\02	30.001	15.790	15.490	1.00	RCP Class 2	375	375	0.3	New	1	CL\03	0
P CL\02	CL\02	CL\01	30	15.470	15.170	1.00	RCP Class 2	375	375	0.3	New	1	CL\02	0
P CL\01	CL\01	CA\03	30	15.150	14.850	1.00	RCP Class 2	375	375	0.3	New	1	CL\01	0
P CM\03	CM\03	CM\02	30	15.790	15.490	1.00	RCP Class 2	375	375	0.3	New	1	CM\03	0
P CM\02	CM\02	CM\01	30	15.470	15.170	1.00	RCP Class 2	375	375	0.3	New	1	CM\02	0
P CM\01	CM\01	CA\03	30.001	15.150	14.850	1.00	RCP Class 2	375	375	0.3	New	1	CM\01	0
P DA\11	DA\11	DA\10	30.001	15.530	15.230	1.00	RCP Class 2	375	375	0.3	New	1	DA\11	0
P DA\10	DA\10	DA\09	30	15.210	14.910	1.00	RCP Class 2	450	450	0.3	New	1	DA\10	0
P DA\09	DA\09	DA\08	30	14.890	14.590	1.00	RCP Class 2	525	525	0.3	New	1	DA\09	0
P DA\08	DA\08	DA\07	34	14.570	14.230	1.00	Box Culverts	1.5W x 0.6H		0.3	NewFixed	1	DA\08	0
P DA\07	DA\07	DA\06	28	14.210	14.070	0.50	Box Culverts	1.5W x 0.6H		0.3	NewFixed	1	DA\07	0
P DA\06	DA\06	DA\05	20.001	14.050	13.950	0.50	Box Culverts	1.5W x 0.9H		0.3	NewFixed	1	DA\06	0
P DA\05	DA\05	DA\04	28	13.930	13.790	0.50	Box Culverts	1.5W x 0.9H		0.3	NewFixed	1	DA\05	0
P DA\04	DA\04	DA\03	36.096	13.770	13.590	0.50	Box Culverts	1.5W x 1.2H		0.3	NewFixed	1	DA\04	0
P DA\03	DA\03	DA\02	6	13.570	13.563	0.12	Box Culverts	1.5W x 1.2H		0.3	NewFixed	1	DA\03	0
P DA\02	DA\02	Stage1	6	13.543	13.500	0.72	Box Culverts	1.5W x 1.2H		0.3	NewFixed	1	DA\02	0
P DB\03	DB\03	DB\02	30	15.530	15.230	1.00	RCP Class 2	375	375	0.3	New	1	DB\03	0
P DB\02	DB\02	DB\01	30	15.210	14.910	1.00	RCP Class 2	450	450	0.3	New	1	DB\02	0
P DB\01	DB\01	DA\08	30.001	14.890	14.590	1.00	RCP Class 2	525	525	0.3	New	1	DB\01	0
P DC\03	DC\03	DC\02	30	15.510	15.210	1.00	RCP Class 2	375	375	0.3	New	1	DC\03	0
P DC\02	DC\02	DC\01	30	15.190	14.890	1.00	RCP Class 2	450	450	0.3	New	1	DC\02	0
P DC\01	DC\01	DA\07	30.001	14.870	14.570	1.00	RCP Class 2	525	525	0.3	New	1	DC\01	0
P DD\03	DD\03	DD\02	30.001	15.510	15.210	1.00	RCP Class 2	375	375	0.3	New	1	DD\03	0
P DD\02	DD\02	DD\01	30	15.190	14.890	1.00	RCP Class 2	450	450	0.3	New	1	DD\02	0
P DD\01	DD\01	DA\07	30	14.870	14.570	1.00	RCP Class 2	525	525	0.3	New	1	DD\01	0
P DE\03	DE\03	DE\02	30	15.590	15.290	1.00	RCP Class 2	375	375	0.3	New	1	DE\03	0
P DE\02	DE\02	DE\01	30	15.270	14.970	1.00	RCP Class 2	375	375	0.3	New	1	DE\02	0
P DE\01	DE\01	DA\06	30.001	14.950	14.650	1.00	RCP Class 2	375	375	0.3	New	1	DE\01	0
P DF\03	DF\03	DF\02	30	15.590	15.290	1.00	RCP Class 2	375	375	0.3	New	1	DF\03	0
P DF\02	DF\02	DF\01	30	15.270	14.970	1.00	RCP Class 2	375	375	0.3	New	1	DF\02	0
P DF\01	DF\01	DA\06	30	14.950	14.650	1.00	RCP Class 2	375	375	0.3	New	1	DF\01	0
P DG\03	DG\03	DG\02	30	15.590	15.290	1.00	RCP Class 2	375	375	0.3	New	1	DG\03	0
P DG\02	DG\02	DG\01	30.001	15.270	14.970	1.00	RCP Class 2	375	375	0.3	New	1	DG\02	0
P DG\01	DG\01	DA\05	30	14.950	14.650	1.00	RCP Class 2	375	375	0.3	New	1	DG\01	0
P DH\03	DH\03	DH\02	30	15.590	15.290	1.00	RCP Class 2	375	375	0.3	New	1	DH\03	0
P DH\02	DH\02	DH\01	30.001	15.270	14.970	1.00	RCP Class 2	375	375	0.3	New	1	DH\02	0
P DH\01	DH\01	DA\05	30	14.950	14.650	1.00	RCP Class 2	375	375	0.3	New	1	DH\01	0
P DJ\03	DJ\03	DJ\02	30	15.510	15.210	1.00	RCP Class 2	375	375	0.3	New	1	DJ\03	0
P DJ\02	DJ\02	DJ\01	30.001	15.190	14.890	1.00	RCP Class 2	450	450	0.3	New	1	DJ\02	0
P DJ\01	DJ\01	DA\04	30	14.870	14.570	1.00	RCP Class 2	450	450	0.3	New	1	DJ\01	0
P DK\03	DK\03	DK\02	30.001	15.510	15.210	1.00	RCP Class 2	375	375	0.3	New	1	DK\03	0
P DK\02	DK\02	DK\01	30	15.190	14.890	1.00	RCP Class 2	450	450	0.3	New	1	DK\02	0
P DK\01	DK\01	DA\04	30	14.870	14.570	1.00	RCP Class 2	450	450	0.3	New	1	DK\01	0
P DL\03	DL\03	DL\02	30.001	15.790	15.490	1.00	RCP Class 2	375	375	0.3	New	1	DL\03	0
P DL\02	DL\02	DL\01	30	15.470	15.170	1.00	RCP Class 2	375	375	0.3	New	1	DL\02	0
P DL\01	DL\01	DA\03	30	15.150	14.850	1.00	RCP Class 2	375	375	0.3	New	1	DL\01	0
P DM\03	DM\03	DM\02	30	15.790	15.490	1.00	RCP Class 2	375	375	0.3	New	1	DM\03	0
P DM\02	DM\02	DM\01	30	15.470	15.170	1.00	RCP Class 2	375	375	0.3	New	1	DM\02	0
P DM\01	DM\01	DA\03	30.001	15.150	14.850	1.00	RCP Class 2	375	375	0.3	New	1	DM\01	0
P EA\11	EA\11	EA\10	30.001	15.530	15.230	1.00	RCP Class 2	375	375	0.3	New	1	EA\11	0
P EA\10	EA\10	EA\09	30	15.210	14.910	1.00	RCP Class 2	450	450	0.3	New	1	EA\10	0
P EA\09	EA\09	EA\08	30	14.890	14.590	1.00	RCP Class 2	525	525	0.3	New	1	EA\09	0
P EA\08	EA\08	EA\07	34	14.570	14.230	1.00	Box Culverts	1.5W x 0.6H		0.3	NewFixed	1	EA\08	0
P EA\07	EA\07	EA\06	28	14.210	14.070	0.50	Box Culverts	1.5W x 0.9H		0.3	NewFixed	1	EA\07	0
P EA\06	EA\06	EA\05	20.001	14.050	13.950	0.50	Box Culverts	1.5W x 0.9H		0.3	NewFixed	1	EA\06	0
P EA\05	EA\05	EA\04	28	13.930	13.790	0.50	Box Culverts	1.5W x 1.2H		0.3	NewFixed	1	EA\05	0
P EA\04	EA\04	EA\03	36.096	13.770	13.590	0.50	Box Culverts	1.5W x 1.2H		0.3	NewFixed	1	EA\04	0
P EA\03	EA\03	EA\02	6	13.570	13.563	0.12	Box Culverts	1.5W x 1.2H		0.3	NewFixed	1	EA\03	0
P EA\02	EA\02	Stage1	6	13.543	13.500	0.72	Box Culverts	1.5W x 1.2H		0.3	NewFixed	1	EA\02	0
P EB\03	EB\03	EB\02	30	15.530	15.230	1.00	RCP Class 2	375	375	0.3	New	1	EB\03	0
P EB\02	EB\02	EB\01	30	15.210	14.910	1.00	RCP Class 2	450	450	0.3	New	1	EB\02	0
P EB\01	EB\01	EA\08	30.001	14.890	14.590	1.00	RCP Class 2	525	525	0.3	New	1	EB\01	0
P EC\03	EC\03	EC\02	30	15.510	15.210	1.00	RCP Class 2	375	375	0.3	New	1	EC\03	0
P EC\02	EC\02	EC\01	30	15.190	14.890	1.00	RCP Class 2	450	450	0.3	New	1	EC\02	0
P EC\01	EC\01	EA\07	30.001	14.870	14.570	1.00	RCP Class 2	525	525	0.3	New	1	EC\01	0
P ED\03	ED\03	ED\02	30.001	15.510	15.210	1.00	RCP Class 2	375	375	0.3	New	1	ED\03	0
P ED\02	ED\02	ED\01	30	15.190	14.890	1.00	RCP Class 2	450	450	0.3	New	1	ED\02	0
P ED\01	ED\01	EA\07	30	14.870	14.570	1.00	RCP Class 2	525	525	0.3	New	1	ED\01	0
P EE\03	EE\03	EE\02	30	15.590	15.290	1.00	RCP Class 2	375	375	0.3	New	1	EE\03	0
P EE\02	EE\02	EE\01	30	15.270	14.970	1.00	RCP Class 2	375	375	0.3	New	1	EE\02	0
P EE\01	EE\01	EA\06	30.001	14.950	14.650	1.00	RCP Class 2	450	450	0.3	New	1	EE\01	0
P EF\03	EF\03	EF\02	30	15.590	15.290	1.00	RCP Class 2	375	375	0.3	New	1	EF\03	0
P EF\02	EF\02	EF\01	30	15.270	14.970	1.00	RCP Class 2	375	375	0.3	New	1	EF\02	0
P EF\01	EF\01	EA\06	30	14.950	14.650	1.00	RCP Class 2	450	450	0.3	New	1	EF\01	0
P EG\03	EG\03	EG\02	30	15.590	15.290	1.00	RCP Class 2	375	375	0.3	New	1	EG\03	0
P EG\02	EG\02	EG\01	30.001	15.270	14.970	1.00	RCP Class 2	375	375	0.3	New	1	EG\02	0
P EG\01	EG\01	EA\05	30	14.950	14.650	1.00	RCP Class 2	450	450	0.3	New	1	EG\01	0
P EH\03	EH\03	EH\02	30	15.590	15.290	1.00	RCP Class 2	375	375	0.3	New	1	EH\03	0
P EH\02	EH\02	EH\01	30.001	15.270	14.970	1.00	RCP Class 2	375	375	0.3	New	1	EH\02	0
P EH\01	EH\01	EA\05	30	14.950	14.650	1.00	RCP Class 2	450	450	0.3	New	1	EH\01	0
P EJ\03	EJ\03	EJ\02	30	15.510	15.210	1.00	RCP Class 2	375	375	0.3	New	1	EJ\03	0
P EJ\02	EJ\02	EJ\01	30.001	15.190	14.890	1.00	RCP Class 2	450	450	0.3	New	1	EJ\02	0
P EJ\01	EJ\01	EA\04	30	14.870	14.570	1.00	RCP Class 2	525	525	0.3	New	1	EJ\01	0
P EK\03	EK\03	EK\02	30.001	15.510	15.210	1.00	RCP Class 2	375	375	0.3	New	1	EK\03	0
P EK\02	EK\02	EK\01	30	15.190	14.890	1.00	RCP Class 2	450	450	0.3	New	1	EK\02	0
P EK\01	EK\01	EA\04	30	14.870	14.570	1.00	RCP Class 2	525	525	0.3	New	1	EK\01	0
P EL\03	EL\03	EL\02	30.001	15.790	15.490	1.00	RCP Class 2	375	375	0.3	New	1	EL\03	0
P EL\02	EL\02	EL\01	30	15.470	15.170	1.00	RCP Class 2	375	375	0.3	New	1	EL\02	0
P EL\01	EL\01	EA\03	30	15.150	14.850	1.00	RCP Class 2	375	375	0.3	New	1	EL\01	0
P EM\03	EM\03	EM\02	30	15.790	15.490	1.00	RCP Class 2	375	375	0.3	New	1	EM\03	0
P EM\02	EM\02	EM\01	30	15.470	15.170	1.00	RCP Class 2	375	375	0.3	New	1	EM\02	0
P EM\01	EM\01	EA\03	30.001	15.150	14.850	1.00	RCP Class 2	375	375	0.3	New	1	EM\01	0
Entrance Culvert	Dummy Pit	Channel1	50	13.500	13.450	0.10	Box Culverts	3.6W x 1.2H		0.3	Existing	2	Dummy Pit	0
Pipe56908	HW Moore	Full Existing	21	11.600	11.390	1.00	Box Culverts	2W x 1.8H		0.3	Existing	1	HW Moore	0
Moore Ave Culvert	Moore HW	P Georges R	21	11.600	11.390	1.00	Box Culverts	2W x 1.8H		0.3	Existing	1	Moore HW	0
Ex Moore Ave Culv	HW4	Ex Georges R	21	11.600	11.390	1.00	Box Culverts	2W x 1.8H		0.3	Existing	1	HW4	0
Pr P Carpark 1	Carpark HW	Pr Carpark Junc	8.77	14.310	13.870	5.02	RCP Class 2	300	300	0.3	NewFixed	1	Carpark HW	0
Pr P Carpark 2	Pr Carpark Junc	F\03	20	13.870	12.541	6.64	RCP Class 2	300	300	0.3	NewFixed	1	Pr Carpark	0
P F\03	F\03	F\02	80.901	12.562	12.400	0.20	Box Culverts	2.4W x 1.2H		0.3	NewFixed	1	F\03	0
P F\02	F\02	Channel2	10	12.400	12.380	0.20	Box Culverts	2.4W x 1.2H		0.3	NewFixed	1	F\02	0
P146094	HW46	Pit144889	8.77	14.310	13.870	5.02	RCP Class 2	300	300	0.3	NewFixed	1	HW46	0
P146107	Pit144889	N159649	23.6	13.620	12.990	2.67	RCP Class 2	300	300	0.3	New	1	Pit144889	0
Ex P Carpark 1	HW57	Pit144901	8.77	14.310	13.870	5.02	RCP Class 2	300	300	0.3	NewFixed	1	HW57	0
Ex P Carpark 2	Pit144901	Ex Existing Chan	23.6	13.620	12.990	2.67	RCP Class 2	300	300	0.3	New	1	Pit144901	0
P AA\06	AA\06	AA\05	42.617	15.088	14.662	1.00	RCP Class 2	375	375	0.3	New	1	AA\06	0
P AA\05	AA\05	AA\04	43.348	14.642	14.208	1.00	RCP Class 2	375	375	0.3	New	1	AA\05	0
P AA\04	AA\04	AA\03	25.439	13.723	13.596	0.50	Box Culverts	2.1W x 1.2H		0.3	NewFixed	1	AA\04	0
P AA\03	AA\03	AA\02	8.592	13.576	13.533	0.50	Box Culverts	2.1W x 1.2H		0.3	NewFixed	1	AA\03	0
P AA\02	AA\02	Stage1	10	13.513	13.500	0.13	Box Culverts	2.1W x 1.2H		0.3	NewFixed	1	AA\02	0
P AB\02	AB\02	AB\01	61.496	14.841	14.226	1.00	RCP Class 2	375	375	0.3	New	1	AB\02	0
P AB\01	AB\01	AA\03	43.251	14.206	13.990	0.50	RCP Class 2	375	375	0.3	New	1	AB\01	0
P BA\11	BA\11	BA\10	37	15.530	15.160	1.00	RCP Class 2	375	375	0.3	New	1	BA\11	0
P BA\10	BA\10	BA\09	42.525	15.160	14.735	1.00	RCP Class 2	450	450	0.3	New	1	BA\10	0

P BA\09	BA\09	BA\08	48.054	14.735	14.254	1.00	RCP Class 2	525	525	0.3	New	1	BA\09	0	
P BA\08	BA\08	BA\07	29.3	14.254	14.108	0.50	Box Culverts	1.5W x 0.6H		0.3	NewFixed	1	BA\08	0	
P BA\07	BA\07	BA\06	29.3	14.108	13.985	0.42	Box Culverts	1.5W x 0.9H		0.3	NewFixed	1	BA\07	0	
P BA\06	BA\06	BA\05	29.3	13.985	13.838	0.50	Box Culverts	1.5W x 1.2H		0.3	NewFixed	1	BA\06	0	
P BA\05	BA\05	BA\04	26.275	13.838	13.707	0.50	Box Culverts	1.5W x 1.2H		0.3	NewFixed	1	BA\05	0	
P BA\04	BA\04	BA\03	23.467	13.707	13.590	0.50	Box Culverts	1.5W x 1.2H		0.3	NewFixed	1	BA\04	0	
P BA\03	BA\03	BA\02	11.408	13.590	13.533	0.50	Box Culverts	1.5W x 1.2H		0.3	NewFixed	1	BA\03	0	
P BA\02	BA\02	BA\01	10	13.513	13.500	0.13	Box Culverts	1.8W x 1.2H		0.3	NewFixed	1	BA\02	0	
P BA\01	BA\01	Stage1	10	13.513	13.500	0.13	Box Culverts	1.8W x 1.2H		0.3	NewFixed	1	BA\01	0	
P BB\03	BB\03	BB\02	37.514	15.511	15.135	1.00	RCP Class 2	375	375	0.3	New	1	BB\03	0	
P BB\02	BB\02	BB\01	43.107	15.115	14.684	1.00	RCP Class 2	450	450	0.3	New	1	BB\02	0	
P BB\01	BB\01	BA\07	48.054	14.664	14.184	1.00	RCP Class 2	525	525	0.3	New	1	BB\01	0	
P BC\03	BC\03	BC\02	38	15.590	15.210	1.00	RCP Class 2	375	375	0.3	New	1	BC\03	0	
P BC\02	BC\02	BC\01	41.907	15.190	14.771	1.00	RCP Class 2	450	450	0.3	New	1	BC\02	0	
P BC\01	BC\01	BA\06	48.068	14.751	14.270	1.00	RCP Class 2	525	525	0.3	New	1	BC\01	0	
P BD\03	BD\03	BD\02	38	15.590	15.210	1.00	RCP Class 2	375	375	0.3	New	1	BD\03	0	
P BD\02	BD\02	BD\01	41.527	15.190	14.775	1.00	RCP Class 2	450	450	0.3	New	1	BD\02	0	
P BD\01	BD\01	BA\05	48.054	14.755	14.274	1.00	RCP Class 2	525	525	0.3	New	1	BD\01	0	
P BE\03	BE\03	BE\02	38	15.510	15.130	1.00	RCP Class 2	375	375	0.3	New	1	BE\03	0	
P BE\02	BE\02	BE\01	61.498	15.110	14.495	1.00	RCP Class 2	450	450	0.3	New	1	BE\02	0	
P BE\01	BE\01	BA\04	28.012	14.475	14.195	1.00	RCP Class 2	525	525	0.3	New	1	BE\01	0	
P BF\02	BF\02	BF\01	19.409	15.099	14.851	1.28	RCP Class 2	375	375	0.3	New	1	BF\02	0	
P BF\01	BF\01	BA\02	34.303	14.518	14.175	1.00	RCP Class 2	525	525	0.3	New	1	BF\01	0	
P BG\02	BG\02	BG\01	40.052	15.490	15.089	1.00	RCP Class 2	375	375	0.3	New	1	BG\02	0	
P BG\01	BG\01	BF\01	53.17	15.069	14.538	1.00	RCP Class 2	375	375	0.3	New	1	BG\01	0	
P F\21	F\21	F\20	48.293	14.414	14.317	0.20	Box Culverts	1.2W x 0.3H		0.3	NewFixed	2	F\21	0	
P F\20	F\20	F\19	40.001	14.317	14.237	0.20	Box Culverts	1.2W x 0.3H		0.3	NewFixed	2	F\20	0	
P F\19	F\19	F\18	40.06	14.237	14.157	0.20	Box Culverts	1.2W x 0.3H		0.3	NewFixed	2	F\19	0	
P F\18	F\18	F\17	59.969	14.157	14.037	0.20	Box Culverts	1.2W x 0.3H		0.3	NewFixed	2	F\18	0	
P F\17	F\17	F\16	59.992	14.037	13.917	0.20	Box Culverts	1.2W x 0.3H		0.3	NewFixed	2	F\17	0	
P F\16	F\16	F\15	59.957	13.917	13.797	0.20	Box Culverts	1.2W x 0.3H		0.3	NewFixed	2	F\16	0	
P F\15	F\15	F\14	60.118	13.797	13.677	0.20	Box Culverts	1.2W x 0.3H		0.3	NewFixed	2	F\15	0	
P F\14	F\14	F\13	79.943	13.677	13.517	0.20	Box Culverts	2.4W x 0.6H		0.3	NewFixed	1	F\14	0	
P F\13	F\13	F\12	79.987	13.517	13.357	0.20	Box Culverts	2.4W x 0.6H		0.3	NewFixed	1	F\13	0	
P F\12	F\12	F\11	60	13.357	13.237	0.20	Box Culverts	2.4W x 0.6H		0.3	NewFixed	1	F\12	0	
P F\11	F\11	F\10	40.014	13.237	13.157	0.20	Box Culverts	2.4W x 0.6H		0.3	NewFixed	1	F\11	0	
P F\10	F\10	F\09	39.98	13.157	13.077	0.20	Box Culverts	2.4W x 0.6H		0.3	NewFixed	1	F\10	0	
P F\09	F\09	F\08	39.936	13.077	12.997	0.20	Box Culverts	2.4W x 0.9H		0.3	NewFixed	1	F\09	0	
P F\08	F\08	F\07	40.646	12.997	12.916	0.20	Box Culverts	2.4W x 0.9H		0.3	NewFixed	1	F\08	0	
P F\07	F\07	F\06	37.284	12.916	12.842	0.20	Box Culverts	2.4W x 0.9H		0.3	NewFixed	1	F\07	0	
P F\06	F\06	F\05	39.367	12.842	12.763	0.20	Box Culverts	2.4W x 0.9H		0.3	NewFixed	1	F\06	0	
P F\05	F\05	F\04	49.986	12.763	12.663	0.20	Box Culverts	2.4W x 1.2H		0.3	NewFixed	1	F\05	0	
P F\04	F\04	F\03	50.511	12.663	12.562	0.20	Box Culverts	2.4W x 1.2H		0.3	NewFixed	1	F\04	0	

DETAILS of SERVICES CROSSING PIPES

Pipe	Chg	Bottom	Height of Service	Chg	Bottom	Height of S	Chg	Bottom	Height of S	etc
	(m)	Elev (m)	(m)	(m)	Elev (m)	(m)	(m)	Elev (m)	(m)	etc

CHANNEL DETAILS

Name	From	To	Type	Length	U/S IL	D/S IL	Slope	Base Width	L.B. Slope	R.B. Slope	Manning	Depth	Roofed
				(m)	(m)	(m)	(%)	(m)	(1:?)	(1:?)	n	(m)	

OVERFLOW ROUTE DETAILS

Name	From	To	Travel	Spill	Crest	Weir	Cross	Safe Depth	SafeDepth	Safe	Bed	D/S Area		id
			Time	Level	Length	Coeff. C	Section	Major Storm	Minor Storm	DxV	Slope	Contributing		
			(min)	(m)	(m)			(m)	(m)	(sq.m/sec)	(%)	%		
F CA\11	CA\11	CA\10	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508719
F CA\10	CA\10	CA\09	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508718
F CA\09	CA\09	CA\08	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508717
F CA\08	CA\08	CB\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508716
F CA\07	CA\07	CC\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508715
F CA\06	CA\06	CE\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508714
F CA\05	CA\05	CG\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508713
F CA\04	CA\04	CJ\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508712
F CA\03	CA\03	CL\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508711
F CA\02	CA\02	O CA\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508710
Stage Discharge	Stage1	Dummy Pit	0.1	14.500			Dummy used to model flow across road low points	0.2	0.05	0.6	1	0		12508875
F CB\03	CB\03	BA\11	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129747894
F CB\02	CB\02	CB\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508721
F CB\01	CB\01	CB\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508720
F CC\03	CC\03	BB\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12974903
F CC\02	CC\02	CC\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508724
F CC\01	CC\01	CC\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508723
F CD\03	CD\03	CD\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508728
F CD\02	CD\02	CD\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508727
F CD\01	CD\01	CA\07	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508726
F CE\03	CE\03	BC\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129747905
F CE\02	CE\02	CE\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508730
F CE\01	CE\01	CE\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508729
F CF\03	CF\03	CF\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508734
F CF\02	CF\02	CF\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508733
F CF\01	CF\01	CA\06	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508732
F CG\03	CG\03	BD\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12974907
F CG\02	CG\02	CG\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508736
F CG\01	CG\01	CG\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508735
F CH\03	CH\03	CH\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508740
F CH\02	CH\02	CH\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508739
F CH\01	CH\01	CA\05	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508738
F CJ\03	CJ\03	BE\03	1				Dummy used to model flow across road low points	0.3	0.3	0.6	1	0		129747909
F CJ\02	CJ\02	CJ\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508742
F CJ\01	CJ\01	CJ\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508741
F CK\03	CK\03	CK\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508746
F CK\02	CK\02	CK\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508745
F CK\01	CK\01	CA\04	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508744
F CL\03	CL\03	BG\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129747911
F CL\02	CL\02	CL\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508748
F CL\01	CL\01	CL\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508747
F CM\03	CM\03	CM\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508752
F CM\02	CM\02	CM\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508751
F CM\01	CM\01	CA\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508750
F DA\11	DA\11	DA\10	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508762
F DA\10	DA\10	DA\09	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508761
F DA\09	DA\09	DA\08	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508760
F DA\08	DA\08	DB\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508759
F DA\07	DA\07	DC\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508758
F DA\06	DA\06	DE\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508757
F DA\05	DA\05	DG\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508756
F DA\04	DA\04	DJ\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508755
F DA\03	DA\03	DL\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508754
F DA\02	DA\02	O DA\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508753
F DB\03	DB\03	CA\11	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508765
F DB\02	DB\02	DB\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508764
F DB\01	DB\01	DB\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508763
F DC\03	DC\03	CD\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508768
F DC\02	DC\02	DC\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508767
F DC\01	DC\01	DC\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508766
F DD\03	DD\03	DD\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508771
F DD\02	DD\02	DD\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508770
F DD\01	DD\01	DA\07	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508769
F DE\03	DE\03	CF\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508774
F DE\02	DE\02	DE\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508773
F DE\01	DE\01	DE\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508772
F DF\03	DF\03	DF\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508777
F DF\02	DF\02	DF\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508776
F DF\01	DF\01	DA\06	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508775
F DG\03	DG\03	CH\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508780
F DG\02	DG\02	DG\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508779
F DG\01	DG\01	DG\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508778
F DH\03	DH\03	DH\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508783
F DH\02	DH\02	DH\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508782
F DH\01	DH\01	DA\05	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508781
F DJ\03	DJ\03	CK\03	1				Dummy used to model flow across road low points	0.3	0.3	0.6	1	0		12508786
F DJ\02	DJ\02	DJ\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508785
F DJ\01	DJ\01	DJ\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508784
F DK\03	DK\03	DK\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508789
F DK\02	DK\02	DK\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508788
F DK\01	DK\01	DA\04	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508787
F DL\03	DL\03	CM\03	1				Dummy used to model flow across road low points	0.3	0.3	0.6	1	0		12508792
F DL\02	DL\02	DL\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508791
F DL\01	DL\01	DL\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508790
F DM\03	DM\03	DM\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508795
F DM\02	DM\02	DM\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508794
F DM\01	DM\01	DA\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508793
F EA\11	EA\11	EA\10	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508805
F EA\10	EA\10	EA\09	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508804
F EA\09	EA\09	EA\08	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508803
F EA\08	EA\08	EB\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508802
F EA\07	EA\07	EC\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508801
F EA\06	EA\06	EE\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508800
F EA\05	EA\05	EG\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508799
F EA\04	EA\04	EJ\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508798
F EA\03	EA\03	EL\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508797

F EB\03	EB\03	DA\11	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508808
F EB\02	EB\02	EB\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508807
F EB\01	EB\01	EB\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508806
F EC\03	EC\03	DD\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508811
F EC\02	EC\02	EC\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508810
F EC\01	EC\01	EC\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508809
F ED\03	ED\03	ED\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508814
F ED\02	ED\02	ED\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508813
F ED\01	ED\01	EA\07	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508812
F EE\03	EE\03	DF\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508817
F EE\02	EE\02	EE\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508816
F EE\01	EE\01	EE\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508815
F EF\03	EF\03	EF\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508820
F EF\02	EF\02	EF\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508819
F EF\01	EF\01	EA\06	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508818
F EG\03	EG\03	DH\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508823
F EG\02	EG\02	EG\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508822
F EG\01	EG\01	EG\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508821
F EH\03	EH\03	EH\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508826
F EH\02	EH\02	EH\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508825
F EH\01	EH\01	EA\05	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508824
F EJ\03	EJ\03	DK\03	1				Dummy used to model flow across road low points	0.3	0.3	0.6	1	0		12508829
F EJ\02	EJ\02	EJ\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508828
F EJ\01	EJ\01	EJ\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508827
F EK\03	EK\03	EK\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508832
F EK\02	EK\02	EK\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508831
F EK\01	EK\01	EA\04	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508830
F EL\03	EL\03	DM\03	1				Dummy used to model flow across road low points	0.3	0.3	0.6	1	0		12508835
F EL\02	EL\02	EL\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508834
F EL\01	EL\01	EL\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508833
F EM\03	EM\03	EM\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508838
F EM\02	EM\02	EM\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508837
F EM\01	EM\01	EA\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508836
OF55804	Dummy Pit	Channel1	0.1				Dummy used to model flow across road low points	0.2	0.05	0.6	1	0		18018951
F Channel 1	Channel1	N103004	5				Dummy used to model flow across road low points	0.2	0.05	0.6	1	75		18018020
OF South Catch	N60922	HW Moore	0.1				Dummy used to model flow across road low points	0.2	0.05	0.6	1	0		18017984
Moorebank Ave Xir	HW Moore	Full Existing	0.1	14.200	20	1.6	Dummy used to model flow across road low points	0.2	0.05	0.6	1	0		18017997
F Moorebank Ave	Moore HW	P Georges R	0.1	14.200	20	1.6	Dummy used to model flow across road low points	0.2	0.05	0.6	1	0		18018340
F CatC1Ex	N98596	Moore HW	0.1				Dummy used to model flow across road low points	0.2	0.05	0.6	1	0		36081898
F Channel 2	N103004	Moore HW	0.1				Dummy used to model flow across road low points	0.2	0.05	0.6	1	0		43098405
F OSD Dummy	N147106	Stage1	0.1				Dummy used to model flow across road low points	0.2	0.05	0.6	1	0		64982617
OF137724	HW4	Ex Georges R	0.1	14.200	20	1.6	Dummy used to model flow across road low points	0.2	0.05	0.6	1	0		63827571
Existing Channel	N147129	HW4	7				Dummy used to model flow across road low points	0.2	0.05	0.6	1	0		63827577
F CatC1	N147132	HW4	0.1				Dummy used to model flow across road low points	0.2	0.05	0.6	1	0		63827561
Prop Carpark Over	Carpark HW	Prop Carpark No	0.1	14.700	20	1.6	Dummy used to model flow across road low points	0.2	0.05	0.6	1	0		64605375
OF410995	Pr Carpark Junc	Prop Carpark No	0.1				Dummy used to model flow across road low points	0.3	0.3	0.6	1	0		153218421
F F\03	F\03	F\02	0.1				Dummy used to model flow across road low points	0.2	0.05	0.6	1	0		129748047
OF349883	F\02	Channel2	0.1				Dummy used to model flow across road low points	0.2	0.05	0.6	1	0		129748037
OF200780	Channel2	Channel1	0.1				Dummy used to model flow across road low points	0.2	0.05	0.6	1	0		79917591
OF149489	HW46	N60923	0.1	14.700	20	1.6	Dummy used to model flow across road low points	0.2	0.05	0.6	1	0		65725100
OF151533	Pit144889	N159649	0.1				Dummy used to model flow across road low points	0.2	0.05	0.6	1	0		66103611
OF Carpark	N159649	HW Moore	0.1				Dummy used to model flow across road low points	0.2	0.05	0.6	1	0		18017983
Ex Carpark Overflo	HW57	EX Carpark Node	0.1	14.700	20	1.6	Dummy used to model flow across road low points	0.2	0.05	0.6	1	0		65725169
OF149518	Pit144901	Ex Existing Chan	0.1				Dummy used to model flow across road low points	0.2	0.05	0.6	1	0		65725193
OF137717	Ex Existing Chani	N147129	0.1				Dummy used to model flow across road low points	0.2	0.05	0.6	1	0		63827562
F Cat 1	N214245	N214246	5				Moorebank Diversion	0.3	0.3	0.6	1	100		79909221
F Cat 2	N214246	N214247	5				Moorebank Diversion	0.3	0.3	0.6	1	100		79909220
F Cat 3	N214247	N214248	5				Moorebank Diversion	0.3	0.3	0.6	1	100		79909219
F Cat 4	N214248	N214249	5				Moorebank Diversion	0.3	0.3	0.6	1	100		79909214
F Cat 5	N214249	N214250	5				Moorebank Diversion	0.3	0.3	0.6	1	100		79909210
F Cat 6	N214250	N214256	5				Dummy used to model flow across road low points	0.2	0.05	0.6	1	0		79909251
F Cat 7	N214256	N214257	5				Dummy used to model flow across road low points	0.2	0.05	0.6	1	0		79909254
Swale	N214257	N304196	5				Moorebank Diversion	0.3	0.3	0.6	1	100		18018016
OF282905	N304196	Channel1	0.1				Dummy used to model flow across road low points	0.2	0.05	0.6	1	0		104333902
F AA\06	AA\06	AA\05	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129747859
F AA\05	AA\05	AA\04	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129747858
F AA\04	AA\04	AA\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129747857
F AA\03	AA\03	AA\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129747856
F AA\02	AA\02	Stage1	0.1				Dummy used to model flow across road low points	0.2	0.05	0.6	1	0		129747919
F AB\02	AB\02	AB\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		161239236
F AB\01	AB\01	AA\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129747860
F BA\11	BA\11	BA\10	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129747869
F BA\10	BA\10	BA\09	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129747868
F BA\09	BA\09	BA\08	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129747867
F BA\08	BA\08	BA\07	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129747866
F BA\07	BA\07	BA\06	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129747865
F BA\06	BA\06	BA\05	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129747864
F BA\05	BA\05	BA\04	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129747863
F BA\04	BA\04	BA\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129747862
F BA\03	BA\03	BA\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129747861
F BA\02	BA\02	AA\02	0.1				Dummy used to model flow across road low points	0.2	0.05	0.6	1	0		129747892
OF360759	BA\01	Stage1	0.1				Dummy used to model flow across road low points	0.2	0.05	0.6	1	0		132320174
F BB\03	BB\03	BB\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129747872
F BB\02	BB\02	BB\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129747871
F BB\01	BB\01	BA\07	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129747870
F BC\03	BC\03	BC\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129747875
F BC\02	BC\02	BC\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129747874
F BC\01	BC\01	BA\06	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129747873
F BD\03	BD\03	BD\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129747878
F BD\02	BD\02	BD\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129747877
F BD\01	BD\01	BA\05	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129747876
F BE\03	BE\03	BE\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129747881
F BE\02	BE\02	BE\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129747880
F BE\01	BE\01	BA\04	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129747879
F BF\02	BF\02	BF\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129747882
F BF\01	BF\01	BA\02	1				Dummy used to model flow across road low points	0.2	0.05	0.6	1	0		131543381
F BG\02	BG\02	BG\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129747883
F BG\01	BG\01	BF\01	1				Dummy used to model flow across road low points	0.2	0.05	0.6	1	0		131543380
F F\21	F\21	F\20	0.1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129748020
F F\20	F\20	F\19	0.1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129748019
F F\19	F\19	F\18	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129748018
F F\18	F\18	F\17	0.1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129748017
F F\17	F\17	F\16	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129748016
F F\16	F\16	F\15	0.1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129748015
F F\15	F\15	F\14	0.1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129748014
F F\14	F\14	F\13	0.1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129748013
F F\13	F\13	F\12	0.1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129748012
F F\12	F\12	F\11	0.1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129748011
F F\11	F\11	F\10	0.1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129748010
F F\10	F\10	F\09	0.1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129748009
F F\09	F\09	F\08	0.1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129748008
F F\08	F\08	F\07	0.1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129748007
F F\07	F\07	F\06	0.1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129748006
F F\06	F\06	F\05	0.1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129748005
F F\05	F\05	F\04	0.1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129748004
F F\04	F\04	F\03	0.1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129748003

PROJECT	SIMTA				
TITLE	100 YEAR ARI RESULTS	JOB No		AA003760	
		PREPARED	GD	DATE	18/02/2015
		CHECKED	BC	DATE	18/02/2015

DRAINS File Path:	F:\AA003760\D-Calcs\A-Civil\A-Stormwater\A-DRAINS
DRAINS Version:	DRAINS Version 2015.02 - 4 Februrary 2015
Modeller's Name:	George Dunstan
Description:	Existing and Proposed

DRAINS results prepared 18 February, 2015 from Version 2015.02

RESULTS 100 YEAR ARI

PIT / NODE DETAILS — Version 8

Name	Max HGL	Max Pond HGL	Max Surface Flow Arriving (cu.m/s)	Max Pond Volume (cu.m)	Min Freeboard (m)	Overflow (cu.m/s)	Constraint
CA\11	15.75	16.52	0.063	8.1	0.69	0.000	Inlet Capacity
CA\10	15.53	16.52	0.063	8.1	0.91	0.000	Inlet Capacity
CA\09	15.48	16.52	0.063	8.1	0.96	0.000	Inlet Capacity
CA\08	15.44	16.52	0.063	8.1	1.00	0.000	Inlet Capacity
CA\07	15.44	16.50	0.067	9.2	0.98	0.000	Inlet Capacity
CA\06	15.38	16.55	0.037	4.5	1.12	0.000	Inlet Capacity
CA\05	15.35	16.55	0.037	4.5	1.15	0.000	Inlet Capacity
CA\04	15.31	16.50	0.067	9.2	1.11	0.000	Inlet Capacity
CA\03	15.28	16.45	0.038	4.6	1.12	0.000	Inlet Capacity
CA\02	15.28		0.000		1.08	0.000	None
CB\03	15.75	16.52	0.063	8.1	0.69	0.000	Inlet Capacity
CB\02	15.53	16.52	0.063	8.1	0.91	0.000	Inlet Capacity
CB\01	15.48	16.52	0.063	8.1	0.96	0.000	Inlet Capacity
CC\03	15.73	16.50	0.067	9.2	0.69	0.000	Inlet Capacity
CC\02	15.53	16.50	0.067	9.2	0.89	0.000	Inlet Capacity
CC\01	15.48	16.50	0.067	9.2	0.94	0.000	Inlet Capacity
CD\03	15.73	16.50	0.067	9.2	0.69	0.000	Inlet Capacity
CD\02	15.53	16.50	0.067	9.2	0.89	0.000	Inlet Capacity
CD\01	15.48	16.50	0.067	9.2	0.94	0.000	Inlet Capacity
CE\03	15.77	16.55	0.037	4.5	0.73	0.000	Inlet Capacity
CE\02	15.50	16.55	0.037	4.5	1.00	0.000	Inlet Capacity
CE\01	15.45	16.55	0.037	4.5	1.05	0.000	Inlet Capacity
CF\03	15.77	16.55	0.037	4.5	0.73	0.000	Inlet Capacity
CF\02	15.50	16.55	0.037	4.5	1.00	0.000	Inlet Capacity
CF\01	15.45	16.55	0.037	4.5	1.05	0.000	Inlet Capacity
CG\03	15.77	16.55	0.037	4.5	0.73	0.000	Inlet Capacity
CG\02	15.48	16.55	0.037	4.5	1.02	0.000	Inlet Capacity
CG\01	15.41	16.55	0.037	4.5	1.09	0.000	Inlet Capacity
CH\03	15.77	16.56	0.037	4.5	0.73	0.000	Inlet Capacity
CH\02	15.48	16.55	0.037	4.5	1.02	0.000	Inlet Capacity
CH\01	15.41	16.55	0.037	4.5	1.09	0.000	Inlet Capacity
CJ\03	15.73	16.50	0.067	9.2	0.69	0.000	Inlet Capacity
CJ\02	15.46	16.50	0.067	9.2	0.96	0.000	Inlet Capacity
CJ\01	15.40	16.50	0.067	9.2	1.02	0.000	Inlet Capacity
CK\03	15.73	16.50	0.067	9.2	0.69	0.000	Inlet Capacity
CK\02	15.46	16.50	0.067	9.2	0.96	0.000	Inlet Capacity
CK\01	15.40	16.50	0.067	9.2	1.02	0.000	Inlet Capacity
CL\03	15.97	16.46	0.038	4.6	0.43	0.000	Inlet Capacity
CL\02	15.69	16.46	0.038	4.6	0.71	0.000	Inlet Capacity
CL\01	15.41	16.46	0.038	4.6	0.99	0.000	Inlet Capacity
CM\03	16.00	16.46	0.038	4.6	0.40	0.000	Inlet Capacity
CM\02	15.69	16.46	0.038	4.6	0.71	0.000	Inlet Capacity
CM\01	15.41	16.46	0.038	4.6	0.99	0.000	Inlet Capacity
DA\11	15.75	16.52	0.063	8.1	0.69	0.000	Inlet Capacity
DA\10	15.53	16.52	0.063	8.1	0.91	0.000	Inlet Capacity
DA\09	15.48	16.52	0.063	8.1	0.96	0.000	Inlet Capacity
DA\08	15.44	16.52	0.063	8.1	1.00	0.000	Inlet Capacity
DA\07	15.44	16.50	0.067	9.2	0.98	0.000	Inlet Capacity
DA\06	15.38	16.55	0.037	4.5	1.12	0.000	Inlet Capacity
DA\05	15.35	16.55	0.037	4.5	1.15	0.000	Inlet Capacity
DA\04	15.31	16.50	0.067	9.2	1.11	0.000	Inlet Capacity
DA\03	15.28	16.45	0.038	4.6	1.12	0.000	Inlet Capacity
DA\02	15.28		0.000		1.08	0.000	None
DB\03	15.75	16.52	0.063	8.1	0.69	0.000	Inlet Capacity
DB\02	15.53	16.52	0.063	8.1	0.91	0.000	Inlet Capacity
DB\01	15.48	16.52	0.063	8.1	0.96	0.000	Inlet Capacity
DC\03	15.73	16.50	0.067	9.2	0.69	0.000	Inlet Capacity
DC\02	15.53	16.50	0.067	9.2	0.89	0.000	Inlet Capacity
DC\01	15.48	16.50	0.067	9.2	0.94	0.000	Inlet Capacity
DD\03	15.73	16.50	0.067	9.2	0.69	0.000	Inlet Capacity
DD\02	15.53	16.50	0.067	9.2	0.89	0.000	Inlet Capacity
DD\01	15.48	16.50	0.067	9.2	0.94	0.000	Inlet Capacity
DE\03	15.77	16.55	0.037	4.5	0.73	0.000	Inlet Capacity
DE\02	15.50	16.55	0.037	4.5	1.00	0.000	Inlet Capacity
DE\01	15.45	16.55	0.037	4.5	1.05	0.000	Inlet Capacity
DF\03	15.77	16.55	0.037	4.5	0.73	0.000	Inlet Capacity
DF\02	15.50	16.55	0.037	4.5	1.00	0.000	Inlet Capacity
DF\01	15.45	16.55	0.037	4.5	1.05	0.000	Inlet Capacity
DG\03	15.77	16.55	0.037	4.5	0.73	0.000	Inlet Capacity
DG\02	15.48	16.55	0.037	4.5	1.02	0.000	Inlet Capacity
DG\01	15.41	16.55	0.037	4.5	1.09	0.000	Inlet Capacity
DH\03	15.77	16.55	0.037	4.5	0.73	0.000	Inlet Capacity
DH\02	15.48	16.55	0.037	4.5	1.02	0.000	Inlet Capacity
DH\01	15.41	16.55	0.037	4.5	1.09	0.000	Inlet Capacity
DJ\03	15.73	16.50	0.067	9.2	0.69	0.000	Inlet Capacity
DJ\02	15.46	16.50	0.067	9.2	0.96	0.000	Inlet Capacity
DJ\01	15.40	16.50	0.067	9.2	1.02	0.000	Inlet Capacity
DK\03	15.73	16.50	0.067	9.2	0.69	0.000	Inlet Capacity
DK\02	15.46	16.50	0.067	9.2	0.96	0.000	Inlet Capacity
DK\01	15.40	16.50	0.067	9.2	1.02	0.000	Inlet Capacity
DL\03	15.97	16.46	0.038	4.6	0.43	0.000	Inlet Capacity
DL\02	15.69	16.46	0.038	4.6	0.71	0.000	Inlet Capacity
DL\01	15.41	16.46	0.038	4.6	0.99	0.000	Inlet Capacity
DM\03	16.00	16.46	0.038	4.6	0.40	0.000	Inlet Capacity
DM\02	15.69	16.46	0.038	4.6	0.71	0.000	Inlet Capacity
DM\01	15.41	16.46	0.038	4.6	0.99	0.000	Inlet Capacity
EA\11	15.75	16.52	0.084	18.8	0.69	0.000	Inlet Capacity
EA\10	15.49	16.52	0.063	8.1	0.95	0.000	Inlet Capacity
EA\09	15.43	16.52	0.063	8.1	1.01	0.000	Inlet Capacity
EA\08	15.39	16.52	0.063	8.1	1.05	0.000	Inlet Capacity
EA\07	15.38	16.50	0.067	9.2	1.04	0.000	Inlet Capacity
EA\06	15.36	16.55	0.037	4.5	1.14	0.000	Inlet Capacity
EA\05	15.33	16.55	0.037	4.5	1.17	0.000	Inlet Capacity
EA\04	15.31	16.50	0.067	9.2	1.11	0.000	Inlet Capacity
EA\03	15.29	16.45	0.038	4.6	1.11	0.000	Inlet Capacity
EA\02	15.28		0.000		1.08		None
EB\03	15.75	16.52	0.063	8.1	0.69	0.000	Inlet Capacity
EB\02	15.49	16.52	0.063	8.1	0.95	0.000	Inlet Capacity
EB\01	15.43	16.52	0.063	8.1	1.01	0.000	Inlet Capacity
EC\03	15.73	16.50	0.067	9.2	0.69	0.000	Inlet Capacity
EC\02	15.49	16.50	0.067	9.2	0.93	0.000	Inlet Capacity
EC\01	15.43	16.50	0.067	9.2	0.99	0.000	Inlet Capacity
ED\03	15.73	16.51	0.090	21.3	0.69	0.000	Inlet Capacity
ED\02	15.49	16.50	0.067	9.2	0.93	0.000	Inlet Capacity
ED\01	15.43	16.50	0.067	9.2	0.99	0.000	Inlet Capacity
EE\03	15.77	16.55	0.037	4.5	0.73	0.000	Inlet Capacity
EE\02	15.48	16.55	0.037	4.5	1.02	0.000	Inlet Capacity
EE\01	15.39	16.55	0.037	4.5	1.11	0.000	Inlet Capacity

EF\03	15.79	16.57	0.050	6.0	0.71	0.000	Inlet Capacity					
EF\02	15.50	16.55	0.037	4.5	1.00	0.000	Inlet Capacity					
EF\01	15.39	16.55	0.037	4.5	1.11	0.000	Inlet Capacity					
EG\03	15.77	16.55	0.037	4.5	0.73	0.000	Inlet Capacity					
EG\02	15.48	16.55	0.037	4.5	1.02	0.000	Inlet Capacity					
EG\01	15.35	16.55	0.037	4.5	1.15	0.000	Inlet Capacity					
EH\03	15.79	16.57	0.050	6.0	0.71	0.000	Inlet Capacity					
EH\02	15.50	16.55	0.037	4.5	1.00	0.000	Inlet Capacity					
EH\01	15.36	16.55	0.037	4.5	1.14	0.000	Inlet Capacity					
EJ\03	15.73	16.50	0.067	9.2	0.69	0.000	Inlet Capacity					
EJ\02	15.43	16.50	0.067	9.2	0.99	0.000	Inlet Capacity					
EJ\01	15.35	16.50	0.067	9.2	1.07	0.000	Inlet Capacity					
EK\03	15.73	16.51	0.090	21.2	0.69	0.000	Inlet Capacity					
EK\02	15.43	16.50	0.067	9.2	0.99	0.000	Inlet Capacity					
EK\01	15.35	16.50	0.067	9.2	1.07	0.000	Inlet Capacity					
EL\03	15.97	16.46	0.038	4.6	0.43	0.000	Inlet Capacity					
EL\02	15.69	16.46	0.038	4.6	0.71	0.000	Inlet Capacity					
EL\01	15.41	16.46	0.038	4.6	0.99	0.000	Inlet Capacity					
EM\03	15.95	16.44	0.022	2.9	0.45	0.000	Inlet Capacity					
EM\02	15.66	16.46	0.038	4.6	0.74	0.000	Inlet Capacity					
EM\01	15.39	16.46	0.038	4.6	1.01	0.000	Inlet Capacity					
BA Outlet	15.60		0.000									
Dummy Pit	14.36		2.250		2.14	0.000	None					
Channel1	14.35		3.663									
HW Moore	13.89		11.757		0.31	0.000	None					
Full Existing	12.40		0.000									
Moore HW	13.59		9.520		0.61	0.000	None					
P Georges R	12.25		0.000									
EA Outlet	15.70		0.000									
HW4	14.22		15.177		-0.02	0.096	Headwall height/system capacity					
Ex Georges R	12.50		0.096									
Carpark HW	14.81		1.228		-0.11	1.123	Headwall height/system capacity					
Pr Carpark Ju	14.67	14.65	0.000	4.3	-0.12	0.010	Outlet System					
F\03	14.41	14.46	0.053	5.5	-0.01	0.000	Outlet System					
F\02	14.38	14.61	0.126	7.7	0.12	0.000	Inlet Capacity					
Channel2	14.35		0.000									
HW46	14.81		1.228		-0.11	1.123	Headwall height/system capacity					
Pit144889	13.92		0.000		0.63	0.000	None					
N159649	13.15		0.000									
HW57	14.81		1.228		-0.11	1.123	Headwall height/system capacity					
Pit144901	13.92		0.000		0.63	0.000	None					
Ex Existing Ch	13.15		0.000									
DA Outlet	15.70		0.000									
CA Outlet	15.70		0.000									
AA Outlet	15.60		0.000									
AA\06	15.29		0.018		0.70	0.000	None					
AA\05	15.28	16.34	0.078	3.7	0.99	0.000	Inlet Capacity					
AA\04	15.27	16.34	0.087	4.1	1.00	0.000	Inlet Capacity					
AA\03	15.27	16.36	0.046	2.4	1.04	0.000	Inlet Capacity					
AA\02	15.27		0.000		1.13	0.000	None					
AB\02	15.28		0.023		0.46	0.000	Inlet Capacity					
AB\01	15.27	16.37	0.046	2.4	1.05	0.000	Inlet Capacity					
BA\11	15.86	16.52	0.103	8.6	0.58	0.000	Inlet Capacity					
BA\10	15.60	16.50	0.071	5.8	0.84	0.000	Inlet Capacity					
BA\09	15.47	16.58	0.095	7.8	1.03	0.000	Inlet Capacity					
BA\08	15.33	16.58	0.095	7.8	1.17	0.000	Inlet Capacity					
BA\07	15.31	16.52	0.088	7.2	1.13	0.000	Inlet Capacity					
BA\06	15.29	16.47	0.088	7.2	1.10	0.000	Inlet Capacity					
BA\05	15.28	16.41	0.088	7.2	1.06	0.000	Inlet Capacity					
BA\04	15.28	16.39	0.072	5.8	1.05	0.000	Inlet Capacity					
BA\03	15.27	16.36	0.081	6.6	1.01	0.000	Inlet Capacity					
BA\02	15.28	16.40	0.000	0.0	1.12	0.000	None					
BA\01	15.27		0.000		1.13	0.000	None					
BB\03	15.84	16.50	0.103	8.5	0.58	0.000	Inlet Capacity					
BB\02	15.60	16.48	0.071	5.8	0.82	0.000	Inlet Capacity					
BB\01	15.45	16.52	0.088	7.2	1.00	0.000	Inlet Capacity					
BC\03	15.83	16.56	0.057	4.7	0.67	0.000	Inlet Capacity					
BC\02	15.44	16.55	0.043	3.6	1.06	0.000	Inlet Capacity					
BC\01	15.36	16.46	0.088	7.2	1.03	0.000	Inlet Capacity					
BD\03	15.83	16.56	0.057	4.7	0.67	0.000	Inlet Capacity					
BD\02	15.44	16.55	0.043	3.6	1.06	0.000	Inlet Capacity					
BD\01	15.34	16.41	0.087	7.1	1.00	0.000	Inlet Capacity					
BE\03	15.84	16.50	0.103	8.5	0.58	0.000	Inlet Capacity					
BE\02	15.45	16.48	0.071	5.7	0.97	0.000	Inlet Capacity					
BE\01	15.29	16.45	0.000	0.0	1.17	0.000	None					
BF\02	15.38	16.06	0.051	4.2	0.64	0.000	Inlet Capacity					
BF\01	15.30	15.82	0.084	6.9	0.45	0.000	Inlet Capacity					
BG\02	15.69	16.46	0.059	4.8	0.71	0.000	Inlet Capacity					
BG\01	15.42	16.44	0.042	3.5	0.98	0.000	Inlet Capacity					
F\21	14.97	15.07	0.356	24.0	-0.12	0.000	Outlet System					
F\20	14.94	15.08	0.095	10.2	0.05	0.000	Inlet Capacity					
F\19	14.92	14.98	0.045	4.7	0.00	0.000	Outlet System					
F\18	14.90	14.95	0.043	4.5	0.00	0.000	Outlet System					
F\17	14.82	14.85	0.091	12.9	-0.07	0.057	Outlet System					
F\16	14.79	14.90	0.097	7.5	0.03	0.000	Inlet Capacity					
F\15	14.72	14.79	0.085	8.9	-0.01	0.000	Outlet System					
F\14	14.63	14.75	0.063	6.5	0.05	0.000	Inlet Capacity					
F\13	14.58	14.62	0.084	12.4	-0.06	0.000	Outlet System					
F\12	14.55	14.58	0.084	12.9	-0.07	0.049	Outlet System					
F\11	14.52	14.62	0.086	6.3	0.03	0.000	Inlet Capacity					
F\10	14.50	14.58	0.042	4.4	0.03	0.000	Inlet Capacity					
F\09	14.48	14.55	0.042	4.4	0.02	0.000	Inlet Capacity					
F\08	14.47	14.53	0.042	4.4	0.01	0.000	Inlet Capacity					
F\07	14.45	14.51	0.044	4.6	-0.00	0.000	Outlet System					
F\06	14.44	14.49	0.049	5.2	-0.01	0.000	Outlet System					
F\05	14.42	14.47	0.047	6.2	-0.02	0.000	Outlet System					
F\04	14.41	14.46	0.052	10.0	-0.04	0.000	Outlet System					
SUB-CATCHMENT DETAILS												
Name	Max	Paved	Grassed	Paved	Grassed	Supp.	Due to Storm					
	Flow Q	Max Q	Max Q	Tc	Tc	Tc						
	(cu.m/s)	(cu.m/s)	(cu.m/s)	(min)	(min)	(min)						
C CA\11	0.063	0.063	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C CA\10	0.063	0.063	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C CA\09	0.063	0.063	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C CA\08	0.063	0.063	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C CA\07	0.067	0.067	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C CA\06	0.037	0.037	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C CA\05	0.037	0.037	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C CA\04	0.067	0.067	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C CA\03	0.038	0.038	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C OSD 2	0.061	0.000	0.061	5.00	1.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C CB\03	0.063	0.063	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C CB\02	0.063	0.063	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C CB\01	0.063	0.063	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C CC\03	0.067	0.067	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C CC\02	0.067	0.067	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C CC\01	0.067	0.067	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C CD\03	0.067	0.067	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C CD\02	0.067	0.067	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C CD\01	0.067	0.067	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C CE\03	0.037	0.037	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C CE\02	0.037	0.037	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C CE\01	0.037	0.037	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					

C CF\03	0.037	0.037	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C CF\02	0.037	0.037	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C CF\01	0.037	0.037	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C CG\03	0.037	0.037	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C CG\02	0.037	0.037	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C CG\01	0.037	0.037	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C CH\03	0.037	0.037	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C CH\02	0.037	0.037	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C CH\01	0.037	0.037	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C CJ\03	0.067	0.067	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C CJ\02	0.067	0.067	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C CJ\01	0.067	0.067	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C CK\03	0.067	0.067	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C CK\02	0.067	0.067	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C CK\01	0.067	0.067	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C CL\03	0.038	0.038	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C CL\02	0.038	0.038	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C CL\01	0.038	0.038	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C CM\03	0.038	0.038	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C CM\02	0.038	0.038	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C CM\01	0.038	0.038	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DA\11	0.063	0.063	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DA\10	0.063	0.063	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DA\09	0.063	0.063	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DA\08	0.063	0.063	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DA\07	0.067	0.067	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DA\06	0.037	0.037	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DA\05	0.037	0.037	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DA\04	0.067	0.067	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DA\03	0.038	0.038	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DB\03	0.063	0.063	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DB\02	0.063	0.063	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DB\01	0.063	0.063	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DC\03	0.067	0.067	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DC\02	0.067	0.067	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DC\01	0.067	0.067	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DD\03	0.067	0.067	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DD\02	0.067	0.067	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DD\01	0.067	0.067	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DE\03	0.037	0.037	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DE\02	0.037	0.037	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DE\01	0.037	0.037	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DF\03	0.037	0.037	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DF\02	0.037	0.037	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DF\01	0.037	0.037	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DG\03	0.037	0.037	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DG\02	0.037	0.037	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DG\01	0.037	0.037	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DH\03	0.037	0.037	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DH\02	0.037	0.037	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DH\01	0.037	0.037	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DJ\03	0.067	0.067	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DJ\02	0.067	0.067	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DJ\01	0.067	0.067	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DK\03	0.067	0.067	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DK\02	0.067	0.067	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DK\01	0.067	0.067	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DL\03	0.038	0.038	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DL\02	0.038	0.038	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DL\01	0.038	0.038	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DM\03	0.038	0.038	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DM\02	0.038	0.038	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DM\01	0.038	0.038	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EA\11	0.084	0.084	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EA\10	0.063	0.063	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EA\09	0.063	0.063	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EA\08	0.063	0.063	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EA\07	0.067	0.067	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EA\06	0.037	0.037	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EA\05	0.037	0.037	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EA\04	0.067	0.067	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EA\03	0.038	0.038	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EB\03	0.063	0.063	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EB\02	0.063	0.063	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EB\01	0.063	0.063	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EC\03	0.067	0.067	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EC\02	0.067	0.067	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EC\01	0.067	0.067	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C ED\03	0.090	0.090	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C ED\02	0.067	0.067	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C ED\01	0.067	0.067	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EE\03	0.037	0.037	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EE\02	0.037	0.037	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EE\01	0.037	0.037	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EF\03	0.050	0.050	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EF\02	0.037	0.037	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EF\01	0.037	0.037	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EG\03	0.037	0.037	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EG\02	0.037	0.037	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EG\01	0.037	0.037	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EH\03	0.050	0.050	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EH\02	0.037	0.037	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EH\01	0.037	0.037	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EJ\03	0.067	0.067	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EJ\02	0.067	0.067	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EJ\01	0.067	0.067	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EK\03	0.090	0.090	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EK\02	0.067	0.067	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EK\01	0.067	0.067	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EL\03	0.038	0.038	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EL\02	0.038	0.038	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EL\01	0.038	0.038	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EM\03	0.022	0.022	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EM\02	0.038	0.038	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EM\01	0.038	0.038	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
CatchC1Ex	1.231	1.034	0.197	7.00	7.00	0.00	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1	
CatchCEx	11.037	7.731	3.613	25.00	30.00	0.00	AR&R 100 year, 1 hour storm, average 70.0 mm/h, Zone 1	
Eastern Swale	4.777	4.777	0.000	10.00	0.00	0.00	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1	
CatC1Ex	1.231	1.034	0.197	7.00	7.00	0.00	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1	
CatCEx Rema	5.042	3.655	1.497	10.00	15.00	0.00	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1	
C OSD 1	0.310	0.000	0.310	5.00	1.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
Existing Rema	4.781	3.394	1.497	12.00	15.00	5.00	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1	
Existing S1	9.318	6.968	2.542	15.00	20.00	5.00	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1	
CatC1	1.231	1.034	0.197	7.00	7.00	0.00	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1	
Pr Carpark	1.228	1.228	0.000	5.00	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C F\03	0.053	0.023	0.030	5.00	5.00	0.00	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
C F\02	0.126	0.122	0.004	5.00	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
Cat Carpark	1.228	1.228	0.000	5.00	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
Ex Carpark	1.228	1.228	0.000	5.00	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
Cat 1	0.110	0.000	0.110	5.00	6.00	0.00	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1	
Cat 2	0.280	0.025	0.254	4.00	6.00	0.00	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
Cat 3	0.243	0.112	0.131	4.00	6.00	0.00	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
Cat 4	0.163	0.019	0.144	4.00	6.00	0.00	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
Cat 5	0.875	0.269	0.606	4.00	6.00	0.00	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	

Cat 6	0.598	0.232	0.366	4.00	6.00	0.00	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
Cat 7	0.585	0.334	0.251	4.00	6.00	0.00	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
ES Cat 8	1.073	0.440	0.633	4.00	8.00	0.00	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1	
ES Cat 9	0.701	0.481	0.227	8.00	12.00	0.00	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1	
C AA\06	0.018	0.018	0.000	6.02	10.00	0.00	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
C AA\05	0.078	0.078	0.000	6.02	10.00	0.00	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
C AA\04	0.087	0.087	0.000	6.02	10.00	0.00	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
C AA\03	0.046	0.046	0.000	6.02	10.00	0.00	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
C AB\02	0.023	0.023	0.000	7.13	10.00	0.00	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1	
C AB\01	0.046	0.046	0.000	6.02	10.00	0.00	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
C BA\11	0.103	0.103	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C BA\10	0.071	0.071	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C BA\09	0.095	0.095	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C BA\08	0.095	0.095	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C BA\07	0.088	0.088	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C BA\06	0.088	0.088	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C BA\05	0.088	0.088	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C BA\04	0.072	0.072	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C BA\03	0.081	0.081	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C BB\03	0.103	0.103	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C BB\02	0.071	0.071	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C BB\01	0.088	0.088	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C BC\03	0.057	0.057	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C BC\02	0.043	0.043	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C BC\01	0.088	0.088	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C BD\03	0.057	0.057	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C BD\02	0.043	0.043	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C BD\01	0.087	0.087	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C BE\03	0.103	0.103	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C BE\02	0.071	0.071	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C BF\02	0.051	0.051	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C BF\01	0.084	0.084	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C BG\02	0.059	0.059	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C BG\01	0.042	0.042	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C F\21	0.356	0.000	0.356	5.00	7.00	0.00	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1	
C F\20	0.095	0.041	0.054	5.00	5.00	0.00	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
C F\19	0.045	0.044	0.002	5.00	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C F\18	0.043	0.019	0.024	5.00	5.00	0.00	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
C F\17	0.091	0.088	0.003	5.00	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C F\16	0.043	0.019	0.024	5.00	5.00	0.00	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
C F\15	0.085	0.037	0.048	5.00	5.00	0.00	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
C F\14	0.063	0.028	0.036	5.00	5.00	0.00	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
C F\13	0.084	0.037	0.047	5.00	5.00	0.00	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
C F\12	0.084	0.037	0.048	5.00	5.00	0.00	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
C F\11	0.042	0.018	0.024	5.00	5.00	0.00	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
C F\10	0.042	0.018	0.024	5.00	5.00	0.00	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
C F\09	0.042	0.018	0.024	5.00	5.00	0.00	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
C F\08	0.042	0.018	0.024	5.00	5.00	0.00	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
C F\07	0.044	0.019	0.025	5.00	5.00	0.00	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
C F\06	0.049	0.021	0.027	5.00	5.00	0.00	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
C F\05	0.047	0.020	0.026	5.00	5.00	0.00	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
C F\04	0.052	0.023	0.029	5.00	5.00	0.00	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	

Outflow Volumes for Total Catchment (96.7 impervious + 46.3 pervious = 143 total ha)

Storm	Total Rainfall	Total Runoff	Impervious Ru	Pervious Runoff
	cu.m	cu.m (Runoff	cu.m (Runoff	cu.m (Runoff %)
AR&R 100 ye	26682.01	20537.83 (77.	17081.67 (94.	3456.16 (40.0%)
AR&R 100 ye	40975.94	34000.32 (83.	26749.15 (96.	7251.16 (54.7%)
AR&R 100 ye	51458.15	43824.07 (85.	33838.81 (97.	9985.26 (60.0%)
AR&R 100 ye	60034.52	51819.39 (86.	39644.35 (97.	12175.04 (62.7%)
AR&R 100 ye	66705.02	57794.33 (86.	44148.16 (97.	13646.17 (63.2%)
AR&R 100 ye	72899.06	63420.07 (87.	48346.56 (98.	15073.51 (63.9%)
AR&R 100 ye	87906.49	77037.69 (87.	58496.14 (98.	18541.55 (65.2%)
AR&R 100 ye	100057.54	88076.26 (88.	66704.75 (98.	21371.51 (66.0%)
AR&R 100 ye	117924.95	104130.86 (8	78815.23 (98.	25315.63 (66.3%)
AR&R 100 ye	131507.75	116140.96 (8	87981.02 (98.	28159.95 (66.2%)

PIPE DETAILS

Name	Max Q	Max V	Max U/S	Max D/S	Due to Storm	
	(cu.m/s)	(m/s)	HGL (m)	HGL (m)		
P CA\11	0.045	1.55	15.646	15.533	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
P CA\10	0.090	0.85	15.494	15.481	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
P CA\09	0.138	0.64	15.461	15.444	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
P CA\08	0.310	0.34	15.437	15.435	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1	
P CA\07	0.624	0.69	15.388	15.378	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1	
P CA\06	0.805	0.60	15.350	15.347	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1	
P CA\05	0.998	0.74	15.310	15.306	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1	
P CA\04	1.302	0.72	15.281	15.283	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1	
P CA\03	1.501	0.83	15.276	15.279	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1	
P CA\02	1.494	0.83	15.271	15.267	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1	
P CB\03	0.045	1.55	15.646	15.533	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
P CB\02	0.094	0.89	15.494	15.481	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
P CB\01	0.139	0.64	15.461	15.444	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
P CC\03	0.045	1.55	15.626	15.531	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
P CC\02	0.094	0.82	15.494	15.478	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
P CC\01	0.146	0.67	15.456	15.435	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
P CD\03	0.045	1.55	15.626	15.531	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
P CD\02	0.096	0.84	15.494	15.478	AR&R 100 year, 10 minutes storm, average 172 mm/h, Zone 1	
P CD\01	0.146	0.68	15.456	15.435	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
P CE\03	0.031	1.40	15.687	15.496	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
P CE\02	0.064	1.24	15.448	15.446	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
P CE\01	0.098	0.89	15.410	15.378	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
P CF\03	0.031	1.40	15.687	15.496	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
P CF\02	0.064	1.24	15.448	15.446	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
P CF\01	0.097	0.88	15.410	15.378	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
P CG\03	0.031	1.40	15.687	15.483	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
P CG\02	0.067	1.76	15.411	15.413	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
P CG\01	0.095	0.86	15.377	15.347	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
P CH\03	0.031	1.40	15.687	15.483	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
P CH\02	0.067	1.76	15.411	15.413	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
P CH\01	0.095	0.86	15.377	15.347	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
P CJ\03	0.045	1.55	15.626	15.464	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
P CJ\02	0.090	1.19	15.406	15.399	AR&R 100 year, 10 minutes storm, average 172 mm/h, Zone 1	
P CJ\01	0.153	0.96	15.364	15.306	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
P CK\03	0.045	1.55	15.626	15.464	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
P CK\02	0.090	1.19	15.406	15.399	AR&R 100 year, 10 minutes storm, average 172 mm/h, Zone 1	
P CK\01	0.153	0.96	15.364	15.306	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
P CL\03	0.032	1.41	15.888	15.687	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
P CL\02	0.068	1.82	15.610	15.408	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1	
P CL\01	0.106	2.23	15.317	15.283	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1	
P CM\03	0.032	1.41	15.888	15.687	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
P CM\02	0.064	1.71	15.610	15.408	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
P CM\01	0.106	2.21	15.317	15.283	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1	
P DA\11	0.045	1.55	15.646	15.533	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
P DA\10	0.090	0.85	15.494	15.481	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
P DA\09	0.138	0.64	15.461	15.444	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
P DA\08	0.310	0.34	15.437	15.435	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1	
P DA\07	0.624	0.69	15.388	15.378	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1	
P DA\06	0.805	0.60	15.350	15.347	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1	
P DA\05	0.998	0.74	15.310	15.306	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1	
P DA\04	1.302	0.72	15.281	15.283	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1	
P DA\03	1.501	0.83	15.276	15.279	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1	
P DA\02	1.494	0.83	15.271	15.267	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1	

P DB\03	0.045	1.55	15.646	15.533	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P DB\02	0.094	0.89	15.494	15.481	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P DB\01	0.139	0.64	15.461	15.444	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P DC\03	0.045	1.55	15.626	15.531	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P DC\02	0.094	0.82	15.494	15.478	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P DC\01	0.146	0.67	15.456	15.435	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P DD\03	0.045	1.55	15.626	15.531	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P DD\02	0.096	0.84	15.494	15.478	AR&R 100 year, 10 minutes storm, average 172 mm/h, Zone 1			
P DD\01	0.146	0.68	15.456	15.435	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P DE\03	0.031	1.40	15.687	15.496	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1			
P DE\02	0.064	1.24	15.448	15.446	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1			
P DE\01	0.098	0.89	15.410	15.378	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P DF\03	0.031	1.40	15.687	15.496	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1			
P DF\02	0.064	1.24	15.448	15.446	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1			
P DF\01	0.097	0.88	15.410	15.378	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P DG\03	0.031	1.40	15.687	15.483	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1			
P DG\02	0.067	1.76	15.411	15.413	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1			
P DG\01	0.095	0.86	15.377	15.347	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P DH\03	0.031	1.40	15.687	15.483	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1			
P DH\02	0.067	1.76	15.411	15.413	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1			
P DH\01	0.095	0.86	15.377	15.347	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P DJ\03	0.045	1.55	15.626	15.464	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P DJ\02	0.090	1.19	15.406	15.399	AR&R 100 year, 10 minutes storm, average 172 mm/h, Zone 1			
P DJ\01	0.153	0.96	15.364	15.306	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P DK\03	0.045	1.55	15.626	15.464	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P DK\02	0.090	1.19	15.406	15.399	AR&R 100 year, 10 minutes storm, average 172 mm/h, Zone 1			
P DK\01	0.153	0.96	15.364	15.306	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P DL\03	0.032	1.41	15.888	15.687	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1			
P DL\02	0.068	1.82	15.610	15.408	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1			
P DL\01	0.106	2.23	15.317	15.283	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1			
P DM\03	0.032	1.41	15.888	15.687	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1			
P DM\02	0.064	1.71	15.610	15.408	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1			
P DM\01	0.106	2.21	15.317	15.283	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1			
P EA\11	0.045	1.55	15.646	15.493	AR&R 100 year, 10 minutes storm, average 172 mm/h, Zone 1			
P EA\10	0.090	1.10	15.440	15.432	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P EA\09	0.136	0.63	15.428	15.393	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P EA\08	0.314	0.35	15.386	15.384	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1			
P EA\07	0.629	0.47	15.363	15.359	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1			
P EA\06	0.809	0.60	15.331	15.328	AR&R 100 year, 1 hour storm, average 70.0 mm/h, Zone 1			
P EA\05	1.007	0.56	15.309	15.309	AR&R 100 year, 1.5 hours storm, average 55.0 mm/h, Zone 1			
P EA\04	1.313	0.73	15.286	15.287	AR&R 100 year, 1.5 hours storm, average 55.0 mm/h, Zone 1			
P EA\03	1.512	0.84	15.278	15.281	AR&R 100 year, 1.5 hours storm, average 55.0 mm/h, Zone 1			
P EA\02	1.503	0.84	15.271	15.267	AR&R 100 year, 1.5 hours storm, average 55.0 mm/h, Zone 1			
P EB\03	0.045	1.55	15.646	15.491	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P EB\02	0.090	1.11	15.438	15.431	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1			
P EB\01	0.146	0.68	15.427	15.393	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P EC\03	0.045	1.55	15.626	15.486	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P EC\02	0.098	1.09	15.437	15.427	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P EC\01	0.147	0.68	15.415	15.384	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P ED\03	0.045	1.55	15.626	15.486	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P ED\02	0.094	1.05	15.437	15.427	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P ED\01	0.139	0.64	15.415	15.384	AR&R 100 year, 10 minutes storm, average 172 mm/h, Zone 1			
P EE\03	0.031	1.40	15.687	15.483	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1			
P EE\02	0.066	1.79	15.407	15.385	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P EE\01	0.101	0.65	15.367	15.359	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P EF\03	0.041	1.51	15.701	15.501	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1			
P EF\02	0.073	1.80	15.419	15.393	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1			
P EF\01	0.108	0.70	15.364	15.359	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P EG\03	0.031	1.40	15.687	15.483	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1			
P EG\02	0.067	1.82	15.407	15.354	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1			
P EG\01	0.099	0.68	15.335	15.328	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1			
P EH\03	0.041	1.51	15.701	15.501	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1			
P EH\02	0.077	1.89	15.419	15.361	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1			
P EH\01	0.110	0.75	15.339	15.328	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1			
P EJ\03	0.045	1.55	15.626	15.435	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P EJ\02	0.101	1.87	15.358	15.353	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P EJ\01	0.156	0.78	15.324	15.309	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P EK\03	0.045	1.55	15.626	15.435	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P EK\02	0.100	1.85	15.358	15.353	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1			
P EK\01	0.154	0.78	15.324	15.309	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1			
P EL\03	0.032	1.41	15.888	15.687	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1			
P EL\02	0.070	1.87	15.610	15.409	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1			
P EL\01	0.106	2.24	15.317	15.287	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1			
P EM\03	0.019	1.20	15.865	15.660	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1			
P EM\02	0.051	1.60	15.594	15.387	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1			
P EM\01	0.091	2.11	15.306	15.287	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1			
Entrance Culv	2.258	0.36	14.363	14.350	AR&R 100 year, 2 hours storm, average 46.0 mm/h, Zone 1			
Pipe56908	11.776	5.82	12.618	12.401	AR&R 100 year, 1.5 hours storm, average 55.0 mm/h, Zone 1			
Moore Ave Cu	9.534	5.52	12.467	12.254	AR&R 100 year, 2 hours storm, average 46.0 mm/h, Zone 1			
Ex Moore Ave	13.362	6.00	12.714	12.503	AR&R 100 year, 1 hour storm, average 70.0 mm/h, Zone 1			
Pr P Carpark	0.110	1.55	14.742	14.672	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
Pr P Carpark	0.101	1.42	14.539	14.407	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1			
P F\03	1.312	0.46	14.401	14.383	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1			
P F\02	1.412	0.49	14.357	14.350	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1			
P146094	0.110	3.64	14.443	14.003	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P146107	0.115	3.25	13.770	13.155	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1			
Ex P Carpark	0.110	3.64	14.443	14.003	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
Ex P Carpark	0.115	3.25	13.770	13.155	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1			
P AA\06	0.018	0.30	15.284	15.284	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1			
P AA\05	0.087	0.79	15.273	15.267	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1			
P AA\04	0.172	0.07	15.267	15.270	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1			
P AA\03	0.280	0.11	15.270	15.267	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1			
P AA\02	0.276	0.11	15.267	15.267	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1			
P AB\02	0.020	0.18	15.275	15.273	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1			
P AB\01	0.062	0.56	15.270	15.270	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1			
P BA\11	0.091	1.87	15.700	15.600	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P BA\10	0.154	1.09	15.532	15.473	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P BA\09	0.235	1.08	15.413	15.329	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P BA\08	0.317	0.35	15.316	15.313	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P BA\07	0.604	0.45	15.295	15.294	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1			
P BA\06	0.799	0.44	15.277	15.277	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1			
P BA\05	1.019	0.57	15.274	15.275	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1			
P BA\04	1.205	0.67	15.272	15.272	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1			
P BA\03	1.269	0.71	15.271	15.275	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1			
P BA\02	1.448	0.67	15.274	15.272	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1			
P BA\01	1.443	0.67	15.269	15.267	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1			
P BB\03	0.091	1.87	15.680	15.599	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P BB\02	0.151	0.95	15.556	15.449	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1			
P BB\01	0.221	1.02	15.392	15.313	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1			
P BC\03	0.052	1.61	15.716	15.441	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P BC\02	0.089	1.76	15.350	15.357	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P BC\01	0.163	0.75	15.330	15.294	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P BD\03	0.052	1.61	15.715	15.441	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P BD\02	0.089	1.84	15.345	15.338	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P BD\01	0.163	0.75	15.309	15.277	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P BE\03	0.091	1.87	15.680	15.452	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P BE\02	0.154	1.62	15.370	15.286	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P BE\01	0.147	0.68	15.277	15.275	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P BF\02	0.047	0.73	15.309	15.303	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P BF\01	0.208	0.96	15.273	15.275	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P BG\02	0.053	1.62	15.617	15.424	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P BG\01	0.091	1.01	15.354	15.303	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P F\21	0.350	0.49	14.956	14.944	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1			
P F\20	0.427	0.59	14.937	14.925	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1			

P F\19	0.465	0.65	14.920	14.899	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1							
P F\18	0.499	0.69	14.896	14.818	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1							
P F\17	0.559	0.78	14.811	14.793	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1							
P F\16	0.611	0.85	14.787	14.716	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1							
P F\15	0.675	0.94	14.709	14.633	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1							
P F\14	0.729	0.51	14.630	14.582	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1							
P F\13	0.813	0.56	14.578	14.547	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1							
P F\12	0.874	0.61	14.543	14.525	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1							
P F\11	0.919	0.64	14.521	14.498	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1							
P F\10	0.953	0.66	14.494	14.476	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1							
P F\09	0.987	0.46	14.476	14.470	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1							
P F\08	1.020	0.47	14.467	14.455	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1							
P F\07	1.055	0.49	14.452	14.442	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1							
P F\06	1.093	0.51	14.439	14.425	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1							
P F\05	1.132	0.39	14.423	14.413	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1							
P F\04	1.173	0.41	14.411	14.407	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1							
CHANNEL DETAILS												
Name	Max Q	Max V			Due to Storm							
	(cu.m/s)	(m/s)										
OVERFLOW ROUTE DETAILS												
Name	Max Q U/S	Max Q D/S	Safe Q	Max D	Max DxV	Max Width	Max V	Due to Storm				
F CA\11	0	0	0.000	0	0	0	0					
F CA\10	0	0	0.000	0	0	0	0					
F CA\09	0	0	0.000	0	0	0	0					
F CA\08	0	0	0.000	0	0	0	0					
F CA\07	0	0	0.000	0	0	0	0					
F CA\06	0	0	0.000	0	0	0	0					
F CA\05	0	0	0.000	0	0	0	0					
F CA\04	0	0	0.000	0	0	0	0					
F CA\03	0	0	0.000	0	0	0	0					
F CA\02	0	0	0.000	0	0	0	0					
Stage Dischar	2.250	2.250	0.000	0.122	0.14	28.34	1.18	AR&R 100 year, 2 hours storm, average 46.0 mm/h, Zone 1				
F CB\03	0	0	0.000	0	0	0	0					
F CB\02	0	0	0.000	0	0	0	0					
F CB\01	0	0	0.000	0	0	0	0					
F CC\03	0	0	0.000	0	0	0	0					
F CC\02	0	0	0.000	0	0	0	0					
F CC\01	0	0	0.000	0	0	0	0					
F CD\03	0	0	0.000	0	0	0	0					
F CD\02	0	0	-1.#QO	0	0	0	0					
F CD\01	0	0	0.000	0	0	0	0					
F CE\03	0	0	0.000	0	0	0	0					
F CE\02	0	0	0.000	0	0	0	0					
F CE\01	0	0	0.000	0	0	0	0					
F CF\03	0	0	0.000	0	0	0	0					
F CF\02	0	0	0.000	0	0	0	0					
F CF\01	0	0	0.000	0	0	0	0					
F CG\03	0	0	0.000	0	0	0	0					
F CG\02	0	0	0.000	0	0	0	0					
F CG\01	0	0	0.000	0	0	0	0					
F CH\03	0	0	0.000	0	0	0	0					
F CH\02	0	0	0.000	0	0	0	0					
F CH\01	0	0	0.000	0	0	0	0					
F CJ\03	0	0	0.000	0	0	0	0					
F CJ\02	0	0	0.000	0	0	0	0					
F CJ\01	0	0	0.000	0	0	0	0					
F CK\03	0	0	0.000	0	0	0	0					
F CK\02	0	0	0.000	0	0	0	0					
F CK\01	0	0	0.000	0	0	0	0					
F CL\03	0	0	0.000	0	0	0	0					
F CL\02	0	0	0.000	0	0	0	0					
F CL\01	0	0	0.000	0	0	0	0					
F CM\03	0	0	0.000	0	0	0	0					
F CM\02	0	0	0.000	0	0	0	0					
F CM\01	0	0	0.000	0	0	0	0					
F DA\11	0	0	0.000	0	0	0	0					
F DA\10	0	0	0.000	0	0	0	0					
F DA\09	0	0	0.000	0	0	0	0					
F DA\08	0	0	0.000	0	0	0	0					
F DA\07	0	0	0.000	0	0	0	0					
F DA\06	0	0	0.000	0	0	0	0					
F DA\05	0	0	0.000	0	0	0	0					
F DA\04	0	0	0.000	0	0	0	0					
F DA\03	0	0	0.000	0	0	0	0					
F DA\02	0	0	0.000	0	0	0	0					
F DB\03	0	0	0.000	0	0	0	0					
F DB\02	0	0	0.000	0	0	0	0					
F DB\01	0	0	0.000	0	0	0	0					
F DC\03	0	0	0.000	0	0	0	0					
F DC\02	0	0	0.000	0	0	0	0					
F DC\01	0	0	0.000	0	0	0	0					
F DD\03	0	0	0.000	0	0	0	0					
F DD\02	0	0	0.000	0	0	0	0					
F DD\01	0	0	0.000	0	0	0	0					
F DE\03	0	0	0.000	0	0	0	0					
F DE\02	0	0	0.000	0	0	0	0					
F DE\01	0	0	0.000	0	0	0	0					
F DF\03	0	0	0.000	0	0	0	0					
F DF\02	0	0	0.000	0	0	0	0					
F DF\01	0	0	0.000	0	0	0	0					
F DG\03	0	0	0.000	0	0	0	0					
F DG\02	0	0	0.000	0	0	0	0					
F DG\01	0	0	0.000	0	0	0	0					
F DH\03	0	0	0.000	0	0	0	0					
F DH\02	0	0	0.000	0	0	0	0					
F DH\01	0	0	0.000	0	0	0	0					
F DJ\03	0	0	0.000	0	0	0	0					
F DJ\02	0	0	0.000	0	0	0	0					
F DJ\01	0	0	0.000	0	0	0	0					
F DK\03	0	0	0.000	0	0	0	0					
F DK\02	0	0	0.000	0	0	0	0					
F DK\01	0	0	0.000	0	0	0	0					
F DL\03	0	0	0.000	0	0	0	0					
F DL\02	0	0	0.000	0	0	0	0					
F DL\01	0	0	0.000	0	0	0	0					
F DM\03	0	0	0.000	0	0	0	0					
F DM\02	0	0	0.000	0	0	0	0					
F DM\01	0	0	0.000	0	0	0	0					
F EA\11	0	0	0.000	0	0	0	0					
F EA\10	0	0	0.000	0	0	0	0					
F EA\09	0	0	0.000	0	0	0	0					
F EA\08	0	0	0.000	0	0	0	0					
F EA\07	0	0	0.000	0	0	0	0					
F EA\06	0	0	0.000	0	0	0	0					
F EA\05	0	0	0.000	0	0	0	0					
F EA\04	0	0	0.000	0	0	0	0					
F EA\03	0	0	0.000	0	0	0	0					
F EB\03	0	0	0.000	0	0	0	0					
F EB\02	0	0	0.000	0	0	0	0					
F EB\01	0	0	0.000	0	0	0	0					
F EC\03	0	0	0.000	0	0	0	0					
F EC\02	0	0	0.000	0	0	0	0					

F EC\01	0	0	0.000	0	0	0	0					
F ED\03	0	0	0.000	0	0	0	0					
F ED\02	0	0	0.000	0	0	0	0					
F ED\01	0	0	0.000	0	0	0	0					
F EE\03	0	0	0.000	0	0	0	0					
F EE\02	0	0	0.000	0	0	0	0					
F EE\01	0	0	0.000	0	0	0	0					
F EF\03	0	0	0.000	0	0	0	0					
F EF\02	0	0	0.000	0	0	0	0					
F EF\01	0	0	0.000	0	0	0	0					
F EG\03	0	0	0.000	0	0	0	0					
F EG\02	0	0	0.000	0	0	0	0					
F EG\01	0	0	0.000	0	0	0	0					
F EH\03	0	0	0.000	0	0	0	0					
F EH\02	0	0	0.000	0	0	0	0					
F EH\01	0	0	0.000	0	0	0	0					
F EJ\03	0	0	0.000	0	0	0	0					
F EJ\02	0	0	0.000	0	0	0	0					
F EJ\01	0	0	0.000	0	0	0	0					
F EK\03	0	0	0.000	0	0	0	0					
F EK\02	0	0	0.000	0	0	0	0					
F EK\01	0	0	0.000	0	0	0	0					
F EL\03	0	0	0.000	0	0	0	0					
F EL\02	0	0	0.000	0	0	0	0					
F EL\01	0	0	0.000	0	0	0	0					
F EM\03	0	0	0.000	0	0	0	0					
F EM\02	0	0	0.000	0	0	0	0					
F EM\01	0	0	0.000	0	0	0	0					
OF55804	0	0	0.000	0	0	0	0					
F Channel 1	5.792	8.044	0.000	0.204	0.33	44.86	1.63	AR&R 100 year, 1.5 hours storm, average 55.0 mm/h, Zone 1				
OF South Cat	1.231	1.231	0.000	0.095	0.10	22.95	1.01	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1				
Moorebank A	0	0	0.000	0	0	0	0					
F Moorebank	0	0	0.000	0	0	0	0					
F CatC1Ex	1.231	1.231	0.000	0.095	0.10	22.95	1.01	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1				
F Channel 2	8.909	8.909	0.000	0.212	0.36	46.48	1.68	AR&R 100 year, 2 hours storm, average 46.0 mm/h, Zone 1				
F OSD Dumm	0.310	0.310	0.000	0.054	0.04	14.87	0.69	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1				
OF137724	0.096	0.096	0.000	0.035	0.02	10.91	0.48	AR&R 100 year, 1 hour storm, average 70.0 mm/h, Zone 1				
Existing Chan	9.419	9.419	0.000	0.217	0.37	47.38	1.71	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1				
F CatC1	1.231	1.231	0.000	0.095	0.10	22.95	1.01	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1				
Prop Carpark	1.123	1.123	0.000	0.091	0.09	22.23	0.99	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1				
OF410995	0.010	0.010	0.000	0.015	0.00	4.94	0.28	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1				
F F\03	0	0	0.000	0	0	0	0					
OF349883	0	0	0.000	0	0	0	0					
OF200780	1.412	1.412	0.000	0.100	0.11	24.03	1.05	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1				
OF149489	1.123	1.123	0.000	0.091	0.09	22.23	0.99	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1				
OF151533	0	0	0.000	0	0	0	0					
OF Carpark	0.115	0.115	0.000	0.036	0.02	11.27	0.53	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1				
Ex Carpark O	1.123	1.123	0.000	0.091	0.09	22.23	0.99	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1				
OF149518	0	0	0.000	0	0	0	0					
OF137717	0.115	0.115	0.000	0.036	0.02	11.27	0.53	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1				
F Cat 1	0.110	0.346	0.000	0.378	0.80	0.77	2.12	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1				
F Cat 2	0.345	0.460	0.000	0.427	0.97	0.84	2.28	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1				
F Cat 3	0.456	0.507	0.000	0.445	1.04	0.86	2.33	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1				
F Cat 4	0.506	1.141	0.000	0.633	1.79	1.11	2.83	AR&R 100 year, 2 hours storm, average 46.0 mm/h, Zone 1				
F Cat 5	1.138	1.395	0.000	0.691	2.05	1.19	2.97	AR&R 100 year, 1.5 hours storm, average 55.0 mm/h, Zone 1				
F Cat 6	1.388	1.388	0.000	0.100	0.10	24.03	1.03	AR&R 100 year, 2 hours storm, average 46.0 mm/h, Zone 1				
F Cat 7	1.567	1.567	0.000	0.105	0.11	24.92	1.08	AR&R 100 year, 2 hours storm, average 46.0 mm/h, Zone 1				
Swale	1.994	2.457	0.000	0.884	3.00	1.45	3.39	AR&R 100 year, 2 hours storm, average 46.0 mm/h, Zone 1				
OF282905	2.452	2.452	0.000	0.126	0.15	29.24	1.20	AR&R 100 year, 1.5 hours storm, average 55.0 mm/h, Zone 1				
F AA\06	0	0	0.000	0	0	0	0					
F AA\05	0	0	0.000	0	0	0	0					
F AA\04	0	0	0.000	0	0	0	0					
F AA\03	0	0	0.000	0	0	0	0					
F AA\02	0	0	0.000	0	0	0	0					
F AB\02	0	0	0.000	0	0	0	0					
F AB\01	0	0	0.000	0	0	0	0					
F BA\11	0	0	0.000	0	0	0	0					
F BA\10	0	0	0.000	0	0	0	0					
F BA\09	0	0	0.000	0	0	0	0					
F BA\08	0	0	0.000	0	0	0	0					
F BA\07	0	0	0.000	0	0	0	0					
F BA\06	0	0	0.000	0	0	0	0					
F BA\05	0	0	0.000	0	0	0	0					
F BA\04	0	0	0.000	0	0	0	0					
F BA\03	0	0	0.000	0	0	0	0					
F BA\02	0	0	0.000	0	0	0	0					
OF360759	0	0	0.000	0	0	0	0					
F BB\03	0	0	0.000	0	0	0	0					
F BB\02	0	0	0.000	0	0	0	0					
F BB\01	0	0	0.000	0	0	0	0					
F BC\03	0	0	0.000	0	0	0	0					
F BC\02	0	0	0.000	0	0	0	0					
F BC\01	0	0	0.000	0	0	0	0					
F BD\03	0	0	0.000	0	0	0	0					
F BD\02	0	0	0.000	0	0	0	0					
F BD\01	0	0	0.000	0	0	0	0					
F BE\03	0	0	0.000	0	0	0	0					
F BE\02	0	0	0.000	0	0	0	0					
F BE\01	0	0	0.000	0	0	0	0					
F BF\02	0	0	0.000	0	0	0	0					
F BF\01	0	0	0.000	0	0	0	0					
F BG\02	0	0	0.000	0	0	0	0					
F BG\01	0	0	0.000	0	0	0	0					
F F\21	0	0	0.000	0	0	0	0					
F F\20	0	0	0.000	0	0	0	0					
F F\19	0	0	0.000	0	0	0	0					
F F\18	0	0	0.000	0	0	0	0					
F F\17	0.057	0.057	0.000	0.098	0.09	1.90	0.90	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1				
F F\16	0	0	0.000	0	0	0	0					
F F\15	0	0	0.000	0	0	0	0					
F F\14	0	0	0.000	0	0	0	0					
F F\13	0	0	0.000	0	0	0	0					
F F\12	0.049	0.049	0.000	0.093	0.08	1.74	0.89	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1				
F F\11	0	0	0.000	0	0	0	0					
F F\10	0	0	0.000	0	0	0	0					
F F\09	0	0	-0.000	0	0	0	0					
F F\08	0	0	-9999.000	0	0	0	0					
F F\07	0	0	0.000	0	0	0	0					
F F\06	0	0	0.000	0	0	0	0					
F F\05	0	0	0.000	0	0	0	0					
F F\04	0	0	0.000	0	0	0	0					
DETENTION BASIN DETAILS												
Name	Max WL	MaxVol	Max Q	Max Q	Max Q							
			Total	Low Level	High Level							
Stage1	15.27	8442.7	2.250	0.000	2.250							
CONTINUITY CHECK for AR&R 100 year, 1 hour storm, average 70.0 mm/h, Zone 1												
Node	Inflow	Outflow	Storage Chan	Difference								
	(cu.m)	(cu.m)	(cu.m)	%								
CA\11	69.55	69.36	0.00	0.3								
CA\10	138.91	138.65	0.00	0.2								
CA\09	208.20	206.86	0.00	0.6								

CA\08	483.30	481.88	0.00	0.3								
CA\07	999.94	994.17	0.00	0.6								
CA\06	1280.97	1277.21	0.00	0.3								
CA\05	1564.13	1560.22	0.00	0.3								
CA\04	2077.04	2072.22	0.00	0.2								
CA\03	2367.99	2364.84	0.00	0.1								
CA\02	2364.84	2363.03	0.00	0.1								
Stage1	9836.66	9144.55	692.54	-0.0								
CB\03	69.55	69.36	0.00	0.3								
CB\02	138.91	138.62	0.00	0.2								
CB\01	208.18	206.89	0.00	0.6								
CC\03	74.52	74.33	0.00	0.3								
CC\02	148.85	148.64	0.00	0.1								
CC\01	223.16	221.75	0.00	0.6								
CD\03	74.52	74.33	0.00	0.3								
CD\02	148.85	148.68	0.00	0.1								
CD\01	223.20	221.78	0.00	0.6								
CE\03	41.40	41.26	0.00	0.3								
CE\02	82.66	82.43	0.00	0.3								
CE\01	123.83	122.72	0.00	0.9								
CF\03	41.40	41.26	0.00	0.3								
CF\02	82.66	82.49	0.00	0.2								
CF\01	123.89	122.68	0.00	1.0								
CG\03	41.40	41.26	0.00	0.3								
CG\02	82.66	82.53	0.00	0.2								
CG\01	123.93	122.76	0.00	0.9								
CH\03	41.40	41.26	0.00	0.3								
CH\02	82.66	82.53	0.00	0.2								
CH\01	123.93	122.76	0.00	0.9								
CJ\03	74.52	74.33	0.00	0.3								
CJ\02	148.85	148.59	0.00	0.2								
CJ\01	223.11	221.15	0.00	0.9								
CK\03	74.52	74.33	0.00	0.3								
CK\02	148.85	148.60	0.00	0.2								
CK\01	223.12	221.16	0.00	0.9								
CL\03	42.64	42.51	0.00	0.3								
CL\02	85.15	85.00	0.00	0.2								
CL\01	127.64	126.60	0.00	0.8								
CM\03	42.64	42.51	0.00	0.3								
CM\02	85.15	84.94	0.00	0.2								
CM\01	127.58	126.53	0.00	0.8								
DA\11	69.55	69.36	0.00	0.3								
DA\10	138.91	138.65	0.00	0.2								
DA\09	208.20	206.86	0.00	0.6								
DA\08	483.30	481.88	0.00	0.3								
DA\07	999.94	994.17	0.00	0.6								
DA\06	1280.97	1277.21	0.00	0.3								
DA\05	1564.13	1560.22	0.00	0.3								
DA\04	2077.04	2072.22	0.00	0.2								
DA\03	2367.99	2364.84	0.00	0.1								
DA\02	2364.84	2363.03	0.00	0.1								
DB\03	69.55	69.36	0.00	0.3								
DB\02	138.91	138.62	0.00	0.2								
DB\01	208.18	206.89	0.00	0.6								
DC\03	74.52	74.33	0.00	0.3								
DC\02	148.85	148.64	0.00	0.1								
DC\01	223.16	221.75	0.00	0.6								
DD\03	74.52	74.33	0.00	0.3								
DD\02	148.85	148.68	0.00	0.1								
DD\01	223.20	221.78	0.00	0.6								
DE\03	41.40	41.26	0.00	0.3								
DE\02	82.66	82.43	0.00	0.3								
DE\01	123.83	122.72	0.00	0.9								
DF\03	41.40	41.26	0.00	0.3								
DF\02	82.66	82.49	0.00	0.2								
DF\01	123.89	122.68	0.00	1.0								
DG\03	41.40	41.26	0.00	0.3								
DG\02	82.66	82.53	0.00	0.2								
DG\01	123.93	122.76	0.00	0.9								
DH\03	41.40	41.26	0.00	0.3								
DH\02	82.66	82.53	0.00	0.2								
DH\01	123.93	122.76	0.00	0.9								
DJ\03	74.52	74.33	0.00	0.3								
DJ\02	148.85	148.59	0.00	0.2								
DJ\01	223.11	221.15	0.00	0.9								
DK\03	74.52	74.33	0.00	0.3								
DK\02	148.85	148.60	0.00	0.2								
DK\01	223.12	221.16	0.00	0.9								
DL\03	42.64	42.51	0.00	0.3								
DL\02	85.15	85.00	0.00	0.2								
DL\01	127.64	126.60	0.00	0.8								
DM\03	42.64	42.51	0.00	0.3								
DM\02	85.15	84.94	0.00	0.2								
DM\01	127.58	126.53	0.00	0.8								
EA\11	92.94	92.63	0.00	0.3								
EA\10	162.18	161.99	0.00	0.1								
EA\09	231.54	230.13	0.00	0.6								
EA\08	506.67	505.10	0.00	0.3								
EA\07	1047.97	1041.57	0.00	0.6								
EA\06	1342.24	1337.36	0.00	0.4								
EA\05	1637.94	1633.07	0.00	0.3								
EA\04	2175.15	2168.69	0.00	0.3								
EA\03	2446.93	2444.07	0.00	0.1								
EA\02	2444.07	2441.55	0.00	0.1								
EB\03	69.55	69.36	0.00	0.3								
EB\02	138.91	138.69	0.00	0.2								
EB\01	208.24	206.98	0.00	0.6								
EC\03	74.52	74.33	0.00	0.3								
EC\02	148.85	148.67	0.00	0.1								
EC\01	223.18	221.67	0.00	0.7								
ED\03	99.70	99.39	0.00	0.3								
ED\02	173.91	173.61	0.00	0.2								
ED\01	248.13	246.67	0.00	0.6								
EE\03	41.40	41.26	0.00	0.3								
EE\02	82.66	82.40	0.00	0.3								
EE\01	123.80	122.83	0.00	0.8								
EF\03	55.20	55.01	0.00	0.3								
EF\02	96.41	96.14	0.00	0.3								
EF\01	137.54	136.44	0.00	0.8								
EG\03	41.40	41.26	0.00	0.3								
EG\02	82.66	82.48	0.00	0.2								
EG\01	123.88	122.71	0.00	0.9								
EH\03	55.20	55.01	0.00	0.3								
EH\02	96.41	96.04	0.00	0.4								
EH\01	137.44	136.45	0.00	0.7								
EJ\03	74.52	74.33	0.00	0.3								
EJ\02	148.85	148.52	0.00	0.2								
EJ\01	223.04	221.44	0.00	0.7								
EK\03	99.43	99.12	0.00	0.3								
EK\02	173.64	173.60	0.00	0.0								
EK\01	248.12	246.12	0.00	0.8								
EL\03	42.64	42.51	0.00	0.3								
EL\02	85.15	84.96	0.00	0.2								
EL\01	127.60	126.59	0.00	0.8								

EM\03	24.91	24.83	0.00	0.3								
EM\02	67.48	67.31	0.00	0.2								
EM\01	109.96	109.00	0.00	0.9								
BA Outlet	0.00	0.00	0.00	0.0								
O CA\02	0.00	0.00	0.00	0.0								
O DA\02	0.00	0.00	0.00	0.0								
Dummy Pit	9143.64	9143.07	0.00	0.0								
Channel1	16507.63	16506.73	0.00	0.0								
N60922	1578.86	1578.86	0.00	0.0								
N60923	1077.39	1077.39	0.00	0.0								
HW Moore	25824.31	25820.36	0.00	0.0								
Full Existing	25820.36	25820.36	0.00	0.0								
N60936	6727.50	6727.50	0.00	0.0								
Moore HW	25428.26	25428.04	0.00	0.0								
P Georges R	25428.04	25428.04	0.00	0.0								
N98596	1578.86	1578.86	0.00	0.0								
N103004	23851.40	23850.33	0.00	0.0								
EA Outlet	0.00	0.00	0.00	0.0								
N147106	270.07	270.07	0.00	0.0								
HW4	25917.26	25919.62	0.00	-0.0								
Ex Georges R	25919.61	25919.61	0.00	0.0								
N147129	16949.54	16949.54	0.00	0.0								
N147132	1578.86	1578.86	0.00	0.0								
Carpark HW	1438.65	1438.17	0.00	0.0								
Pr Carpark Ju	354.17	354.19	0.00	-0.0								
F\03	1868.75	1868.46	0.00	0.0								
F\02	2022.28	2022.28	0.00	0.0								
Channel2	2022.28	2022.36	0.00	-0.0								
Prop Carpark	1086.05	1086.05	0.00	0.0								
HW46	1438.65	1438.70	0.00	-0.0								
Pit144889	361.31	361.17	0.00	0.0								
N159649	361.17	361.17	0.00	0.0								
HW57	1438.65	1438.70	0.00	-0.0								
Pit144901	361.31	361.17	0.00	0.0								
Ex Existing Ch	361.17	361.17	0.00	0.0								
EX Carpark N	1077.39	1077.39	0.00	0.0								
N214245	111.78	111.78	0.00	0.0								
N214246	402.40	402.40	0.00	-0.0								
N214247	672.88	672.88	0.00	-0.0								
N214248	842.99	842.99	0.00	0.0								
N214249	1790.88	1790.88	0.00	0.0								
N214250	2448.25	2448.25	0.00	0.0								
N214256	3113.21	3113.21	0.00	0.0								
N214257	4372.14	4372.15	0.00	-0.0								
DA Outlet	0.00	0.00	0.00	0.0								
CA Outlet	0.00	0.00	0.00	0.0								
AA Outlet	0.00	0.00	0.00	0.0								
N304196	5342.10	5342.10	0.00	0.0								
AA\06	22.84	22.82	0.00	0.1								
AA\05	123.29	122.28	0.00	0.8								
AA\04	234.82	231.10	0.00	1.6								
AA\03	378.65	368.99	0.00	2.6								
AA\02	368.99	372.01	0.00	-0.8								
AB\02	31.26	30.91	0.00	1.1								
AB\01	90.11	88.69	0.00	1.6								
BA\11	114.61	114.51	0.00	0.1								
BA\10	193.72	193.52	0.00	0.1								
BA\09	298.88	297.55	0.00	0.4								
BA\08	402.98	399.04	0.00	1.0								
BA\07	784.76	777.77	0.00	0.9								
BA\06	1081.90	1073.95	0.00	0.7								
BA\05	1377.48	1369.70	0.00	0.6								
BA\04	1640.18	1634.12	0.00	0.4								
BA\03	1723.54	1719.87	0.00	0.2								
BA\02	1979.61	1977.17	0.00	0.1								
BA\01	1977.17	1973.41	0.00	0.2								
BB\03	113.92	113.61	0.00	0.3								
BB\02	192.89	192.44	0.00	0.2								
BB\01	289.59	288.56	0.00	0.4								
BC\03	63.76	63.54	0.00	0.3								
BC\02	110.87	110.88	0.00	-0.0								
BC\01	208.03	206.97	0.00	0.5								
BD\03	63.34	63.13	0.00	0.3								
BD\02	110.74	110.76	0.00	-0.0								
BD\01	207.43	206.37	0.00	0.5								
BE\03	114.33	114.15	0.00	0.2								
BE\02	192.53	192.37	0.00	0.1								
BE\01	192.37	190.65	0.00	0.9								
BF\02	56.65	56.44	0.00	0.4								
BF\01	261.31	259.75	0.00	0.6								
BG\02	65.55	65.45	0.00	0.2								
BG\01	111.54	111.37	0.00	0.2								
F\21	373.75	373.88	0.00	-0.0								
F\20	476.06	476.25	0.00	-0.0								
F\19	531.26	531.16	0.00	0.0								
F\18	577.60	577.97	0.00	-0.1								
F\17	688.26	686.66	0.00	0.2								
F\16	732.60	732.54	0.00	0.0								
F\15	823.64	823.81	0.00	-0.0								
F\14	891.75	892.86	0.00	-0.1								
F\13	983.12	982.96	0.00	0.0								
F\12	1073.56	1073.75	0.00	-0.0								
F\11	1118.91	1118.68	0.00	0.0								
F\10	1163.57	1163.53	0.00	0.0								
F\09	1208.52	1208.55	0.00	-0.0								
F\08	1253.88	1253.72	0.00	0.0								
F\07	1301.22	1301.31	0.00	-0.0								
F\06	1353.65	1353.51	0.00	0.0								
F\05	1403.80	1403.84	0.00	-0.0								
F\04	1459.81	1459.87	0.00	-0.0								
Run Log for ConceptStage1.drn run at 12:01:39 on 18/2/2015												
Upwelling occurred at Pr Carpark Junc												
Freeboard was less than 0.15m at F\21, F\20, F\19, F\18, F\17, F\16, F\15, F\14, F\13, F\12, F\11, F\10, F\09, F\08, F\07, F\06, F\05, F\04, F\03, F\02												
The maximum flow exceeded the safe value in the following overflow routes: F Cat 1, F Cat 2, F Cat 3, F Cat 4, F Cat 5, Existing Channel, F Channel 2, F Channel 1, Swale												
The following overflow routes carried water uphill (adding energy): OF410995, F F\12, F F\17, Stage Discharge												
These results may be invalid. You should check for water flowing round in circles at these locations. You may need to reformulate the model.												

PROJECT	MOOREBANK	JOB No	AA003760		
TITLE	STAGE 1 OSD	PREPARED	GD	DATE	18/02/2015
		CHECKED	BC	DATE	18/02/2015

Stage - Discharge Outlet Relationships

DRAINS Model:	

Calculation Inputs	Value	Comment
Cc	0.62	Orifice loss coefficeint
weir calculation increment (m)	0.01	Recommend using a smaller increment to produce a representative flow relationship. (0.01)
Set height of weir increment (m)	0.1	This allows a more detailed calculation of flow for the height entered.
orifice increment (m)	0.05	This sets the increment of calculations

Detention Storage Properties		
Invert (inc. WQ)	14	
Height of discharge calculation (m)	16.5	
OSD height (m)	2.5	

Low Flow Outlet Control		
Orifice Diameter Ø (m)	0.450	
Number of orifice	7	
Area (m2)	1.113	
Centreline of Orifice	14.725	This level sets the orifice flow calculation
IL of Low Flow Orifice	14.5	
OL of Low Flow Orifice	14.95	
Pit Inlet (mm)	2000 x 2000	
Perimeter Length (m)	8.000	
Blocked Perimeter Length (m)	8.000	
Weir Coefficient	1.6	
Crest Level of LF Pit	14.2	

High Flow Outlet Control		
Orifice Diameter Ø (m)	0.000	
Number of orifice	0	
Area (m2)	0.000	
Centreline of Orifice	30.000	
IL of Low Flow Orifice	30	
OL of Low Flow Orifice	30	
Pit Inlet (mm)	2000 x 2000	
Perimeter Length (m)	8.000	
Blocked Perimeter Length (m)	6.000	
Weir Coefficient	1.6	
Crest Level of LF Pit	30	

Weir		
Weir level	16.00	
Weir Length	1300.0	
Weir Coefficeint	1.6	

Trash Screen Detail		
Minimum Screen Clearance (m)	0.675	
Mesh Type Recommended	WELDLOK A40/203	
Minimum trash screen area (m2)	22.266	
Minimum Screen Clearance (m)	0.000	
Mesh Type Recommended	MAXIMESH RH3030	
Minimum trash screen area (m2)	0.000	

Checks/Warnings		
Are the orifice centrelines equal?	NO	DOES THIS REPRESENT THE DESIGN?
Height that low flow weir controls	#N/A	
Height that low flow orifice controls	14.75	
Depth of low flow weir control	**#N/A**	#N/A
Height that high flow weir controls	#N/A	#N/A
Height that high flow orifice controls	#N/A	
Depth of high flow weir control	**#N/A**	#N/A

Errors		
Low flow pit	OK	
High Flow Pit	CHECK PIT LEVEL	
Full Stage Discharge calculated	OK	

Stage	Low Flow	High Flow	Weir	Discharge
H (m)	Qt (m3/s)	Qt (m3/s)	Qt (m3/s)	Qt (m3/s)
14.20	0.000	0.000	0.000	0.000
14.21	-	0.000	0.000	0
14.22	-	0.000	0.000	0
14.23	-	0.000	0.000	0
14.24	-	0.000	0.000	0
14.25	-	0.000	0.000	0
14.26	-	0.000	0.000	0
14.27	-	0.000	0.000	0
14.28	-	0.000	0.000	0
14.29	-	0.000	0.000	0
14.30	-	0.000	0.000	0
14.35	-	0.000	0.000	0
14.40	-	0.000	0.000	0
14.45	-	0.000	0.000	0
14.50	-	0.000	0.000	0
14.55	-	0.000	0.000	0
14.60	-	0.000	0.000	0
14.65	-	0.000	0.000	0
14.70	-	0.000	0.000	0
14.75	0.483	0.000	0.000	0.483
14.80	0.837	0.000	0.000	0.837
14.85	1.080	0.000	0.000	1.080
14.90	1.278	0.000	0.000	1.278
14.95	1.450	0.000	0.000	1.450
15.00	1.603	0.000	0.000	1.603
15.05	1.742	0.000	0.000	1.742
15.10	1.871	0.000	0.000	1.871
15.15	1.992	0.000	0.000	1.992
15.20	2.106	0.000	0.000	2.106
15.25	2.214	0.000	0.000	2.214
15.30	2.317	0.000	0.000	2.317
15.35	2.416	0.000	0.000	2.416
15.40	2.511	0.000	0.000	2.511
15.45	2.602	0.000	0.000	2.602
15.50	2.690	0.000	0.000	2.690
15.55	2.776	0.000	0.000	2.776
15.60	2.858	0.000	0.000	2.858
15.65	2.939	0.000	0.000	2.939
15.70	3.017	0.000	0.000	3.017
15.75	3.094	0.000	0.000	3.094
15.80	3.168	0.000	0.000	3.168
15.85	3.241	0.000	0.000	3.241
15.90	3.312	0.000	0.000	3.312
15.95	3.382	0.000	0.000	3.382
16.00	3.451	0.000	0.000	3.451
16.05	3.518	0.000	23.255	26.773
16.10	3.583	0.000	65.775	69.359
16.15	3.648	0.000	120.837	124.485
16.20	3.711	0.000	186.041	189.752
16.25	3.774	0.000	260.000	263.774
16.30	3.835	0.000	341.779	345.614
16.35	3.895	0.000	430.691	434.586
16.40	3.955	0.000	526.203	530.158
16.45	4.014	0.000	627.888	631.901
16.50	4.071	0.000	735.391	739.462
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
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-	-	-	-	-
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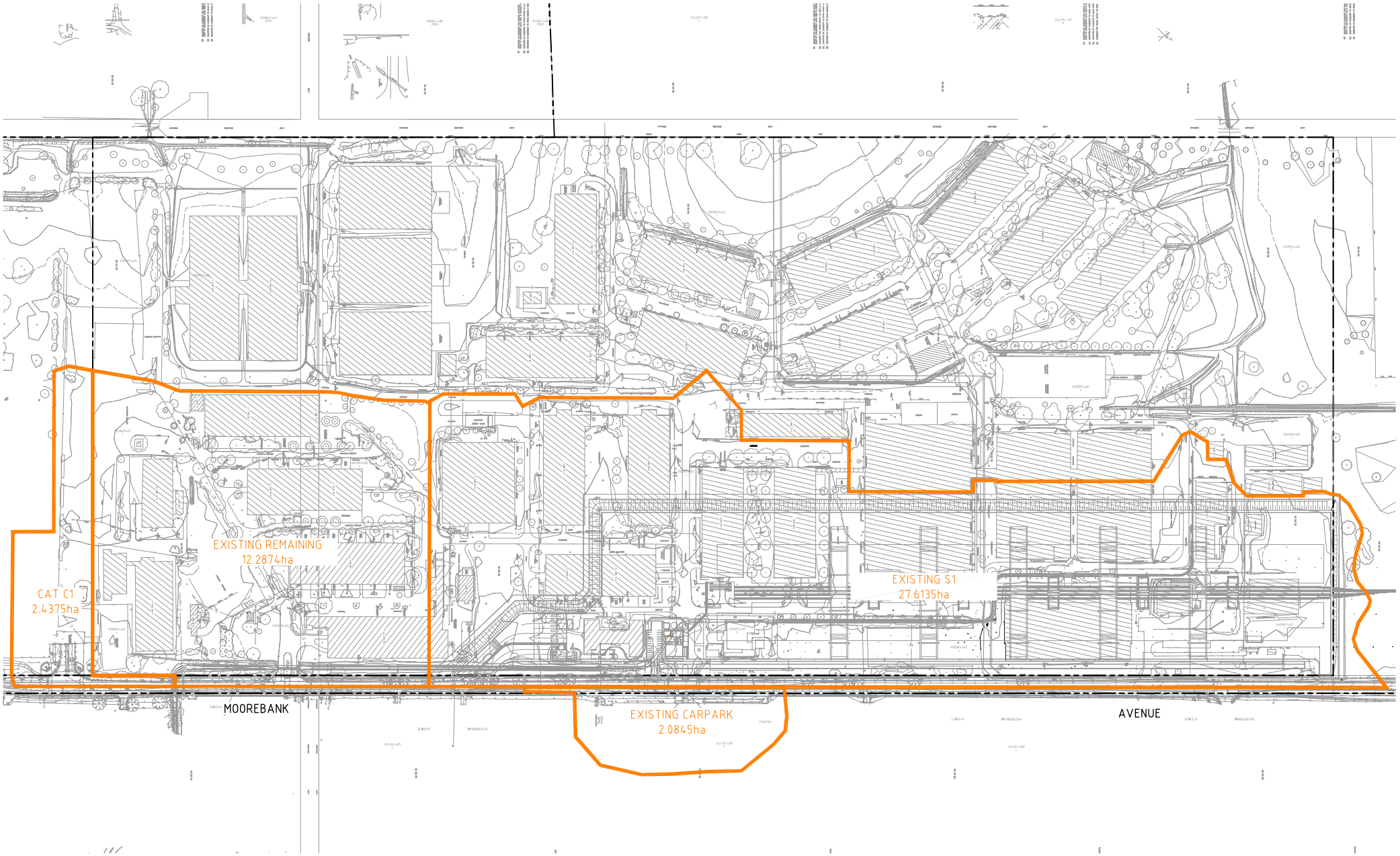
-	-	-	-	-
-	-	-	-	-



DRAFT

Issue	Description	Date
01	ISSUE FOR INFORMATION	XX/XX/15

0 50 100 150 200m

1 : 2000

Client: SIMTA / TACTICAL GROUP

Status: **PRELIMINARY**
NOT TO BE USED FOR CONSTRUCTION

Scales	1:2000	Current Issue Signatures	
		Drawn	A.ZHAO
Original Size	A1	Designed	G.DUNSTAN
Height Datum	AHD	Checked	B.CALDWELL
Grid	MGA	Approved	B.LUSTY

Filename:

Project: SIMTA INTERMODAL TERMINAL FACILITY (STAGE 1)

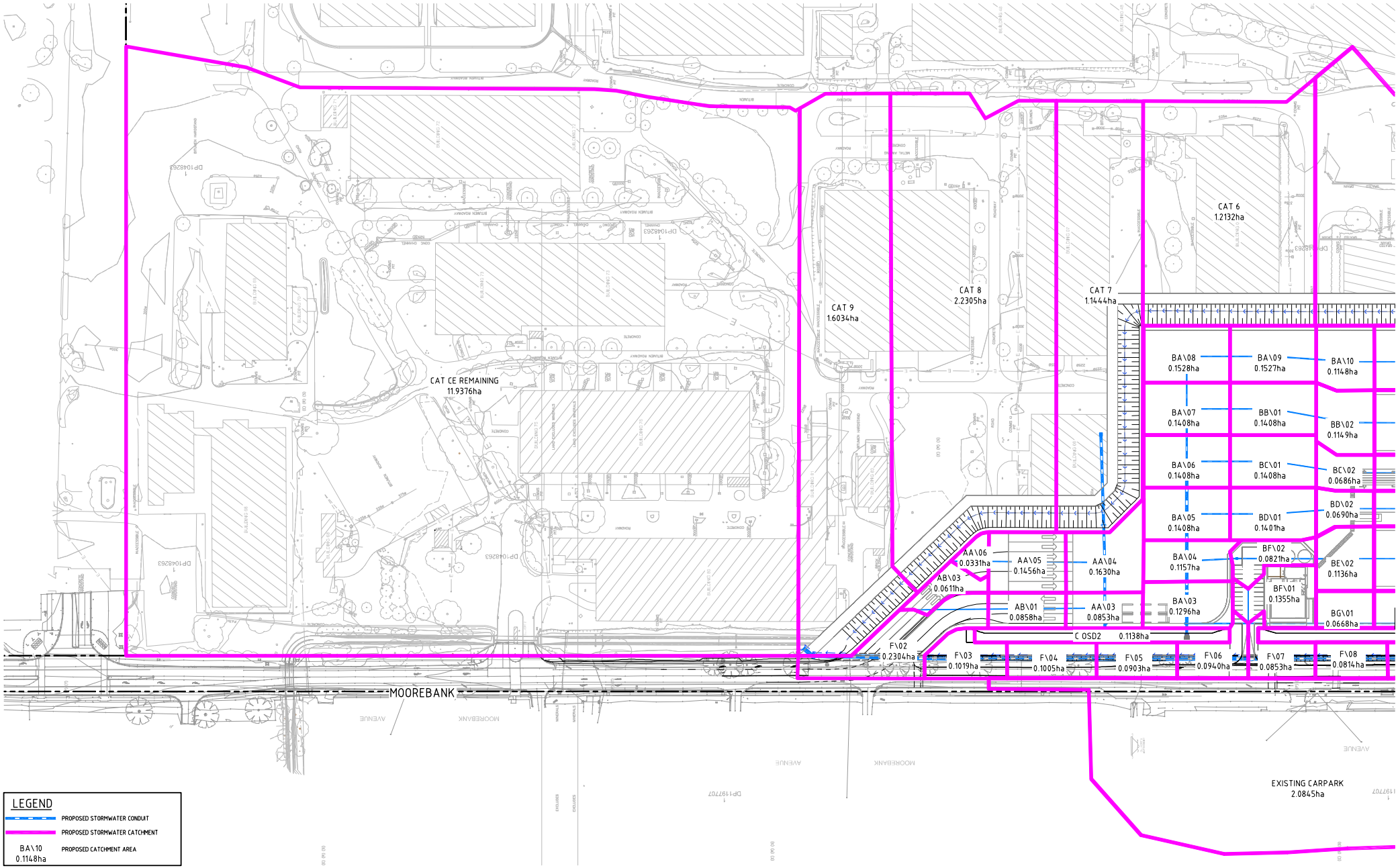
Title: EXISTING CATCHMENT PLAN

HYDER CONSULTING PTY LTD
ABN 76 104 485 289
Level 5, 141 Walker St
North Sydney NSW 2060
Australia
Tel: +61 (0)2 8907 9000
Fax: +61 (0)2 8907 9001
www.hyderconsulting.com

Drawing No.	Project No.	Issue
EISC1051	AA003760	01

10mm on Original

Date Plotted: 20 Feb 2015 - 10:26AM File Name: F:\AA003760\E-CAD\C-Civil\D-Final\B-Stage 1_EIS\EISC1051-AA003760-NSD-ExistingCatchmentPlan.dwg V1



DRAFT

Issue	Description	Date
01	ISSUE FOR INFORMATION	20/02/15

0 20 40 60 80 100m

1 : 1000

Client: SIMTA / TACTICAL GROUP

Status: **PRELIMINARY**
NOT TO BE USED FOR CONSTRUCTION

Scales	1:1000	Current Issue Signatures	
		Drawn	A.ZHAO
Original Size	A1	Designed	G.DUNSTAN
Height Datum	AHD	Checked	B.CALDWELL
Grid	MGA	Approved	B.LUSTY
Filename:			

Project: SIMTA INTERMODAL TERMINAL FACILITY (STAGE 1)

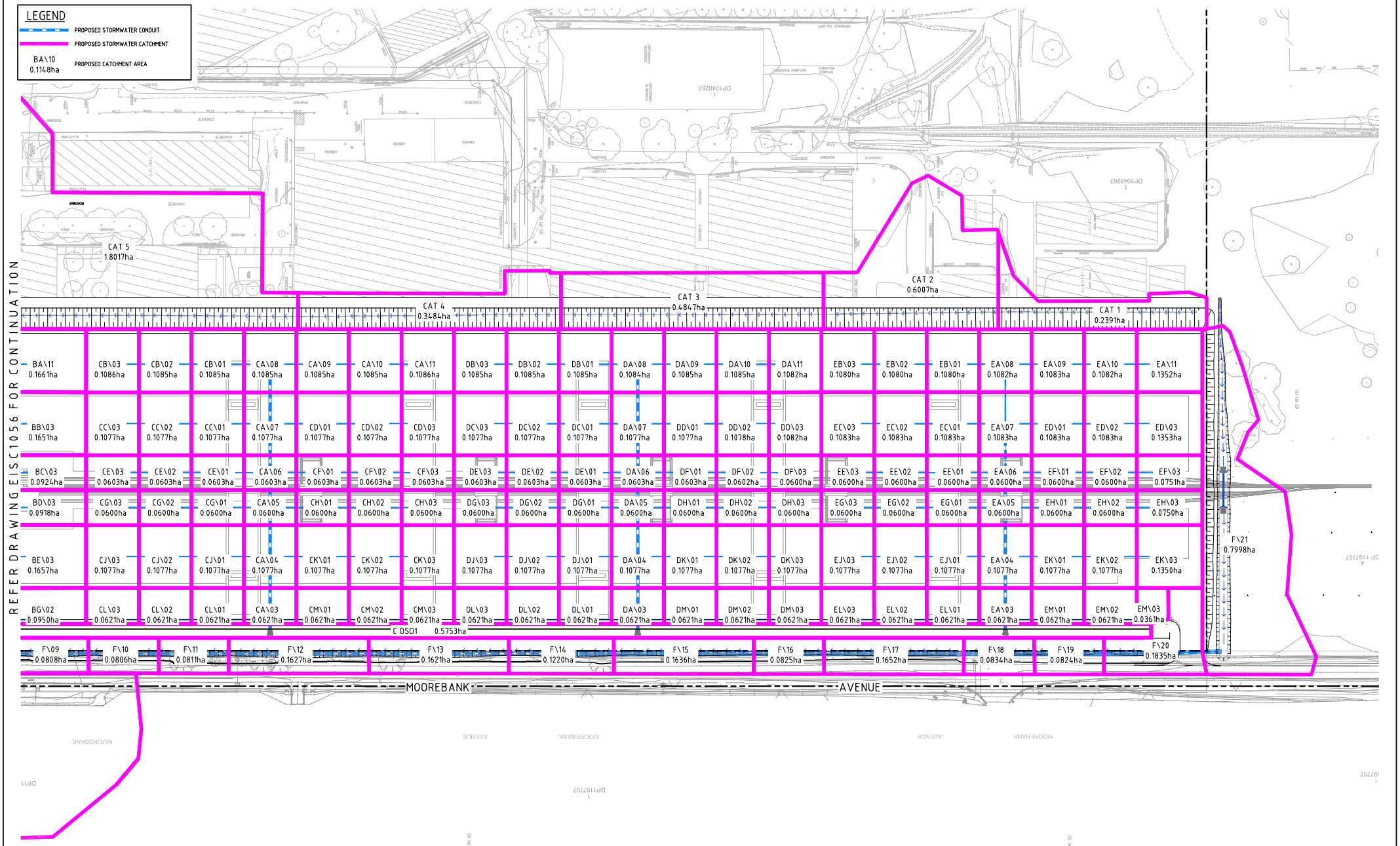
Title: PROPOSED CATCHMENT PLAN SHEET 1

HYDER CONSULTING PTY LTD
ABN 76 104 485 289
Level 5, 141 Walker St
North Sydney NSW 2060
Australia
Tel: +61 (0)2 8907 9000
Fax: +61 (0)2 8907 9001
www.hyderconsulting.com

Drawing No.	Project No.	Issue
EISC1056	AA003760	01

100mm on Original

Date Plotted: 20 Feb 2015 - 02:49PM File Name: F:\AA003760\E-CAD\C-Civil\D-Final\B-Stage 1_EIS\EISC1056-AA003760-NSD-ProposedCatchmentPlanSheet1.dwg V1



Issue	Description	Date
01	ISSUE FOR INFORMATION	20/02/15

DRAFT

1 : 1000

Client: SIMTA / TACTICAL GROUP

Status: PRELIMINARY
NOT TO BE USED FOR CONSTRUCTION

Scales	1:1000	Current Issue Signatures	
		Drawn	A.ZHAO
Original Size	A1	Designed	G.DUNSTAN
Height Datum	AHD	Checked	B.CALDWELL
Grid	MGA	Approved	B.LUSTY

Filename:

Project: SIMTA INTERMODAL TERMINAL FACILITY (STAGE 1)

Title: PROPOSED CATCHMENT PLAN SHEET 2

HYDER CONSULTING PTY LTD
ABN 76 104 485 289
Level 5, 141 Walker St
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www.hyderconsulting.com

Drawing No.	Project No.	Issue
EISC1057	AA003760	01

Stage 1 DRAINS Modelling (Conduit Sizing, assumed tailwater in OSD of 15.7mAHD)

Calculation Sheet

Job	SIMTA	Design	Concept	Office	Sydney
	Moorebank Intermodal	Date	Feb-15	Job No	AA003760
	Stage 1	Checked	Bruce Caldwell		
		Date	Feb-15		

SIMTA

MOOREBANK INTERMODAL

STAGE 1

TAILWATERS

CONCEPT DESIGN

DRAINS OUTPUT

February 2015

PROJECT	SIMTA				
TITLE	DRAINS DATA	JOB No		AA003760	
		PREPARED	GD	DATE	18/02/2015
		CHECKED	BC	DATE	18/02/2015

DATA

DRAINS File Path:	F:\AA003760\D-Calcs\A-Civil\A-Stormwater\A-DRAINS
DRAINS Version:	DRAINS Version 2015.02 - 4 Februrary 2015
Modeller's Name:	George Dunstan
Description:	Existing and Proposed

PIT / NODE DETAILS			Version 12											
Name	Type	Family	Size	Ponding Volume (cu.m)	Pressure Change Coeff. Ku	Surface Elev (m)	Max Pond Depth (m)	Base Inflow (cu.m/s)	Blocking Factor	x	y	Bolt-down lid	id	Part Full Shock Loss
CA\11	Sag	Surface Inlet Pits	Trench Grate	15	4.0	16.44	0.1	0	0.5	308182.48	6240833.37	No	12508221	1 x Ku
CA\10	Sag	Surface Inlet Pits	Trench Grate	15	1.5	16.44	0.1	0	0.5	308186.28	6240863.13	No	12508220	1 x Ku
CA\09	Sag	Surface Inlet Pits	Trench Grate	15	1.1	16.44	0.1	0	0.5	308190.07	6240892.85	No	12508219	1 x Ku
CA\08	Sag	Surface Inlet Pits	Trench Grate	15	1.2	16.44	0.1	0	0.5	308193.88	6240922.65	No	12508218	1 x Ku
CA\07	Sag	Surface Inlet Pits	Trench Grate	15	2.0	16.42	0.1	0	0.5	308160.15	6240926.95	No	12508217	1 x Ku
CA\06	Sag	Surface Inlet Pits	Trench Grate	15	1.6	16.5	0.1	0	0.5	308132.37	6240930.48	No	12508216	1 x Ku
CA\05	Sag	Surface Inlet Pits	Trench Grate	15	1.5	16.5	0.1	0	0.5	308112.54	6240933.03	No	12508215	1 x Ku
CA\04	Sag	Surface Inlet Pits	Trench Grate	15	1.5	16.42	0.1	0	0.5	308084.76	6240936.56	No	12508214	1 x Ku
CA\03	Sag	Surface Inlet Pits	Trench Grate	15	1.0	16.4	0.1	0	0.5	308048.96	6240941.14	No	12508213	1 x Ku
CA\02	OnGrade	Gross Pollutant T	GPT		3.0	16.363		0	0.3	308047.61	6240941.30	No	12508212	1 x Ku
CA Outlet	Node					16.5		0		307981.96	6240951.229		103214600	
CB\03	Sag	Surface Inlet Pits	Trench Grate	15	4.0	16.44	0.1	0	0.5	308205.28	6241011.92	No	12508224	1 x Ku
CB\02	Sag	Surface Inlet Pits	Trench Grate	15	1.5	16.44	0.1	0	0.5	308201.48	6240982.16	No	12508223	1 x Ku
CB\01	Sag	Surface Inlet Pits	Trench Grate	15	1.1	16.44	0.1	0	0.5	308197.67	6240952.36	No	12508222	1 x Ku
CC\03	Sag	Surface Inlet Pits	Trench Grate	15	4.0	16.42	0.1	0	0.5	308171.55	6241016.23	No	12508227	1 x Ku
CC\02	Sag	Surface Inlet Pits	Trench Grate	15	1.5	16.42	0.1	0	0.5	308167.75	6240986.42	No	12508226	1 x Ku
CC\01	Sag	Surface Inlet Pits	Trench Grate	15	1.1	16.42	0.1	0	0.5	308163.95	6240956.71	No	12508225	1 x Ku
CD\03	Sag	Surface Inlet Pits	Trench Grate	15	4.0	16.42	0.1	0	0.5	308148.75	6240837.68	No	12508230	1 x Ku
CD\02	Sag	Surface Inlet Pits	Trench Grate	15	1.5	16.42	0.1	0	0.5	308152.55	6240867.44	No	12508229	1 x Ku
CD\01	Sag	Surface Inlet Pits	Trench Grate	15	1.1	16.42	0.1	0	0.5	308156.35	6240897.20	No	12508228	1 x Ku
CE\03	Sag	Surface Inlet Pits	Trench Grate	15	4.0	16.5	0.1	0	0.5	308143.78	6241019.78	No	12508233	1 x Ku
CE\02	Sag	Surface Inlet Pits	Trench Grate	15	1.6	16.5	0.1	0	0.5	308139.98	6240990.02	No	12508232	1 x Ku
CE\01	Sag	Surface Inlet Pits	Trench Grate	15	1.4	16.5	0.1	0	0.5	308136.18	6240960.26	No	12508231	1 x Ku
CF\03	Sag	Surface Inlet Pits	Trench Grate	15	4.0	16.5	0.1	0	0.5	308120.98	6240841.23	No	12508236	1 x Ku
CF\02	Sag	Surface Inlet Pits	Trench Grate	15	1.6	16.5	0.1	0	0.5	308124.78	6240870.98	No	12508235	1 x Ku
CF\01	Sag	Surface Inlet Pits	Trench Grate	15	1.4	16.5	0.1	0	0.5	308128.57	6240900.71	No	12508234	1 x Ku
CG\03	Sag	Surface Inlet Pits	Trench Grate	15	4.0	16.5	0.1	0	0.5	308123.94	6241022.31	No	12508239	1 x Ku
CG\02	Sag	Surface Inlet Pits	Trench Grate	15	1.6	16.5	0.1	0	0.5	308120.14	6240992.55	No	12508238	1 x Ku
CG\01	Sag	Surface Inlet Pits	Trench Grate	15	1.4	16.5	0.1	0	0.5	308116.34	6240962.79	No	12508237	1 x Ku
CH\03	Sag	Surface Inlet Pits	Trench Grate	15	4.0	16.501	0.1	0	0.5	308101.03	6240843.75	No	12508242	1 x Ku
CH\02	Sag	Surface Inlet Pits	Trench Grate	15	1.6	16.5	0.1	0	0.5	308104.94	6240873.52	No	12508241	1 x Ku
CH\01	Sag	Surface Inlet Pits	Trench Grate	15	1.4	16.5	0.1	0	0.5	308108.74	6240903.28	No	12508240	1 x Ku
CJ\03	Sag	Surface Inlet Pits	Trench Grate	15	4.0	16.42	0.1	0	0.5	308096.16	6241025.86	No	12508245	1 x Ku
CJ\02	Sag	Surface Inlet Pits	Trench Grate	15	1.5	16.42	0.1	0	0.5	308092.36	6240996.10	No	12508244	1 x Ku
CJ\01	Sag	Surface Inlet Pits	Trench Grate	15	1.4	16.42	0.1	0	0.5	308088.56	6240966.34	No	12508243	1 x Ku
CK\03	Sag	Surface Inlet Pits	Trench Grate	15	4.0	16.42	0.1	0	0.5	308073.36	6240847.31	No	12508248	1 x Ku
CK\02	Sag	Surface Inlet Pits	Trench Grate	15	1.5	16.42	0.1	0	0.5	308077.16	6240877.07	No	12508247	1 x Ku
CK\01	Sag	Surface Inlet Pits	Trench Grate	15	1.4	16.42	0.1	0	0.5	308080.96	6240906.82	No	12508246	1 x Ku
CL\03	Sag	Surface Inlet Pits	Trench Grate	15	4.0	16.4	0.1	0	0.5	308060.36	6241030.40	No	12508251	1 x Ku
CL\02	Sag	Surface Inlet Pits	Trench Grate	15	1.6	16.4	0.1	0	0.5	308056.56	6241000.66	No	12508250	1 x Ku
CL\01	Sag	Surface Inlet Pits	Trench Grate	15	1.4	16.4	0.1	0	0.5	308052.76	6240970.90	No	12508249	1 x Ku
CM\03	Sag	Surface Inlet Pits	Trench Grate	15	9.0	16.4	0.1	0	0.5	308037.55	6240851.80	No	12508254	1 x Ku
CM\02	Sag	Surface Inlet Pits	Trench Grate	15	1.6	16.4	0.1	0	0.5	308041.35	6240881.60	No	12508253	1 x Ku
CM\01	Sag	Surface Inlet Pits	Trench Grate	15	1.4	16.4	0.1	0	0.5	308045.15	6240911.37	No	12508252	1 x Ku
DA\11	Sag	Surface Inlet Pits	Trench Grate	15	4.0	16.44	0.1	0	0.5	308155.87	6240625.06	No	12508265	1 x Ku
DA\10	Sag	Surface Inlet Pits	Trench Grate	15	1.5	16.44	0.1	0	0.5	308159.67	6240654.82	No	12508264	1 x Ku
DA\09	Sag	Surface Inlet Pits	Trench Grate	15	1.1	16.44	0.1	0	0.5	308163.47	6240684.58	No	12508263	1 x Ku
DA\08	Sag	Surface Inlet Pits	Trench Grate	15	1.2	16.44	0.1	0	0.5	308167.27	6240714.34	No	12508262	1 x Ku
DA\07	Sag	Surface Inlet Pits	Trench Grate	15	2.0	16.42	0.1	0	0.5	308133.54	6240718.61	No	12508261	1 x Ku
DA\06	Sag	Surface Inlet Pits	Trench Grate	15	1.6	16.5	0.1	0	0.5	308105.77	6240722.17	No	12508260	1 x Ku
DA\05	Sag	Surface Inlet Pits	Trench Grate	15	1.5	16.5	0.1	0	0.5	308085.93	6240724.73	No	12508259	1 x Ku
DA\04	Sag	Surface Inlet Pits	Trench Grate	15	1.5	16.42	0.1	0	0.5	308058.16	6240728.25	No	12508258	1 x Ku
DA\03	Sag	Surface Inlet Pits	Trench Grate	15	1.0	16.4	0.1	0	0.5	308022.35	6240732.81	No	12508257	1 x Ku
DA\02	OnGrade	Gross Pollutant T	GPT		3.0	16.363		0	0.3	308021.01	6240732.99	No	12508256	1 x Ku
DA Outlet	Node					16.5		0		307948.46	6240735.801		82738235	
DB\03	Sag	Surface Inlet Pits	Trench Grate	15	4.0	16.44	0.1	0	0.5	308178.67	6240803.56	No	12508268	1 x Ku
DB\02	Sag	Surface Inlet Pits	Trench Grate	15	1.5	16.44	0.1	0	0.5	308174.88	6240773.86	No	12508267	1 x Ku
DB\01	Sag	Surface Inlet Pits	Trench Grate	15	1.1	16.44	0.1	0	0.5	308171.08	6240744.10	No	12508266	1 x Ku
DC\03	Sag	Surface Inlet Pits	Trench Grate	15	4.0	16.42	0.1	0	0.5	308144.95	6240807.92	No	12508271	1 x Ku
DC\02	Sag	Surface Inlet Pits	Trench Grate	15	1.5	16.42	0.1	0	0.5	308141.15	6240778.16	No	12508270	1 x Ku
DC\01	Sag	Surface Inlet Pits	Trench Grate	15	1.1	16.42	0.1	0	0.5	308137.35	6240748.40	No	12508269	1 x Ku
DD\03	Sag	Surface Inlet Pits	Trench Grate	15	4.0	16.42	0.1	0	0.5	308122.15	6240629.37	No	12508274	1 x Ku
DD\02	Sag	Surface Inlet Pits	Trench Grate	15	1.5	16.42	0.1	0	0.5	308125.95	6240659.13	No	12508273	1 x Ku
DD\01	Sag	Surface Inlet Pits	Trench Grate	15	1.1	16.42	0.1	0	0.5	308129.75	6240688.89	No	12508272	1 x Ku
DE\03	Sag	Surface Inlet Pits	Trench Grate	15	4.0	16.5	0.1	0	0.5	308117.18	6240811.47	No	12508277	1 x Ku
DE\02	Sag	Surface Inlet Pits	Trench Grate	15	1.6	16.5	0.1	0	0.5	308113.37	6240781.71	No	12508276	1 x Ku
DE\01	Sag	Surface Inlet Pits	Trench Grate	15	1.4	16.5	0.1	0	0.5	308109.57	6240751.95	No	12508275	1 x Ku
DF\03	Sag	Surface Inlet Pits	Trench Grate	15	4.0	16.5	0.1	0	0.5	308094.37	6240632.92	No	12508280	1 x Ku
DF\02	Sag	Surface Inlet Pits	Trench Grate	15	1.6	16.5	0.1	0	0.5	308098.17	6240662.68	No	12508279	1 x Ku
DF\01	Sag	Surface Inlet Pits	Trench Grate	15	1.4	16.5	0.1	0	0.5	308101.97	6240692.43	No	12508278	1 x Ku
DG\03	Sag	Surface Inlet Pits	Trench Grate	15	4.0	16.5	0.1	0	0.5	308097.34	6240814.00	No	12508283	1 x Ku
DG\02	Sag	Surface Inlet Pits	Trench Grate	15	1.6	16.5	0.1	0	0.5	308093.53	6240784.21	No	12508282	1 x Ku
DG\01	Sag	Surface Inlet Pits	Trench Grate	15	1.4	16.5	0.1	0	0.5	308089.73	6240754.42	No	12508281	1 x Ku
DH\03	Sag	Surface Inlet Pits	Trench Grate	15	4.0	16.5	0.1	0	0.5	308074.53	6240635.45	No	12508286	1 x Ku
DH\02	Sag	Surface Inlet Pits	Trench Grate	15	1.6	16.5	0.1	0	0.5	308078.33	6240665.17	No	12508285	1 x Ku
DH\01	Sag	Surface Inlet Pits	Trench Grate	15	1.4	16.5	0.1	0	0.5	308082.13	6240694.92	No	12508284	1 x Ku
DJ\03	Sag	Surface Inlet Pits	Trench Grate	15	4.0	16.42	0.1	0	0.5	308069.56	6240817.52	No	12508289	1 x Ku
DJ\02	Sag	Surface Inlet Pits	Trench Grate	15	1.5	16.42	0.1	0	0.5	308065.76	6240787.79	No	12508288	1 x Ku
DJ\01	Sag	Surface Inlet Pits	Trench Grate	15	1.4	16.42	0.1	0	0.5	308061.96	6240757.99	No	12508287	1 x Ku
DK\03	Sag	Surface Inlet Pits	Trench Grate	15	4.0	16.42	0.1	0	0.5	308046.76	6240639.00	No	12508292	1 x Ku
DK\02	Sag	Surface Inlet Pits	Trench Grate	15	1.5	16.42	0.1	0	0.5	308050.56	6240668.76	No	12508291	1 x Ku
DK\01	Sag	Surface Inlet Pits	Trench Grate	15	1.4	16.42	0.1	0	0.5	308054.36	6240698.52	No	12508290	1 x Ku
DL\03	Sag	Surface Inlet Pits	Trench Grate	15	4.0	16.4	0.1	0	0.5	308033.76	6240822.11	No	12508295	1 x Ku
DL\02	Sag	Surface Inlet Pits	Trench Grate	15	1.6	16.4	0.1	0	0.5	308029.95	6240792.34	No	12508294	1 x Ku
DL\01	Sag	Surface Inlet Pits	Trench Grate	15	1.4	16.4	0.1	0	0.5	308026.15	6240762.58	No	12508293	1 x Ku
DM\03	Sag	Surface Inlet Pits	Trench Grate	15	9.0	16.4	0.1	0	0.5	308010.95	6240643.57	No	12508298	1 x Ku
DM\02	Sag	Surface Inlet Pits	Trench Grate	15	1.6	16.4	0.1	0	0.5	308014.74	6240673.25	No	12508297	1 x Ku
DM\01	Sag	Surface Inlet Pits	Trench Grate	15	1.4	16.4	0.1	0	0.5	308018.55	6240703.09	No	12508296	1 x Ku
EA\11	Sag	Surface Inlet Pits	Trench Grate	30	4.0	16.44	0.1	0	0.5	308129.27	6240416.76	No	12508310	1 x Ku
EA\10	Sag	Surface Inlet Pits	Trench Grate	15	1.5	16.44	0.1	0	0.5	308133.07	6240446.51	No	12508309	1 x Ku
EA\09	Sag	Surface Inlet Pits	Trench Grate	15	1.1	16.44	0.1	0	0.5	308136.87	6240476.27	No	12508308	1 x Ku
EA\08	Sag	Surface Inlet Pits	Trench Grate	15	1.2	16.44	0.1	0	0.5	308140.67	6240506.03	No	12508307	1 x Ku
EA\07	Sag	Surface Inlet Pits	Trench Grate	15	2.0	16.42	0.1	0	0.5	308106.95	6240510.34	No	12508306	1 x Ku
EA\06	Sag	Surface Inlet Pits	Trench Grate	15	1.6	16.5	0.1	0	0.5	308079.17	6240513.88	No	12508305	1 x Ku
EA\05	Sag	Surface Inlet Pits	Trench Grate	15	1.5	16.5	0.1	0	0.5	308059.33	6240516.36	No	12508304	1 x Ku
EA\04	Sag	Surface Inlet Pits	Trench Grate	15	1.5	16.42	0.1	0	0.5	308031.56	6240519.97	No	12508303	1 x Ku
EA\03	Sag	Surface Inlet Pits	Trench Grate	15	1.0	16.4	0.1	0	0.5	307995.76	6240524.57	No	12508302	1 x Ku
EA\02	OnGrade	Gross Pollutant T	GPT		3.0	16.363		0	0.3	307994.41	6240524.68	No	12508301	1 x Ku
EA Outlet	Node					16.5		0		307928.29	6240533.990		63490708	
EB\03	Sag	Surface Inlet Pits	Trench Grate	15	4.0	16.44	0.1	0	0.5	308152.07	6240595.31	No	12508313	1 x Ku
EB\02	Sag	Surface Inlet Pits	Trench Grate	15	1.5	16.44	0.1	0	0.5	308148.27	6240565.55	No	12508312	1 x Ku
EB\01	Sag	Surface Inlet Pits	Trench Grate	15	1.1	16.44	0.1	0	0.5	308144.47	6240535.79	No	12508311	1 x Ku
EC\03	Sag	Surface Inlet Pits	Trench Grate	15	4.0	16.42	0.1	0	0.5	308118.35	6240599.61	No	12508316	1 x Ku
EC\02	Sag	Surface Inlet Pits	Trench Grate	15	1.5	16.42	0.1	0	0.5	308114.55	6240569.85	No	12508315	1 x Ku
EC\01	Sag	Surface Inlet Pits	Trench Grate	15	1.1	16.42	0.1	0	0.5	308110.74	6240540.07	No	12508314	1 x Ku
ED\03	Sag	Surface Inlet Pits	Trench Grate	30	4.0	16.42	0.1	0	0.5	308095.54	6240421.06	No	12508319	1 x Ku
ED\02	Sag	Surface Inlet Pits	Trench Grate	15	1.5	16.42	0.1	0	0.5	308099.35	6240450.82	No	12508318	1 x Ku
ED\01	Sag	Surface Inlet Pits	Trench Grate	15	1.1	16.42	0.1	0	0.5	308103.15	6240480.58	No	12508317	1 x Ku
EE\03	Sag	Surface Inlet Pits	Trench Grate	15	4.0	16.5	0.1	0	0.5	308090.57	6240603.12	No	12508322	1 x Ku
EE\02	Sag	Surface Inlet Pits	Trench Grate	15	1.6	16.5	0.1	0	0.5	308086.77	6240573.40	No	12508321	1 x Ku
EE\01	Sag	Surface Inlet Pits	Trench Grate	15	1.4	16.5	0.1	0	0.5	308082.97	6240543.64	No	12508320	1 x Ku
EF\03	Sag	Surface Inlet Pits	Trench Grate	15	4.0	16.5	0.1	0	0.5	308067.77	6240424.61	No	12508325	1 x Ku
EF\02	Sag	Surface Inlet Pits	Trench Grate	15	1.6	16.5	0.1	0	0.5	308071.57	6240454.37	No	12508324	1 x Ku
EF\01	Sag	Surface Inlet Pits	Trench Grate	15	1.4	16.5	0.1	0	0.5	308075.37	6240484.13	No	12508323	1 x Ku
EG\03	Sag	Surface Inlet Pits	Trench Grate	15	4.0	16.5	0.1	0	0.5	308070.73	6240605.65	No	12508328	1 x Ku
EG\02	Sag	Surface Inlet Pits	Trench Grate	15	1.6	16.5	0.1	0	0.5	308066.93	6240575.93	No	12508327	1 x Ku
EG\01	Sag	Surface Inlet Pits	Trench Grate	15	1.4	16.5	0.1	0	0.5	308063.13	6240546.18	No	12508326	1 x Ku
EH\03	Sag	Surface Inlet Pits	Trench Grate	15	4.0	16.5	0.1	0	0.5	308047.93	6240427.14	No	12508331	1 x Ku
EH\02	Sag	Surface Inlet Pits	Trench Grate	15	1.6	16.5	0.1	0	0.5	308051.73	6240456.90	No	12508330	1 x Ku
EH\01	Sag	Surface Inlet Pits	Trench Grate	15	1.4	16.5	0.1	0	0.5	308055.53	6240486.66	No	12508329	1 x Ku
EJ\03	Sag	Surface Inlet Pits	Trench Grate	15	4.0	16.42	0.1	0	0.5	308042.96	6240609.24	No	12508334	1 x Ku
EJ\02	Sag	Surface Inlet Pits	Trench Grate	15	1.5	16.42	0.1	0	0.5	308039.16	6240579.48	No	12508333	1 x Ku
EJ\01	Sag	Surface Inlet Pits	Trench Grate	15	1.4	16.42	0.1	0	0.5	308035.36	6240549.72	No	12508332	1 x Ku
EK\03	Sag	Surface Inlet Pits	Trench Grate	30	4.0	16.42	0.1	0	0.5	308020.15	6240430.65	No	12508337	1 x Ku
EK\02	Sag	Surface Inlet Pits	Trench Grate	15	1.5	16.42	0.1	0	0.5	308023.96	6240460.45	No	12508336	1 x Ku
EK\01	Sag	Surface Inlet Pits	Trench Grate	15	1.4	16.42	0.1	0	0.5	308027.75	6240490.17	No	12508335	1 x Ku
EL\03	Sag	Surface Inlet Pits	Trench Grate	15	4.0	16.4	0.1	0	0.5	308007.14	6240613.73	No	12508340	1 x Ku
EL\02	Sag	Surface Inlet Pits	Trench Grate	15	1.6	16.4	0.1	0	0.5	308003.34	6240583.97	No	12508339	1 x Ku
EL\01	Sag	Surface Inlet Pits	Trench Grate	15	1.4	16.4	0.1	0	0.5	307999.54	6240554.22	No	12508338	1 x Ku
EM\03	Sag	Surface Inlet Pits	Trench Grate	15	9.0	16.4	0.1	0	0.5	307984.34	6240435.18	No	12508343	1 x Ku
EM\02	Sag	Surface Inlet Pits	Trench Grate	15	1.6	16.4	0.1	0	0.5	307988.14	6240464.94	No	12508342	1 x Ku
EM\01	Sag	Surface Inlet Pits	Trench Grate	15	1.4	16.4	0.1	0	0.5	307991.94	6240494.70	No	12508341	1 x Ku
O CA\02	Node					15.872		0		308052.61	6240946.303		12508348	
O DA\02	Node					15.872		0		308026.01	6240737.995		12508350	
Dummy Pit	OnGrade	Surface Inlet Pits	Unlimited Entry Pit		1.5	16.5		0	0.3	308056.36	6241348.04	No	12508876	1 x Ku
Channel1	Node					16		0		308059.66	6241393.987		18018004	
N60922	Node							0		307769.42	6241322.256		18017974	
N60923	Node					15		0		307547.46	6241114.390		18017975	

HW Moore	Headwall				0.5	14.2		0		307698.20	6241217.700		18017976	
Full Existing	Node					16		0		307600.08	6241260.808		18017979	
N60936	Node							0		308423.90	6241280.100		18018008	
Moore HW	Headwall				0.5	14.2		0		308053.08	6241550.898		18018021	
P Georges R	Node					16		0		307944.47	6241553.756		18018035	
N98596	Node							0		308136.67	6241627.350		36081885	
N103004	Node							0		308020.33	6241500.025		43098404	
N147106	Node					16.4		0		308034.88	6241211.105		63827506	
HW4	Headwall				0.5	14.2		0		307707.26	6241440.006		63827547	
Ex Georges R	Node					16		0		307604.37	6241484.306		63827550	
N147129	Node							0		307795.85	6241416.428		63827554	
N147132	Node							0		307795.85	6241545.753		63827566	
Carpark HW	Headwall				0.5	14.7		0		307921.59	6241236.948		64604924	
Pr Carpark Junc	Sag	Surface Inlet Pits	Surface Inlet Pit 900x900	5	1.5	14.55	0.1	0	0.5	307981.63	6241325.76	No	64604927	1 x Ku
F\03	Sag	Surface Inlet Pits	Surface Inlet Pit 900x900	15	1.0	14.4	0.1	0	0.5	308077.92	6241321.98	No	129747956	1 x Ku
F\02	Sag	Surface Inlet Pits	Surface Inlet Pit 900x900	15	2.5	14.5	0.15	0	0.5	308088.86	6241401.64	No	129747955	1 x Ku
Channel2	Node					16		0		308077.85	6241400.208		79918486	
Prop Carpark Node	Node					15		0		307851.13	6241236.948		64605377	
HW46	Headwall				0.5	14.7		0		307625.86	6241093.550		65725035	
Pit144889	OnGrade	Surface Inlet Pits	Surface Inlet Pit 900x900		1.5	14.55		0	0.3	307719.14	6241116.37	No	65725059	1 x Ku
N159649	Node					16		0		307716.17	6241191.299		65725084	
HW57	Headwall				0.5	14.7		0		307592.62	6241333.704		65725114	
Pit144901	OnGrade	Surface Inlet Pits	Surface Inlet Pit 900x900		1.5	14.55		0	0.3	307686.40	6241342.13	No	65725140	1 x Ku
Ex Existing Channe	Node					16		0		307700.79	6241394.238		63827558	
EX Carpark Node	Node					15		0		307522.16	6241331.223		65725181	
N214245	Node							0		308237.66	6240484.235		79909199	
N214246	Node							0		308247.18	6240590.816		79909200	
N214247	Node							0		308259.09	6240715.854		79909201	
N214248	Node							0		308271.60	6240836.129		79909202	
N214249	Node							0		308285.89	6240998.084		79909203	
N214250	Node							0		308300.77	6241177.306		79909204	
N214256	Node							0		308275.45	6241269.223		79909248	
N214257	Node							0		308192.75	6241338.424		79909250	
N304196	Node							0		308102.63	6241414.796		104333901	
AA\06	OnGrade	Standard Pits	1.8m lintel		4.0	15.988		0	0.3	308132.48	6241320.76	No	129747765	1 x Ku
AA\05	Sag	Surface Inlet Pits	Surface Inlet Pit 1200x1200	15	2.0	16.27	0.15	0	0.5	308126.72	6241278.53	No	129747764	1 x Ku
AA\04	Sag	Surface Inlet Pits	Surface Inlet Pit 1200x1200	15	2.0	16.264	0.15	0	0.5	308120.86	6241235.58	No	129747763	1 x Ku
AA\03	Sag	Surface Inlet Pits	Surface Inlet Pit 1200x1200	15	2.0	16.314	0.15	0	0.5	308095.63	6241238.85	No	129747762	1 x Ku
AA\02	OnGrade	Gross Pollutant T	GPT		2.0	16.4		0	0.3	308087.10	6241239.88	No	129747761	1 x Ku
AA Outlet	Node					16.7		0		308031.80	6241231.939		103214619	
AB\02	OnGrade	Standard Pits	1.8m lintel		4.0	15.737		0	0.3	308117.60	6241340.94	No	129747767	1 x Ku
AB\01	Sag	Surface Inlet Pits	Surface Inlet Pit 1200x1200	15	2.0	16.318	0.15	0	0.5	308100.73	6241281.80	No	129747766	1 x Ku
BA\11	Sag	Surface Inlet Pits	Surface Inlet Pit 1200x1200	15	4.0	16.44	0.1	0	0.5	308210.09	6241049.62	No	129747778	1 x Ku
BA\10	Sag	Surface Inlet Pits	Surface Inlet Pit 1200x1200	15	1.5	16.44	0.1	0	0.5	308214.78	6241086.32	No	129747777	1 x Ku
BA\09	Sag	Surface Inlet Pits	Surface Inlet Pit 1200x1200	15	1.2	16.5	0.1	0	0.5	308223.08	6241128.02	No	129747776	1 x Ku
BA\08	Sag	Surface Inlet Pits	Surface Inlet Pit 1200x1200	15	2.5	16.5	0.1	0	0.5	308229.17	6241175.69	No	129747775	1 x Ku
BA\07	Sag	Surface Inlet Pits	Surface Inlet Pit 1200x1200	15	2.0	16.446	0.1	0	0.5	308200.11	6241179.40	No	129747774	1 x Ku
BA\06	Sag	Surface Inlet Pits	Surface Inlet Pit 1200x1200	15	2.0	16.393	0.1	0	0.5	308171.04	6241183.13	No	129747773	1 x Ku
BA\05	Sag	Surface Inlet Pits	Surface Inlet Pit 1200x1200	15	2.0	16.339	0.1	0	0.5	308141.98	6241186.83	No	129747772	1 x Ku
BA\04	Sag	Surface Inlet Pits	Surface Inlet Pit 1200x1200	15	1.5	16.326	0.1	0	0.5	308115.92	6241190.15	No	129747771	1 x Ku
BA\03	Sag	Surface Inlet Pits	Surface Inlet Pit 1200x1200	15	0.5	16.286	0.1	0	0.5	308092.64	6241193.16	No	129747770	1 x Ku
BA\02	Sag	Surface Inlet Pits	Surface Inlet Pit 1200x1200	15	0.5	16.4	0.1	0	0.5	308081.32	6241194.60	No	129747769	1 x Ku
BA\01	OnGrade	Gross Pollutant T	GPT		2.0	16.4		0	0.3	308078.84	6241194.88	No	129747922	1 x Ku
BA Outlet	Node					16.7		0		308015.59	6241204.041		12508345	
BB\03	Sag	Surface Inlet Pits	Surface Inlet Pit 1200x1200	15	4.0	16.421	0.1	0	0.5	308176.25	6241053.42	No	129747781	1 x Ku
BB\02	Sag	Surface Inlet Pits	Surface Inlet Pit 1200x1200	15	2.0	16.42	0.1	0	0.5	308181.05	6241090.62	No	129747780	1 x Ku
BB\01	Sag	Surface Inlet Pits	Surface Inlet Pit 1200x1200	15	1.2	16.446	0.1	0	0.5	308194.02	6241131.74	No	129747779	1 x Ku
BC\03	Sag	Surface Inlet Pits	Surface Inlet Pit 1200x1200	15	4.0	16.5	0.1	0	0.5	308148.59	6241057.47	No	129747784	1 x Ku
BC\02	Sag	Surface Inlet Pits	Surface Inlet Pit 1200x1200	15	2.0	16.5	0.1	0	0.5	308153.41	6241095.16	No	129747783	1 x Ku
BC\01	Sag	Surface Inlet Pits	Surface Inlet Pit 1200x1200	15	1.2	16.392	0.1	0	0.5	308164.96	6241135.45	No	129747782	1 x Ku
BD\03	Sag	Surface Inlet Pits	Surface Inlet Pit 1200x1200	15	4.0	16.5	0.1	0	0.5	308128.75	6241060.00	No	129747787	1 x Ku
BD\02	Sag	Surface Inlet Pits	Surface Inlet Pit 1200x1200	15	2.0	16.5	0.1	0	0.5	308133.57	6241097.70	No	129747786	1 x Ku
BD\01	Sag	Surface Inlet Pits	Surface Inlet Pit 1200x1200	15	1.2	16.339	0.1	0	0.5	308135.89	6241139.16	No	129747785	1 x Ku
BE\03	Sag	Surface Inlet Pits	Surface Inlet Pit 1200x1200	15	4.0	16.42	0.1	0	0.5	308100.98	6241063.55	No	129747790	1 x Ku
BE\02	Sag	Surface Inlet Pits	Surface Inlet Pit 1200x1200	15	1.5	16.42	0.1	0	0.5	308105.79	6241101.24	No	129747789	1 x Ku
BE\01	Sag	Surface Inlet Pits	Surface Inlet Pit 1200x1200	15	1.2	16.453	0.1	0	0.5	308113.74	6241162.23	No	129747788	1 x Ku
BF\02	Sag	Surface Inlet Pits	Surface Inlet Pit 1200x1200	15	5.0	16.012	0.1	0	0.5	308096.27	6241158.16	No	129747792	1 x Ku
BF\01	Sag	Surface Inlet Pits	Surface Inlet Pit 1200x1200	15	2.0	15.751	0.1	0	0.5	308077.01	6241160.56	No	129747791	1 x Ku
BG\02	Sag	Surface Inlet Pits	Surface Inlet Pit 1200x1200	15	2.0	16.4	0.1	0	0.5	308065.17	6241068.10	No	129747794	1 x Ku
BG\01	Sag	Surface Inlet Pits	Surface Inlet Pit 1200x1200	15	2.0	16.4	0.1	0	0.5	308070.24	6241107.83	No	129747793	1 x Ku
F\21	Sag	Surface Inlet Pits	Surface Inlet Pit 500x1000	50	4.0	14.85	0.3	0	0.5	307962.28	6240407.25	No	129747974	1 x Ku
F\20	Sag	Surface Inlet Pits	Surface Inlet Pit 900x900	15	1.1	14.995	0.1	0	0.5	307966.68	6240451.30	No	129747973	1 x Ku
F\19	Sag	Surface Inlet Pits	Surface Inlet Pit 900x900	15	0.6	14.925	0.1	0	0.5	307971.74	6240490.98	No	129747972	1 x Ku
F\18	Sag	Surface Inlet Pits	Surface Inlet Pit 900x900	15	0.6	14.9	0.1	0	0.5	307976.82	6240530.72	No	129747971	1 x Ku
F\17	Sag	Surface Inlet Pits	Surface Inlet Pit 900x900	15	0.6	14.75	0.1	0	0.5	307984.42	6240590.20	No	129747970	1 x Ku
F\16	Sag	Surface Inlet Pits	Surface Inlet Pit 900x900	15	0.6	14.825	0.1	0	0.5	307992.02	6240649.71	No	129747969	1 x Ku
F\15	Sag	Surface Inlet Pits	Surface Inlet Pit 900x900	15	0.5	14.705	0.1	0	0.5	307999.61	6240709.19	No	129747968	1 x Ku
F\14	Sag	Surface Inlet Pits	Surface Inlet Pit 900x900	15	0.5	14.686	0.1	0	0.5	308007.23	6240768.82	No	129747967	1 x Ku
F\13	Sag	Surface Inlet Pits	Surface Inlet Pit 900x900	15	0.5	14.525	0.1	0	0.5	308017.35	6240848.12	No	129747966	1 x Ku
F\12	Sag	Surface Inlet Pits	Surface Inlet Pit 900x900	15	0.5	14.475	0.1	0	0.5	308027.49	6240927.46	No	129747965	1 x Ku
F\11	Sag	Surface Inlet Pits	Surface Inlet Pit 900x900	15	0.4	14.55	0.1	0	0.5	308035.09	6240986.98	No	129747964	1 x Ku
F\10	Sag	Surface Inlet Pits	Surface Inlet Pit 900x900	15	0.4	14.525	0.1	0	0.5	308040.16	6241026.67	No	129747963	1 x Ku
F\09	Sag	Surface Inlet Pits	Surface Inlet Pit 900x900	15	0.0	14.5	0.1	0	0.5	308045.22	6241066.33	No	129747962	1 x Ku
F\08	Sag	Surface Inlet Pits	Surface Inlet Pit 900x900	15	0.4	14.475	0.1	0	0.5	308050.28	6241105.94	No	129747961	1 x Ku
F\07	Sag	Surface Inlet Pits	Surface Inlet Pit 900x900	15	0.4	14.45	0.1	0	0.5	308055.43	6241146.26	No	129747960	1 x Ku
F\06	Sag	Surface Inlet Pits	Surface Inlet Pit 900x900	15	0.4	14.431	0.1	0	0.5	308060.16	6241183.24	No	129747959	1 x Ku
F\05	Sag	Surface Inlet Pits	Surface Inlet Pit 900x900	15	0.4	14.4	0.1	0	0.5	308065.04	6241222.31	No	129747958	1 x Ku
F\04	Sag	Surface Inlet Pits	Surface Inlet Pit 900x900	15	0.4	14.369	0.1	0	0.5	308071.48	6241271.88	No	129747957	1 x Ku

DETENTION BASIN DETAILS

Name	Elev	Surf. Area	Not Used	Outlet Type	K	Dia(mm)	Centre RL	Pit Family	Pit Type	x	y	HED	Crest RL	Crest Length
Stage1	13.499	0		None						308048.66	6241246.44	No		
	13.5	4386												
	15	4386												
	15.01	7017												
	15.5	7017												
	16	7017												
	16.01	1												
	20	1												

SUB-CATCHMENT DETAILS

Name	Pit or Node	Total Area (ha)	Paved Area %	Grass Area %	Supp Area %	Paved Time (min)	Grass Time (min)	Supp Time (min)	Paved Length (m)	Grass Length (m)	Supp Length (m)	Paved Slope(%)	Grass Slope %	Supp Slope %
C CA\11	CA\11	0.1008	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C CA\10	CA\10	0.1008	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C CA\09	CA\09	0.1008	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C CA\08	CA\08	0.1008	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C CA\07	CA\07	0.1080	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C CA\06	CA\06	0.0600	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C CA\05	CA\05	0.0600	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C CA\04	CA\04	0.1080	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C CA\03	CA\03	0.0618	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C CB\03	CB\03	0.1008	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C CB\02	CB\02	0.1008	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C CB\01	CB\01	0.1008	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C CC\03	CC\03	0.1080	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C CC\02	CC\02	0.1080	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C CC\01	CC\01	0.1080	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C CD\03	CD\03	0.1080	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C CD\02	CD\02	0.1080	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C CD\01	CD\01	0.1080	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C CE\03	CE\03	0.0600	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C CE\02	CE\02	0.0600	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C CE\01	CE\01	0.0600	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C CF\03	CF\03	0.0600	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C CF\02	CF\02	0.0600	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C CF\01	CF\01	0.0600	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C CG\03	CG\03	0.0600	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C CG\02	CG\02	0.0600	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C CG\01	CG\01	0.0600	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C CH\03	CH\03	0.0600	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C CH\02	CH\02	0.0600	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C CH\01	CH\01	0.0600	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C CJ\03	CJ\03	0.1080	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C CJ\02	CJ\02	0.1080	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C CJ\01	CJ\01	0.1080	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C CK\03	CK\03	0.1080	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C CK\02	CK\02	0.1080	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C CK\01	CK\01	0.1080	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C CL\03	CL\03	0.0618	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C CL\02	CL\02	0.0618	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C CL\01	CL\01	0.0618	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C CM\03	CM\03	0.0618	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C CM\02	CM\02	0.0618	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C CM\01	CM\01	0.0618	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C DA\11	DA\11	0.1008	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C DA\10	DA\10	0.1008	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C DA\09	DA\09	0.1008	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C DA\08	DA\08	0.1008	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C DA\07	DA\07	0.1080	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C DA\06	DA\06	0.0600	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1

C DA\05	DA\05	0.0600	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C DA\04	DA\04	0.1080	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C DA\03	DA\03	0.0618	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C DB\03	DB\03	0.1008	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C DB\02	DB\02	0.1008	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C DB\01	DB\01	0.1008	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C DC\03	DC\03	0.1080	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C DC\02	DC\02	0.1080	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C DC\01	DC\01	0.1080	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C DD\03	DD\03	0.1080	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C DD\02	DD\02	0.1080	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C DD\01	DD\01	0.1080	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C DE\03	DE\03	0.0600	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C DE\02	DE\02	0.0600	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C DE\01	DE\01	0.0600	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C DF\03	DF\03	0.0600	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C DF\02	DF\02	0.0600	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C DF\01	DF\01	0.0600	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C DG\03	DG\03	0.0600	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C DG\02	DG\02	0.0600	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C DG\01	DG\01	0.0600	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C DH\03	DH\03	0.0600	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C DH\02	DH\02	0.0600	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C DH\01	DH\01	0.0600	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C DJ\03	DJ\03	0.1080	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C DJ\02	DJ\02	0.1080	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C DJ\01	DJ\01	0.1080	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C DK\03	DK\03	0.1080	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C DK\02	DK\02	0.1080	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C DK\01	DK\01	0.1080	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C DL\03	DL\03	0.0618	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C DL\02	DL\02	0.0618	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C DL\01	DL\01	0.0618	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C DM\03	DM\03	0.0618	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C DM\02	DM\02	0.0618	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C DM\01	DM\01	0.0618	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C EA\11	EA\11	0.1347	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C EA\10	EA\10	0.1008	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C EA\09	EA\09	0.1008	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C EA\08	EA\08	0.1008	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C EA\07	EA\07	0.1080	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C EA\06	EA\06	0.0600	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C EA\05	EA\05	0.0600	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C EA\04	EA\04	0.1080	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C EA\03	EA\03	0.0618	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C EB\03	EB\03	0.1008	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C EB\02	EB\02	0.1008	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C EB\01	EB\01	0.1008	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C EC\03	EC\03	0.1080	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C EC\02	EC\02	0.1080	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C EC\01	EC\01	0.1080	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C ED\03	ED\03	0.1445	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C ED\02	ED\02	0.1080	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C ED\01	ED\01	0.1080	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C EE\03	EE\03	0.0600	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C EE\02	EE\02	0.0600	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C EE\01	EE\01	0.0600	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C EF\03	EF\03	0.0800	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C EF\02	EF\02	0.0600	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C EF\01	EF\01	0.0600	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C EG\03	EG\03	0.0600	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C EG\02	EG\02	0.0600	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C EG\01	EG\01	0.0600	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C EH\03	EH\03	0.0800	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C EH\02	EH\02	0.0600	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C EH\01	EH\01	0.0600	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C EJ\03	EJ\03	0.1080	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C EJ\02	EJ\02	0.1080	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C EJ\01	EJ\01	0.1080	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C EK\03	EK\03	0.1441	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C EK\02	EK\02	0.1080	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C EK\01	EK\01	0.1080	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C EL\03	EL\03	0.0618	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C EL\02	EL\02	0.0618	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C EL\01	EL\01	0.0618	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C EM\03	EM\03	0.0361	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C EM\02	EM\02	0.0618	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C EM\01	EM\01	0.0618	100.0	0.0	0.0	0	10	0	10	0	0	1	1	1
C OSD 2	Stage1	0.1140	0.0	100.0	0.0	5	1	0						
CatchC1Ex	N60922	2.4310	81.8	18.2	-0.0	7	7	0						
CatchCEx	HW Moore	39.9000	60.7	39.3	0.0	25	30	0						
Eastern Swale	N60936	9.7500	100.0	0.0	0.0	10	0	0						
CatC1Ex	N98596	2.4310	81.8	18.2	-0.0	7	7	0						
CatCEx Remaining	N103004	12.2900	60.7	39.3	0.0	10	15	0						
C OSD 1	N147106	0.5750	0.0	100.0	0.0	5	1	0						
Existing Remaing	HW4	12.2900	60.7	39.3	0.0	12	15	5						
Existing S1	N147129	27.6100	60.9	39.1	0.0	15	20	5						
CatC1	N147132	2.4310	81.8	18.2	-0.0	7	7	0						
Pr Carpark	Carpark HW	2.0850	100.0	0.0	0.0	5	0	0						
C F\03	F\03	0.1019	40.0	60.0	0.0	5	5	0						
C F\02	F\02	0.2304	90.0	10.0	0.0	5	10	0						
Cat Carpark Ex	HW46	2.0850	100.0	0.0	0.0	5	0	0						
Ex Carpark	HW57	2.0850	100.0	0.0	0.0	5	0	0						
Cat 1	N214245	0.2390	0.0	100.0	0.0	5	6	0						
Cat 2	N214246	0.6000	7.5	92.5	0.0	4	6	0						
Cat 3	N214247	0.4840	41.0	59.0	0.0	4	6	0						
Cat 4	N214248	0.3480	9.5	90.5	0.0	4	6	0						
Cat 5	N214249	1.8000	26.5	73.5	0.0	4	6	0						
Cat 6	N214250	1.2100	34.0	66.0	0.0	4	6	0						
Cat 7	N214256	1.1400	52.0	48.0	0.0	4	6	0						
ES Cat 8	N214257	2.3100	35.0	65.0	0.0	4	8	0						
ES Cat 9	N304196	1.6120	60.7	39.3	0.0	8	12	0						
C AA\06	AA\06	0.0331	100.0	0.0	0.0	4	10	0	17.5	0	0	1	1	1
C AA\05	AA\05	0.1456	100.0	0.0	0.0	4	10	0	17.5	0	0	1	1	1
C AA\04	AA\04	0.1631	100.0	0.0	0.0	4	10	0	17.5	0	0	1	1	1
C AA\03	AA\03	0.0853	100.0	0.0	0.0	4	10	0	17.5	0	0	1	1	1
C AB\02	AB\02	0.0453	100.0	0.0	0.0	5	10	0	17.5	0	0	1	1	1
C AB\01	AB\01	0.0858	100.0	0.0	0.0	4	10	0	17.5	0	0	1	1	1
C BA\11	BA\11	0.1661	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C BA\10	BA\10	0.1148	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C BA\09	BA\09	0.1527	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C BA\08	BA\08	0.1528	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C BA\07	BA\07	0.1408	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C BA\06	BA\06	0.1408	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C BA\05	BA\05	0.1408	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C BA\04	BA\04	0.1157	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C BA\03	BA\03	0.1296	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C BB\03	BB\03	0.1651	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C BB\02	BB\02	0.1149	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C BB\01	BB\01	0.1408	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C BC\03	BC\03	0.0924	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C BC\02	BC\02	0.0686	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C BC\01	BC\01	0.1408	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C BD\03	BD\03	0.0918	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C BD\02	BD\02	0.0690	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C BD\01	BD\01	0.1401	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C BE\03	BE\03	0.1657	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C BE\02	BE\02	0.1136	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C BF\02	BF\02	0.0821	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C BF\01	BF\01	0.1355	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C BG\02	BG\02	0.0950	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C BG\01	BG\01	0.0668	100.0	0.0	0.0	0	10	0	17.5	0	0	1	1	1
C F\21	F\21	0.7998	0.0	100.0	0.0	5	7	0						
C F\20	F\20	0.1835	40.0	60.0	0.0	5	5	0						
C F\19	F\19	0.0824	90.0	10.0	0.0	5	10	0						
C F\18	F\18	0.0834	40.0	60.0	0.0	5	5	0						
C F\17	F\17	0.1652	90.0	10.0	0.0	5	10	0						
C F\16	F\16	0.0825	40.0	60.0	0.0	5	5	0						
C F\15	F\15	0.1636	40.0	60.0	0.0	5	5	0						
C F\14	F\14	0.1220	40.0	60.0	0.0	5	5	0						
C F\13	F\13	0.1621	40.0	60.0	0.0	5	5	0						
C F\12	F\12	0.1627	40.0	60.0	0.0	5	5	0						
C F\11	F\11	0.0811	40.0	60.0	0.0	5	5	0						
C F\10	F\10	0.0806	40.0	60.0	0.0	5	5	0						
C F\09	F\09	0.0808	40.0	60.0	0.0	5	5	0						
C F\08	F\08	0.0814	40.0	60.0	0.0	5	5	0						
C F\07	F\07	0.0853	40.0	60.0	0.0	5	5	0						
C F\06	F\06	0.0940	40.0	60.0	0.0	5	5	0						
C F\05	F\05	0.0903	40.0	60.0	0.0	5	5	0						
C F\04	F\04	0.1005	40.0	60.0	0.0	5	5	0						
PIPE DETAILS														

Name	From	To	Length	U/S IL	D/S IL	Slope	Type	Dia	I.D.	Rough	Pipe Is	No. Pipes	Chg From	At Chg
			(m)	(m)	(m)	(%)		(mm)	(mm)					
P CA\11	CA\11	CA\10	30.001	15.530	15.230	1.00	RCP Class 2	375	375	0.3	New	1	CA\11	0
P CA\10	CA\10	CA\09	30	15.210	14.910	1.00	RCP Class 2	450	450	0.3	New	1	CA\10	0
P CA\09	CA\09	CA\08	30	14.890	14.590	1.00	RCP Class 2	525	525	0.3	New	1	CA\09	0
P CA\08	CA\08	CA\07	34	14.570	14.230	1.00	Box Culverts	1.5W x 0.6H		0.3	NewFixed	1	CA\08	0
P CA\07	CA\07	CA\06	28	14.210	14.070	0.50	Box Culverts	1.5W x 0.6H		0.3	NewFixed	1	CA\07	0
P CA\06	CA\06	CA\05	20.001	14.050	13.950	0.50	Box Culverts	1.5W x 0.9H		0.3	NewFixed	1	CA\06	0
P CA\05	CA\05	CA\04	28	13.930	13.790	0.50	Box Culverts	1.5W x 0.9H		0.3	NewFixed	1	CA\05	0
P CA\04	CA\04	CA\03	36.096	13.770	13.590	0.50	Box Culverts	1.5W x 1.2H		0.3	NewFixed	1	CA\04	0
P CA\03	CA\03	CA\02	6	13.570	13.563	0.12	Box Culverts	1.5W x 1.2H		0.3	NewFixed	1	CA\03	0
P CA\02	CA\02	CA Outlet	6	13.543	13.500	0.72	Box Culverts	1.5W x 1.2H		0.3	NewFixed	1	CA\02	0
P CB\03	CB\03	CB\02	30	15.530	15.230	1.00	RCP Class 2	375	375	0.3	New	1	CB\03	0
P CB\02	CB\02	CB\01	30	15.210	14.910	1.00	RCP Class 2	450	450	0.3	New	1	CB\02	0
P CB\01	CB\01	CA\08	30.001	14.890	14.590	1.00	RCP Class 2	525	525	0.3	New	1	CB\01	0
P CC\03	CC\03	CC\02	30	15.510	15.210	1.00	RCP Class 2	375	375	0.3	New	1	CC\03	0
P CC\02	CC\02	CC\01	30	15.190	14.890	1.00	RCP Class 2	450	450	0.3	New	1	CC\02	0
P CC\01	CC\01	CA\07	30.001	14.870	14.570	1.00	RCP Class 2	525	525	0.3	New	1	CC\01	0
P CD\03	CD\03	CD\02	30.001	15.510	15.210	1.00	RCP Class 2	375	375	0.3	New	1	CD\03	0
P CD\02	CD\02	CD\01	30	15.190	14.890	1.00	RCP Class 2	450	450	0.3	New	1	CD\02	0
P CD\01	CD\01	CA\07	30	14.870	14.570	1.00	RCP Class 2	525	525	0.3	New	1	CD\01	0
P CE\03	CE\03	CE\02	30	15.590	15.290	1.00	RCP Class 2	375	375	0.3	New	1	CE\03	0
P CE\02	CE\02	CE\01	30	15.270	14.970	1.00	RCP Class 2	375	375	0.3	New	1	CE\02	0
P CE\01	CE\01	CA\06	30.001	14.950	14.650	1.00	RCP Class 2	375	375	0.3	New	1	CE\01	0
P CF\03	CF\03	CF\02	30	15.590	15.290	1.00	RCP Class 2	375	375	0.3	New	1	CF\03	0
P CF\02	CF\02	CF\01	30	15.270	14.970	1.00	RCP Class 2	375	375	0.3	New	1	CF\02	0
P CF\01	CF\01	CA\06	30	14.950	14.650	1.00	RCP Class 2	375	375	0.3	New	1	CF\01	0
P CG\03	CG\03	CG\02	30	15.590	15.290	1.00	RCP Class 2	375	375	0.3	New	1	CG\03	0
P CG\02	CG\02	CG\01	30.001	15.270	14.970	1.00	RCP Class 2	375	375	0.3	New	1	CG\02	0
P CG\01	CG\01	CA\05	30	14.950	14.650	1.00	RCP Class 2	375	375	0.3	New	1	CG\01	0
P CH\03	CH\03	CH\02	30	15.590	15.290	1.00	RCP Class 2	375	375	0.3	New	1	CH\03	0
P CH\02	CH\02	CH\01	30.001	15.270	14.970	1.00	RCP Class 2	375	375	0.3	New	1	CH\02	0
P CH\01	CH\01	CA\05	30	14.950	14.650	1.00	RCP Class 2	375	375	0.3	New	1	CH\01	0
P CJ\03	CJ\03	CJ\02	30	15.510	15.210	1.00	RCP Class 2	375	375	0.3	New	1	CJ\03	0
P CJ\02	CJ\02	CJ\01	30.001	15.190	14.890	1.00	RCP Class 2	450	450	0.3	New	1	CJ\02	0
P CJ\01	CJ\01	CA\04	30	14.870	14.570	1.00	RCP Class 2	450	450	0.3	New	1	CJ\01	0
P CK\03	CK\03	CK\02	30.001	15.510	15.210	1.00	RCP Class 2	375	375	0.3	New	1	CK\03	0
P CK\02	CK\02	CK\01	30	15.190	14.890	1.00	RCP Class 2	450	450	0.3	New	1	CK\02	0
P CK\01	CK\01	CA\04	30	14.870	14.570	1.00	RCP Class 2	450	450	0.3	New	1	CK\01	0
P CL\03	CL\03	CL\02	30.001	15.790	15.490	1.00	RCP Class 2	375	375	0.3	New	1	CL\03	0
P CL\02	CL\02	CL\01	30	15.470	15.170	1.00	RCP Class 2	375	375	0.3	New	1	CL\02	0
P CL\01	CL\01	CA\03	30	15.150	14.850	1.00	RCP Class 2	375	375	0.3	New	1	CL\01	0
P CM\03	CM\03	CM\02	30	15.790	15.490	1.00	RCP Class 2	375	375	0.3	New	1	CM\03	0
P CM\02	CM\02	CM\01	30	15.470	15.170	1.00	RCP Class 2	375	375	0.3	New	1	CM\02	0
P CM\01	CM\01	CA\03	30.001	15.150	14.850	1.00	RCP Class 2	375	375	0.3	New	1	CM\01	0
P DA\11	DA\11	DA\10	30.001	15.530	15.230	1.00	RCP Class 2	375	375	0.3	New	1	DA\11	0
P DA\10	DA\10	DA\09	30	15.210	14.910	1.00	RCP Class 2	450	450	0.3	New	1	DA\10	0
P DA\09	DA\09	DA\08	30	14.890	14.590	1.00	RCP Class 2	525	525	0.3	New	1	DA\09	0
P DA\08	DA\08	DA\07	34	14.570	14.230	1.00	Box Culverts	1.5W x 0.6H		0.3	NewFixed	1	DA\08	0
P DA\07	DA\07	DA\06	28	14.210	14.070	0.50	Box Culverts	1.5W x 0.6H		0.3	NewFixed	1	DA\07	0
P DA\06	DA\06	DA\05	20.001	14.050	13.950	0.50	Box Culverts	1.5W x 0.9H		0.3	NewFixed	1	DA\06	0
P DA\05	DA\05	DA\04	28	13.930	13.790	0.50	Box Culverts	1.5W x 0.9H		0.3	NewFixed	1	DA\05	0
P DA\04	DA\04	DA\03	36.096	13.770	13.590	0.50	Box Culverts	1.5W x 1.2H		0.3	NewFixed	1	DA\04	0
P DA\03	DA\03	DA\02	6	13.570	13.563	0.12	Box Culverts	1.5W x 1.2H		0.3	NewFixed	1	DA\03	0
P DA\02	DA\02	DA Outlet	6	13.543	13.500	0.72	Box Culverts	1.5W x 1.2H		0.3	NewFixed	1	DA\02	0
P DB\03	DB\03	DB\02	30	15.530	15.230	1.00	RCP Class 2	375	375	0.3	New	1	DB\03	0
P DB\02	DB\02	DB\01	30	15.210	14.910	1.00	RCP Class 2	450	450	0.3	New	1	DB\02	0
P DB\01	DB\01	DA\08	30.001	14.890	14.590	1.00	RCP Class 2	525	525	0.3	New	1	DB\01	0
P DC\03	DC\03	DC\02	30	15.510	15.210	1.00	RCP Class 2	375	375	0.3	New	1	DC\03	0
P DC\02	DC\02	DC\01	30	15.190	14.890	1.00	RCP Class 2	450	450	0.3	New	1	DC\02	0
P DC\01	DC\01	DA\07	30.001	14.870	14.570	1.00	RCP Class 2	525	525	0.3	New	1	DC\01	0
P DD\03	DD\03	DD\02	30.001	15.510	15.210	1.00	RCP Class 2	375	375	0.3	New	1	DD\03	0
P DD\02	DD\02	DD\01	30	15.190	14.890	1.00	RCP Class 2	450	450	0.3	New	1	DD\02	0
P DD\01	DD\01	DA\07	30	14.870	14.570	1.00	RCP Class 2	525	525	0.3	New	1	DD\01	0
P DE\03	DE\03	DE\02	30	15.590	15.290	1.00	RCP Class 2	375	375	0.3	New	1	DE\03	0
P DE\02	DE\02	DE\01	30	15.270	14.970	1.00	RCP Class 2	375	375	0.3	New	1	DE\02	0
P DE\01	DE\01	DA\06	30.001	14.950	14.650	1.00	RCP Class 2	375	375	0.3	New	1	DE\01	0
P DF\03	DF\03	DF\02	30	15.590	15.290	1.00	RCP Class 2	375	375	0.3	New	1	DF\03	0
P DF\02	DF\02	DF\01	30	15.270	14.970	1.00	RCP Class 2	375	375	0.3	New	1	DF\02	0
P DF\01	DF\01	DA\06	30	14.950	14.650	1.00	RCP Class 2	375	375	0.3	New	1	DF\01	0
P DG\03	DG\03	DG\02	30	15.590	15.290	1.00	RCP Class 2	375	375	0.3	New	1	DG\03	0
P DG\02	DG\02	DG\01	30.001	15.270	14.970	1.00	RCP Class 2	375	375	0.3	New	1	DG\02	0
P DG\01	DG\01	DA\05	30	14.950	14.650	1.00	RCP Class 2	375	375	0.3	New	1	DG\01	0
P DH\03	DH\03	DH\02	30	15.590	15.290	1.00	RCP Class 2	375	375	0.3	New	1	DH\03	0
P DH\02	DH\02	DH\01	30.001	15.270	14.970	1.00	RCP Class 2	375	375	0.3	New	1	DH\02	0
P DH\01	DH\01	DA\05	30	14.950	14.650	1.00	RCP Class 2	375	375	0.3	New	1	DH\01	0
P DJ\03	DJ\03	DJ\02	30	15.510	15.210	1.00	RCP Class 2	375	375	0.3	New	1	DJ\03	0
P DJ\02	DJ\02	DJ\01	30.001	15.190	14.890	1.00	RCP Class 2	450	450	0.3	New	1	DJ\02	0
P DJ\01	DJ\01	DA\04	30	14.870	14.570	1.00	RCP Class 2	450	450	0.3	New	1	DJ\01	0
P DK\03	DK\03	DK\02	30.001	15.510	15.210	1.00	RCP Class 2	375	375	0.3	New	1	DK\03	0
P DK\02	DK\02	DK\01	30	15.190	14.890	1.00	RCP Class 2	450	450	0.3	New	1	DK\02	0
P DK\01	DK\01	DA\04	30	14.870	14.570	1.00	RCP Class 2	450	450	0.3	New	1	DK\01	0
P DL\03	DL\03	DL\02	30.001	15.790	15.490	1.00	RCP Class 2	375	375	0.3	New	1	DL\03	0
P DL\02	DL\02	DL\01	30	15.470	15.170	1.00	RCP Class 2	375	375	0.3	New	1	DL\02	0
P DL\01	DL\01	DA\03	30	15.150	14.850	1.00	RCP Class 2	375	375	0.3	New	1	DL\01	0
P DM\03	DM\03	DM\02	30	15.790	15.490	1.00	RCP Class 2	375	375	0.3	New	1	DM\03	0
P DM\02	DM\02	DM\01	30	15.470	15.170	1.00	RCP Class 2	375	375	0.3	New	1	DM\02	0
P DM\01	DM\01	DA\03	30.001	15.150	14.850	1.00	RCP Class 2	375	375	0.3	New	1	DM\01	0
P EA\11	EA\11	EA\10	30.001	15.530	15.230	1.00	RCP Class 2	375	375	0.3	New	1	EA\11	0
P EA\10	EA\10	EA\09	30	15.210	14.910	1.00	RCP Class 2	450	450	0.3	New	1	EA\10	0
P EA\09	EA\09	EA\08	30	14.890	14.590	1.00	RCP Class 2	525	525	0.3	New	1	EA\09	0
P EA\08	EA\08	EA\07	34	14.570	14.230	1.00	Box Culverts	1.5W x 0.6H		0.3	NewFixed	1	EA\08	0
P EA\07	EA\07	EA\06	28	14.210	14.070	0.50	Box Culverts	1.5W x 0.9H		0.3	NewFixed	1	EA\07	0
P EA\06	EA\06	EA\05	20.001	14.050	13.950	0.50	Box Culverts	1.5W x 0.9H		0.3	NewFixed	1	EA\06	0
P EA\05	EA\05	EA\04	28	13.930	13.790	0.50	Box Culverts	1.5W x 1.2H		0.3	NewFixed	1	EA\05	0
P EA\04	EA\04	EA\03	36.096	13.770	13.590	0.50	Box Culverts	1.5W x 1.2H		0.3	NewFixed	1	EA\04	0
P EA\03	EA\03	EA\02	6	13.570	13.563	0.12	Box Culverts	1.5W x 1.2H		0.3	NewFixed	1	EA\03	0
P EA\02	EA\02	EA Outlet	6	13.543	13.500	0.72	Box Culverts	1.5W x 1.2H		0.3	NewFixed	1	EA\02	0
P EB\03	EB\03	EB\02	30	15.530	15.230	1.00	RCP Class 2	375	375	0.3	New	1	EB\03	0
P EB\02	EB\02	EB\01	30	15.210	14.910	1.00	RCP Class 2	450	450	0.3	New	1	EB\02	0
P EB\01	EB\01	EA\08	30.001	14.890	14.590	1.00	RCP Class 2	525	525	0.3	New	1	EB\01	0
P EC\03	EC\03	EC\02	30	15.510	15.210	1.00	RCP Class 2	375	375	0.3	New	1	EC\03	0
P EC\02	EC\02	EC\01	30	15.190	14.890	1.00	RCP Class 2	450	450	0.3	New	1	EC\02	0
P EC\01	EC\01	EA\07	30.001	14.870	14.570	1.00	RCP Class 2	525	525	0.3	New	1	EC\01	0
P ED\03	ED\03	ED\02	30.001	15.510	15.210	1.00	RCP Class 2	375	375	0.3	New	1	ED\03	0
P ED\02	ED\02	ED\01	30	15.190	14.890	1.00	RCP Class 2	450	450	0.3	New	1	ED\02	0
P ED\01	ED\01	EA\07	30	14.870	14.570	1.00	RCP Class 2	525	525	0.3	New	1	ED\01	0
P EE\03	EE\03	EE\02	30	15.590	15.290	1.00	RCP Class 2	375	375	0.3	New	1	EE\03	0
P EE\02	EE\02	EE\01	30	15.270	14.970	1.00	RCP Class 2	375	375	0.3	New	1	EE\02	0
P EE\01	EE\01	EA\06	30.001	14.950	14.650	1.00	RCP Class 2	450	450	0.3	New	1	EE\01	0
P EF\03	EF\03	EF\02	30	15.590	15.290	1.00	RCP Class 2	375	375	0.3	New	1	EF\03	0
P EF\02	EF\02	EF\01	30	15.270	14.970	1.00	RCP Class 2	375	375	0.3	New	1	EF\02	0
P EF\01	EF\01	EA\06	30	14.950	14.650	1.00	RCP Class 2	450	450	0.3	New	1	EF\01	0
P EG\03	EG\03	EG\02	30	15.590	15.290	1.00	RCP Class 2	375	375	0.3	New	1	EG\03	0
P EG\02	EG\02	EG\01	30.001	15.270	14.970	1.00	RCP Class 2	375	375	0.3	New	1	EG\02	0
P EG\01	EG\01	EA\05	30	14.950	14.650	1.00	RCP Class 2	450	450	0.3	New	1	EG\01	0
P EH\03	EH\03	EH\02	30	15.590	15.290	1.00	RCP Class 2	375	375	0.3	New	1	EH\03	0
P EH\02	EH\02	EH\01	30.001	15.270	14.970	1.00	RCP Class 2	375	375	0.3	New	1	EH\02	0
P EH\01	EH\01	EA\05	30	14.950	14.650	1.00	RCP Class 2	450	450	0.3	New	1	EH\01	0
P EJ\03	EJ\03	EJ\02	30	15.510	15.210	1.00	RCP Class 2	375	375	0.3	New	1	EJ\03	0
P EJ\02	EJ\02	EJ\01	30.001	15.190	14.890	1.00	RCP Class 2	450	450	0.3	New	1	EJ\02	0
P EJ\01	EJ\01	EA\04	30	14.870	14.570	1.00	RCP Class 2	525	525	0.3	New	1	EJ\01	0
P EK\03	EK\03	EK\02	30.001	15.510	15.210	1.00	RCP Class 2	375	375	0.3	New	1	EK\03	0
P EK\02	EK\02	EK\01	30	15.190	14.890	1.00	RCP Class 2	450	450	0.3	New	1	EK\02	0
P EK\01	EK\01	EA\04	30	14.870	14.570	1.00	RCP Class 2	525	525	0.3	New	1	EK\01	0
P EL\03	EL\03	EL\02	30.001	15.790	15.490	1.00	RCP Class 2	375	375	0.3	New	1	EL\03	0
P EL\02	EL\02	EL\01	30	15.470	15.170	1.00	RCP Class 2	375	375	0.3	New	1	EL\02	0
P EL\01	EL\01	EA\03	30	15.150	14.850	1.00	RCP Class 2	375	375	0.3	New	1	EL\01	0
P EM\03	EM\03	EM\02	30	15.790	15.490	1.00	RCP Class 2	375	375	0.3	New	1	EM\03	0
P EM\02	EM\02	EM\01	30	15.470	15.170	1.00	RCP Class 2	375	375	0.3	New	1	EM\02	0
P EM\01	EM\01	EA\03	30.001	15.150	14.850	1.00	RCP Class 2	375	375	0.3	New	1	EM\01	0
Entrance Culvert	Dummy Pit	Channel1	50	13.500	13.450	0.10	Box Culverts	3.6W x 1.2H		0.3	Existing	2	Dummy Pit	0
Pipe56908	HW Moore	Full Existing	21	11.600	11.390	1.00	Box Culverts	2W x 1.8H		0.3	Existing	1	HW Moore	0
Moore Ave Culvert	Moore HW	P Georges R	21	11.600	11.390	1.00	Box Culverts	2W x 1.8H		0.3	Existing	1	Moore HW	0
Ex Moore Ave Culv	HW4	Ex Georges R	21	11.600	11.390	1.00	Box Culverts	2W x 1.8H		0.3	Existing	1	HW4	0
Pr P Carpark 1	Carpark HW	Pr Carpark Junc	8.77	14.310	13.870	5.02	RCP Class 2	300	300	0.3	NewFixed	1	Carpark HW	0
Pr P Carpark 2	Pr Carpark Junc	F\03	20	13.870	12.541	6.64	RCP Class 2	300	300	0.3	NewFixed	1	Pr Carpark	0
P F\03	F\03	F\02	80.901	12.562	12.400	0.20	Box Culverts	2.4W x 1.2H		0.3	NewFixed	1	F\03	0
P F\02	F\02	Channel2	10	12.400	12.380	0.20	Box Culverts	2.4W x 1.2H		0.3	NewFixed	1	F\02	0
P146094	HW46	Pit144889	8.77	14.310	13.870	5.02	RCP Class 2	300	300	0.3	NewFixed	1	HW46	0
P146107	Pit144889	N159649	23.6	13.620	12.990	2.67	RCP Class 2	300	300	0.3	New	1	Pit144889	0
Ex P Carpark 1	HW57	Pit144901	8.77	14.310	13.870	5.02	RCP Class 2	300	300	0.3	NewFixed	1	HW57	0
Ex P Carpark 2	Pit144901	Ex Existing Chan	23.6	13.620	12.990	2.67	RCP Class 2	300	300	0.3	New	1	Pit144901	0
P AA\06	AA\06	AA\05	42.617	15.088	14.662	1.00	RCP Class 2	375	375	0.3	New	1	AA\06	0
P AA\05	AA\05	AA\04	43.348	14.642	14.208	1.00	RCP Class 2	375	375	0.3	New	1	AA\05	0
P AA\04	AA\04	AA\03	25.439	13.723	13.596	0.50	Box Culverts	2.1W x 1.2H		0.3	NewFixed	1	AA\04	0
P AA\03	AA\03	AA\02	8.592	13.576	13.533	0.50	Box Culverts	2.1W x 1.2H		0.3	NewFixed	1	AA\03	0
P AA\02	AA\02	AA Outlet	10	13.513	13.500	0.13	Box Culverts	2.1W x 1.2H		0.3	NewFixed	1	AA\02	0
P AB\02	AB\02	AB\01	61.496	14.841	14.226	1.00	RCP Class 2	375	375	0.3	New	1	AB\02	0
P AB\01	AB\01	AA\03	43.251	14.206	13.990	0.50	RCP Class 2	375	375	0.3	New	1	AB\01	0
P BA\11	BA\11	BA\10	37	15.530	15.160	1.00	RCP Class 2	375	375	0.3	New	1	BA\11	0
P BA\10	BA\10	BA\09	42.525	15.160	14.735	1.00	RCP Class 2	450	450	0.3	New	1	BA\10	0

P BA\09	BA\09	BA\08	48.054	14.735	14.254	1.00	RCP Class 2	525	525	0.3	New	1	BA\09	0	
P BA\08	BA\08	BA\07	29.3	14.254	14.108	0.50	Box Culverts	1.5W x 0.6H		0.3	NewFixed	1	BA\08	0	
P BA\07	BA\07	BA\06	29.3	14.108	13.985	0.42	Box Culverts	1.5W x 0.9H		0.3	NewFixed	1	BA\07	0	
P BA\06	BA\06	BA\05	29.3	13.985	13.838	0.50	Box Culverts	1.5W x 1.2H		0.3	NewFixed	1	BA\06	0	
P BA\05	BA\05	BA\04	26.275	13.838	13.707	0.50	Box Culverts	1.5W x 1.2H		0.3	NewFixed	1	BA\05	0	
P BA\04	BA\04	BA\03	23.467	13.707	13.590	0.50	Box Culverts	1.5W x 1.2H		0.3	NewFixed	1	BA\04	0	
P BA\03	BA\03	BA\02	11.408	13.590	13.533	0.50	Box Culverts	1.5W x 1.2H		0.3	NewFixed	1	BA\03	0	
P BA\02	BA\02	BA\01	10	13.513	13.500	0.13	Box Culverts	1.8W x 1.2H		0.3	NewFixed	1	BA\02	0	
P BA\01	BA\01	BA Outlet	10	13.513	13.500	0.13	Box Culverts	1.8W x 1.2H		0.3	NewFixed	1	BA\01	0	
P BB\03	BB\03	BB\02	37.514	15.511	15.135	1.00	RCP Class 2	375	375	0.3	New	1	BB\03	0	
P BB\02	BB\02	BB\01	43.107	15.115	14.684	1.00	RCP Class 2	450	450	0.3	New	1	BB\02	0	
P BB\01	BB\01	BA\07	48.054	14.664	14.184	1.00	RCP Class 2	525	525	0.3	New	1	BB\01	0	
P BC\03	BC\03	BC\02	38	15.590	15.210	1.00	RCP Class 2	375	375	0.3	New	1	BC\03	0	
P BC\02	BC\02	BC\01	41.907	15.190	14.771	1.00	RCP Class 2	450	450	0.3	New	1	BC\02	0	
P BC\01	BC\01	BA\06	48.068	14.751	14.270	1.00	RCP Class 2	525	525	0.3	New	1	BC\01	0	
P BD\03	BD\03	BD\02	38	15.590	15.210	1.00	RCP Class 2	375	375	0.3	New	1	BD\03	0	
P BD\02	BD\02	BD\01	41.527	15.190	14.775	1.00	RCP Class 2	450	450	0.3	New	1	BD\02	0	
P BD\01	BD\01	BA\05	48.054	14.755	14.274	1.00	RCP Class 2	525	525	0.3	New	1	BD\01	0	
P BE\03	BE\03	BE\02	38	15.510	15.130	1.00	RCP Class 2	375	375	0.3	New	1	BE\03	0	
P BE\02	BE\02	BE\01	61.498	15.110	14.495	1.00	RCP Class 2	450	450	0.3	New	1	BE\02	0	
P BE\01	BE\01	BA\04	28.012	14.475	14.195	1.00	RCP Class 2	525	525	0.3	New	1	BE\01	0	
P BF\02	BF\02	BF\01	19.409	15.099	14.851	1.28	RCP Class 2	375	375	0.3	New	1	BF\02	0	
P BF\01	BF\01	BA\02	34.303	14.518	14.175	1.00	RCP Class 2	525	525	0.3	New	1	BF\01	0	
P BG\02	BG\02	BG\01	40.052	15.490	15.089	1.00	RCP Class 2	375	375	0.3	New	1	BG\02	0	
P BG\01	BG\01	BF\01	53.17	15.069	14.538	1.00	RCP Class 2	375	375	0.3	New	1	BG\01	0	
P F\21	F\21	F\20	48.293	14.414	14.317	0.20	Box Culverts	1.2W x 0.3H		0.3	NewFixed	2	F\21	0	
P F\20	F\20	F\19	40.001	14.317	14.237	0.20	Box Culverts	1.2W x 0.3H		0.3	NewFixed	2	F\20	0	
P F\19	F\19	F\18	40.06	14.237	14.157	0.20	Box Culverts	1.2W x 0.3H		0.3	NewFixed	2	F\19	0	
P F\18	F\18	F\17	59.969	14.157	14.037	0.20	Box Culverts	1.2W x 0.3H		0.3	NewFixed	2	F\18	0	
P F\17	F\17	F\16	59.992	14.037	13.917	0.20	Box Culverts	1.2W x 0.3H		0.3	NewFixed	2	F\17	0	
P F\16	F\16	F\15	59.957	13.917	13.797	0.20	Box Culverts	1.2W x 0.3H		0.3	NewFixed	2	F\16	0	
P F\15	F\15	F\14	60.118	13.797	13.677	0.20	Box Culverts	1.2W x 0.3H		0.3	NewFixed	2	F\15	0	
P F\14	F\14	F\13	79.943	13.677	13.517	0.20	Box Culverts	2.4W x 0.6H		0.3	NewFixed	1	F\14	0	
P F\13	F\13	F\12	79.987	13.517	13.357	0.20	Box Culverts	2.4W x 0.6H		0.3	NewFixed	1	F\13	0	
P F\12	F\12	F\11	60	13.357	13.237	0.20	Box Culverts	2.4W x 0.6H		0.3	NewFixed	1	F\12	0	
P F\11	F\11	F\10	40.014	13.237	13.157	0.20	Box Culverts	2.4W x 0.6H		0.3	NewFixed	1	F\11	0	
P F\10	F\10	F\09	39.98	13.157	13.077	0.20	Box Culverts	2.4W x 0.6H		0.3	NewFixed	1	F\10	0	
P F\09	F\09	F\08	39.936	13.077	12.997	0.20	Box Culverts	2.4W x 0.9H		0.3	NewFixed	1	F\09	0	
P F\08	F\08	F\07	40.646	12.997	12.916	0.20	Box Culverts	2.4W x 0.9H		0.3	NewFixed	1	F\08	0	
P F\07	F\07	F\06	37.284	12.916	12.842	0.20	Box Culverts	2.4W x 0.9H		0.3	NewFixed	1	F\07	0	
P F\06	F\06	F\05	39.367	12.842	12.763	0.20	Box Culverts	2.4W x 0.9H		0.3	NewFixed	1	F\06	0	
P F\05	F\05	F\04	49.986	12.763	12.663	0.20	Box Culverts	2.4W x 1.2H		0.3	NewFixed	1	F\05	0	
P F\04	F\04	F\03	50.511	12.663	12.562	0.20	Box Culverts	2.4W x 1.2H		0.3	NewFixed	1	F\04	0	

DETAILS of SERVICES CROSSING PIPES

Pipe	Chg	Bottom	Height of Service	Chg	Bottom	Height of S	Chg	Bottom	Height of S	etc
	(m)	Elev (m)	(m)	(m)	Elev (m)	(m)	(m)	Elev (m)	(m)	etc

CHANNEL DETAILS

Name	From	To	Type	Length	U/S IL	D/S IL	Slope	Base Width	L.B. Slope	R.B. Slope	Manning	Depth	Roofed
				(m)	(m)	(m)	(%)	(m)	(1:?)	(1:?)	n	(m)	

OVERFLOW ROUTE DETAILS

Name	From	To	Travel	Spill	Crest	Weir	Cross	Safe Depth	SafeDepth	Safe	Bed	D/S Area		id
			Time	Level	Length	Coeff. C	Section	Major Storm	Minor Storm	DxV	Slope	Contributing		
			(min)	(m)	(m)			(m)	(m)	(sq.m/sec)	(%)	%		
F CA\11	CA\11	CA\10	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508719
F CA\10	CA\10	CA\09	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508718
F CA\09	CA\09	CA\08	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508717
F CA\08	CA\08	CB\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508716
F CA\07	CA\07	CC\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508715
F CA\06	CA\06	CE\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508714
F CA\05	CA\05	CG\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508713
F CA\04	CA\04	CJ\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508712
F CA\03	CA\03	CL\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508711
F CA\02	CA\02	O CA\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508710
F CB\03	CB\03	BA\11	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129747894
F CB\02	CB\02	CB\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508721
F CB\01	CB\01	CB\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508720
F CC\03	CC\03	BB\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129747903
F CC\02	CC\02	CC\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508724
F CC\01	CC\01	CC\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508723
F CD\03	CD\03	CD\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508728
F CD\02	CD\02	CD\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508727
F CD\01	CD\01	CA\07	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508726
F CE\03	CE\03	BC\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129747905
F CE\02	CE\02	CE\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508730
F CE\01	CE\01	CE\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508729
F CF\03	CF\03	CF\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508734
F CF\02	CF\02	CF\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508733
F CF\01	CF\01	CA\06	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508732
F CG\03	CG\03	BD\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12747907
F CG\02	CG\02	CG\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508736
F CG\01	CG\01	CG\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508735
F CH\03	CH\03	CH\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508740
F CH\02	CH\02	CH\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508739
F CH\01	CH\01	CA\05	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508738
F CJ\03	CJ\03	BE\03	1				Dummy used to model flow across road low points	0.3	0.3	0.6	1	0		129747909
F CJ\02	CJ\02	CJ\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508742
F CJ\01	CJ\01	CJ\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508741
F CK\03	CK\03	CK\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508746
F CK\02	CK\02	CK\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508745
F CK\01	CK\01	CA\04	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508744
F CL\03	CL\03	BG\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12747911
F CL\02	CL\02	CL\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508748
F CL\01	CL\01	CL\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508747
F CM\03	CM\03	CM\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508752
F CM\02	CM\02	CM\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508751
F CM\01	CM\01	CA\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508750
F DA\11	DA\11	DA\10	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508762
F DA\10	DA\10	DA\09	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508761
F DA\09	DA\09	DA\08	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508760
F DA\08	DA\08	DB\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508759
F DA\07	DA\07	DC\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508758
F DA\06	DA\06	DE\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508757
F DA\05	DA\05	DG\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508756
F DA\04	DA\04	DJ\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508755
F DA\03	DA\03	DL\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508754
F DA\02	DA\02	O DA\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508753
F DB\03	DB\03	CA\11	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508765
F DB\02	DB\02	DB\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508764
F DB\01	DB\01	DB\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508763
F DC\03	DC\03	CD\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508768
F DC\02	DC\02	DC\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508767
F DC\01	DC\01	DC\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508766
F DD\03	DD\03	DD\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508771
F DD\02	DD\02	DD\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508770
F DD\01	DD\01	DA\07	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508769
F DE\03	DE\03	CF\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508774
F DE\02	DE\02	DE\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508773
F DE\01	DE\01	DE\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508772
F DF\03	DF\03	DF\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508777
F DF\02	DF\02	DF\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508776
F DF\01	DF\01	DA\06	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508775
F DG\03	DG\03	CH\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508780
F DG\02	DG\02	DG\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508779
F DG\01	DG\01	DG\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508778
F DH\03	DH\03	DH\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508783
F DH\02	DH\02	DH\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508782
F DH\01	DH\01	DA\05	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508781
F DJ\03	DJ\03	CK\03	1				Dummy used to model flow across road low points	0.3	0.3	0.6	1	0		12508786
F DJ\02	DJ\02	DJ\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508785
F DJ\01	DJ\01	DJ\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508784
F DK\03	DK\03	DK\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508789
F DK\02	DK\02	DK\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508788
F DK\01	DK\01	DA\04	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508787
F DL\03	DL\03	CM\03	1				Dummy used to model flow across road low points	0.3	0.3	0.6	1	0		12508792
F DL\02	DL\02	DL\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508791
F DL\01	DL\01	DL\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508790
F DM\03	DM\03	DM\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508795
F DM\02	DM\02	DM\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508794
F DM\01	DM\01	DA\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508793
F EA\11	EA\11	EA\10	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508805
F EA\10	EA\10	EA\09	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508804
F EA\09	EA\09	EA\08	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508803
F EA\08	EA\08	EB\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508802
F EA\07	EA\07	EC\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508801
F EA\06	EA\06	EE\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508800
F EA\05	EA\05	EG\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508799
F EA\04	EA\04	EJ\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508798
F EA\03	EA\03	EL\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508797
F EB\03	EB\03	DA\11	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508808

F EB\02	EB\02	EB\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508807
F EB\01	EB\01	EB\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508806
F EC\03	EC\03	DD\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508811
F EC\02	EC\02	EC\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508810
F EC\01	EC\01	EC\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508809
F ED\03	ED\03	ED\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508814
F ED\02	ED\02	ED\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508813
F ED\01	ED\01	EA\07	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508812
F EE\03	EE\03	DF\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508817
F EE\02	EE\02	EE\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508816
F EE\01	EE\01	EE\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508815
F EF\03	EF\03	EF\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508820
F EF\02	EF\02	EF\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508819
F EF\01	EF\01	EA\06	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508818
F EG\03	EG\03	DH\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508823
F EG\02	EG\02	EG\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508822
F EG\01	EG\01	EG\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508821
F EH\03	EH\03	EH\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508826
F EH\02	EH\02	EH\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508825
F EH\01	EH\01	EA\05	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508824
F EJ\03	EJ\03	DK\03	1				Dummy used to model flow across road low points	0.3	0.3	0.6	1	0		12508829
F EJ\02	EJ\02	EJ\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508828
F EJ\01	EJ\01	EJ\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508827
F EK\03	EK\03	EK\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508832
F EK\02	EK\02	EK\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508831
F EK\01	EK\01	EA\04	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508830
F EL\03	EL\03	DM\03	1				Dummy used to model flow across road low points	0.3	0.3	0.6	1	0		12508835
F EL\02	EL\02	EL\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508834
F EL\01	EL\01	EL\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508833
F EM\03	EM\03	EM\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508838
F EM\02	EM\02	EM\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508837
F EM\01	EM\01	EA\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508836
Stage Discharge	Stage1	Dummy Pit	0.1	14.500			Dummy used to model flow across road low points	0.2	0.05	0.6	1	0		12508875
OF55804	Dummy Pit	Channel1	0.1				Dummy used to model flow across road low points	0.2	0.05	0.6	1	0		18018951
F Channel 1	Channel1	N103004	5				Dummy used to model flow across road low points	0.2	0.05	0.6	1	75		18018020
OF South Catch	N60922	HW Moore	0.1				Dummy used to model flow across road low points	0.2	0.05	0.6	1	0		18017984
Moorebank Ave Xir	HW Moore	Full Existing	0.1	14.200	20	1.6	Dummy used to model flow across road low points	0.2	0.05	0.6	1	0		18017997
F Moorebank Ave	Moore HW	P Georges R	0.1	14.200	20	1.6	Dummy used to model flow across road low points	0.2	0.05	0.6	1	0		18018340
F CatC1Ex	N98596	Moore HW	0.1				Dummy used to model flow across road low points	0.2	0.05	0.6	1	0		36081898
F Channel 2	N103004	Moore HW	0.1				Dummy used to model flow across road low points	0.2	0.05	0.6	1	0		43098405
F OSD Dummy	N147106	Stage1	0.1				Dummy used to model flow across road low points	0.2	0.05	0.6	1	0		64982617
OF137724	HW4	Ex Georges R	0.1	14.200	20	1.6	Dummy used to model flow across road low points	0.2	0.05	0.6	1	0		63827571
Existing Channel	N147129	HW4	7				Dummy used to model flow across road low points	0.2	0.05	0.6	1	0		63827577
F CatC1	N147132	HW4	0.1				Dummy used to model flow across road low points	0.2	0.05	0.6	1	0		63827561
Prop Carpark Over	Carpark HW	Prop Carpark No	0.1	14.700	20	1.6	Dummy used to model flow across road low points	0.2	0.05	0.6	1	0		64605375
OF410995	Pr Carpark Junc	Prop Carpark No	0.1				Dummy used to model flow across road low points	0.3	0.3	0.6	1	0		153218421
F F\03	F\03	F\02	0.1				Dummy used to model flow across road low points	0.2	0.05	0.6	1	0		129748047
OF349883	F\02	Channel2	0.1				Dummy used to model flow across road low points	0.2	0.05	0.6	1	0		129748037
OF200780	Channel2	Channel1	0.1				Dummy used to model flow across road low points	0.2	0.05	0.6	1	0		79917591
OF149489	HW46	N60923	0.1	14.700	20	1.6	Dummy used to model flow across road low points	0.2	0.05	0.6	1	0		65725100
OF151533	Pit144889	N159649	0.1				Dummy used to model flow across road low points	0.2	0.05	0.6	1	0		66103611
OF Carpark	N159649	HW Moore	0.1				Dummy used to model flow across road low points	0.2	0.05	0.6	1	0		18017983
Ex Carpark Overflo	HW57	EX Carpark Node	0.1	14.700	20	1.6	Dummy used to model flow across road low points	0.2	0.05	0.6	1	0		65725169
OF149518	Pit144901	Ex Existing Chan	0.1				Dummy used to model flow across road low points	0.2	0.05	0.6	1	0		65725193
OF137717	Ex Existing Chani	N147129	0.1				Dummy used to model flow across road low points	0.2	0.05	0.6	1	0		63827562
F Cat 1	N214245	N214246	5				Moorebank Diversion	0.3	0.3	0.6	1	100		79909221
F Cat 2	N214246	N214247	5				Moorebank Diversion	0.3	0.3	0.6	1	100		79909220
F Cat 3	N214247	N214248	5				Moorebank Diversion	0.3	0.3	0.6	1	100		79909219
F Cat 4	N214248	N214249	5				Moorebank Diversion	0.3	0.3	0.6	1	100		79909214
F Cat 5	N214249	N214250	5				Moorebank Diversion	0.3	0.3	0.6	1	100		79909210
F Cat 6	N214250	N214256	5				Dummy used to model flow across road low points	0.2	0.05	0.6	1	0		79909251
F Cat 7	N214256	N214257	5				Dummy used to model flow across road low points	0.2	0.05	0.6	1	0		79909254
Swale	N214257	N304196	5				Moorebank Diversion	0.3	0.3	0.6	1	100		18018016
OF282905	N304196	Channel1	0.1				Dummy used to model flow across road low points	0.2	0.05	0.6	1	0		104333902
F AA\06	AA\06	AA\05	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129747859
F AA\05	AA\05	AA\04	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129747858
F AA\04	AA\04	AA\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129747857
F AA\03	AA\03	AA\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129747856
F AA\02	AA\02	Stage1	0.1				Dummy used to model flow across road low points	0.2	0.05	0.6	1	0		129747919
F AB\02	AB\02	AB\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		161239236
F AB\01	AB\01	AA\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129747860
F BA\11	BA\11	BA\10	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129747869
F BA\10	BA\10	BA\09	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129747868
F BA\09	BA\09	BA\08	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129747867
F BA\08	BA\08	BA\07	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129747866
F BA\07	BA\07	BA\06	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129747865
F BA\06	BA\06	BA\05	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129747864
F BA\05	BA\05	BA\04	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129747863
F BA\04	BA\04	BA\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129747862
F BA\03	BA\03	BA\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129747861
F BA\02	BA\02	AA\02	0.1				Dummy used to model flow across road low points	0.2	0.05	0.6	1	0		129747892
OF360759	BA\01	Stage1	0.1				Dummy used to model flow across road low points	0.2	0.05	0.6	1	0		132320174
F BB\03	BB\03	BB\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129747872
F BB\02	BB\02	BB\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129747871
F BB\01	BB\01	BA\07	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129747870
F BC\03	BC\03	BC\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129747875
F BC\02	BC\02	BC\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129747874
F BC\01	BC\01	BA\06	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129747873
F BD\03	BD\03	BD\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129747878
F BD\02	BD\02	BD\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129747877
F BD\01	BD\01	BA\05	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129747876
F BE\03	BE\03	BE\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129747881
F BE\02	BE\02	BE\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129747880
F BE\01	BE\01	BA\04	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129747879
F BF\02	BF\02	BF\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129747882
F BF\01	BF\01	BA\02	1				Dummy used to model flow across road low points	0.2	0.05	0.6	1	0		131543381
F BG\02	BG\02	BG\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129747883
F BG\01	BG\01	BF\01	1				Dummy used to model flow across road low points	0.2	0.05	0.6	1	0		131543380
F F\21	F\21	F\20	0.1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129748020
F F\20	F\20	F\19	0.1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129748019
F F\19	F\19	F\18	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129748018
F F\18	F\18	F\17	0.1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129748017
F F\17	F\17	F\16	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129748016
F F\16	F\16	F\15	0.1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129748015
F F\15	F\15	F\14	0.1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129748014
F F\14	F\14	F\13	0.1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129748013
F F\13	F\13	F\12	0.1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129748012
F F\12	F\12	F\11	0.1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129748011
F F\11	F\11	F\10	0.1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129748010
F F\10	F\10	F\09	0.1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129748009
F F\09	F\09	F\08	0.1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129748008
F F\08	F\08	F\07	0.1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129748007
F F\07	F\07	F\06	0.1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129748006
F F\06	F\06	F\05	0.1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129748005
F F\05	F\05	F\04	0.1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129748004
F F\04	F\04	F\03	0.1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129748003

PROJECT	SIMTA		
TITLE	10 YEAR ARI RESULTS	JOB No	AA003760
		PREPARED GD	DATE 18/02/2015
		CHECKED BC	DATE 18/02/2015

DRAINS File Path:	F:\AA003760\D-Calcs\A-Civil\A-Stormwater\A-DRAINS
DRAINS Version:	DRAINS Version 2015.02 - 4 Februrary 2015
Modeller's Name:	George Dunstan
Description:	Existing and Proposed

DRAINS results prepared 18 February, 2015 from Version 2015.02

RESULTS 10 YEAR ARI

PIT / NODE DETAILS

Name	Max HGL	Max Pond HGL	Max Surface Flow Arriving (cu.m/s)	Max Pond Volume (cu.m) Version 8	Min Freeboard (m)	Overflow (cu.m/s)	Constraint
CA\11	15.84	16.50	0.043	5.5	0.60	0.000	Inlet Capacity
CA\10	15.79	16.50	0.043	5.5	0.65	0.000	Inlet Capacity
CA\09	15.76	16.50	0.043	5.5	0.68	0.000	Inlet Capacity
CA\08	15.73	16.50	0.043	5.5	0.71	0.000	Inlet Capacity
CA\07	15.72	16.49	0.046	5.9	0.70	0.000	Inlet Capacity
CA\06	15.67	16.54	0.025	3.4	0.83	0.000	Inlet Capacity
CA\05	15.64	16.54	0.025	3.4	0.86	0.000	Inlet Capacity
CA\04	15.60	16.49	0.046	5.9	0.82	0.000	Inlet Capacity
CA\03	15.56	16.45	0.026	3.5	0.84	0.000	Inlet Capacity
CA\02	15.53		0.000		0.83	0.000	None
CA Outlet	15.50		0.000				
CB\03	15.84	16.50	0.043	5.5	0.60	0.000	Inlet Capacity
CB\02	15.79	16.50	0.043	5.5	0.65	0.000	Inlet Capacity
CB\01	15.76	16.50	0.043	5.5	0.68	0.000	Inlet Capacity
CC\03	15.84	16.49	0.046	5.9	0.58	0.000	Inlet Capacity
CC\02	15.79	16.49	0.046	5.9	0.63	0.000	Inlet Capacity
CC\01	15.75	16.49	0.046	5.9	0.67	0.000	Inlet Capacity
CD\03	15.84	16.49	0.046	5.9	0.58	0.000	Inlet Capacity
CD\02	15.79	16.49	0.046	5.9	0.63	0.000	Inlet Capacity
CD\01	15.75	16.49	0.046	5.9	0.67	0.000	Inlet Capacity
CE\03	15.80	16.54	0.025	3.4	0.70	0.000	Inlet Capacity
CE\02	15.76	16.54	0.025	3.4	0.74	0.000	Inlet Capacity
CE\01	15.73	16.54	0.025	3.4	0.77	0.000	Inlet Capacity
CF\03	15.80	16.54	0.025	3.4	0.70	0.000	Inlet Capacity
CF\02	15.76	16.54	0.025	3.4	0.74	0.000	Inlet Capacity
CF\01	15.73	16.54	0.025	3.4	0.77	0.000	Inlet Capacity
CG\03	15.78	16.54	0.025	3.4	0.72	0.000	Inlet Capacity
CG\02	15.73	16.54	0.025	3.4	0.77	0.000	Inlet Capacity
CG\01	15.70	16.54	0.025	3.4	0.80	0.000	Inlet Capacity
CH\03	15.78	16.55	0.025	3.4	0.72	0.000	Inlet Capacity
CH\02	15.73	16.54	0.025	3.4	0.77	0.000	Inlet Capacity
CH\01	15.70	16.54	0.025	3.4	0.80	0.000	Inlet Capacity
CJ\03	15.78	16.49	0.046	5.9	0.64	0.000	Inlet Capacity
CJ\02	15.72	16.49	0.046	5.9	0.70	0.000	Inlet Capacity
CJ\01	15.68	16.49	0.046	5.9	0.74	0.000	Inlet Capacity
CK\03	15.78	16.49	0.046	5.9	0.64	0.000	Inlet Capacity
CK\02	15.72	16.49	0.046	5.9	0.70	0.000	Inlet Capacity
CK\01	15.68	16.49	0.046	5.9	0.74	0.000	Inlet Capacity
CL\03	15.94	16.45	0.026	3.5	0.46	0.000	Inlet Capacity
CL\02	15.67	16.45	0.026	3.5	0.73	0.000	Inlet Capacity
CL\01	15.63	16.45	0.026	3.5	0.77	0.000	Inlet Capacity
CM\03	15.97	16.45	0.026	3.5	0.43	0.000	Inlet Capacity
CM\02	15.67	16.45	0.026	3.5	0.73	0.000	Inlet Capacity
CM\01	15.63	16.45	0.026	3.5	0.77	0.000	Inlet Capacity
DA\11	15.84	16.50	0.043	5.5	0.60	0.000	Inlet Capacity
DA\10	15.79	16.50	0.043	5.5	0.65	0.000	Inlet Capacity
DA\09	15.76	16.50	0.043	5.5	0.68	0.000	Inlet Capacity
DA\08	15.73	16.50	0.043	5.5	0.71	0.000	Inlet Capacity
DA\07	15.72	16.49	0.046	5.9	0.70	0.000	Inlet Capacity
DA\06	15.67	16.54	0.025	3.4	0.83	0.000	Inlet Capacity
DA\05	15.64	16.54	0.025	3.4	0.86	0.000	Inlet Capacity
DA\04	15.60	16.49	0.046	5.9	0.82	0.000	Inlet Capacity
DA\03	15.56	16.45	0.026	3.5	0.84	0.000	Inlet Capacity
DA\02	15.53		0.000		0.83	0.000	None
DA Outlet	15.50		0.000				
DB\03	15.84	16.50	0.043	5.5	0.60	0.000	Inlet Capacity
DB\02	15.79	16.50	0.043	5.5	0.65	0.000	Inlet Capacity
DB\01	15.76	16.50	0.043	5.5	0.68	0.000	Inlet Capacity
DC\03	15.84	16.49	0.046	5.9	0.58	0.000	Inlet Capacity
DC\02	15.79	16.49	0.046	5.9	0.63	0.000	Inlet Capacity
DC\01	15.75	16.49	0.046	5.9	0.67	0.000	Inlet Capacity
DD\03	15.84	16.49	0.046	5.9	0.58	0.000	Inlet Capacity
DD\02	15.79	16.49	0.046	5.9	0.63	0.000	Inlet Capacity
DD\01	15.75	16.49	0.046	5.9	0.67	0.000	Inlet Capacity
DE\03	15.80	16.54	0.025	3.4	0.70	0.000	Inlet Capacity
DE\02	15.76	16.54	0.025	3.4	0.74	0.000	Inlet Capacity
DE\01	15.73	16.54	0.025	3.4	0.77	0.000	Inlet Capacity
DF\03	15.80	16.54	0.025	3.4	0.70	0.000	Inlet Capacity
DF\02	15.76	16.54	0.025	3.4	0.74	0.000	Inlet Capacity
DF\01	15.73	16.54	0.025	3.4	0.77	0.000	Inlet Capacity
DG\03	15.78	16.54	0.025	3.4	0.72	0.000	Inlet Capacity
DG\02	15.73	16.54	0.025	3.4	0.77	0.000	Inlet Capacity
DG\01	15.70	16.54	0.025	3.4	0.80	0.000	Inlet Capacity
DH\03	15.78	16.54	0.025	3.4	0.72	0.000	Inlet Capacity
DH\02	15.73	16.54	0.025	3.4	0.77	0.000	Inlet Capacity
DH\01	15.70	16.54	0.025	3.4	0.80	0.000	Inlet Capacity
DJ\03	15.78	16.49	0.046	5.9	0.64	0.000	Inlet Capacity
DJ\02	15.72	16.49	0.046	5.9	0.70	0.000	Inlet Capacity
DJ\01	15.68	16.49	0.046	5.9	0.74	0.000	Inlet Capacity
DK\03	15.78	16.49	0.046	5.9	0.64	0.000	Inlet Capacity
DK\02	15.72	16.49	0.046	5.9	0.70	0.000	Inlet Capacity
DK\01	15.68	16.49	0.046	5.9	0.74	0.000	Inlet Capacity
DL\03	15.94	16.45	0.026	3.5	0.46	0.000	Inlet Capacity
DL\02	15.67	16.45	0.026	3.5	0.73	0.000	Inlet Capacity
DL\01	15.63	16.45	0.026	3.5	0.77	0.000	Inlet Capacity
DM\03	15.97	16.45	0.026	3.5	0.43	0.000	Inlet Capacity
DM\02	15.67	16.45	0.026	3.5	0.73	0.000	Inlet Capacity
DM\01	15.63	16.45	0.026	3.5	0.77	0.000	Inlet Capacity
EA\11	15.82	16.51	0.057	12.6	0.62	0.000	Inlet Capacity
EA\10	15.76	16.50	0.043	5.5	0.68	0.000	Inlet Capacity
EA\09	15.72	16.50	0.043	5.5	0.72	0.000	Inlet Capacity
EA\08	15.69	16.50	0.043	5.5	0.75	0.000	Inlet Capacity
EA\07	15.68	16.49	0.046	5.9	0.74	0.000	Inlet Capacity
EA\06	15.66	16.54	0.025	3.4	0.84	0.000	Inlet Capacity
EA\05	15.63	16.54	0.025	3.4	0.87	0.000	Inlet Capacity
EA\04	15.61	16.49	0.046	5.9	0.81	0.000	Inlet Capacity
EA\03	15.56	16.45	0.026	3.5	0.84	0.000	Inlet Capacity
EA\02	15.53		0.000		0.83		None
EA Outlet	15.50		0.000				
EB\03	15.81	16.50	0.043	5.5	0.63	0.000	Inlet Capacity
EB\02	15.75	16.50	0.043	5.5	0.69	0.000	Inlet Capacity
EB\01	15.72	16.50	0.043	5.5	0.72	0.000	Inlet Capacity
EC\03	15.80	16.49	0.046	5.9	0.62	0.000	Inlet Capacity
EC\02	15.75	16.49	0.046	5.9	0.67	0.000	Inlet Capacity
EC\01	15.71	16.49	0.046	5.9	0.71	0.000	Inlet Capacity
ED\03	15.82	16.49	0.061	13.6	0.60	0.000	Inlet Capacity
ED\02	15.76	16.49	0.046	5.9	0.66	0.000	Inlet Capacity
ED\01	15.72	16.49	0.046	5.9	0.70	0.000	Inlet Capacity

EE\03	15.77	16.54	0.025	3.4	0.73	0.000	Inlet Capacity					
EE\02	15.71	16.54	0.025	3.4	0.79	0.000	Inlet Capacity					
EE\01	15.68	16.54	0.025	3.4	0.82	0.000	Inlet Capacity					
EF\03	15.80	16.55	0.034	4.5	0.70	0.000	Inlet Capacity					
EF\02	15.73	16.54	0.025	3.4	0.77	0.000	Inlet Capacity					
EF\01	15.69	16.54	0.025	3.4	0.81	0.000	Inlet Capacity					
EG\03	15.76	16.54	0.025	3.4	0.74	0.000	Inlet Capacity					
EG\02	15.69	16.54	0.025	3.4	0.81	0.000	Inlet Capacity					
EG\01	15.66	16.54	0.025	3.4	0.84	0.000	Inlet Capacity					
EH\03	15.79	16.55	0.034	4.5	0.71	0.000	Inlet Capacity					
EH\02	15.70	16.54	0.025	3.4	0.80	0.000	Inlet Capacity					
EH\01	15.66	16.54	0.025	3.4	0.84	0.000	Inlet Capacity					
EJ\03	15.76	16.49	0.046	5.9	0.66	0.000	Inlet Capacity					
EJ\02	15.68	16.49	0.046	5.9	0.74	0.000	Inlet Capacity					
EJ\01	15.65	16.49	0.046	5.9	0.77	0.000	Inlet Capacity					
EK\03	15.77	16.49	0.061	13.6	0.65	0.000	Inlet Capacity					
EK\02	15.69	16.49	0.046	5.9	0.73	0.000	Inlet Capacity					
EK\01	15.65	16.49	0.046	5.9	0.77	0.000	Inlet Capacity					
EL\03	15.94	16.45	0.026	3.5	0.46	0.000	Inlet Capacity					
EL\02	15.68	16.45	0.026	3.5	0.72	0.000	Inlet Capacity					
EL\01	15.63	16.45	0.026	3.5	0.77	0.000	Inlet Capacity					
EM\03	15.93	16.43	0.015	2.2	0.47	0.000	Inlet Capacity					
EM\02	15.65	16.45	0.026	3.5	0.75	0.000	Inlet Capacity					
EM\01	15.61	16.45	0.026	3.5	0.79	0.000	Inlet Capacity					
Dummy Pit	14.17		0.045		2.33	0.000	None					
Channel1	14.15		2.384									
HW Moore	13.37		7.996		0.83	0.000	None					
Full Existing	12.15		0.000									
Moore HW	12.96		5.375		1.24	0.000	None					
P Georges R	11.96		0.000									
HW4	13.54		10.476		0.66	0.000	None					
Ex Georges R	12.23		0.000									
Carpark HW	14.78		0.870		-0.08	0.763	Headwall height/system capacity					
Pr Carpark Ju	14.52	14.55	0.000	0.0	0.03	0.000	None					
F\03	14.19	14.45	0.038	4.0	0.21	0.000	Inlet Capacity					
F\02	14.17	14.59	0.092	5.6	0.33	0.000	Inlet Capacity					
Channel2	14.15		0.000									
HW46	14.78		0.870		-0.08	0.763	Headwall height/system capacity					
Pit144889	13.92		0.000		0.63	0.000	None					
N159649	13.15		0.000									
HW57	14.78		0.870		-0.08	0.763	Headwall height/system capacity					
Pit144901	13.92		0.000		0.63	0.000	None					
Ex Existing Ch	13.15		0.000									
AA\06	15.49		0.013		0.50	0.000	None					
AA\05	15.48	16.33	0.057	2.8	0.79	0.000	Inlet Capacity					
AA\04	15.41	16.33	0.063	3.1	0.85	0.000	Inlet Capacity					
AA\03	15.41	16.35	0.033	1.8	0.91	0.000	Inlet Capacity					
AA\02	15.41		0.000		0.99	0.000	None					
AA Outlet	15.40		0.000									
AB\02	15.45		0.017		0.28	0.000	None					
AB\01	15.45	16.36	0.033	1.9	0.87	0.000	Inlet Capacity					
BA\11	15.97	16.51	0.071	6.0	0.47	0.000	Inlet Capacity					
BA\10	15.83	16.49	0.049	4.2	0.61	0.000	Inlet Capacity					
BA\09	15.75	16.56	0.065	5.5	0.75	0.000	Inlet Capacity					
BA\08	15.65	16.56	0.065	5.5	0.85	0.000	Inlet Capacity					
BA\07	15.63	16.50	0.060	5.1	0.81	0.000	Inlet Capacity					
BA\06	15.62	16.45	0.060	5.1	0.78	0.000	Inlet Capacity					
BA\05	15.60	16.40	0.060	5.1	0.74	0.000	Inlet Capacity					
BA\04	15.58	16.38	0.049	4.2	0.75	0.000	Inlet Capacity					
BA\03	15.55	16.34	0.055	4.7	0.73	0.000	Inlet Capacity					
BA\02	15.54	16.40	0.000	0.0	0.86	0.000	None					
BA\01	15.53		0.000		0.87	0.000	None					
BA Outlet	15.50		0.000									
BB\03	15.95	16.49	0.070	6.0	0.47	0.000	Inlet Capacity					
BB\02	15.82	16.47	0.049	4.2	0.60	0.000	Inlet Capacity					
BB\01	15.73	16.50	0.060	5.1	0.72	0.000	Inlet Capacity					
BC\03	15.86	16.54	0.039	3.4	0.64	0.000	Inlet Capacity					
BC\02	15.71	16.54	0.029	2.7	0.79	0.000	Inlet Capacity					
BC\01	15.66	16.45	0.060	5.1	0.73	0.000	Inlet Capacity					
BD\03	15.83	16.54	0.039	3.4	0.67	0.000	Inlet Capacity					
BD\02	15.68	16.54	0.029	2.7	0.82	0.000	Inlet Capacity					
BD\01	15.65	16.40	0.060	5.0	0.69	0.000	Inlet Capacity					
BE\03	15.84	16.49	0.070	6.0	0.58	0.000	Inlet Capacity					
BE\02	15.71	16.47	0.048	4.1	0.71	0.000	Inlet Capacity					
BE\01	15.61	16.45	0.000	0.0	0.84	0.000	None					
BF\02	15.65	16.05	0.035	3.1	0.36	0.000	Inlet Capacity					
BF\01	15.62	15.81	0.058	4.9	0.13	0.000	Inlet Capacity					
BG\02	15.74	16.45	0.040	3.5	0.66	0.000	Inlet Capacity					
BG\01	15.71	16.44	0.028	2.6	0.69	0.000	Inlet Capacity					
F\21	14.60	14.93	0.251	6.6	0.25	0.000	Inlet Capacity					
F\20	14.48	15.07	0.069	7.2	0.52	0.000	Inlet Capacity					
F\19	14.45	14.97	0.033	3.6	0.48	0.000	Inlet Capacity					
F\18	14.42	14.94	0.031	3.3	0.48	0.000	Inlet Capacity					
F\17	14.40	14.82	0.066	7.0	0.35	0.000	Inlet Capacity					
F\16	14.36	14.87	0.031	3.3	0.46	0.000	Inlet Capacity					
F\15	14.33	14.77	0.062	6.4	0.38	0.000	Inlet Capacity					
F\14	14.30	14.74	0.046	4.8	0.39	0.000	Inlet Capacity					
F\13	14.29	14.59	0.061	6.3	0.24	0.000	Inlet Capacity					
F\12	14.27	14.54	0.061	6.3	0.20	0.000	Inlet Capacity					
F\11	14.26	14.59	0.031	3.3	0.29	0.000	Inlet Capacity					
F\10	14.24	14.57	0.030	3.2	0.28	0.000	Inlet Capacity					
F\09	14.23	14.54	0.030	3.3	0.27	0.000	Inlet Capacity					
F\08	14.23	14.52	0.031	3.3	0.25	0.000	Inlet Capacity					
F\07	14.22	14.49	0.032	3.4	0.23	0.000	Inlet Capacity					
F\06	14.21	14.48	0.035	3.7	0.22	0.000	Inlet Capacity					
F\05	14.20	14.45	0.034	3.6	0.20	0.000	Inlet Capacity					
F\04	14.19	14.42	0.038	4.0	0.17	0.000	Inlet Capacity					
SUB-CATCHMENT DETAILS												
Name	Max	Paved	Grassed	Paved	Grassed	Supp.	Due to Storm					
	Flow Q	Max Q	Max Q	Tc	Tc	Tc						
	(cu.m/s)	(cu.m/s)	(cu.m/s)	(min)	(min)	(min)						
C CA\11	0.043	0.043	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1					
C CA\10	0.043	0.043	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1					
C CA\09	0.043	0.043	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1					
C CA\08	0.043	0.043	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1					
C CA\07	0.046	0.046	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1					
C CA\06	0.025	0.025	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1					
C CA\05	0.025	0.025	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1					
C CA\04	0.046	0.046	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1					
C CA\03	0.026	0.026	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1					
C CB\03	0.043	0.043	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1					
C CB\02	0.043	0.043	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1					
C CB\01	0.043	0.043	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1					
C CC\03	0.046	0.046	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1					
C CC\02	0.046	0.046	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1					
C CC\01	0.046	0.046	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1					
C CD\03	0.046	0.046	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1					
C CD\02	0.046	0.046	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1					
C CD\01	0.046	0.046	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1					
C CE\03	0.025	0.025	0.000	1.41	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1					
C CE\02	0.025	0.025	0.000	1.41	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1					
C CE\01	0.025	0.025	0.000	1.41	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1					
C CF\03	0.025	0.025	0.000	1.41	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1					

C CF\02	0.025	0.025	0.000	1.41	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C CF\01	0.025	0.025	0.000	1.41	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C CG\03	0.025	0.025	0.000	1.41	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C CG\02	0.025	0.025	0.000	1.41	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C CG\01	0.025	0.025	0.000	1.41	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C CH\03	0.025	0.025	0.000	1.41	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C CH\02	0.025	0.025	0.000	1.41	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C CH\01	0.025	0.025	0.000	1.41	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C CJ\03	0.046	0.046	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C CJ\02	0.046	0.046	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C CJ\01	0.046	0.046	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C CK\03	0.046	0.046	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C CK\02	0.046	0.046	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C CK\01	0.046	0.046	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C CL\03	0.026	0.026	0.000	1.41	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C CL\02	0.026	0.026	0.000	1.41	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C CL\01	0.026	0.026	0.000	1.41	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C CM\03	0.026	0.026	0.000	1.41	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C CM\02	0.026	0.026	0.000	1.41	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C CM\01	0.026	0.026	0.000	1.41	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C DA\11	0.043	0.043	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C DA\10	0.043	0.043	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C DA\09	0.043	0.043	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C DA\08	0.043	0.043	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C DA\07	0.046	0.046	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C DA\06	0.025	0.025	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C DA\05	0.025	0.025	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C DA\04	0.046	0.046	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C DA\03	0.026	0.026	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C DB\03	0.043	0.043	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C DB\02	0.043	0.043	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C DB\01	0.043	0.043	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C DC\03	0.046	0.046	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C DC\02	0.046	0.046	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C DC\01	0.046	0.046	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C DD\03	0.046	0.046	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C DD\02	0.046	0.046	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C DD\01	0.046	0.046	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C DE\03	0.025	0.025	0.000	1.41	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C DE\02	0.025	0.025	0.000	1.41	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C DE\01	0.025	0.025	0.000	1.41	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C DF\03	0.025	0.025	0.000	1.41	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C DF\02	0.025	0.025	0.000	1.41	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C DF\01	0.025	0.025	0.000	1.41	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C DG\03	0.025	0.025	0.000	1.41	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C DG\02	0.025	0.025	0.000	1.41	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C DG\01	0.025	0.025	0.000	1.41	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C DH\03	0.025	0.025	0.000	1.41	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C DH\02	0.025	0.025	0.000	1.41	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C DH\01	0.025	0.025	0.000	1.41	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C DJ\03	0.046	0.046	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C DJ\02	0.046	0.046	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C DJ\01	0.046	0.046	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C DK\03	0.046	0.046	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C DK\02	0.046	0.046	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C DK\01	0.046	0.046	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C DL\03	0.026	0.026	0.000	1.41	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C DL\02	0.026	0.026	0.000	1.41	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C DL\01	0.026	0.026	0.000	1.41	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C DM\03	0.026	0.026	0.000	1.41	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C DM\02	0.026	0.026	0.000	1.41	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C DM\01	0.026	0.026	0.000	1.41	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C EA\11	0.057	0.057	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C EA\10	0.043	0.043	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C EA\09	0.043	0.043	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C EA\08	0.043	0.043	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C EA\07	0.046	0.046	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C EA\06	0.025	0.025	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C EA\05	0.025	0.025	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C EA\04	0.046	0.046	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C EA\03	0.026	0.026	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C EB\03	0.043	0.043	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C EB\02	0.043	0.043	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C EB\01	0.043	0.043	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C EC\03	0.046	0.046	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C EC\02	0.046	0.046	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C EC\01	0.046	0.046	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C ED\03	0.061	0.061	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C ED\02	0.046	0.046	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C ED\01	0.046	0.046	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C EE\03	0.025	0.025	0.000	1.41	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C EE\02	0.025	0.025	0.000	1.41	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C EE\01	0.025	0.025	0.000	1.41	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C EF\03	0.034	0.034	0.000	1.41	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C EF\02	0.025	0.025	0.000	1.41	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C EF\01	0.025	0.025	0.000	1.41	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C EG\03	0.025	0.025	0.000	1.41	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C EG\02	0.025	0.025	0.000	1.41	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C EG\01	0.025	0.025	0.000	1.41	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C EH\03	0.034	0.034	0.000	1.41	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C EH\02	0.025	0.025	0.000	1.41	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C EH\01	0.025	0.025	0.000	1.41	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C EJ\03	0.046	0.046	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C EJ\02	0.046	0.046	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C EJ\01	0.046	0.046	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C EK\03	0.061	0.061	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C EK\02	0.046	0.046	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C EK\01	0.046	0.046	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C EL\03	0.026	0.026	0.000	1.41	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C EL\02	0.026	0.026	0.000	1.41	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C EL\01	0.026	0.026	0.000	1.41	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C EM\03	0.015	0.015	0.000	1.41	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C EM\02	0.026	0.026	0.000	1.41	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C EM\01	0.026	0.026	0.000	1.41	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C OSD 2	0.040	0.000	0.040	5.00	1.00	0.00	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1	
CatchC1Ex	0.902	0.763	0.139	7.00	7.00	0.00	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1	
CatchCEx	7.350	5.480	2.074	25.00	30.00	0.00	AR&R 10 year, 1 hour storm, average 47.8 mm/h, Zone 1	
Eastern Swale	3.493	3.493	0.000	10.00	0.00	0.00	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1	
CatC1Ex	0.902	0.763	0.139	7.00	7.00	0.00	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1	
CatCEx Rema	3.477	2.673	0.874	10.00	15.00	0.00	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1	
C OSD 1	0.203	0.000	0.203	5.00	1.00	0.00	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1	
Existing Rema	3.258	2.453	0.874	12.00	15.00	5.00	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1	
Existing S1	6.310	4.945	1.506	15.00	20.00	5.00	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1	
CatC1	0.902	0.763	0.139	7.00	7.00	0.00	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1	
Pr Carpark	0.870	0.870	0.000	5.00	0.00	0.00	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1	
C F\03	0.038	0.017	0.021	5.00	5.00	0.00	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1	
C F\02	0.092	0.086	0.006	5.00	10.00	0.00	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1	
Cat Carpark	0.870	0.870	0.000	5.00	0.00	0.00	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1	
Ex Carpark	0.870	0.870	0.000	5.00	0.00	0.00	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1	
Cat 1	0.079	0.000	0.079	5.00	6.00	0.00	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1	
Cat 2	0.201	0.019	0.183	4.00	6.00	0.00	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1	
Cat 3	0.177	0.083	0.094	4.00	6.00	0.00	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1	
Cat 4	0.117	0.014	0.104	4.00	6.00	0.00	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1	
Cat 5	0.634	0.199	0.435	4.00	6.00	0.00	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1	

Cat 6	0.434	0.172	0.263	4.00	6.00	0.00	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1	
Cat 7	0.427	0.247	0.180	4.00	6.00	0.00	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1	
ES Cat 8	0.792	0.337	0.455	4.00	8.00	0.00	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1	
ES Cat 9	0.497	0.365	0.139	8.00	12.00	0.00	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1	
C AA\06	0.013	0.013	0.000	6.59	10.00	0.00	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1	
C AA\05	0.057	0.057	0.000	6.59	10.00	0.00	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1	
C AA\04	0.063	0.063	0.000	6.59	10.00	0.00	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1	
C AA\03	0.033	0.033	0.000	6.59	10.00	0.00	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1	
C AB\02	0.017	0.017	0.000	7.59	10.00	0.00	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1	
C AB\01	0.033	0.033	0.000	6.59	10.00	0.00	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1	
C BA\11	0.071	0.071	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C BA\10	0.049	0.049	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C BA\09	0.065	0.065	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C BA\08	0.065	0.065	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C BA\07	0.060	0.060	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C BA\06	0.060	0.060	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C BA\05	0.060	0.060	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C BA\04	0.049	0.049	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C BA\03	0.055	0.055	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C BB\03	0.070	0.070	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C BB\02	0.049	0.049	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C BB\01	0.060	0.060	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C BC\03	0.039	0.039	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C BC\02	0.029	0.029	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C BC\01	0.060	0.060	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C BD\03	0.039	0.039	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C BD\02	0.029	0.029	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C BD\01	0.060	0.060	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C BE\03	0.070	0.070	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C BE\02	0.048	0.048	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C BF\02	0.035	0.035	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C BF\01	0.058	0.058	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C BG\02	0.040	0.040	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C BG\01	0.028	0.028	0.000	1.97	10.00	0.00	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1	
C F\21	0.251	0.000	0.251	5.00	7.00	0.00	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1	
C F\20	0.069	0.031	0.038	5.00	5.00	0.00	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1	
C F\19	0.033	0.031	0.002	5.00	10.00	0.00	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1	
C F\18	0.031	0.014	0.017	5.00	5.00	0.00	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1	
C F\17	0.066	0.062	0.004	5.00	10.00	0.00	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1	
C F\16	0.031	0.014	0.017	5.00	5.00	0.00	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1	
C F\15	0.062	0.027	0.034	5.00	5.00	0.00	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1	
C F\14	0.046	0.020	0.026	5.00	5.00	0.00	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1	
C F\13	0.061	0.027	0.034	5.00	5.00	0.00	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1	
C F\12	0.061	0.027	0.034	5.00	5.00	0.00	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1	
C F\11	0.031	0.014	0.017	5.00	5.00	0.00	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1	
C F\10	0.030	0.013	0.017	5.00	5.00	0.00	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1	
C F\09	0.030	0.013	0.017	5.00	5.00	0.00	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1	
C F\08	0.031	0.014	0.017	5.00	5.00	0.00	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1	
C F\07	0.032	0.014	0.018	5.00	5.00	0.00	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1	
C F\06	0.035	0.016	0.020	5.00	5.00	0.00	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1	
C F\05	0.034	0.015	0.019	5.00	5.00	0.00	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1	
C F\04	0.038	0.017	0.021	5.00	5.00	0.00	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1	

Outflow Volumes for Total Catchment (96.7 impervious + 46.3 pervious = 143 total ha)

Storm	Total Rainfall	Total Runoff	Impervious Ru	Pervious Runoff
	cu.m	cu.m (Runoff	cu.m (Runoff	cu.m (Runoff %)
AR&R 10 yea	18224.77	12367.09 (67.	11360.84 (92.	1006.26 (17.1%)
AR&R 10 yea	28111.40	21260.92 (75.	18047.60 (94.	3213.32 (35.3%)
AR&R 10 yea	35377.48	27902.86 (78.	22961.58 (96.	4941.28 (43.2%)
AR&R 10 yea	40975.94	32946.78 (80.	26745.84 (96.	6200.94 (46.8%)
AR&R 10 yea	45859.70	37267.58 (81.	30048.77 (96.	7218.81 (48.6%)
AR&R 10 yea	50028.77	40779.14 (81.	32872.19 (97.	7906.95 (48.8%)
AR&R 10 yea	60033.32	49442.79 (82.	39636.83 (97.	9805.96 (50.5%)
AR&R 10 yea	68323.81	56675.43 (83.	45243.82 (97.	11431.61 (51.7%)
AR&R 10 yea	79972.16	66438.44 (83.	53138.43 (98.	13300.01 (51.4%)
AR&R 10 yea	89191.75	74072.04 (83.	59368.39 (98.	14703.65 (50.9%)

PIPE DETAILS

Name	Max Q	Max V	Max U/S	Max D/S	Due to Storm
	(cu.m/s)	(m/s)	HGL (m)	HGL (m)	
P CA\11	0.040	0.47	15.801	15.789	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1
P CA\10	0.077	0.49	15.772	15.756	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1
P CA\09	0.115	0.53	15.741	15.726	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1
P CA\08	0.269	0.30	15.720	15.717	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1
P CA\07	0.556	0.62	15.679	15.670	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1
P CA\06	0.718	0.53	15.647	15.643	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1
P CA\05	0.881	0.65	15.611	15.603	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1
P CA\04	1.166	0.65	15.571	15.563	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1
P CA\03	1.333	0.74	15.535	15.533	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1
P CA\02	1.333	0.74	15.505	15.500	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1
P CB\03	0.040	0.47	15.801	15.789	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1
P CB\02	0.077	0.49	15.772	15.756	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1
P CB\01	0.115	0.53	15.741	15.726	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1
P CC\03	0.042	0.46	15.802	15.789	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1
P CC\02	0.082	0.52	15.769	15.752	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1
P CC\01	0.123	0.57	15.735	15.717	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1
P CD\03	0.042	0.46	15.802	15.789	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1
P CD\02	0.082	0.52	15.769	15.752	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1
P CD\01	0.123	0.57	15.735	15.717	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1
P CE\03	0.026	0.51	15.764	15.759	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1
P CE\02	0.048	0.44	15.745	15.730	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1
P CE\01	0.070	0.63	15.701	15.670	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1
P CF\03	0.026	0.51	15.764	15.759	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1
P CF\02	0.048	0.44	15.745	15.730	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1
P CF\01	0.070	0.63	15.701	15.670	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1
P CG\03	0.026	0.62	15.739	15.733	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1
P CG\02	0.048	0.43	15.719	15.704	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1
P CG\01	0.070	0.63	15.675	15.643	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1
P CH\03	0.026	0.62	15.739	15.733	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1
P CH\02	0.048	0.43	15.719	15.704	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1
P CH\01	0.070	0.63	15.675	15.643	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1
P CJ\03	0.042	0.61	15.733	15.720	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1
P CJ\02	0.082	0.52	15.700	15.683	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1
P CJ\01	0.122	0.77	15.641	15.603	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1
P CK\03	0.042	0.61	15.733	15.720	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1
P CK\02	0.082	0.52	15.700	15.683	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1
P CK\01	0.122	0.77	15.641	15.603	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1
P CL\03	0.024	1.29	15.875	15.675	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1
P CL\02	0.048	1.10	15.626	15.626	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1
P CL\01	0.072	0.65	15.596	15.563	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1
P CM\03	0.024	1.29	15.875	15.675	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1
P CM\02	0.048	1.10	15.626	15.626	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1
P CM\01	0.072	0.65	15.596	15.563	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1
P DA\11	0.040	0.47	15.801	15.789	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1
P DA\10	0.077	0.49	15.772	15.756	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1
P DA\09	0.115	0.53	15.741	15.726	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1
P DA\08	0.269	0.30	15.720	15.717	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1
P DA\07	0.556	0.62	15.679	15.670	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1
P DA\06	0.718	0.53	15.647	15.643	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1
P DA\05	0.881	0.65	15.611	15.603	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1
P DA\04	1.166	0.65	15.571	15.563	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1
P DA\03	1.333	0.74	15.535	15.533	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1
P DA\02	1.333	0.74	15.505	15.500	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1

P DB\03	0.040	0.47	15.801	15.789	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P DB\02	0.077	0.49	15.772	15.756	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P DB\01	0.115	0.53	15.741	15.726	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P DC\03	0.042	0.46	15.802	15.789	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P DC\02	0.082	0.52	15.769	15.752	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P DC\01	0.123	0.57	15.735	15.717	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P DD\03	0.042	0.46	15.802	15.789	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P DD\02	0.082	0.52	15.769	15.752	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P DD\01	0.123	0.57	15.735	15.717	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P DE\03	0.026	0.51	15.764	15.759	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P DE\02	0.048	0.44	15.745	15.730	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P DE\01	0.070	0.63	15.701	15.670	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P DF\03	0.026	0.51	15.764	15.759	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P DF\02	0.048	0.44	15.745	15.730	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P DF\01	0.070	0.63	15.701	15.670	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P DG\03	0.026	0.62	15.739	15.733	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P DG\02	0.048	0.43	15.719	15.704	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P DG\01	0.070	0.63	15.675	15.643	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P DH\03	0.026	0.62	15.739	15.733	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P DH\02	0.048	0.43	15.719	15.704	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P DH\01	0.070	0.63	15.675	15.643	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P DJ\03	0.042	0.61	15.733	15.720	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P DJ\02	0.082	0.52	15.700	15.683	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P DJ\01	0.122	0.77	15.641	15.603	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P DK\03	0.042	0.61	15.733	15.720	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P DK\02	0.082	0.52	15.700	15.683	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P DK\01	0.122	0.77	15.641	15.603	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P DL\03	0.024	1.29	15.875	15.675	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P DL\02	0.048	1.10	15.626	15.626	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P DL\01	0.072	0.65	15.596	15.563	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P DM\03	0.024	1.29	15.875	15.675	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P DM\02	0.048	1.10	15.626	15.626	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P DM\01	0.072	0.65	15.596	15.563	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P EA\11	0.047	0.62	15.774	15.759	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P EA\10	0.083	0.52	15.739	15.721	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P EA\09	0.120	0.56	15.705	15.688	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P EA\08	0.274	0.30	15.682	15.680	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P EA\07	0.565	0.42	15.663	15.659	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P EA\06	0.736	0.55	15.635	15.630	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P EA\05	0.906	0.50	15.611	15.607	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P EA\04	1.195	0.66	15.574	15.565	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P EA\03	1.351	0.75	15.536	15.534	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P EA\02	1.352	0.75	15.505	15.500	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P EB\03	0.040	0.56	15.764	15.752	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P EB\02	0.078	0.49	15.734	15.718	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P EB\01	0.115	0.53	15.703	15.688	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P EC\03	0.042	0.53	15.764	15.751	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P EC\02	0.082	0.52	15.731	15.714	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P EC\01	0.123	0.57	15.696	15.680	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P ED\03	0.050	0.60	15.774	15.758	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P ED\02	0.087	0.55	15.736	15.717	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P ED\01	0.127	0.59	15.698	15.680	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P EE\03	0.025	0.74	15.720	15.714	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P EE\02	0.048	0.43	15.700	15.684	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P EE\01	0.070	0.44	15.671	15.659	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P EF\03	0.032	0.79	15.739	15.729	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P EF\02	0.055	0.50	15.710	15.691	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P EF\01	0.078	0.49	15.674	15.659	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P EG\03	0.025	0.99	15.695	15.685	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P EG\02	0.048	0.43	15.671	15.656	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P EG\01	0.070	0.44	15.642	15.630	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P EH\03	0.032	1.00	15.714	15.701	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P EH\02	0.055	0.50	15.682	15.662	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P EH\01	0.077	0.49	15.645	15.630	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P EJ\03	0.042	0.76	15.697	15.683	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P EJ\02	0.082	0.52	15.664	15.647	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P EJ\01	0.122	0.57	15.624	15.607	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P EK\03	0.048	0.82	15.707	15.690	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P EK\02	0.087	0.55	15.668	15.649	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P EK\01	0.127	0.59	15.625	15.607	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P EL\03	0.024	1.29	15.875	15.676	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P EL\02	0.048	1.09	15.628	15.627	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P EL\01	0.072	0.65	15.598	15.565	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P EM\03	0.014	1.10	15.855	15.648	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P EM\02	0.038	1.07	15.605	15.611	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P EM\01	0.062	0.56	15.589	15.565	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
Entrance Culv	0.271	0.06	14.165	14.150	AR&R 10 year, 1.5 hours storm, average 37.3 mm/h, Zone 1			
Pipe56908	8.020	5.26	12.367	12.152	AR&R 10 year, 1.5 hours storm, average 37.3 mm/h, Zone 1			
Moore Ave Cu	5.391	4.70	12.178	11.964	AR&R 10 year, 2 hours storm, average 31.2 mm/h, Zone 1			
Ex Moore Ave	9.174	5.46	12.444	12.230	AR&R 10 year, 1 hour storm, average 47.8 mm/h, Zone 1			
Pr P Carpark	0.107	1.59	14.581	14.521	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1			
Pr P Carpark	0.107	1.52	14.402	14.186	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1			
P F\03	0.908	0.32	14.182	14.167	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P F\02	0.975	0.34	14.154	14.150	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P146094	0.106	3.61	14.441	14.000	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P146107	0.110	3.13	13.770	13.151	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1			
Ex P Carpark	0.106	3.61	14.441	14.000	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
Ex P Carpark	0.110	3.13	13.770	13.151	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1			
P AA\06	0.013	0.12	15.486	15.485	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P AA\05	0.068	0.61	15.447	15.410	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P AA\04	0.133	0.05	15.410	15.407	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P AA\03	0.208	0.08	15.407	15.406	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P AA\02	0.217	0.09	15.406	15.400	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P AB\02	0.017	0.16	15.450	15.447	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P AB\01	0.049	0.45	15.426	15.407	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P BA\11	0.069	0.65	15.873	15.835	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P BA\10	0.114	0.72	15.812	15.755	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P BA\09	0.175	0.81	15.732	15.649	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P BA\08	0.236	0.26	15.644	15.634	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P BA\07	0.463	0.34	15.628	15.617	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P BA\06	0.642	0.36	15.606	15.602	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P BA\05	0.820	0.46	15.585	15.578	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P BA\04	0.978	0.54	15.559	15.552	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P BA\03	1.035	0.57	15.544	15.540	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P BA\02	1.177	0.54	15.532	15.533	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P BA\01	1.189	0.55	15.508	15.500	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P BB\03	0.068	0.64	15.854	15.823	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P BB\02	0.113	0.71	15.801	15.726	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P BB\01	0.169	0.78	15.709	15.634	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P BC\03	0.040	1.05	15.731	15.713	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P BC\02	0.068	0.43	15.700	15.664	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P BC\01	0.122	0.56	15.646	15.617	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P BD\03	0.038	1.21	15.713	15.683	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1			
P BD\02	0.066	0.42	15.680	15.648	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P BD\01	0.121	0.56	15.633	15.602	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P BE\03	0.068	0.91	15.750	15.709	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P BE\02	0.112	0.71	15.683	15.609	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P BE\01	0.112	0.52	15.601	15.578	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P BF\02	0.033	0.30	15.627	15.622	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P BF\01	0.153	0.71	15.571	15.540	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P BG\02	0.040	0.57	15.715	15.708	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P BG\01	0.066	0.60	15.672	15.622	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P F\21	0.248	0.91	14.527	14.480	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			
P F\20	0.292	0.87	14.458	14.449	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1			

P F\19	0.301	0.62	14.440	14.425	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1							
P F\18	0.377	0.60	14.419	14.405	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1							
P F\17	0.445	0.62	14.398	14.362	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1							
P F\16	0.456	0.63	14.354	14.327	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1							
P F\15	0.483	0.67	14.323	14.296	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1							
P F\14	0.541	0.38	14.294	14.289	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1							
P F\13	0.571	0.40	14.288	14.272	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1							
P F\12	0.609	0.42	14.270	14.256	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1							
P F\11	0.626	0.43	14.255	14.242	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1							
P F\10	0.645	0.45	14.240	14.232	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1							
P F\09	0.665	0.31	14.232	14.227	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1							
P F\08	0.687	0.32	14.226	14.221	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1							
P F\07	0.708	0.33	14.220	14.214	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1							
P F\06	0.726	0.34	14.213	14.201	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1							
P F\05	0.748	0.26	14.200	14.194	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1							
P F\04	0.777	0.27	14.193	14.186	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1							
CHANNEL DETAILS												
Name	Max Q	Max V			Due to Storm							
	(cu.m/s)	(m/s)										
OVERFLOW ROUTE DETAILS												
Name	Max Q U/S	Max Q D/S	Safe Q	Max D	Max DxV	Max Width	Max V	Due to Storm				
F CA\11	0	0	0.000	0	0	0	0					
F CA\10	0	0	0.000	0	0	0	0					
F CA\09	0	0	0.000	0	0	0	0					
F CA\08	0	0	0.000	0	0	0	0					
F CA\07	0	0	0.000	0	0	0	0					
F CA\06	0	0	0.000	0	0	0	0					
F CA\05	0	0	0.000	0	0	0	0					
F CA\04	0	0	0.000	0	0	0	0					
F CA\03	0	0	0.000	0	0	0	0					
F CA\02	0	0	0.000	0	0	0	0					
F CB\03	0	0	0.000	0	0	0	0					
F CB\02	0	0	0.000	0	0	0	0					
F CB\01	0	0	0.000	0	0	0	0					
F CC\03	0	0	0.000	0	0	0	0					
F CC\02	0	0	0.000	0	0	0	0					
F CC\01	0	0	0.000	0	0	0	0					
F CD\03	0	0	0.000	0	0	0	0					
F CD\02	0	0	-1.000	0	0	0	0					
F CD\01	0	0	0.000	0	0	0	0					
F CE\03	0	0	0.000	0	0	0	0					
F CE\02	0	0	0.000	0	0	0	0					
F CE\01	0	0	0.000	0	0	0	0					
F CF\03	0	0	0.000	0	0	0	0					
F CF\02	0	0	0.000	0	0	0	0					
F CF\01	0	0	0.000	0	0	0	0					
F CG\03	0	0	0.000	0	0	0	0					
F CG\02	0	0	0.000	0	0	0	0					
F CG\01	0	0	0.000	0	0	0	0					
F CH\03	0	0	0.000	0	0	0	0					
F CH\02	0	0	0.000	0	0	0	0					
F CH\01	0	0	0.000	0	0	0	0					
F CJ\03	0	0	0.000	0	0	0	0					
F CJ\02	0	0	0.000	0	0	0	0					
F CJ\01	0	0	0.000	0	0	0	0					
F CK\03	0	0	0.000	0	0	0	0					
F CK\02	0	0	0.000	0	0	0	0					
F CK\01	0	0	0.000	0	0	0	0					
F CL\03	0	0	0.000	0	0	0	0					
F CL\02	0	0	0.000	0	0	0	0					
F CL\01	0	0	0.000	0	0	0	0					
F CM\03	0	0	0.000	0	0	0	0					
F CM\02	0	0	0.000	0	0	0	0					
F CM\01	0	0	0.000	0	0	0	0					
F DA\11	0	0	0.000	0	0	0	0					
F DA\10	0	0	0.000	0	0	0	0					
F DA\09	0	0	0.000	0	0	0	0					
F DA\08	0	0	0.000	0	0	0	0					
F DA\07	0	0	0.000	0	0	0	0					
F DA\06	0	0	0.000	0	0	0	0					
F DA\05	0	0	0.000	0	0	0	0					
F DA\04	0	0	0.000	0	0	0	0					
F DA\03	0	0	0.000	0	0	0	0					
F DA\02	0	0	0.000	0	0	0	0					
F DB\03	0	0	0.000	0	0	0	0					
F DB\02	0	0	0.000	0	0	0	0					
F DB\01	0	0	0.000	0	0	0	0					
F DC\03	0	0	0.000	0	0	0	0					
F DC\02	0	0	0.000	0	0	0	0					
F DC\01	0	0	0.000	0	0	0	0					
F DD\03	0	0	0.000	0	0	0	0					
F DD\02	0	0	0.000	0	0	0	0					
F DD\01	0	0	0.000	0	0	0	0					
F DE\03	0	0	0.000	0	0	0	0					
F DE\02	0	0	0.000	0	0	0	0					
F DE\01	0	0	0.000	0	0	0	0					
F DF\03	0	0	0.000	0	0	0	0					
F DF\02	0	0	0.000	0	0	0	0					
F DF\01	0	0	0.000	0	0	0	0					
F DG\03	0	0	0.000	0	0	0	0					
F DG\02	0	0	0.000	0	0	0	0					
F DG\01	0	0	0.000	0	0	0	0					
F DH\03	0	0	0.000	0	0	0	0					
F DH\02	0	0	0.000	0	0	0	0					
F DH\01	0	0	0.000	0	0	0	0					
F DJ\03	0	0	0.000	0	0	0	0					
F DJ\02	0	0	0.000	0	0	0	0					
F DJ\01	0	0	0.000	0	0	0	0					
F DK\03	0	0	0.000	0	0	0	0					
F DK\02	0	0	0.000	0	0	0	0					
F DK\01	0	0	0.000	0	0	0	0					
F DL\03	0	0	0.000	0	0	0	0					
F DL\02	0	0	0.000	0	0	0	0					
F DL\01	0	0	0.000	0	0	0	0					
F DM\03	0	0	0.000	0	0	0	0					
F DM\02	0	0	0.000	0	0	0	0					
F DM\01	0	0	0.000	0	0	0	0					
F EA\11	0	0	0.000	0	0	0	0					
F EA\10	0	0	0.000	0	0	0	0					
F EA\09	0	0	0.000	0	0	0	0					
F EA\08	0	0	0.000	0	0	0	0					
F EA\07	0	0	0.000	0	0	0	0					
F EA\06	0	0	0.000	0	0	0	0					
F EA\05	0	0	0.000	0	0	0	0					
F EA\04	0	0	0.000	0	0	0	0					
F EA\03	0	0	0.000	0	0	0	0					
F EB\03	0	0	0.000	0	0	0	0					
F EB\02	0	0	0.000	0	0	0	0					
F EB\01	0	0	0.000	0	0	0	0					
F EC\03	0	0	0.000	0	0	0	0					
F EC\02	0	0	0.000	0	0	0	0					
F EC\01	0	0	0.000	0	0	0	0					

F ED\03	0	0	0.000	0	0	0	0					
F ED\02	0	0	0.000	0	0	0	0					
F ED\01	0	0	0.000	0	0	0	0					
F EE\03	0	0	0.000	0	0	0	0					
F EE\02	0	0	0.000	0	0	0	0					
F EE\01	0	0	0.000	0	0	0	0					
F EF\03	0	0	0.000	0	0	0	0					
F EF\02	0	0	0.000	0	0	0	0					
F EF\01	0	0	0.000	0	0	0	0					
F EG\03	0	0	0.000	0	0	0	0					
F EG\02	0	0	0.000	0	0	0	0					
F EG\01	0	0	15159862141	0	0	0	0					
F EH\03	0	0	0.000	0	0	0	0					
F EH\02	0	0	0.000	0	0	0	0					
F EH\01	0	0	0.000	0	0	0	0					
F EJ\03	0	0	0.000	0	0	0	0					
F EJ\02	0	0	0.000	0	0	0	0					
F EJ\01	0	0	0.000	0	0	0	0					
F EK\03	0	0	0.000	0	0	0	0					
F EK\02	0	0	0.000	0	0	0	0					
F EK\01	0	0	0.000	0	0	0	0					
F EL\03	0	0	0.000	0	0	0	0					
F EL\02	0	0	0.000	0	0	0	0					
F EL\01	0	0	0.000	0	0	0	0					
F EM\03	0	0	0.000	0	0	0	0					
F EM\02	0	0	0.000	0	0	0	0					
F EM\01	0	0	0.000	0	0	0	0					
Stage Dischar	0.045	0.045	0.000	0.026	0.01	8.83	0.38	AR&R 10 year, 2 hours storm, average 31.2 mm/h, Zone 1				
OF55804	0	0	0.000	0	0	0	0					
F Channel 1	2.428	4.121	0.000	0.156	0.21	35.16	1.38	AR&R 10 year, 1.5 hours storm, average 37.3 mm/h, Zone 1				
OF South Cat	0.902	0.902	0.000	0.083	0.08	20.61	0.94	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1				
Moorebank A	0	0	0.000	0	0	0	0					
F Moorebank	0	0	0.000	0	0	0	0					
F CatC1Ex	0.902	0.902	0.000	0.083	0.08	20.61	0.94	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1				
F Channel 2	4.750	4.750	0.000	0.165	0.24	36.96	1.43	AR&R 10 year, 2 hours storm, average 31.2 mm/h, Zone 1				
F OSD Dumm	0.203	0.203	0.000	0.045	0.03	13.07	0.62	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1				
OF137724	0	0	0.000	0	0	0	0					
Existing Chan	6.411	6.411	0.000	0.186	0.29	41.27	1.54	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1				
F CatC1	0.902	0.902	0.000	0.083	0.08	20.61	0.94	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1				
Prop Carpark	0.763	0.763	0.000	0.078	0.07	19.54	0.89	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1				
OF410995	0	0	0.000	0	0	0	0					
F F\03	0	0	0.000	0	0	0	0					
OF349883	0	0	0.000	0	0	0	0					
OF200780	0.975	0.975	0.000	0.086	0.08	21.15	0.96	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1				
OF149489	0.763	0.763	0.000	0.078	0.07	19.54	0.89	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1				
OF151533	0	0	0.000	0	0	0	0					
OF Carpark	0.110	0.110	0.000	0.036	0.02	11.27	0.51	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1				
Ex Carpark O	0.763	0.763	0.000	0.078	0.07	19.54	0.89	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1				
OF149518	0	0	0.000	0	0	0	0					
OF137717	0.110	0.110	0.000	0.036	0.02	11.27	0.51	AR&R 10 year, 5 minutes storm, average 153 mm/h, Zone 1				
F Cat 1	0.079	0.231	0.000	0.320	0.61	0.69	1.92	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1				
F Cat 2	0.230	0.311	0.000	0.361	0.75	0.75	2.07	AR&R 10 year, 25 minutes storm, average 77.0 mm/h, Zone 1				
F Cat 3	0.309	0.344	0.000	0.378	0.80	0.77	2.12	AR&R 10 year, 2 hours storm, average 31.2 mm/h, Zone 1				
F Cat 4	0.343	0.744	0.000	0.525	1.34	0.97	2.56	AR&R 10 year, 2 hours storm, average 31.2 mm/h, Zone 1				
F Cat 5	0.742	0.928	0.000	0.578	1.56	1.04	2.70	AR&R 10 year, 1.5 hours storm, average 37.3 mm/h, Zone 1				
F Cat 6	0.923	0.923	0.000	0.084	0.08	20.79	0.94	AR&R 10 year, 2 hours storm, average 31.2 mm/h, Zone 1				
F Cat 7	1.045	1.045	0.000	0.088	0.09	21.69	0.97	AR&R 10 year, 2 hours storm, average 31.2 mm/h, Zone 1				
Swale	1.253	1.579	0.000	0.730	2.23	1.24	3.06	AR&R 10 year, 1.5 hours storm, average 37.3 mm/h, Zone 1				
OF282905	1.575	1.575	0.000	0.105	0.11	24.92	1.08	AR&R 10 year, 1.5 hours storm, average 37.3 mm/h, Zone 1				
F AA\06	0	0	0.000	0	0	0	0					
F AA\05	0	0	0.000	0	0	0	0					
F AA\04	0	0	0.000	0	0	0	0					
F AA\03	0	0	0.000	0	0	0	0					
F AA\02	0	0	0.000	0	0	0	0					
F AB\02	0	0	0.000	0	0	0	0					
F AB\01	0	0	0.000	0	0	0	0					
F BA\11	0	0	0.000	0	0	0	0					
F BA\10	0	0	0.000	0	0	0	0					
F BA\09	0	0	0.000	0	0	0	0					
F BA\08	0	0	0.000	0	0	0	0					
F BA\07	0	0	0.000	0	0	0	0					
F BA\06	0	0	0.000	0	0	0	0					
F BA\05	0	0	0.000	0	0	0	0					
F BA\04	0	0	0.000	0	0	0	0					
F BA\03	0	0	0.000	0	0	0	0					
F BA\02	0	0	0.000	0	0	0	0					
OF360759	0	0	0.000	0	0	0	0					
F BB\03	0	0	0.000	0	0	0	0					
F BB\02	0	0	0.000	0	0	0	0					
F BB\01	0	0	0.000	0	0	0	0					
F BC\03	0	0	0.000	0	0	0	0					
F BC\02	0	0	0.000	0	0	0	0					
F BC\01	0	0	0.000	0	0	0	0					
F BD\03	0	0	0.000	0	0	0	0					
F BD\02	0	0	0.000	0	0	0	0					
F BD\01	0	0	0.000	0	0	0	0					
F BE\03	0	0	0.000	0	0	0	0					
F BE\02	0	0	0.000	0	0	0	0					
F BE\01	0	0	0.000	0	0	0	0					
F BF\02	0	0	0.000	0	0	0	0					
F BF\01	0	0	0.000	0	0	0	0					
F BG\02	0	0	0.000	0	0	0	0					
F BG\01	0	0	0.000	0	0	0	0					
F F\21	0	0	0.000	0	0	0	0					
F F\20	0	0	0.000	0	0	0	0					
F F\19	0	0	0.000	0	0	0	0					
F F\18	0	0	0.000	0	0	0	0					
F F\17	0	0	0.000	0	0	0	0					
F F\16	0	0	0.000	0	0	0	0					
F F\15	0	0	0.000	0	0	0	0					
F F\14	0	0	0.000	0	0	0	0					
F F\13	0	0	0.000	0	0	0	0					
F F\12	0	0	0.000	0	0	0	0					
F F\11	0	0	0.000	0	0	0	0					
F F\10	0	0	0.000	0	0	0	0					
F F\09	0	0	0.000	0	0	0	0					
F F\08	0	0	-9999.000	0	0	0	0					
F F\07	0	0	0.000	0	0	0	0					
F F\06	0	0	0.000	0	0	0	0					
F F\05	0	0	0.000	0	0	0	0					
F F\04	0	0	0.000	0	0	0	0					
DETENTION BASIN DETAILS												
Name	Max WL	MaxVol	Max Q	Max Q	Max Q							
			Total	Low Level	High Level							
Stage1	14.52	4489.5	0.045	0.000	0.045							
CONTINUITY CHECK for AR&R 10 year, 1 hour storm, average 47.8 mm/h, Zone 1												
Node	Inflow	Outflow	Storage Chan	Difference								
	(cu.m)	(cu.m)	(cu.m)	%								
CA\11	47.17	47.19	0.00	-0.0								
CA\10	94.36	94.39	0.00	-0.0								
CA\09	141.56	141.52	0.00	0.0								

CA\08	330.23	330.24	0.00	-0.0								
CA\07	684.19	684.20	0.00	-0.0								
CA\06	880.78	880.79	0.00	-0.0								
CA\05	1077.40	1077.38	0.00	0.0								
CA\04	1431.28	1431.25	0.00	0.0								
CA\03	1633.73	1650.86	0.00	-1.0								
CA\02	1650.86	1671.82	0.00	-1.3								
CA Outlet	1671.82	1671.82	0.00	0.0								
CB\03	47.17	47.19	0.00	-0.0								
CB\02	94.36	94.36	0.00	-0.0								
CB\01	141.54	141.54	0.00	0.0								
CC\03	50.54	50.56	0.00	-0.0								
CC\02	101.10	101.14	0.00	-0.0								
CC\01	151.68	151.70	0.00	-0.0								
CD\03	50.54	50.56	0.00	-0.0								
CD\02	101.10	101.14	0.00	-0.0								
CD\01	151.69	151.71	0.00	-0.0								
CE\03	28.08	28.09	0.00	-0.0								
CE\02	56.17	56.19	0.00	-0.0								
CE\01	84.27	84.25	0.00	0.0								
CF\03	28.08	28.09	0.00	-0.0								
CF\02	56.17	56.18	0.00	-0.0								
CF\01	84.26	84.24	0.00	0.0								
CG\03	28.08	28.09	0.00	-0.0								
CG\02	56.17	56.18	0.00	-0.0								
CG\01	84.26	84.26	0.00	-0.0								
CH\03	28.08	28.09	0.00	-0.0								
CH\02	56.17	56.18	0.00	-0.0								
CH\01	84.26	84.26	0.00	-0.0								
CJ\03	50.54	50.56	0.00	-0.0								
CJ\02	101.10	101.12	0.00	-0.0								
CJ\01	151.66	151.68	0.00	-0.0								
CK\03	50.54	50.56	0.00	-0.0								
CK\02	101.10	101.11	0.00	-0.0								
CK\01	151.66	151.68	0.00	-0.0								
CL\03	28.92	28.94	0.00	-0.1								
CL\02	57.86	57.85	0.00	0.0								
CL\01	86.77	86.78	0.00	-0.0								
CM\03	28.92	28.94	0.00	-0.1								
CM\02	57.86	57.85	0.00	0.0								
CM\01	86.77	86.78	0.00	-0.0								
DA\11	47.17	47.19	0.00	-0.0								
DA\10	94.36	94.39	0.00	-0.0								
DA\09	141.56	141.52	0.00	0.0								
DA\08	330.23	330.24	0.00	-0.0								
DA\07	684.19	684.20	0.00	-0.0								
DA\06	880.78	880.79	0.00	-0.0								
DA\05	1077.40	1077.38	0.00	0.0								
DA\04	1431.28	1431.25	0.00	0.0								
DA\03	1633.73	1650.86	0.00	-1.0								
DA\02	1650.86	1671.82	0.00	-1.3								
DA Outlet	1671.82	1671.82	0.00	0.0								
DB\03	47.17	47.19	0.00	-0.0								
DB\02	94.36	94.36	0.00	-0.0								
DB\01	141.54	141.54	0.00	0.0								
DC\03	50.54	50.56	0.00	-0.0								
DC\02	101.10	101.14	0.00	-0.0								
DC\01	151.68	151.70	0.00	-0.0								
DD\03	50.54	50.56	0.00	-0.0								
DD\02	101.10	101.14	0.00	-0.0								
DD\01	151.69	151.71	0.00	-0.0								
DE\03	28.08	28.09	0.00	-0.0								
DE\02	56.17	56.19	0.00	-0.0								
DE\01	84.27	84.25	0.00	0.0								
DF\03	28.08	28.09	0.00	-0.0								
DF\02	56.17	56.18	0.00	-0.0								
DF\01	84.26	84.24	0.00	0.0								
DG\03	28.08	28.09	0.00	-0.0								
DG\02	56.17	56.18	0.00	-0.0								
DG\01	84.26	84.26	0.00	-0.0								
DH\03	28.08	28.09	0.00	-0.0								
DH\02	56.17	56.18	0.00	-0.0								
DH\01	84.26	84.26	0.00	-0.0								
DJ\03	50.54	50.56	0.00	-0.0								
DJ\02	101.10	101.12	0.00	-0.0								
DJ\01	151.66	151.68	0.00	-0.0								
DK\03	50.54	50.56	0.00	-0.0								
DK\02	101.10	101.11	0.00	-0.0								
DK\01	151.66	151.68	0.00	-0.0								
DL\03	28.92	28.94	0.00	-0.1								
DL\02	57.86	57.85	0.00	0.0								
DL\01	86.77	86.78	0.00	-0.0								
DM\03	28.92	28.94	0.00	-0.1								
DM\02	57.86	57.85	0.00	0.0								
DM\01	86.77	86.78	0.00	-0.0								
EA\11	63.04	62.86	0.00	0.3								
EA\10	110.03	110.03	0.00	-0.0								
EA\09	157.20	157.19	0.00	0.0								
EA\08	345.87	345.90	0.00	-0.0								
EA\07	716.74	716.73	0.00	0.0								
EA\06	922.66	922.68	0.00	-0.0								
EA\05	1128.55	1128.48	0.00	0.0								
EA\04	1499.04	1499.17	0.00	-0.0								
EA\03	1689.63	1676.60	0.00	0.8								
EA\02	1676.60	1660.78	0.00	0.9								
EA Outlet	1660.78	1660.78	0.00	0.0								
EB\03	47.17	47.19	0.00	-0.0								
EB\02	94.36	94.37	0.00	-0.0								
EB\01	141.54	141.50	0.00	0.0								
EC\03	50.54	50.56	0.00	-0.0								
EC\02	101.10	101.15	0.00	-0.0								
EC\01	151.69	151.71	0.00	-0.0								
ED\03	67.62	67.44	0.00	0.3								
ED\02	117.98	118.02	0.00	-0.0								
ED\01	168.56	168.58	0.00	-0.0								
EE\03	28.08	28.09	0.00	-0.0								
EE\02	56.17	56.18	0.00	-0.0								
EE\01	84.26	84.24	0.00	0.0								
EF\03	37.44	37.46	0.00	-0.0								
EF\02	65.54	65.55	0.00	-0.0								
EF\01	93.63	93.62	0.00	0.0								
EG\03	28.08	28.09	0.00	-0.0								
EG\02	56.17	56.19	0.00	-0.0								
EG\01	84.27	84.21	0.00	0.1								
EH\03	37.44	37.46	0.00	-0.0								
EH\02	65.54	65.55	0.00	-0.0								
EH\01	93.63	93.57	0.00	0.1								
EJ\03	50.54	50.56	0.00	-0.0								
EJ\02	101.10	101.11	0.00	-0.0								
EJ\01	151.65	151.66	0.00	-0.0								
EK\03	67.44	67.25	0.00	0.3								
EK\02	117.79	117.79	0.00	-0.0								
EK\01	168.34	168.35	0.00	-0.0								
EL\03	28.92	28.94	0.00	-0.1								

EL\02	57.86	57.85	0.00	0.0								
EL\01	86.78	86.79	0.00	-0.0								
EM\03	16.89	16.90	0.00	-0.0								
EM\02	45.82	45.81	0.00	0.0								
EM\01	74.74	74.75	0.00	-0.0								
O CA\02	0.00	0.00	0.00	0.0								
O DA\02	0.00	0.00	0.00	0.0								
Stage1	172.60	155.52	17.08	-0.0								
Dummy Pit	155.51	155.28	0.00	0.1								
Channel1	4699.48	4699.79	0.00	-0.0								
N60922	1041.30	1041.30	0.00	0.0								
N60923	644.00	644.00	0.00	0.0								
HW Moore	16536.16	16532.41	0.00	0.0								
Full Existing	16532.41	16532.41	0.00	0.0								
N60936	4562.92	4562.92	0.00	0.0								
Moore HW	10432.88	10437.39	0.00	-0.0								
P Georges R	10437.39	10437.39	0.00	0.0								
N98596	1041.30	1041.30	0.00	0.0								
N103004	9391.31	9391.33	0.00	-0.0								
N147106	144.04	144.04	0.00	0.0								
HW4	16605.24	16605.79	0.00	-0.0								
Ex Georges R	16605.79	16605.79	0.00	0.0								
N147129	10871.77	10871.77	0.00	0.0								
N147132	1041.30	1041.30	0.00	0.0								
Carpark HW	975.76	975.75	0.00	0.0								
Pr Carpark Ju	331.75	331.74	0.00	0.0								
F\03	1232.31	1232.39	0.00	-0.0								
F\02	1335.18	1335.19	0.00	-0.0								
Channel2	1335.19	1335.20	0.00	-0.0								
Prop Carpark	644.00	644.00	0.00	0.0								
HW46	975.76	975.76	0.00	0.0								
Pit144889	331.77	331.87	0.00	-0.0								
N159649	331.87	331.87	0.00	0.0								
HW57	975.76	975.76	0.00	0.0								
Pit144901	331.77	331.87	0.00	-0.0								
Ex Existing Ch	331.87	331.87	0.00	0.0								
EX Carpark N	644.00	644.00	0.00	0.0								
N214245	59.81	59.81	0.00	0.0								
N214246	219.75	219.75	0.00	0.0								
N214247	384.07	384.07	0.00	-0.0								
N214248	478.35	478.35	0.00	-0.0								
N214249	1032.64	1032.64	0.00	0.0								
N214250	1425.01	1425.01	0.00	-0.0								
N214256	1839.36	1839.36	0.00	-0.0								
N214257	2593.09	2593.09	0.00	-0.0								
N304196	3208.94	3208.94	0.00	0.0								
AA\06	15.49	15.50	0.00	-0.0								
AA\05	83.64	83.62	0.00	0.0								
AA\04	159.95	163.28	0.00	-2.1								
AA\03	264.62	240.54	0.00	9.1								
AA\02	240.54	273.24	0.00	-13.6								
AA Outlet	273.24	273.24	0.00	0.0								
AB\02	21.20	21.23	0.00	-0.2								
AB\01	61.39	61.43	0.00	-0.1								
BA\11	77.73	77.81	0.00	-0.1								
BA\10	131.54	131.58	0.00	-0.0								
BA\09	203.04	203.10	0.00	-0.0								
BA\08	274.61	274.67	0.00	-0.0								
BA\07	537.65	537.70	0.00	-0.0								
BA\06	744.95	745.00	0.00	-0.0								
BA\05	951.83	951.83	0.00	-0.0								
BA\04	1136.77	1136.93	0.00	-0.0								
BA\03	1197.58	1197.00	0.00	0.0								
BA\02	1374.65	1376.26	0.00	-0.1								
BA\01	1376.26	1374.41	0.00	0.1								
BA Outlet	1374.41	1374.41	0.00	0.0								
BB\03	77.27	77.34	0.00	-0.1								
BB\02	131.11	131.15	0.00	-0.0								
BB\01	197.04	197.09	0.00	-0.0								
BC\03	43.24	43.27	0.00	-0.1								
BC\02	75.38	75.43	0.00	-0.1								
BC\01	141.32	141.36	0.00	-0.0								
BD\03	42.96	42.99	0.00	-0.1								
BD\02	75.28	75.32	0.00	-0.0								
BD\01	140.88	140.94	0.00	-0.0								
BE\03	77.55	77.62	0.00	-0.1								
BE\02	130.78	130.74	0.00	0.0								
BE\01	130.74	130.79	0.00	-0.0								
BF\02	38.42	38.45	0.00	-0.1								
BF\01	177.57	177.65	0.00	-0.0								
BG\02	44.46	44.51	0.00	-0.1								
BG\01	75.77	75.70	0.00	0.1								
F\21	200.05	199.63	0.00	0.2								
F\20	261.54	260.91	0.00	0.2								
F\19	297.68	297.00	0.00	0.2								
F\18	325.14	324.61	0.00	0.2								
F\17	398.32	398.54	0.00	-0.1								
F\16	426.37	426.73	0.00	-0.1								
F\15	481.93	481.87	0.00	0.0								
F\14	523.03	523.18	0.00	-0.0								
F\13	577.87	577.71	0.00	0.0								
F\12	632.60	632.70	0.00	-0.0								
F\11	660.06	659.91	0.00	0.0								
F\10	687.10	687.05	0.00	0.0								
F\09	714.31	714.24	0.00	0.0								
F\08	741.70	741.65	0.00	0.0								
F\07	770.43	770.36	0.00	0.0								
F\06	802.07	802.04	0.00	0.0								
F\05	832.51	832.43	0.00	0.0								
F\04	866.34	866.19	0.00	0.0								
Run Log for ConceptStage1.drn run at 12:09:54 on 18/2/2015												
No water upwelling from any pit.												
Freeboard was less than 0.15m at BF\01, Pr Carpark Junc												
The maximum flow exceeded the safe value in the following overflow routes: OF282905, OF200780, F Cat 7, F Cat 6, F Cat 1, F Cat 2, F Cat 3, F Cat 4, F Cat 5, Ex Carpark Overflow, OF149												
The following overflow routes carried water uphill (adding energy): Stage Discharge												
These results may be invalid. You should check for water flowing round in circles at these locations. You may need to reformulate the model.												

PROJECT	SIMTA				
TITLE	100 YEAR ARI RESULTS	JOB No		AA003760	
		PREPARED	GD	DATE	18/02/2015
		CHECKED	BC	DATE	18/02/2015

DRAINS File Path:	F:\AA003760\D-Calcs\A-Civil\A-Stormwater\A-DRAINS
DRAINS Version:	DRAINS Version 2015.02 - 4 Februrary 2015
Modeller's Name:	George Dunstan
Description:	Existing and Proposed

DRAINS results prepared 18 February, 2015 from Version 2015.02

RESULTS 100 YEAR ARI

PIT / NODE DETAILS — Version 8

Name	Max HGL	Max Pond HGL	Max Surface Flow Arriving (cu.m/s)	Max Pond Volume (cu.m)	Min Freeboard (m)	Overflow (cu.m/s)	Constraint
CA\11	16.18	16.52	0.063	8.1	0.26	0.000	Inlet Capacity
CA\10	16.13	16.52	0.063	8.1	0.31	0.000	Inlet Capacity
CA\09	16.08	16.52	0.063	8.1	0.36	0.000	Inlet Capacity
CA\08	16.03	16.52	0.063	8.1	0.41	0.000	Inlet Capacity
CA\07	16.01	16.50	0.067	9.3	0.41	0.000	Inlet Capacity
CA\06	15.94	16.55	0.037	4.5	0.56	0.000	Inlet Capacity
CA\05	15.90	16.55	0.037	4.5	0.60	0.000	Inlet Capacity
CA\04	15.84	16.50	0.067	9.3	0.58	0.000	Inlet Capacity
CA\03	15.78	16.45	0.038	4.6	0.62	0.000	Inlet Capacity
CA\02	15.74		0.000		0.62	0.000	None
CA Outlet	15.70		0.000				
CB\03	16.18	16.52	0.063	8.1	0.26	0.000	Inlet Capacity
CB\02	16.13	16.52	0.063	8.1	0.31	0.000	Inlet Capacity
CB\01	16.08	16.52	0.063	8.1	0.36	0.000	Inlet Capacity
CC\03	16.17	16.50	0.067	9.3	0.25	0.000	Inlet Capacity
CC\02	16.11	16.50	0.067	9.3	0.31	0.000	Inlet Capacity
CC\01	16.06	16.50	0.067	9.3	0.36	0.000	Inlet Capacity
CD\03	16.17	16.50	0.067	9.3	0.25	0.000	Inlet Capacity
CD\02	16.11	16.50	0.067	9.3	0.31	0.000	Inlet Capacity
CD\01	16.06	16.50	0.067	9.3	0.36	0.000	Inlet Capacity
CE\03	16.18	16.55	0.037	4.5	0.32	0.000	Inlet Capacity
CE\02	16.13	16.55	0.037	4.5	0.37	0.000	Inlet Capacity
CE\01	16.05	16.55	0.037	4.5	0.45	0.000	Inlet Capacity
CF\03	16.18	16.55	0.037	4.5	0.32	0.000	Inlet Capacity
CF\02	16.13	16.55	0.037	4.5	0.37	0.000	Inlet Capacity
CF\01	16.05	16.55	0.037	4.5	0.45	0.000	Inlet Capacity
CG\03	16.13	16.55	0.037	4.5	0.37	0.000	Inlet Capacity
CG\02	16.07	16.55	0.037	4.5	0.43	0.000	Inlet Capacity
CG\01	16.01	16.55	0.037	4.5	0.49	0.000	Inlet Capacity
CH\03	16.13	16.56	0.037	4.5	0.37	0.000	Inlet Capacity
CH\02	16.07	16.55	0.037	4.5	0.43	0.000	Inlet Capacity
CH\01	16.01	16.55	0.037	4.5	0.49	0.000	Inlet Capacity
CJ\03	16.05	16.50	0.067	9.3	0.37	0.000	Inlet Capacity
CJ\02	16.00	16.50	0.067	9.3	0.42	0.000	Inlet Capacity
CJ\01	15.95	16.50	0.067	9.3	0.47	0.000	Inlet Capacity
CK\03	16.05	16.50	0.067	9.3	0.37	0.000	Inlet Capacity
CK\02	16.00	16.50	0.067	9.3	0.42	0.000	Inlet Capacity
CK\01	15.95	16.50	0.067	9.3	0.47	0.000	Inlet Capacity
CL\03	16.02	16.46	0.038	4.6	0.38	0.000	Inlet Capacity
CL\02	15.95	16.46	0.038	4.6	0.45	0.000	Inlet Capacity
CL\01	15.90	16.46	0.038	4.6	0.50	0.000	Inlet Capacity
CM\03	16.07	16.46	0.038	4.6	0.33	0.000	Inlet Capacity
CM\02	15.95	16.46	0.038	4.6	0.45	0.000	Inlet Capacity
CM\01	15.90	16.46	0.038	4.6	0.50	0.000	Inlet Capacity
DA\11	16.18	16.52	0.063	8.1	0.26	0.000	Inlet Capacity
DA\10	16.13	16.52	0.063	8.1	0.31	0.000	Inlet Capacity
DA\09	16.08	16.52	0.063	8.1	0.36	0.000	Inlet Capacity
DA\08	16.03	16.52	0.063	8.1	0.41	0.000	Inlet Capacity
DA\07	16.01	16.50	0.067	9.3	0.41	0.000	Inlet Capacity
DA\06	15.94	16.55	0.037	4.5	0.56	0.000	Inlet Capacity
DA\05	15.90	16.55	0.037	4.5	0.60	0.000	Inlet Capacity
DA\04	15.84	16.50	0.067	9.3	0.58	0.000	Inlet Capacity
DA\03	15.78	16.45	0.038	4.6	0.62	0.000	Inlet Capacity
DA\02	15.74		0.000		0.62	0.000	None
DA Outlet	15.70		0.000				
DB\03	16.18	16.52	0.063	8.1	0.26	0.000	Inlet Capacity
DB\02	16.13	16.52	0.063	8.1	0.31	0.000	Inlet Capacity
DB\01	16.08	16.52	0.063	8.1	0.36	0.000	Inlet Capacity
DC\03	16.17	16.50	0.067	9.3	0.25	0.000	Inlet Capacity
DC\02	16.11	16.50	0.067	9.3	0.31	0.000	Inlet Capacity
DC\01	16.06	16.50	0.067	9.3	0.36	0.000	Inlet Capacity
DD\03	16.17	16.50	0.067	9.3	0.25	0.000	Inlet Capacity
DD\02	16.11	16.50	0.067	9.3	0.31	0.000	Inlet Capacity
DD\01	16.06	16.50	0.067	9.3	0.36	0.000	Inlet Capacity
DE\03	16.18	16.55	0.037	4.5	0.32	0.000	Inlet Capacity
DE\02	16.13	16.55	0.037	4.5	0.37	0.000	Inlet Capacity
DE\01	16.05	16.55	0.037	4.5	0.45	0.000	Inlet Capacity
DF\03	16.18	16.55	0.037	4.5	0.32	0.000	Inlet Capacity
DF\02	16.13	16.55	0.037	4.5	0.37	0.000	Inlet Capacity
DF\01	16.05	16.55	0.037	4.5	0.45	0.000	Inlet Capacity
DG\03	16.13	16.55	0.037	4.5	0.37	0.000	Inlet Capacity
DG\02	16.07	16.55	0.037	4.5	0.43	0.000	Inlet Capacity
DG\01	16.01	16.55	0.037	4.5	0.49	0.000	Inlet Capacity
DH\03	16.13	16.55	0.037	4.5	0.37	0.000	Inlet Capacity
DH\02	16.07	16.55	0.037	4.5	0.43	0.000	Inlet Capacity
DH\01	16.01	16.55	0.037	4.5	0.49	0.000	Inlet Capacity
DJ\03	16.05	16.50	0.067	9.3	0.37	0.000	Inlet Capacity
DJ\02	16.00	16.50	0.067	9.3	0.42	0.000	Inlet Capacity
DJ\01	15.95	16.50	0.067	9.3	0.47	0.000	Inlet Capacity
DK\03	16.05	16.50	0.067	9.3	0.37	0.000	Inlet Capacity
DK\02	16.00	16.50	0.067	9.3	0.42	0.000	Inlet Capacity
DK\01	15.95	16.50	0.067	9.3	0.47	0.000	Inlet Capacity
DL\03	16.02	16.46	0.038	4.6	0.38	0.000	Inlet Capacity
DL\02	15.95	16.46	0.038	4.6	0.45	0.000	Inlet Capacity
DL\01	15.90	16.46	0.038	4.6	0.50	0.000	Inlet Capacity
DM\03	16.07	16.46	0.038	4.6	0.33	0.000	Inlet Capacity
DM\02	15.95	16.46	0.038	4.6	0.45	0.000	Inlet Capacity
DM\01	15.90	16.46	0.038	4.6	0.50	0.000	Inlet Capacity
EA\11	16.12	16.53	0.084	19.0	0.32	0.000	Inlet Capacity
EA\10	16.07	16.52	0.063	8.1	0.37	0.000	Inlet Capacity
EA\09	16.02	16.52	0.063	8.1	0.42	0.000	Inlet Capacity
EA\08	15.97	16.52	0.063	8.1	0.47	0.000	Inlet Capacity
EA\07	15.95	16.50	0.067	9.3	0.47	0.000	Inlet Capacity
EA\06	15.92	16.55	0.037	4.5	0.58	0.000	Inlet Capacity
EA\05	15.88	16.55	0.037	4.5	0.62	0.000	Inlet Capacity
EA\04	15.85	16.50	0.067	9.3	0.57	0.000	Inlet Capacity
EA\03	15.78	16.45	0.038	4.6	0.62	0.000	Inlet Capacity
EA\02	15.74		0.000		0.62		None
EA Outlet	15.70		0.000				
EB\03	16.12	16.52	0.063	8.1	0.32	0.000	Inlet Capacity
EB\02	16.07	16.52	0.063	8.1	0.37	0.000	Inlet Capacity
EB\01	16.02	16.52	0.063	8.1	0.42	0.000	Inlet Capacity
EC\03	16.10	16.50	0.067	9.3	0.32	0.000	Inlet Capacity
EC\02	16.05	16.50	0.067	9.3	0.37	0.000	Inlet Capacity
EC\01	16.00	16.50	0.067	9.3	0.42	0.000	Inlet Capacity
ED\03	16.09	16.51	0.090	21.6	0.33	0.000	Inlet Capacity
ED\02	16.05	16.50	0.067	9.3	0.37	0.000	Inlet Capacity
ED\01	16.00	16.50	0.067	9.3	0.42	0.000	Inlet Capacity

EE\03	16.13	16.55	0.037	4.5	0.37	0.000	Inlet Capacity					
EE\02	16.07	16.55	0.037	4.5	0.43	0.000	Inlet Capacity					
EE\01	15.98	16.55	0.037	4.5	0.52	0.000	Inlet Capacity					
EF\03	16.10	16.57	0.050	6.0	0.40	0.000	Inlet Capacity					
EF\02	16.06	16.55	0.037	4.5	0.44	0.000	Inlet Capacity					
EF\01	15.98	16.55	0.037	4.5	0.52	0.000	Inlet Capacity					
EG\03	16.06	16.55	0.037	4.5	0.44	0.000	Inlet Capacity					
EG\02	16.05	16.55	0.037	4.5	0.45	0.000	Inlet Capacity					
EG\01	15.97	16.55	0.037	4.5	0.53	0.000	Inlet Capacity					
EH\03	16.07	16.57	0.050	6.0	0.43	0.000	Inlet Capacity					
EH\02	16.03	16.55	0.037	4.5	0.47	0.000	Inlet Capacity					
EH\01	15.96	16.55	0.037	4.5	0.54	0.000	Inlet Capacity					
EJ\03	16.00	16.50	0.067	9.3	0.42	0.000	Inlet Capacity					
EJ\02	15.95	16.50	0.067	9.3	0.47	0.000	Inlet Capacity					
EJ\01	15.90	16.50	0.067	9.3	0.52	0.000	Inlet Capacity					
EK\03	15.99	16.51	0.090	21.5	0.43	0.000	Inlet Capacity					
EK\02	15.94	16.50	0.067	9.3	0.48	0.000	Inlet Capacity					
EK\01	15.90	16.50	0.067	9.3	0.52	0.000	Inlet Capacity					
EL\03	16.02	16.46	0.038	4.6	0.38	0.000	Inlet Capacity					
EL\02	15.95	16.46	0.038	4.6	0.45	0.000	Inlet Capacity					
EL\01	15.90	16.46	0.038	4.6	0.50	0.000	Inlet Capacity					
EM\03	16.01	16.44	0.022	2.9	0.39	0.000	Inlet Capacity					
EM\02	15.91	16.46	0.038	4.6	0.49	0.000	Inlet Capacity					
EM\01	15.87	16.46	0.038	4.6	0.53	0.000	Inlet Capacity					
Dummy Pit	14.36		0.077		2.14	0.000	None					
Channel1	14.35		3.656									
HW Moore	13.89		11.758		0.31	0.000	None					
Full Existing	12.40		0.000									
Moore HW	13.37		7.983		0.83	0.000	None					
P Georges R	12.15		0.000									
HW4	14.22		15.177		-0.02	0.092	Headwall height/system capacity					
Ex Georges R	12.50		0.092									
Carpark HW	14.81		1.228		-0.11	1.122	Headwall height/system capacity					
Pr Carpark Ju	14.67	14.65	0.000	4.3	-0.12	0.010	Outlet System					
F\03	14.40	14.46	0.053	5.5	-0.00	0.000	Outlet System					
F\02	14.38	14.61	0.126	7.7	0.12	0.000	Inlet Capacity					
Channel2	14.35		0.000									
HW46	14.81		1.228		-0.11	1.122	Headwall height/system capacity					
Pit144889	13.92		0.000		0.63	0.000	None					
N159649	13.16		0.000									
HW57	14.81		1.228		-0.11	1.122	Headwall height/system capacity					
Pit144901	13.92		0.000		0.63	0.000	None					
Ex Existing Ch	13.16		0.000									
AA\06	15.77		0.018		0.22	0.000	None					
AA\05	15.76	16.34	0.078	3.7	0.51	0.000	Inlet Capacity					
AA\04	15.60	16.34	0.087	4.1	0.66	0.000	Inlet Capacity					
AA\03	15.61	16.36	0.046	2.4	0.71	0.000	Inlet Capacity					
AA\02	15.61		0.000		0.79	0.000	None					
AA Outlet	15.60		0.000									
AB\02	15.70		0.023		0.03	0.000	Inlet Capacity					
AB\01	15.69	16.37	0.046	2.4	0.63	0.000	Inlet Capacity					
BA\11	16.44	16.52	0.103	8.8	-0.00	0.000	Outlet System					
BA\10	16.23	16.50	0.071	5.9	0.21	0.000	Inlet Capacity					
BA\09	16.13	16.58	0.095	8.0	0.37	0.000	Inlet Capacity					
BA\08	15.89	16.58	0.095	8.0	0.61	0.000	Inlet Capacity					
BA\07	15.86	16.52	0.088	7.3	0.59	0.000	Inlet Capacity					
BA\06	15.83	16.47	0.088	7.3	0.56	0.000	Inlet Capacity					
BA\05	15.80	16.41	0.088	7.3	0.54	0.000	Inlet Capacity					
BA\04	15.76	16.39	0.072	6.0	0.57	0.000	Inlet Capacity					
BA\03	15.70	16.36	0.081	6.7	0.59	0.000	Inlet Capacity					
BA\02	15.68	16.40	0.000	0.0	0.72	0.000	None					
BA\01	15.66		0.000		0.74	0.000	None					
BA Outlet	15.60		0.000									
BB\03	16.42	16.50	0.103	8.7	-0.00	0.000	Outlet System					
BB\02	16.22	16.48	0.071	5.9	0.20	0.000	Inlet Capacity					
BB\01	16.04	16.52	0.088	7.3	0.41	0.000	Inlet Capacity					
BC\03	16.41	16.56	0.057	4.8	0.09	0.000	Inlet Capacity					
BC\02	16.29	16.55	0.043	3.6	0.21	0.000	Inlet Capacity					
BC\01	16.01	16.47	0.088	7.3	0.38	0.000	Inlet Capacity					
BD\03	16.36	16.56	0.057	4.7	0.14	0.000	Inlet Capacity					
BD\02	16.15	16.55	0.043	3.6	0.35	0.000	Inlet Capacity					
BD\01	15.98	16.41	0.087	7.3	0.36	0.000	Inlet Capacity					
BE\03	16.24	16.50	0.103	8.7	0.18	0.000	Inlet Capacity					
BE\02	16.03	16.48	0.071	5.9	0.39	0.000	Inlet Capacity					
BE\01	15.83	16.45	0.000	0.0	0.63	0.000	None					
BF\02	15.85	16.06	0.051	4.3	0.16	0.000	Inlet Capacity					
BF\01	15.79	15.84	0.084	10.7	-0.04	0.000	Outlet System					
BG\02	16.02	16.46	0.059	4.9	0.38	0.000	Inlet Capacity					
BG\01	15.97	16.45	0.042	3.5	0.43	0.000	Inlet Capacity					
F\21	14.96	15.07	0.356	23.6	-0.11	0.000	Outlet System					
F\20	14.95	15.08	0.095	10.2	0.05	0.000	Inlet Capacity					
F\19	14.92	14.98	0.045	4.7	0.00	0.000	Inlet Capacity					
F\18	14.90	14.95	0.043	4.5	0.00	0.000	Inlet Capacity					
F\17	14.81	14.85	0.091	12.9	-0.06	0.057	Outlet System					
F\16	14.79	14.90	0.097	7.3	0.04	0.000	Inlet Capacity					
F\15	14.72	14.79	0.085	8.9	-0.01	0.000	Outlet System					
F\14	14.63	14.75	0.063	6.5	0.06	0.000	Inlet Capacity					
F\13	14.58	14.62	0.084	12.3	-0.06	0.000	Outlet System					
F\12	14.55	14.58	0.084	12.9	-0.07	0.048	Outlet System					
F\11	14.52	14.62	0.085	6.3	0.03	0.000	Inlet Capacity					
F\10	14.50	14.58	0.042	4.4	0.03	0.000	Inlet Capacity					
F\09	14.48	14.55	0.042	4.4	0.02	0.000	Inlet Capacity					
F\08	14.47	14.53	0.042	4.4	0.00	0.000	Inlet Capacity					
F\07	14.45	14.51	0.044	4.6	-0.00	0.000	Outlet System					
F\06	14.44	14.49	0.049	5.2	-0.01	0.000	Outlet System					
F\05	14.42	14.47	0.047	6.2	-0.02	0.000	Outlet System					
F\04	14.41	14.46	0.052	10.0	-0.04	0.000	Outlet System					
SUB-CATCHMENT DETAILS												
Name	Max	Paved	Grassed	Paved	Grassed	Supp.	Due to Storm					
	Flow Q	Max Q	Max Q	Tc	Tc	Tc						
	(cu.m/s)	(cu.m/s)	(cu.m/s)	(min)	(min)	(min)						
C CA\11	0.063	0.063	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C CA\10	0.063	0.063	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C CA\09	0.063	0.063	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C CA\08	0.063	0.063	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C CA\07	0.067	0.067	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C CA\06	0.037	0.037	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C CA\05	0.037	0.037	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C CA\04	0.067	0.067	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C CA\03	0.038	0.038	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C CB\03	0.063	0.063	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C CB\02	0.063	0.063	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C CB\01	0.063	0.063	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C CC\03	0.067	0.067	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C CC\02	0.067	0.067	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C CC\01	0.067	0.067	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C CD\03	0.067	0.067	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C CD\02	0.067	0.067	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C CD\01	0.067	0.067	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C CE\03	0.037	0.037	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C CE\02	0.037	0.037	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C CE\01	0.037	0.037	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C CF\03	0.037	0.037	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					

C CF\02	0.037	0.037	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C CF\01	0.037	0.037	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C CG\03	0.037	0.037	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C CG\02	0.037	0.037	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C CG\01	0.037	0.037	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C CH\03	0.037	0.037	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C CH\02	0.037	0.037	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C CH\01	0.037	0.037	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C CJ\03	0.067	0.067	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C CJ\02	0.067	0.067	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C CJ\01	0.067	0.067	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C CK\03	0.067	0.067	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C CK\02	0.067	0.067	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C CK\01	0.067	0.067	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C CL\03	0.038	0.038	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C CL\02	0.038	0.038	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C CL\01	0.038	0.038	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C CM\03	0.038	0.038	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C CM\02	0.038	0.038	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C CM\01	0.038	0.038	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DA\11	0.063	0.063	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DA\10	0.063	0.063	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DA\09	0.063	0.063	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DA\08	0.063	0.063	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DA\07	0.067	0.067	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DA\06	0.037	0.037	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DA\05	0.037	0.037	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DA\04	0.067	0.067	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DA\03	0.038	0.038	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DB\03	0.063	0.063	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DB\02	0.063	0.063	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DB\01	0.063	0.063	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DC\03	0.067	0.067	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DC\02	0.067	0.067	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DC\01	0.067	0.067	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DD\03	0.067	0.067	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DD\02	0.067	0.067	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DD\01	0.067	0.067	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DE\03	0.037	0.037	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DE\02	0.037	0.037	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DE\01	0.037	0.037	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DF\03	0.037	0.037	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DF\02	0.037	0.037	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DF\01	0.037	0.037	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DG\03	0.037	0.037	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DG\02	0.037	0.037	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DG\01	0.037	0.037	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DH\03	0.037	0.037	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DH\02	0.037	0.037	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DH\01	0.037	0.037	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DJ\03	0.067	0.067	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DJ\02	0.067	0.067	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DJ\01	0.067	0.067	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DK\03	0.067	0.067	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DK\02	0.067	0.067	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DK\01	0.067	0.067	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DL\03	0.038	0.038	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DL\02	0.038	0.038	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DL\01	0.038	0.038	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DM\03	0.038	0.038	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DM\02	0.038	0.038	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DM\01	0.038	0.038	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EA\11	0.084	0.084	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EA\10	0.063	0.063	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EA\09	0.063	0.063	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EA\08	0.063	0.063	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EA\07	0.067	0.067	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EA\06	0.037	0.037	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EA\05	0.037	0.037	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EA\04	0.067	0.067	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EA\03	0.038	0.038	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EB\03	0.063	0.063	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EB\02	0.063	0.063	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EB\01	0.063	0.063	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EC\03	0.067	0.067	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EC\02	0.067	0.067	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EC\01	0.067	0.067	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C ED\03	0.090	0.090	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C ED\02	0.067	0.067	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C ED\01	0.067	0.067	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EE\03	0.037	0.037	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EE\02	0.037	0.037	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EE\01	0.037	0.037	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EF\03	0.050	0.050	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EF\02	0.037	0.037	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EF\01	0.037	0.037	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EG\03	0.037	0.037	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EG\02	0.037	0.037	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EG\01	0.037	0.037	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EH\03	0.050	0.050	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EH\02	0.037	0.037	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EH\01	0.037	0.037	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EJ\03	0.067	0.067	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EJ\02	0.067	0.067	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EJ\01	0.067	0.067	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EK\03	0.090	0.090	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EK\02	0.067	0.067	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EK\01	0.067	0.067	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EL\03	0.038	0.038	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EL\02	0.038	0.038	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EL\01	0.038	0.038	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EM\03	0.022	0.022	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EM\02	0.038	0.038	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EM\01	0.038	0.038	0.000	1.21	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C OSD 2	0.061	0.000	0.061	5.00	1.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
CatchC1Ex	1.231	1.034	0.197	7.00	7.00	0.00	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1	
CatchCEx	11.037	7.731	3.613	25.00	30.00	0.00	AR&R 100 year, 1 hour storm, average 70.0 mm/h, Zone 1	
Eastern Swale	4.777	4.777	0.000	10.00	0.00	0.00	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1	
CatC1Ex	1.231	1.034	0.197	7.00	7.00	0.00	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1	
CatCEx Rema	5.042	3.655	1.497	10.00	15.00	0.00	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1	
C OSD 1	0.310	0.000	0.310	5.00	1.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
Existing Rema	4.781	3.394	1.497	12.00	15.00	5.00	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1	
Existing S1	9.318	6.968	2.542	15.00	20.00	5.00	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1	
CatC1	1.231	1.034	0.197	7.00	7.00	0.00	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1	
Pr Carpark	1.228	1.228	0.000	5.00	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C F\03	0.053	0.023	0.030	5.00	5.00	0.00	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
C F\02	0.126	0.122	0.004	5.00	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
Cat Carpark	1.228	1.228	0.000	5.00	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
Ex Carpark	1.228	1.228	0.000	5.00	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
Cat 1	0.110	0.000	0.110	5.00	6.00	0.00	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1	
Cat 2	0.280	0.025	0.254	4.00	6.00	0.00	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
Cat 3	0.243	0.112	0.131	4.00	6.00	0.00	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
Cat 4	0.163	0.019	0.144	4.00	6.00	0.00	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
Cat 5	0.875	0.269	0.606	4.00	6.00	0.00	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	

Cat 6	0.598	0.232	0.366	4.00	6.00	0.00	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
Cat 7	0.585	0.334	0.251	4.00	6.00	0.00	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
ES Cat 8	1.073	0.440	0.633	4.00	8.00	0.00	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1	
ES Cat 9	0.701	0.481	0.227	8.00	12.00	0.00	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1	
C AA\06	0.018	0.018	0.000	6.02	10.00	0.00	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
C AA\05	0.078	0.078	0.000	6.02	10.00	0.00	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
C AA\04	0.087	0.087	0.000	6.02	10.00	0.00	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
C AA\03	0.046	0.046	0.000	6.02	10.00	0.00	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
C AB\02	0.023	0.023	0.000	7.13	10.00	0.00	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1	
C AB\01	0.046	0.046	0.000	6.02	10.00	0.00	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
C BA\11	0.103	0.103	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C BA\10	0.071	0.071	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C BA\09	0.095	0.095	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C BA\08	0.095	0.095	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C BA\07	0.088	0.088	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C BA\06	0.088	0.088	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C BA\05	0.088	0.088	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C BA\04	0.072	0.072	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C BA\03	0.081	0.081	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C BB\03	0.103	0.103	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C BB\02	0.071	0.071	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C BB\01	0.088	0.088	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C BC\03	0.057	0.057	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C BC\02	0.043	0.043	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C BC\01	0.088	0.088	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C BD\03	0.057	0.057	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C BD\02	0.043	0.043	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C BD\01	0.087	0.087	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C BE\03	0.103	0.103	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C BE\02	0.071	0.071	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C BF\02	0.051	0.051	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C BF\01	0.084	0.084	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C BG\02	0.059	0.059	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C BG\01	0.042	0.042	0.000	1.69	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C F\21	0.356	0.000	0.356	5.00	7.00	0.00	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1	
C F\20	0.095	0.041	0.054	5.00	5.00	0.00	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
C F\19	0.045	0.044	0.002	5.00	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C F\18	0.043	0.019	0.024	5.00	5.00	0.00	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
C F\17	0.091	0.088	0.003	5.00	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C F\16	0.043	0.019	0.024	5.00	5.00	0.00	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
C F\15	0.085	0.037	0.048	5.00	5.00	0.00	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
C F\14	0.063	0.028	0.036	5.00	5.00	0.00	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
C F\13	0.084	0.037	0.047	5.00	5.00	0.00	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
C F\12	0.084	0.037	0.048	5.00	5.00	0.00	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
C F\11	0.042	0.018	0.024	5.00	5.00	0.00	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
C F\10	0.042	0.018	0.024	5.00	5.00	0.00	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
C F\09	0.042	0.018	0.024	5.00	5.00	0.00	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
C F\08	0.042	0.018	0.024	5.00	5.00	0.00	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
C F\07	0.044	0.019	0.025	5.00	5.00	0.00	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
C F\06	0.049	0.021	0.027	5.00	5.00	0.00	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
C F\05	0.047	0.020	0.026	5.00	5.00	0.00	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
C F\04	0.052	0.023	0.029	5.00	5.00	0.00	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	

Outflow Volumes for Total Catchment (96.7 impervious + 46.3 pervious = 143 total ha)

Storm	Total Rainfall	Total Runoff	Impervious Ru	Pervious Runoff
	cu.m	cu.m (Runoff	cu.m (Runoff	cu.m (Runoff %)
AR&R 100 ye	26682.01	20537.83 (77.	17081.67 (94.	3456.16 (40.0%)
AR&R 100 ye	40975.94	34000.32 (83.	26749.15 (96.	7251.16 (54.7%)
AR&R 100 ye	51458.15	43824.07 (85.	33838.81 (97.	9985.26 (60.0%)
AR&R 100 ye	60034.52	51819.39 (86.	39644.35 (97.	12175.04 (62.7%)
AR&R 100 ye	66705.02	57794.33 (86.	44148.16 (97.	13646.17 (63.2%)
AR&R 100 ye	72899.06	63420.07 (87.	48346.56 (98.	15073.51 (63.9%)
AR&R 100 ye	87906.49	77037.69 (87.	58496.14 (98.	18541.55 (65.2%)
AR&R 100 ye	100057.54	88076.26 (88.	66704.75 (98.	21371.51 (66.0%)
AR&R 100 ye	117924.95	104130.86 (8	78815.23 (98.	25315.63 (66.3%)
AR&R 100 ye	131507.75	116140.96 (8	87981.02 (98.	28159.95 (66.2%)

PIPE DETAILS

Name	Max Q	Max V	Max U/S	Max D/S	Due to Storm	
	(cu.m/s)	(m/s)	HGL (m)	HGL (m)		
P CA\11	0.046	0.42	16.150	16.128	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
P CA\10	0.093	0.58	16.106	16.082	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
P CA\09	0.139	0.64	16.063	16.030	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
P CA\08	0.324	0.36	16.023	16.010	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
P CA\07	0.641	0.71	15.963	15.942	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
P CA\06	0.851	0.63	15.913	15.900	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
P CA\05	1.072	0.79	15.860	15.840	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
P CA\04	1.387	0.77	15.801	15.783	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
P CA\03	1.612	0.90	15.743	15.740	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
P CA\02	1.612	0.90	15.709	15.700	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
P CB\03	0.046	0.42	16.150	16.128	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
P CB\02	0.093	0.58	16.106	16.082	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
P CB\01	0.139	0.64	16.063	16.030	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
P CC\03	0.046	0.42	16.133	16.108	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
P CC\02	0.092	0.58	16.083	16.061	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
P CC\01	0.138	0.64	16.040	16.010	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
P CD\03	0.046	0.42	16.133	16.108	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
P CD\02	0.092	0.58	16.083	16.061	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
P CD\01	0.138	0.64	16.040	16.010	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
P CE\03	0.032	0.29	16.180	16.130	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
P CE\02	0.063	0.57	16.120	16.047	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
P CE\01	0.095	0.86	16.028	15.942	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
P CF\03	0.032	0.29	16.181	16.130	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
P CF\02	0.063	0.57	16.120	16.047	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
P CF\01	0.095	0.86	16.028	15.942	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
P CG\03	0.032	0.29	16.122	16.073	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
P CG\02	0.063	0.57	16.055	16.009	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
P CG\01	0.095	0.86	15.973	15.900	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
P CH\03	0.032	0.29	16.122	16.073	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
P CH\02	0.063	0.57	16.055	16.009	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
P CH\01	0.095	0.86	15.973	15.900	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
P CJ\03	0.047	0.42	16.022	16.003	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
P CJ\02	0.092	0.58	15.979	15.954	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
P CJ\01	0.137	0.86	15.904	15.840	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
P CK\03	0.047	0.42	16.022	16.003	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
P CK\02	0.092	0.58	15.979	15.954	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
P CK\01	0.137	0.86	15.904	15.840	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
P CL\03	0.035	0.70	15.962	15.954	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
P CL\02	0.065	0.59	15.926	15.898	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
P CL\01	0.097	0.87	15.844	15.783	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
P CM\03	0.035	0.71	15.962	15.954	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
P CM\02	0.065	0.59	15.927	15.898	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
P CM\01	0.097	0.88	15.844	15.783	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
P DA\11	0.046	0.42	16.150	16.128	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
P DA\10	0.093	0.58	16.106	16.082	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
P DA\09	0.139	0.64	16.063	16.030	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
P DA\08	0.324	0.36	16.023	16.010	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
P DA\07	0.641	0.71	15.963	15.942	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
P DA\06	0.851	0.63	15.913	15.900	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
P DA\05	1.072	0.79	15.860	15.840	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
P DA\04	1.387	0.77	15.801	15.783	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
P DA\03	1.612	0.90	15.743	15.740	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
P DA\02	1.612	0.90	15.709	15.700	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	

P DB\03	0.046	0.42	16.150	16.128	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P DB\02	0.093	0.58	16.106	16.082	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P DB\01	0.139	0.64	16.063	16.030	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P DC\03	0.046	0.42	16.133	16.108	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P DC\02	0.092	0.58	16.083	16.061	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P DC\01	0.138	0.64	16.040	16.010	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P DD\03	0.046	0.42	16.133	16.108	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P DD\02	0.092	0.58	16.083	16.061	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P DD\01	0.138	0.64	16.040	16.010	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P DE\03	0.032	0.29	16.180	16.130	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P DE\02	0.063	0.57	16.120	16.047	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1			
P DE\01	0.095	0.86	16.028	15.942	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1			
P DF\03	0.032	0.29	16.181	16.130	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P DF\02	0.063	0.57	16.120	16.047	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1			
P DF\01	0.095	0.86	16.028	15.942	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1			
P DG\03	0.032	0.29	16.122	16.073	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1			
P DG\02	0.063	0.57	16.055	16.009	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1			
P DG\01	0.095	0.86	15.973	15.900	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1			
P DH\03	0.032	0.29	16.122	16.073	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1			
P DH\02	0.063	0.57	16.055	16.009	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1			
P DH\01	0.095	0.86	15.973	15.900	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1			
P DJ\03	0.047	0.42	16.022	16.003	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P DJ\02	0.092	0.58	15.979	15.954	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P DJ\01	0.137	0.86	15.904	15.840	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P DK\03	0.047	0.42	16.022	16.003	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P DK\02	0.092	0.58	15.979	15.954	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P DK\01	0.137	0.86	15.904	15.840	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P DL\03	0.035	0.70	15.962	15.954	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P DL\02	0.065	0.59	15.926	15.898	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1			
P DL\01	0.097	0.87	15.844	15.783	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1			
P DM\03	0.035	0.71	15.962	15.954	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P DM\02	0.065	0.59	15.927	15.898	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P DM\01	0.097	0.88	15.844	15.783	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1			
P EA\11	0.050	0.45	16.090	16.067	AR&R 100 year, 10 minutes storm, average 172 mm/h, Zone 1			
P EA\10	0.091	0.57	16.047	16.016	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P EA\09	0.137	0.63	15.996	15.969	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P EA\08	0.322	0.36	15.962	15.950	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P EA\07	0.640	0.47	15.929	15.919	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P EA\06	0.861	0.64	15.890	15.882	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1			
P EA\05	1.091	0.61	15.858	15.846	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1			
P EA\04	1.406	0.78	15.804	15.784	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1			
P EA\03	1.618	0.90	15.743	15.741	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1			
P EA\02	1.618	0.90	15.708	15.700	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1			
P EB\03	0.047	0.42	16.085	16.070	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P EB\02	0.093	0.58	16.047	16.018	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P EB\01	0.140	0.65	15.997	15.969	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P EC\03	0.046	0.42	16.063	16.049	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P EC\02	0.092	0.58	16.025	16.000	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P EC\01	0.137	0.63	15.978	15.950	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P ED\03	0.051	0.46	16.065	16.046	AR&R 100 year, 10 minutes storm, average 172 mm/h, Zone 1			
P ED\02	0.092	0.58	16.024	15.997	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P ED\01	0.138	0.64	15.977	15.950	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P EE\03	0.036	0.33	16.122	16.073	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P EE\02	0.063	0.57	16.067	15.983	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1			
P EE\01	0.095	0.60	15.964	15.919	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1			
P EF\03	0.041	0.37	16.095	16.055	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1			
P EF\02	0.073	0.66	16.039	15.984	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1			
P EF\01	0.105	0.66	15.960	15.919	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1			
P EG\03	0.033	0.30	16.048	16.047	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P EG\02	0.065	0.59	16.026	15.971	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P EG\01	0.096	0.61	15.952	15.882	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P EH\03	0.041	0.38	16.049	16.030	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P EH\02	0.073	0.66	16.002	15.960	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1			
P EH\01	0.104	0.66	15.937	15.882	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1			
P EJ\03	0.046	0.42	15.962	15.947	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P EJ\02	0.091	0.57	15.922	15.901	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P EJ\01	0.137	0.63	15.874	15.846	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P EK\03	0.049	0.44	15.963	15.942	AR&R 100 year, 10 minutes storm, average 172 mm/h, Zone 1			
P EK\02	0.091	0.57	15.920	15.902	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1			
P EK\01	0.137	0.63	15.876	15.846	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P EL\03	0.035	0.70	15.963	15.955	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P EL\02	0.065	0.59	15.927	15.899	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1			
P EL\01	0.097	0.88	15.845	15.784	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1			
P EM\03	0.023	0.74	15.911	15.906	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P EM\02	0.052	0.47	15.888	15.870	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P EM\01	0.083	0.76	15.830	15.784	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1			
Entrance Culv	0.288	0.05	14.365	14.350	AR&R 100 year, 1 hour storm, average 70.0 mm/h, Zone 1			
Pipe56908	11.775	5.82	12.618	12.401	AR&R 100 year, 1.5 hours storm, average 55.0 mm/h, Zone 1			
Moore Ave Cu	7.983	5.26	12.365	12.149	AR&R 100 year, 2 hours storm, average 46.0 mm/h, Zone 1			
Ex Moore Ave	13.358	6.00	12.715	12.502	AR&R 100 year, 1 hour storm, average 70.0 mm/h, Zone 1			
Pr P Carpark	0.110	1.55	14.743	14.672	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
Pr P Carpark	0.101	1.42	14.538	14.403	AR&R 100 year, 2 hours storm, average 46.0 mm/h, Zone 1			
P F\03	1.311	0.46	14.398	14.383	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1			
P F\02	1.411	0.49	14.354	14.350	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1			
P146094	0.110	3.64	14.443	14.003	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P146107	0.117	3.31	13.770	13.156	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
Ex P Carpark	0.110	3.64	14.443	14.003	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
Ex P Carpark	0.117	3.31	13.770	13.156	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P AA\06	0.018	0.16	15.762	15.759	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1			
P AA\05	0.093	0.84	15.686	15.604	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1			
P AA\04	0.178	0.07	15.604	15.605	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1			
P AA\03	0.301	0.12	15.605	15.605	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1			
P AA\02	0.291	0.12	15.605	15.600	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1			
P AB\02	0.024	0.21	15.694	15.685	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1			
P AB\01	0.068	0.61	15.647	15.605	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1			
P BA\11	0.094	0.85	16.305	16.234	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P BA\10	0.159	1.00	16.213	16.125	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P BA\09	0.246	1.13	16.100	15.887	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P BA\08	0.332	0.37	15.871	15.861	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P BA\07	0.649	0.48	15.839	15.833	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P BA\06	0.900	0.50	15.810	15.804	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P BA\05	1.158	0.64	15.780	15.756	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P BA\04	1.381	0.77	15.743	15.700	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P BA\03	1.453	0.81	15.693	15.679	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P BA\02	1.638	0.76	15.665	15.661	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P BA\01	1.639	0.76	15.619	15.600	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P BB\03	0.093	0.84	16.291	16.222	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P BB\02	0.157	0.99	16.187	16.040	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P BB\01	0.238	1.10	15.972	15.861	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P BC\03	0.080	0.73	16.387	16.294	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P BC\02	0.098	0.61	16.274	16.015	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P BC\01	0.176	0.81	16.002	15.833	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P BD\03	0.071	0.64	16.340	16.154	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P BD\02	0.096	0.60	16.125	15.984	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P BD\01	0.176	0.81	15.965	15.804	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P BE\03	0.094	0.85	16.123	16.031	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P BE\02	0.159	1.00	16.007	15.825	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P BE\01	0.160	0.74	15.805	15.756	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P BF\02	0.048	0.43	15.803	15.793	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P BF\01	0.184	0.85	15.727	15.679	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1			
P BG\02	0.055	0.50	16.006	15.967	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P BG\01	0.094	0.85	15.919	15.793	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P F\21	0.350	0.49	14.954	14.949	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1			
P F\20	0.426	0.59	14.942	14.921	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1			

P F\19	0.464	0.64	14.916	14.899	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1							
P F\18	0.498	0.69	14.896	14.814	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1							
P F\17	0.559	0.78	14.809	14.787	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1							
P F\16	0.609	0.85	14.781	14.718	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1							
P F\15	0.676	0.94	14.710	14.628	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1							
P F\14	0.728	0.51	14.625	14.580	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1							
P F\13	0.811	0.56	14.577	14.546	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1							
P F\12	0.875	0.61	14.542	14.521	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1							
P F\11	0.918	0.64	14.517	14.498	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1							
P F\10	0.950	0.66	14.494	14.477	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1							
P F\09	0.984	0.46	14.477	14.470	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1							
P F\08	1.017	0.47	14.468	14.454	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1							
P F\07	1.053	0.49	14.452	14.440	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1							
P F\06	1.092	0.51	14.436	14.424	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1							
P F\05	1.130	0.39	14.422	14.413	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1							
P F\04	1.172	0.41	14.411	14.403	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1							
CHANNEL DETAILS												
Name	Max Q	Max V			Due to Storm							
	(cu.m/s)	(m/s)										
OVERFLOW ROUTE DETAILS												
Name	Max Q U/S	Max Q D/S	Safe Q	Max D	Max DxV	Max Width	Max V	Due to Storm				
F CA\11	0	0	0.000	0	0	0	0					
F CA\10	0	0	0.000	0	0	0	0					
F CA\09	0	0	0.000	0	0	0	0					
F CA\08	0	0	0.000	0	0	0	0					
F CA\07	0	0	0.000	0	0	0	0					
F CA\06	0	0	0.000	0	0	0	0					
F CA\05	0	0	0.000	0	0	0	0					
F CA\04	0	0	0.000	0	0	0	0					
F CA\03	0	0	0.000	0	0	0	0					
F CA\02	0	0	0.000	0	0	0	0					
F CB\03	0	0	0.000	0	0	0	0					
F CB\02	0	0	0.000	0	0	0	0					
F CB\01	0	0	0.000	0	0	0	0					
F CC\03	0	0	0.000	0	0	0	0					
F CC\02	0	0	0.000	0	0	0	0					
F CC\01	0	0	0.000	0	0	0	0					
F CD\03	0	0	0.000	0	0	0	0					
F CD\02	0	0	-1.#QO	0	0	0	0					
F CD\01	0	0	0.000	0	0	0	0					
F CE\03	0	0	0.000	0	0	0	0					
F CE\02	0	0	0.000	0	0	0	0					
F CE\01	0	0	0.000	0	0	0	0					
F CF\03	0	0	0.000	0	0	0	0					
F CF\02	0	0	0.000	0	0	0	0					
F CF\01	0	0	0.000	0	0	0	0					
F CG\03	0	0	0.000	0	0	0	0					
F CG\02	0	0	0.000	0	0	0	0					
F CG\01	0	0	0.000	0	0	0	0					
F CH\03	0	0	0.000	0	0	0	0					
F CH\02	0	0	0.000	0	0	0	0					
F CH\01	0	0	0.000	0	0	0	0					
F CJ\03	0	0	0.000	0	0	0	0					
F CJ\02	0	0	0.000	0	0	0	0					
F CJ\01	0	0	0.000	0	0	0	0					
F CK\03	0	0	0.000	0	0	0	0					
F CK\02	0	0	0.000	0	0	0	0					
F CK\01	0	0	0.000	0	0	0	0					
F CL\03	0	0	0.000	0	0	0	0					
F CL\02	0	0	0.000	0	0	0	0					
F CL\01	0	0	0.000	0	0	0	0					
F CM\03	0	0	0.000	0	0	0	0					
F CM\02	0	0	0.000	0	0	0	0					
F CM\01	0	0	0.000	0	0	0	0					
F DA\11	0	0	0.000	0	0	0	0					
F DA\10	0	0	0.000	0	0	0	0					
F DA\09	0	0	0.000	0	0	0	0					
F DA\08	0	0	0.000	0	0	0	0					
F DA\07	0	0	0.000	0	0	0	0					
F DA\06	0	0	0.000	0	0	0	0					
F DA\05	0	0	0.000	0	0	0	0					
F DA\04	0	0	0.000	0	0	0	0					
F DA\03	0	0	0.000	0	0	0	0					
F DA\02	0	0	0.000	0	0	0	0					
F DB\03	0	0	0.000	0	0	0	0					
F DB\02	0	0	0.000	0	0	0	0					
F DB\01	0	0	0.000	0	0	0	0					
F DC\03	0	0	0.000	0	0	0	0					
F DC\02	0	0	0.000	0	0	0	0					
F DC\01	0	0	0.000	0	0	0	0					
F DD\03	0	0	0.000	0	0	0	0					
F DD\02	0	0	0.000	0	0	0	0					
F DD\01	0	0	0.000	0	0	0	0					
F DE\03	0	0	0.000	0	0	0	0					
F DE\02	0	0	0.000	0	0	0	0					
F DE\01	0	0	0.000	0	0	0	0					
F DF\03	0	0	0.000	0	0	0	0					
F DF\02	0	0	0.000	0	0	0	0					
F DF\01	0	0	0.000	0	0	0	0					
F DG\03	0	0	0.000	0	0	0	0					
F DG\02	0	0	0.000	0	0	0	0					
F DG\01	0	0	0.000	0	0	0	0					
F DH\03	0	0	0.000	0	0	0	0					
F DH\02	0	0	0.000	0	0	0	0					
F DH\01	0	0	0.000	0	0	0	0					
F DJ\03	0	0	0.000	0	0	0	0					
F DJ\02	0	0	0.000	0	0	0	0					
F DJ\01	0	0	0.000	0	0	0	0					
F DK\03	0	0	0.000	0	0	0	0					
F DK\02	0	0	0.000	0	0	0	0					
F DK\01	0	0	0.000	0	0	0	0					
F DL\03	0	0	0.000	0	0	0	0					
F DL\02	0	0	0.000	0	0	0	0					
F DL\01	0	0	0.000	0	0	0	0					
F DM\03	0	0	0.000	0	0	0	0					
F DM\02	0	0	0.000	0	0	0	0					
F DM\01	0	0	0.000	0	0	0	0					
F EA\11	0	0	0.000	0	0	0	0					
F EA\10	0	0	0.000	0	0	0	0					
F EA\09	0	0	0.000	0	0	0	0					
F EA\08	0	0	0.000	0	0	0	0					
F EA\07	0	0	0.000	0	0	0	0					
F EA\06	0	0	0.000	0	0	0	0					
F EA\05	0	0	0.000	0	0	0	0					
F EA\04	0	0	0.000	0	0	0	0					
F EA\03	0	0	0.000	0	0	0	0					
F EB\03	0	0	0.000	0	0	0	0					
F EB\02	0	0	0.000	0	0	0	0					
F EB\01	0	0	0.000	0	0	0	0					
F EC\03	0	0	0.000	0	0	0	0					
F EC\02	0	0	0.000	0	0	0	0					
F EC\01	0	0	0.000	0	0	0	0					

F ED\03	0	0	0.000	0	0	0	0					
F ED\02	0	0	0.000	0	0	0	0					
F ED\01	0	0	0.000	0	0	0	0					
F EE\03	0	0	0.000	0	0	0	0					
F EE\02	0	0	0.000	0	0	0	0					
F EE\01	0	0	0.000	0	0	0	0					
F EF\03	0	0	0.000	0	0	0	0					
F EF\02	0	0	0.000	0	0	0	0					
F EF\01	0	0	0.000	0	0	0	0					
F EG\03	0	0	0.000	0	0	0	0					
F EG\02	0	0	0.000	0	0	0	0					
F EG\01	0	0	0.000	0	0	0	0					
F EH\03	0	0	0.000	0	0	0	0					
F EH\02	0	0	0.000	0	0	0	0					
F EH\01	0	0	0.000	0	0	0	0					
F EJ\03	0	0	0.000	0	0	0	0					
F EJ\02	0	0	0.000	0	0	0	0					
F EJ\01	0	0	0.000	0	0	0	0					
F EK\03	0	0	0.000	0	0	0	0					
F EK\02	0	0	0.000	0	0	0	0					
F EK\01	0	0	0.000	0	0	0	0					
F EL\03	0	0	0.000	0	0	0	0					
F EL\02	0	0	0.000	0	0	0	0					
F EL\01	0	0	0.000	0	0	0	0					
F EM\03	0	0	0.000	0	0	0	0					
F EM\02	0	0	0.000	0	0	0	0					
F EM\01	0	0	0.000	0	0	0	0					
Stage Dischar	0.077	0.077	0.000	0.032	0.01	10.38	0.46	AR&R 100 year, 2 hours storm, average 46.0 mm/h, Zone 1				
OF55804	0	0	0.000	0	0	0	0					
F Channel 1	3.731	6.139	0.000	0.183	0.28	40.55	1.53	AR&R 100 year, 1.5 hours storm, average 55.0 mm/h, Zone 1				
OF South Cat	1.231	1.231	0.000	0.095	0.10	22.95	1.01	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1				
Moorebank A	0	0	0.000	0	0	0	0					
F Moorebank	0	0	0.000	0	0	0	0					
F CatC1Ex	1.231	1.231	0.000	0.095	0.10	22.95	1.01	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1				
F Channel 2	7.052	7.052	0.000	0.194	0.31	42.71	1.58	AR&R 100 year, 2 hours storm, average 46.0 mm/h, Zone 1				
F OSD Dumm	0.310	0.310	0.000	0.054	0.04	14.87	0.69	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1				
OF137724	0.092	0.092	0.000	0.034	0.02	10.74	0.49	AR&R 100 year, 1 hour storm, average 70.0 mm/h, Zone 1				
Existing Chan	9.426	9.426	0.000	0.217	0.37	47.38	1.71	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1				
F CatC1	1.231	1.231	0.000	0.095	0.10	22.95	1.01	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1				
Prop Carpark	1.122	1.122	0.000	0.091	0.09	22.23	0.99	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1				
OF410995	0.010	0.010	0.000	0.015	0.00	4.94	0.28	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1				
F F\03	0	0	0.000	0	0	0	0					
OF349883	0	0	0.000	0	0	0	0					
OF200780	1.411	1.411	0.000	0.100	0.11	24.03	1.05	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1				
OF149489	1.122	1.122	0.000	0.091	0.09	22.23	0.99	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1				
OF151533	0	0	0.000	0	0	0	0					
OF Carpark	0.117	0.117	0.000	0.037	0.02	11.45	0.51	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1				
Ex Carpark O	1.122	1.122	0.000	0.091	0.09	22.23	0.99	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1				
OF149518	0	0	0.000	0	0	0	0					
OF137717	0.117	0.117	0.000	0.037	0.02	11.45	0.51	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1				
F Cat 1	0.110	0.346	0.000	0.378	0.80	0.77	2.12	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1				
F Cat 2	0.345	0.460	0.000	0.427	0.97	0.84	2.28	AR&R 100 year, 25 minutes storm, average 112 mm/h, Zone 1				
F Cat 3	0.456	0.507	0.000	0.445	1.04	0.86	2.33	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1				
F Cat 4	0.506	1.141	0.000	0.633	1.79	1.11	2.83	AR&R 100 year, 2 hours storm, average 46.0 mm/h, Zone 1				
F Cat 5	1.138	1.395	0.000	0.691	2.05	1.19	2.97	AR&R 100 year, 1.5 hours storm, average 55.0 mm/h, Zone 1				
F Cat 6	1.388	1.388	0.000	0.100	0.10	24.03	1.03	AR&R 100 year, 2 hours storm, average 46.0 mm/h, Zone 1				
F Cat 7	1.567	1.567	0.000	0.105	0.11	24.92	1.08	AR&R 100 year, 2 hours storm, average 46.0 mm/h, Zone 1				
Swale	1.994	2.457	0.000	0.884	3.00	1.45	3.39	AR&R 100 year, 2 hours storm, average 46.0 mm/h, Zone 1				
OF282905	2.452	2.452	0.000	0.126	0.15	29.24	1.20	AR&R 100 year, 1.5 hours storm, average 55.0 mm/h, Zone 1				
F AA\06	0	0	0.000	0	0	0	0					
F AA\05	0	0	0.000	0	0	0	0					
F AA\04	0	0	0.000	0	0	0	0					
F AA\03	0	0	0.000	0	0	0	0					
F AA\02	0	0	0.000	0	0	0	0					
F AB\02	0	0	0.000	0	0	0	0					
F AB\01	0	0	0.000	0	0	0	0					
F BA\11	0	0	0.000	0	0	0	0					
F BA\10	0	0	0.000	0	0	0	0					
F BA\09	0	0	0.000	0	0	0	0					
F BA\08	0	0	0.000	0	0	0	0					
F BA\07	0	0	0.000	0	0	0	0					
F BA\06	0	0	0.000	0	0	0	0					
F BA\05	0	0	0.000	0	0	0	0					
F BA\04	0	0	0.000	0	0	0	0					
F BA\03	0	0	0.000	0	0	0	0					
F BA\02	0	0	0.000	0	0	0	0					
OF360759	0	0	0.000	0	0	0	0					
F BB\03	0	0	0.000	0	0	0	0					
F BB\02	0	0	0.000	0	0	0	0					
F BB\01	0	0	0.000	0	0	0	0					
F BC\03	0	0	0.000	0	0	0	0					
F BC\02	0	0	0.000	0	0	0	0					
F BC\01	0	0	0.000	0	0	0	0					
F BD\03	0	0	0.000	0	0	0	0					
F BD\02	0	0	0.000	0	0	0	0					
F BD\01	0	0	0.000	0	0	0	0					
F BE\03	0	0	0.000	0	0	0	0					
F BE\02	0	0	0.000	0	0	0	0					
F BE\01	0	0	0.000	0	0	0	0					
F BF\02	0	0	0.000	0	0	0	0					
F BF\01	0	0	0.000	0	0	0	0					
F BG\02	0	0	0.000	0	0	0	0					
F BG\01	0	0	0.000	0	0	0	0					
F F\21	0	0	0.000	0	0	0	0					
F F\20	0	0	0.000	0	0	0	0					
F F\19	0	0	0.000	0	0	0	0					
F F\18	0	0	0.000	0	0	0	0					
F F\17	0.057	0.057	0.000	0.098	0.09	1.90	0.90	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1				
F F\16	0	0	0.000	0	0	0	0					
F F\15	0	0	0.000	0	0	0	0					
F F\14	0	0	0.000	0	0	0	0					
F F\13	0	0	0.000	0	0	0	0					
F F\12	0.048	0.048	0.000	0.092	0.08	1.72	0.89	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1				
F F\11	0	0	0.000	0	0	0	0					
F F\10	0	0	0.000	0	0	0	0					
F F\09	0	0	-0.000	0	0	0	0					
F F\08	0	0	-9999.000	0	0	0	0					
F F\07	0	0	0.000	0	0	0	0					
F F\06	0	0	0.000	0	0	0	0					
F F\05	0	0	0.000	0	0	0	0					
F F\04	0	0	0.000	0	0	0	0					
DETENTION BASIN DETAILS												
Name	Max WL	MaxVol	Max Q	Max Q	Max Q							
			Total	Low Level	High Level							
Stage1	14.54	4563.3	0.077	0.000	0.077							
CONTINUITY CHECK for AR&R 100 year, 1 hour storm, average 70.0 mm/h, Zone 1												
Node	Inflow	Outflow	Storage Chan	Difference								
	(cu.m)	(cu.m)	(cu.m)	%								
CA\11	69.55	69.64	0.00	-0.1								
CA\10	139.19	139.28	0.00	-0.1								
CA\09	208.83	208.91	0.00	-0.0								

CA\08	487.37	487.45	0.00	-0.0								
CA\07	1009.66	1009.77	0.00	-0.0								
CA\06	1299.88	1299.96	0.00	-0.0								
CA\05	1590.09	1590.02	0.00	0.0								
CA\04	2112.22	2112.29	0.00	-0.0								
CA\03	2411.10	2432.75	0.00	-0.9								
CA\02	2432.75	2456.85	0.00	-1.0								
CA Outlet	2456.85	2456.85	0.00	0.0								
CB\03	69.55	69.64	0.00	-0.1								
CB\02	139.19	139.27	0.00	-0.1								
CB\01	208.82	208.90	0.00	-0.0								
CC\03	74.52	74.63	0.00	-0.1								
CC\02	149.15	149.23	0.00	-0.1								
CC\01	223.75	223.85	0.00	-0.0								
CD\03	74.52	74.61	0.00	-0.1								
CD\02	149.13	149.23	0.00	-0.1								
CD\01	223.75	223.84	0.00	-0.0								
CE\03	41.40	41.44	0.00	-0.1								
CE\02	82.84	82.90	0.00	-0.1								
CE\01	124.30	124.35	0.00	-0.0								
CF\03	41.40	41.44	0.00	-0.1								
CF\02	82.84	82.91	0.00	-0.1								
CF\01	124.31	124.35	0.00	-0.0								
CG\03	41.40	41.46	0.00	-0.1								
CG\02	82.86	82.91	0.00	-0.1								
CG\01	124.31	124.36	0.00	-0.0								
CH\03	41.40	41.46	0.00	-0.1								
CH\02	82.86	82.91	0.00	-0.1								
CH\01	124.31	124.36	0.00	-0.0								
CJ\03	74.52	74.61	0.00	-0.1								
CJ\02	149.13	149.23	0.00	-0.1								
CJ\01	223.75	223.84	0.00	-0.0								
CK\03	74.52	74.62	0.00	-0.1								
CK\02	149.14	149.23	0.00	-0.1								
CK\01	223.75	223.84	0.00	-0.0								
CL\03	42.64	42.71	0.00	-0.2								
CL\02	85.35	85.41	0.00	-0.1								
CL\01	128.06	128.09	0.00	-0.0								
CM\03	42.64	42.71	0.00	-0.2								
CM\02	85.35	85.42	0.00	-0.1								
CM\01	128.06	128.08	0.00	-0.0								
DA\11	69.55	69.64	0.00	-0.1								
DA\10	139.19	139.28	0.00	-0.1								
DA\09	208.83	208.91	0.00	-0.0								
DA\08	487.37	487.45	0.00	-0.0								
DA\07	1009.66	1009.77	0.00	-0.0								
DA\06	1299.88	1299.96	0.00	-0.0								
DA\05	1590.09	1590.02	0.00	0.0								
DA\04	2112.22	2112.29	0.00	-0.0								
DA\03	2411.10	2432.75	0.00	-0.9								
DA\02	2432.75	2456.85	0.00	-1.0								
DA Outlet	2456.85	2456.85	0.00	0.0								
DB\03	69.55	69.64	0.00	-0.1								
DB\02	139.19	139.27	0.00	-0.1								
DB\01	208.82	208.90	0.00	-0.0								
DC\03	74.52	74.63	0.00	-0.1								
DC\02	149.15	149.23	0.00	-0.1								
DC\01	223.75	223.85	0.00	-0.0								
DD\03	74.52	74.61	0.00	-0.1								
DD\02	149.13	149.23	0.00	-0.1								
DD\01	223.75	223.84	0.00	-0.0								
DE\03	41.40	41.44	0.00	-0.1								
DE\02	82.84	82.90	0.00	-0.1								
DE\01	124.30	124.35	0.00	-0.0								
DF\03	41.40	41.44	0.00	-0.1								
DF\02	82.84	82.91	0.00	-0.1								
DF\01	124.31	124.35	0.00	-0.0								
DG\03	41.40	41.46	0.00	-0.1								
DG\02	82.86	82.91	0.00	-0.1								
DG\01	124.31	124.36	0.00	-0.0								
DH\03	41.40	41.46	0.00	-0.1								
DH\02	82.86	82.91	0.00	-0.1								
DH\01	124.31	124.36	0.00	-0.0								
DJ\03	74.52	74.61	0.00	-0.1								
DJ\02	149.13	149.23	0.00	-0.1								
DJ\01	223.75	223.84	0.00	-0.0								
DK\03	74.52	74.62	0.00	-0.1								
DK\02	149.14	149.23	0.00	-0.1								
DK\01	223.75	223.84	0.00	-0.0								
DL\03	42.64	42.71	0.00	-0.2								
DL\02	85.35	85.41	0.00	-0.1								
DL\01	128.06	128.09	0.00	-0.0								
DM\03	42.64	42.71	0.00	-0.2								
DM\02	85.35	85.42	0.00	-0.1								
DM\01	128.06	128.08	0.00	-0.0								
EA\11	92.94	92.88	0.00	0.1								
EA\10	162.44	162.51	0.00	-0.0								
EA\09	232.07	232.14	0.00	-0.0								
EA\08	510.58	510.68	0.00	-0.0								
EA\07	1057.90	1057.97	0.00	-0.0								
EA\06	1361.90	1362.05	0.00	-0.0								
EA\05	1666.01	1665.96	0.00	0.0								
EA\04	2212.91	2212.97	0.00	-0.0								
EA\03	2493.98	2511.41	0.00	-0.7								
EA\02	2511.41	2535.67	0.00	-1.0								
EA Outlet	2535.67	2535.67	0.00	0.0								
EB\03	69.55	69.62	0.00	-0.1								
EB\02	139.18	139.27	0.00	-0.1								
EB\01	208.82	208.89	0.00	-0.0								
EC\03	74.52	74.62	0.00	-0.1								
EC\02	149.14	149.23	0.00	-0.1								
EC\01	223.75	223.84	0.00	-0.0								
ED\03	99.70	99.64	0.00	0.1								
ED\02	174.16	174.26	0.00	-0.1								
ED\01	248.78	248.87	0.00	-0.0								
EE\03	41.40	41.46	0.00	-0.1								
EE\02	82.86	82.91	0.00	-0.1								
EE\01	124.31	124.34	0.00	-0.0								
EF\03	55.20	55.27	0.00	-0.1								
EF\02	96.67	96.72	0.00	-0.1								
EF\01	138.12	138.19	0.00	-0.0								
EG\03	41.40	41.45	0.00	-0.1								
EG\02	82.85	82.91	0.00	-0.1								
EG\01	124.31	124.37	0.00	-0.0								
EH\03	55.20	55.28	0.00	-0.1								
EH\02	96.68	96.74	0.00	-0.1								
EH\01	138.14	138.18	0.00	-0.0								
EJ\03	74.52	74.62	0.00	-0.1								
EJ\02	149.14	149.23	0.00	-0.1								
EJ\01	223.75	223.84	0.00	-0.0								
EK\03	99.43	99.36	0.00	0.1								
EK\02	173.88	173.97	0.00	-0.0								
EK\01	248.49	248.59	0.00	-0.0								
EL\03	42.64	42.71	0.00	-0.2								

EL\02	85.35	85.43	0.00	-0.1								
EL\01	128.07	128.07	0.00	-0.0								
EM\03	24.91	24.94	0.00	-0.1								
EM\02	67.58	67.64	0.00	-0.1								
EM\01	110.28	110.29	0.00	-0.0								
O CA\02	0.00	0.00	0.00	0.0								
O DA\02	0.00	0.00	0.00	0.0								
Stage1	323.61	294.54	29.09	-0.0								
Dummy Pit	294.51	294.60	0.00	-0.0								
Channel1	7657.28	7656.19	0.00	0.0								
N60922	1578.86	1578.86	0.00	0.0								
N60923	1077.43	1077.43	0.00	0.0								
HW Moore	25824.44	25820.59	0.00	0.0								
Full Existing	25820.59	25820.59	0.00	0.0								
N60936	6727.50	6727.50	0.00	0.0								
Moore HW	16627.79	16665.90	0.00	-0.2								
P Georges R	16665.90	16665.90	0.00	0.0								
N98596	1578.86	1578.86	0.00	0.0								
N103004	15049.24	15050.33	0.00	-0.0								
N147106	270.07	270.07	0.00	0.0								
HW4	25917.38	25920.09	0.00	-0.0								
Ex Georges R	25920.09	25920.09	0.00	0.0								
N147129	16949.67	16949.66	0.00	0.0								
N147132	1578.86	1578.86	0.00	0.0								
Carpark HW	1438.65	1438.19	0.00	0.0								
Pr Carpark Ju	354.17	354.02	0.00	0.0								
F\03	1866.52	1866.41	0.00	0.0								
F\02	2020.23	2020.37	0.00	-0.0								
Channel2	2020.37	2020.42	0.00	-0.0								
Prop Carpark	1086.09	1086.09	0.00	0.0								
HW46	1438.65	1438.75	0.00	-0.0								
Pit144889	361.32	361.30	0.00	0.0								
N159649	361.30	361.30	0.00	0.0								
HW57	1438.65	1438.75	0.00	-0.0								
Pit144901	361.32	361.30	0.00	0.0								
Ex Existing Ch	361.30	361.30	0.00	0.0								
EX Carpark N	1077.43	1077.43	0.00	0.0								
N214245	111.78	111.78	0.00	0.0								
N214246	402.40	402.40	0.00	-0.0								
N214247	672.88	672.88	0.00	-0.0								
N214248	842.99	842.99	0.00	0.0								
N214249	1790.88	1790.88	0.00	0.0								
N214250	2448.25	2448.25	0.00	0.0								
N214256	3113.21	3113.21	0.00	0.0								
N214257	4372.14	4372.15	0.00	-0.0								
N304196	5342.10	5342.10	0.00	0.0								
AA\06	22.84	22.92	0.00	-0.4								
AA\05	123.39	123.31	0.00	0.1								
AA\04	235.85	236.77	0.00	-0.4								
AA\03	386.10	379.73	0.00	1.7								
AA\02	379.73	388.39	0.00	-2.3								
AA Outlet	388.39	388.39	0.00	0.0								
AB\02	31.26	31.19	0.00	0.2								
AB\01	90.39	90.48	0.00	-0.1								
BA\11	114.61	114.78	0.00	-0.1								
BA\10	193.99	194.11	0.00	-0.1								
BA\09	299.47	299.56	0.00	-0.0								
BA\08	404.99	405.15	0.00	-0.0								
BA\07	793.02	793.16	0.00	-0.0								
BA\06	1098.84	1098.91	0.00	-0.0								
BA\05	1403.95	1404.23	0.00	-0.0								
BA\04	1677.08	1676.96	0.00	0.0								
BA\03	1766.38	1766.92	0.00	-0.0								
BA\02	2029.06	2028.31	0.00	0.0								
BA\01	2028.31	2028.83	0.00	-0.0								
BA Outlet	2028.83	2028.83	0.00	0.0								
BB\03	113.92	114.08	0.00	-0.1								
BB\02	193.36	193.45	0.00	-0.0								
BB\01	290.60	290.71	0.00	-0.0								
BC\03	63.76	63.87	0.00	-0.2								
BC\02	111.20	111.27	0.00	-0.1								
BC\01	208.42	208.52	0.00	-0.0								
BD\03	63.34	63.44	0.00	-0.2								
BD\02	111.05	111.11	0.00	-0.1								
BD\01	207.78	207.89	0.00	-0.1								
BE\03	114.33	114.51	0.00	-0.2								
BE\02	192.89	193.00	0.00	-0.1								
BE\01	193.00	193.02	0.00	-0.0								
BF\02	56.65	56.73	0.00	-0.1								
BF\01	261.79	262.14	0.00	-0.1								
BG\02	65.55	65.64	0.00	-0.1								
BG\01	111.74	111.56	0.00	0.2								
F\21	373.75	373.42	0.00	0.1								
F\20	475.60	475.06	0.00	0.1								
F\19	530.07	529.69	0.00	0.1								
F\18	576.13	575.67	0.00	0.1								
F\17	685.96	685.81	0.00	0.0								
F\16	731.75	731.66	0.00	0.0								
F\15	822.76	822.90	0.00	-0.0								
F\14	890.83	890.87	0.00	-0.0								
F\13	981.13	981.00	0.00	0.0								
F\12	1071.60	1071.59	0.00	0.0								
F\11	1116.75	1116.74	0.00	0.0								
F\10	1161.63	1161.60	0.00	0.0								
F\09	1206.59	1206.51	0.00	0.0								
F\08	1251.84	1251.86	0.00	-0.0								
F\07	1299.36	1299.30	0.00	0.0								
F\06	1351.64	1351.63	0.00	0.0								
F\05	1401.91	1401.87	0.00	0.0								
F\04	1457.83	1457.84	0.00	-0.0								
Run Log for ConceptStage1.drn run at 12:07:31 on 18/2/2015												
Upwelling occurred at Pr Carpark Junc												
Freeboard was inadequate at more than 20 pits.												
The maximum flow exceeded the safe value in the following overflow routes: F Cat 1, F Cat 2, F Cat 3, F Cat 4, F Cat 5, Existing Channel, Swale												
The following overflow routes carried water uphill (adding energy): OF410995, F F\12, F F\17, Stage Discharge												
These results may be invalid. You should check for water flowing round in circles at these locations. You may need to reformulate the model.												

All Stages (future development) DRAINS Modelling (OSD performance)

Calculation Sheet

Job	SIMTA	Design	Concept	Office	Sydney
	Moorebank Intermodal	Date	Feb-15	Job No	AA003760
	All Stages	Checked	Bruce Caldwell		
		Date	Feb-15		

SIMTA

MOOREBANK INTERMODAL

ALL STAGES

OSD CONNECTED

CONCEPT DESIGN

DRAINS OUTPUT

February 2015

PROJECT	SIMTA				
TITLE	DRAINS DATA ALL STAGES	JOB No		AA003760	
		PREPARED	GD	DATE	24/02/2015
		CHECKED	BC	DATE	24/02/2015

DATA

DRAINS File Path:	F:\AA003760\D-Calcs\A-Civil\A-Stormwater\A-DRAINS
DRAINS Version:	DRAINS Version 2015.02 - 4 Februrary 2015
Modeller's Name:	George Dunstan
Description:	Existing and Proposed

PIT / NODE DETAILS			Version 12											
Name	Type	Family	Size	Ponding Volume (cu.m)	Pressure Change Coeff. Ku	Surface Elev (m)	Max Pond Depth (m)	Base Inflow (cu.m/s)	Blocking Factor	x	y	Bolt-down lid	id	Part Full Shock Loss
CA\11	Sag	Surface Inlet Pits	Trench Grate	5	4.0	16.44	0.15	0	0.5	308182.37	6240833.36	No	12508221	1 x Ku
CA\10	Sag	Surface Inlet Pits	Trench Grate	5	1.5	16.44	0.15	0	0.5	308186.17	6240863.12	No	12508220	1 x Ku
CA\09	Sag	Surface Inlet Pits	Trench Grate	5	1.1	16.44	0.15	0	0.5	308189.97	6240892.87	No	12508219	1 x Ku
CA\08	Sag	Surface Inlet Pits	Trench Grate	5	1.2	16.44	0.15	0	0.5	308193.77	6240922.63	No	12508218	1 x Ku
CA\07	Sag	Surface Inlet Pits	Trench Grate	5	2.0	16.42	0.15	0	0.5	308160.04	6240926.94	No	12508217	1 x Ku
CA\06	Sag	Surface Inlet Pits	Trench Grate	5	2.0	16.5	0.15	0	0.5	308132.27	6240930.48	No	12508216	1 x Ku
CA\05	Sag	Surface Inlet Pits	Trench Grate	5	1.5	16.5	0.15	0	0.5	308112.43	6240933.02	No	12508215	1 x Ku
CA\04	Sag	Surface Inlet Pits	Trench Grate	5	1.2	16.42	0.15	0	0.5	308084.66	6240936.57	No	12508214	1 x Ku
CA\03	Sag	Surface Inlet Pits	Trench Grate	5	1.0	16.7	0.15	0	0.5	308048.85	6240941.14	No	12508213	1 x Ku
CA\02	OnGrade	Gross Pollutant T	GPT		3.0	16.1		0	0.3	308047.61	6240941.30	No	12508212	1 x Ku
CA Outlet	Node					16.7		0		307972.23	6240958.246		146121560	
CB\03	Sag	Surface Inlet Pits	Trench Grate	5	4.0	16.44	0.15	0	0.5	308205.17	6241011.91	No	12508224	1 x Ku
CB\02	Sag	Surface Inlet Pits	Trench Grate	5	1.5	16.44	0.15	0	0.5	308201.37	6240982.15	No	12508223	1 x Ku
CB\01	Sag	Surface Inlet Pits	Trench Grate	5	1.1	16.44	0.15	0	0.5	308197.57	6240952.39	No	12508222	1 x Ku
CC\03	Sag	Surface Inlet Pits	Trench Grate	5	4.0	16.42	0.15	0	0.5	308171.44	6241016.21	No	12508227	1 x Ku
CC\02	Sag	Surface Inlet Pits	Trench Grate	5	1.5	16.42	0.15	0	0.5	308167.64	6240986.46	No	12508226	1 x Ku
CC\01	Sag	Surface Inlet Pits	Trench Grate	5	1.1	16.42	0.15	0	0.5	308163.84	6240956.70	No	12508225	1 x Ku
CD\03	Sag	Surface Inlet Pits	Trench Grate	5	4.0	16.42	0.15	0	0.5	308148.64	6240837.66	No	12508230	1 x Ku
CD\02	Sag	Surface Inlet Pits	Trench Grate	5	1.5	16.42	0.15	0	0.5	308152.44	6240867.42	No	12508229	1 x Ku
CD\01	Sag	Surface Inlet Pits	Trench Grate	5	1.1	16.42	0.15	0	0.5	308156.24	6240897.18	No	12508228	1 x Ku
CE\03	Sag	Surface Inlet Pits	Trench Grate	5	4.0	16.5	0.15	0	0.5	308143.67	6241019.76	No	12508233	1 x Ku
CE\02	Sag	Surface Inlet Pits	Trench Grate	5	1.5	16.5	0.15	0	0.5	308139.87	6240990.00	No	12508232	1 x Ku
CE\01	Sag	Surface Inlet Pits	Trench Grate	5	1.1	16.5	0.15	0	0.5	308136.07	6240960.25	No	12508231	1 x Ku
CF\03	Sag	Surface Inlet Pits	Trench Grate	5	4.0	16.5	0.15	0	0.5	308120.87	6240841.21	No	12508236	1 x Ku
CF\02	Sag	Surface Inlet Pits	Trench Grate	5	1.5	16.5	0.15	0	0.5	308124.67	6240870.97	No	12508235	1 x Ku
CF\01	Sag	Surface Inlet Pits	Trench Grate	5	1.1	16.5	0.15	0	0.5	308128.47	6240900.73	No	12508234	1 x Ku
CG\03	Sag	Surface Inlet Pits	Trench Grate	5	4.0	16.5	0.15	0	0.5	308123.83	6241022.30	No	12508239	1 x Ku
CG\02	Sag	Surface Inlet Pits	Trench Grate	5	1.5	16.5	0.15	0	0.5	308120.03	6240992.54	No	12508238	1 x Ku
CG\01	Sag	Surface Inlet Pits	Trench Grate	5	1.1	16.5	0.15	0	0.5	308116.23	6240962.78	No	12508237	1 x Ku
CH\03	Sag	Surface Inlet Pits	Trench Grate	5	4.0	16.5	0.15	0	0.5	308101.03	6240843.75	No	12508242	1 x Ku
CH\02	Sag	Surface Inlet Pits	Trench Grate	5	1.5	16.5	0.15	0	0.5	308104.83	6240873.50	No	12508241	1 x Ku
CH\01	Sag	Surface Inlet Pits	Trench Grate	5	1.1	16.5	0.15	0	0.5	308108.63	6240903.26	No	12508240	1 x Ku
CJ\03	Sag	Surface Inlet Pits	Trench Grate	5	4.0	16.42	0.15	0	0.5	308096.06	6241025.84	No	12508245	1 x Ku
CJ\02	Sag	Surface Inlet Pits	Trench Grate	5	1.5	16.42	0.15	0	0.5	308092.26	6240996.08	No	12508244	1 x Ku
CJ\01	Sag	Surface Inlet Pits	Trench Grate	5	1.1	16.42	0.15	0	0.5	308088.46	6240966.33	No	12508243	1 x Ku
CK\03	Sag	Surface Inlet Pits	Trench Grate	5	4.0	16.42	0.15	0	0.5	308073.25	6240847.25	No	12508248	1 x Ku
CK\02	Sag	Surface Inlet Pits	Trench Grate	5	1.5	16.42	0.15	0	0.5	308077.05	6240877.05	No	12508247	1 x Ku
CK\01	Sag	Surface Inlet Pits	Trench Grate	5	1.1	16.42	0.15	0	0.5	308080.85	6240906.81	No	12508246	1 x Ku
CL\03	Sag	Surface Inlet Pits	Trench Grate	5	4.0	16.7	0.15	0	0.5	308060.25	6241030.42	No	12508251	1 x Ku
CL\02	Sag	Surface Inlet Pits	Trench Grate	5	1.5	16.7	0.15	0	0.5	308056.45	6241000.66	No	12508250	1 x Ku
CL\01	Sag	Surface Inlet Pits	Trench Grate	5	1.1	16.7	0.15	0	0.5	308052.65	6240970.90	No	12508249	1 x Ku
CM\03	Sag	Surface Inlet Pits	Trench Grate	5	2.0	16.7	0.15	0	0.5	308037.45	6240851.87	No	12508254	1 x Ku
CM\02	Sag	Surface Inlet Pits	Trench Grate	5	1.5	16.7	0.15	0	0.5	308041.25	6240881.62	No	12508253	1 x Ku
CM\01	Sag	Surface Inlet Pits	Trench Grate	5	1.1	16.7	0.15	0	0.5	308045.05	6240911.38	No	12508252	1 x Ku
DA\11	Sag	Surface Inlet Pits	Trench Grate	5	4.0	16.44	0.15	0	0.5	308155.77	6240625.05	No	12508265	1 x Ku
DA\10	Sag	Surface Inlet Pits	Trench Grate	5	1.5	16.44	0.15	0	0.5	308159.57	6240654.81	No	12508264	1 x Ku
DA\09	Sag	Surface Inlet Pits	Trench Grate	5	1.1	16.44	0.15	0	0.5	308163.37	6240684.57	No	12508263	1 x Ku
DA\08	Sag	Surface Inlet Pits	Trench Grate	5	1.2	16.44	0.15	0	0.5	308167.17	6240714.32	No	12508262	1 x Ku
DA\07	Sag	Surface Inlet Pits	Trench Grate	5	2.0	16.42	0.15	0	0.5	308133.44	6240718.63	No	12508261	1 x Ku
DA\06	Sag	Surface Inlet Pits	Trench Grate	5	2.0	16.5	0.15	0	0.5	308105.67	6240722.18	No	12508260	1 x Ku
DA\05	Sag	Surface Inlet Pits	Trench Grate	5	1.5	16.5	0.15	0	0.5	308085.83	6240724.71	No	12508259	1 x Ku
DA\04	Sag	Surface Inlet Pits	Trench Grate	5	1.2	16.42	0.15	0	0.5	308058.05	6240728.26	No	12508258	1 x Ku
DA\03	Sag	Surface Inlet Pits	Trench Grate	5	1.0	16.7	0.15	0	0.5	308022.25	6240732.83	No	12508257	1 x Ku
DA\02	OnGrade	Gross Pollutant T	GPT		3.0	16.1		0	0.3	308021.01	6240732.99	No	12508256	1 x Ku
DA Outlet	Node					16.7		0		307959.59	6240746.046		146121536	
DB\03	Sag	Surface Inlet Pits	Trench Grate	5	4.0	16.44	0.15	0	0.5	308178.57	6240803.60	No	12508268	1 x Ku
DB\02	Sag	Surface Inlet Pits	Trench Grate	5	1.5	16.44	0.15	0	0.5	308174.77	6240773.84	No	12508267	1 x Ku
DB\01	Sag	Surface Inlet Pits	Trench Grate	5	1.1	16.44	0.15	0	0.5	308170.97	6240744.08	No	12508266	1 x Ku
DC\03	Sag	Surface Inlet Pits	Trench Grate	5	4.0	16.42	0.15	0	0.5	308144.84	6240807.91	No	12508271	1 x Ku
DC\02	Sag	Surface Inlet Pits	Trench Grate	5	1.5	16.42	0.15	0	0.5	308141.04	6240778.15	No	12508270	1 x Ku
DC\01	Sag	Surface Inlet Pits	Trench Grate	5	1.1	16.42	0.15	0	0.5	308137.24	6240748.39	No	12508269	1 x Ku
DD\03	Sag	Surface Inlet Pits	Trench Grate	5	4.0	16.42	0.15	0	0.5	308122.04	6240629.36	No	12508274	1 x Ku
DD\02	Sag	Surface Inlet Pits	Trench Grate	5	1.5	16.42	0.15	0	0.5	308125.84	6240659.12	No	12508273	1 x Ku
DD\01	Sag	Surface Inlet Pits	Trench Grate	5	1.1	16.42	0.15	0	0.5	308129.64	6240688.87	No	12508272	1 x Ku
DE\03	Sag	Surface Inlet Pits	Trench Grate	5	4.0	16.5	0.15	0	0.5	308117.07	6240811.45	No	12508277	1 x Ku
DE\02	Sag	Surface Inlet Pits	Trench Grate	5	1.5	16.5	0.15	0	0.5	308113.27	6240781.70	No	12508276	1 x Ku
DE\01	Sag	Surface Inlet Pits	Trench Grate	5	1.1	16.5	0.15	0	0.5	308109.47	6240751.94	No	12508275	1 x Ku
DF\03	Sag	Surface Inlet Pits	Trench Grate	5	4.0	16.5	0.15	0	0.5	308094.27	6240632.90	No	12508280	1 x Ku
DF\02	Sag	Surface Inlet Pits	Trench Grate	5	1.5	16.5	0.15	0	0.5	308098.07	6240662.66	No	12508279	1 x Ku
DF\01	Sag	Surface Inlet Pits	Trench Grate	5	1.1	16.5	0.15	0	0.5	308101.87	6240692.42	No	12508278	1 x Ku
DG\03	Sag	Surface Inlet Pits	Trench Grate	5	4.0	16.5	0.15	0	0.5	308097.23	6240813.96	No	12508283	1 x Ku
DG\02	Sag	Surface Inlet Pits	Trench Grate	5	1.5	16.5	0.15	0	0.5	308093.43	6240784.23	No	12508282	1 x Ku
DG\01	Sag	Surface Inlet Pits	Trench Grate	5	1.1	16.5	0.15	0	0.5	308089.63	6240754.47	No	12508281	1 x Ku
DH\03	Sag	Surface Inlet Pits	Trench Grate	5	4.0	16.5	0.15	0	0.5	308074.43	6240635.44	No	12508286	1 x Ku
DH\02	Sag	Surface Inlet Pits	Trench Grate	5	1.5	16.5	0.15	0	0.5	308078.23	6240665.20	No	12508285	1 x Ku
DH\01	Sag	Surface Inlet Pits	Trench Grate	5	1.1	16.5	0.15	0	0.5	308082.03	6240694.95	No	12508284	1 x Ku
DJ\03	Sag	Surface Inlet Pits	Trench Grate	5	4.0	16.42	0.15	0	0.5	308069.45	6240817.53	No	12508289	1 x Ku
DJ\02	Sag	Surface Inlet Pits	Trench Grate	5	1.5	16.42	0.15	0	0.5	308065.65	6240787.78	No	12508288	1 x Ku
DJ\01	Sag	Surface Inlet Pits	Trench Grate	5	1.1	16.42	0.15	0	0.5	308061.85	6240758.02	No	12508287	1 x Ku
DK\03	Sag	Surface Inlet Pits	Trench Grate	5	4.0	16.42	0.15	0	0.5	308046.65	6240638.98	No	12508292	1 x Ku
DK\02	Sag	Surface Inlet Pits	Trench Grate	5	1.5	16.42	0.15	0	0.5	308050.45	6240668.74	No	12508291	1 x Ku
DK\01	Sag	Surface Inlet Pits	Trench Grate	5	1.1	16.42	0.15	0	0.5	308054.25	6240698.50	No	12508290	1 x Ku
DL\03	Sag	Surface Inlet Pits	Trench Grate	5	4.0	16.7	0.15	0	0.5	308033.65	6240822.11	No	12508295	1 x Ku
DL\02	Sag	Surface Inlet Pits	Trench Grate	5	1.5	16.7	0.15	0	0.5	308029.85	6240792.35	No	12508294	1 x Ku
DL\01	Sag	Surface Inlet Pits	Trench Grate	5	1.1	16.7	0.15	0	0.5	308026.05	6240762.59	No	12508293	1 x Ku
DM\03	Sag	Surface Inlet Pits	Trench Grate	5	2.0	16.7	0.15	0	0.5	308010.85	6240643.56	No	12508298	1 x Ku
DM\02	Sag	Surface Inlet Pits	Trench Grate	5	1.5	16.7	0.15	0	0.5	308014.65	6240673.32	No	12508297	1 x Ku
DM\01	Sag	Surface Inlet Pits	Trench Grate	5	1.1	16.7	0.15	0	0.5	308018.45	6240703.07	No	12508296	1 x Ku
EA\11	Sag	Surface Inlet Pits	Trench Grate	5	4.0	16.44	0.15	0	0.5	308129.16	6240416.74	No	12508310	1 x Ku
EA\10	Sag	Surface Inlet Pits	Trench Grate	5	1.5	16.44	0.15	0	0.5	308132.96	6240446.50	No	12508309	1 x Ku
EA\09	Sag	Surface Inlet Pits	Trench Grate	5	1.1	16.44	0.15	0	0.5	308136.76	6240476.26	No	12508308	1 x Ku
EA\08	Sag	Surface Inlet Pits	Trench Grate	5	1.2	16.44	0.15	0	0.5	308140.56	6240506.02	No	12508307	1 x Ku
EA\07	Sag	Surface Inlet Pits	Trench Grate	5	2.0	16.42	0.15	0	0.5	308106.84	6240510.32	No	12508306	1 x Ku
EA\06	Sag	Surface Inlet Pits	Trench Grate	5	1.6	16.5	0.15	0	0.5	308079.06	6240513.87	No	12508305	1 x Ku
EA\05	Sag	Surface Inlet Pits	Trench Grate	5	1.5	16.5	0.15	0	0.5	308059.22	6240516.41	No	12508304	1 x Ku
EA\04	Sag	Surface Inlet Pits	Trench Grate	5	1.5	16.42	0.15	0	0.5	308031.45	6240519.95	No	12508303	1 x Ku
EA\03	Sag	Surface Inlet Pits	Trench Grate	5	1.0	16.7	0.15	0	0.5	307995.65	6240524.53	No	12508302	1 x Ku
EA\02	OnGrade	Gross Pollutant T	GPT		3.0	16.1		0	0.3	307994.41	6240524.68	No	12508301	1 x Ku
EA Outlet	Node					16.7		0		307905.46	6240546.837		146121539	
EB\03	Sag	Surface Inlet Pits	Trench Grate	5	4.0	16.44	0.15	0	0.5	308151.97	6240595.29	No	12508313	1 x Ku
EB\02	Sag	Surface Inlet Pits	Trench Grate	5	1.5	16.44	0.15	0	0.5	308148.17	6240565.53	No	12508312	1 x Ku
EB\01	Sag	Surface Inlet Pits	Trench Grate	5	1.1	16.44	0.15	0	0.5	308144.36	6240535.78	No	12508311	1 x Ku
EC\03	Sag	Surface Inlet Pits	Trench Grate	5	4.0	16.42	0.15	0	0.5	308118.24	6240599.60	No	12508316	1 x Ku
EC\02	Sag	Surface Inlet Pits	Trench Grate	5	1.5	16.42	0.15	0	0.5	308114.44	6240569.84	No	12508315	1 x Ku
EC\01	Sag	Surface Inlet Pits	Trench Grate	5	1.1	16.42	0.15	0	0.5	308110.64	6240540.08	No	12508314	1 x Ku
ED\03	Sag	Surface Inlet Pits	Trench Grate	5	4.0	16.42	0.15	0	0.5	308095.44	6240421.05	No	12508319	1 x Ku
ED\02	Sag	Surface Inlet Pits	Trench Grate	5	1.5	16.42	0.15	0	0.5	308099.24	6240450.81	No	12508318	1 x Ku
ED\01	Sag	Surface Inlet Pits	Trench Grate	5	1.1	16.42	0.15	0	0.5	308103.04	6240480.57	No	12508317	1 x Ku
EE\03	Sag	Surface Inlet Pits	Trench Grate	5	4.0	16.5	0.15	0	0.5	308090.47	6240603.15	No	12508322	1 x Ku
EE\02	Sag	Surface Inlet Pits	Trench Grate	5	1.6	16.5	0.15	0	0.5	308086.66	6240573.39	No	12508321	1 x Ku
EE\01	Sag	Surface Inlet Pits	Trench Grate	5	1.4	16.5	0.15	0	0.5	308082.86	6240543.63	No	12508320	1 x Ku
EF\03	Sag	Surface Inlet Pits	Trench Grate	5	4.0	16.5	0.15	0	0.5	308067.66	6240424.60	No	12508325	1 x Ku
EF\02	Sag	Surface Inlet Pits	Trench Grate	5	1.6	16.5	0.15	0	0.5	308071.46	6240454.36	No	12508324	1 x Ku
EF\01	Sag	Surface Inlet Pits	Trench Grate	5	1.4	16.5	0.15	0	0.5	308075.26	6240484.11	No	12508323	1 x Ku
EG\03	Sag	Surface Inlet Pits	Trench Grate	5	4.0	16.5	0.15	0	0.5	308070.63	6240605.68	No	12508328	1 x Ku
EG\02	Sag	Surface Inlet Pits	Trench Grate	5	1.6	16.5	0.15	0	0.5	308066.83	6240575.92	No	12508327	1 x Ku
EG\01	Sag	Surface Inlet Pits	Trench Grate	5	1.4	16.5	0.15	0	0.5	308063.03	6240546.16	No	12508326	1 x Ku
EH\03	Sag	Surface Inlet Pits	Trench Grate	5	4.0	16.5	0.15	0	0.5	308047.82	6240427.13	No	12508331	1 x Ku
EH\02	Sag	Surface Inlet Pits	Trench Grate	5	1.6	16.5	0.15	0	0.5	308051.62	6240456.88	No	12508330	1 x Ku
EH\01	Sag	Surface Inlet Pits	Trench Grate	5	1.4	16.5	0.15	0	0.5	308055.42	6240486.65	No	12508329	1 x Ku
EJ\03	Sag	Surface Inlet Pits	Trench Grate	5	4.0	16.42	0.15	0	0.5	308042.85	6240609.23	No	12508334	1 x Ku
EJ\02	Sag	Surface Inlet Pits	Trench Grate	5	1.5	16.42	0.15	0	0.5	308039.05	6240579.47	No	12508333	1 x Ku
EJ\01	Sag	Surface Inlet Pits	Trench Grate	5	1.4	16.42	0.15	0	0.5	308035.25	6240549.71	No	12508332	1 x Ku
EK\03	Sag	Surface Inlet Pits	Trench Grate	5	4.0	16.42	0.15	0	0.5	308020.05	6240430.68	No	12508337	1 x Ku
EK\02	Sag	Surface Inlet Pits	Trench Grate	5	1.5	16.42	0.15	0	0.5	308023.85	6240460.44	No	12508336	1 x Ku
EK\01	Sag	Surface Inlet Pits	Trench Grate	5	1.4	16.42	0.15	0	0.5	308027.65	6240490.19	No	12508335	1 x Ku
EL\03	Sag	Surface Inlet Pits	Trench Grate	5	4.0	16.7	0.15	0	0.5	308007.05	6240613.80	No	12508340	1 x Ku
EL\02	Sag	Surface Inlet Pits	Trench Grate	5	1.6	16.7	0.15	0	0.5	308003.25	6240584.04	No	12508339	1 x Ku
EL\01	Sag	Surface Inlet Pits	Trench Grate	5	1.4	16.7	0.15	0	0.5	307999.45	6240554.28	No	12508338	1 x Ku
EM\03	Sag	Surface Inlet Pits	Trench Grate	5	9.0	16.7	0.15	0	0.5	307984.24	6240435.25	No	12508343	1 x Ku
EM\02	Sag	Surface Inlet Pits	Trench Grate	5	1.6	16.7	0.15	0	0.5	307988.04	6240465.01	No	12508342	1 x Ku
EM\01	Sag	Surface Inlet Pits	Trench Grate	5	1.4	16.7	0.15	0	0.5	307991.84	6240494.77	No	12508341	1 x Ku
O CA\02	Node					15.872		0		308052.61	6240946.303		12508348	
O DA\02	Node					15.872		0		308026.01	6240737.995		12508350	
N60922	Node							0		307769.42	6241322.256		18017974	
N60923	Node					15		0		307522.91	6241266.381		18017975	
HW Moore	Headwall				0.5	14.2		0		307698.20	6241217.700		18017976	
Full Existing	Node					16		0		307600.08	6241260.808		18017979	

HW4	Headwall				0.5	14.2		0		308053.08	6241550.898	18018021		
N60943	Node					16		0		307944.47	6241553.756	18018035		
HW4	Headwall				0.5	14.2		0		307707.26	6241440.006	63827547		
N147128	Node					16		0		307604.37	6241484.306	63827550		
N147129	Node							0		307795.85	6241416.428	63827554		
N147132	Node							0		307795.85	6241545.753	63827566		
Carpark HW	Headwall				0.5	14.7		0		307921.59	6241236.948	64604924		
Pit139477	Sag	Surface Inlet Pits	Surface Inlet Pit 900x900	5	1.5	14.55	0.1	0	0.5	307981.63	6241325.76	No	64604927	1 x Ku
F\03	Sag	Surface Inlet Pits	Surface Inlet Pit 900x900	15	1.0	14.4	0.1	0	0.5	308077.92	6241321.98	No	129747956	1 x Ku
F\02	Sag	Surface Inlet Pits	Surface Inlet Pit 900x900	15	2.5	14.5	0.15	0	0.5	308088.86	6241401.64	No	140620164	1 x Ku
F\01	OnGrade	Surface Inlet Pits	Unlimited Entry Pit		1.5	15		0	0	307960.36	6241476.78	No	144406443	1 x Ku
N351960	Node					16		0		307955.72	6241506.377		144405797	
N153349	Node					15		0		307851.13	6241236.948		64605377	
HW46	Headwall				0.5	14.7		0		307625.86	6241093.550		65725035	
Pit144889	OnGrade	Surface Inlet Pits	Surface Inlet Pit 900x900		1.5	14.55		0	0.3	307719.14	6241116.37	No	65725059	1 x Ku
N159649	Node					16		0		307716.17	6241191.299		65725084	
HW57	Headwall				0.5	14.7		0		307592.62	6241333.704		65725114	
Pit144901	OnGrade	Surface Inlet Pits	Surface Inlet Pit 900x900		1.5	14.55		0	0.3	307686.40	6241342.13	No	65725140	1 x Ku
N147130	Node					16		0		307700.79	6241394.238		63827558	
O EA\02	Node					15.872		0		307999.41	6240529.688		79917534	
External	Node							0		308136.67	6241627.350		36081885	
NRemaining	Node							0		308147.75	6241592.315		43098404	
N280923	Node							0		307861.22	6241556.022		100162548	
N314881	Node							0		307529.34	6241501.454		121083526	
F\21	Sag	Surface Inlet Pits	Surface Inlet Pit 5000x1000	50	4.0	14.85	0.3	0	0.5	307962.28	6240407.25	No	129747974	1 x Ku
F\20	Sag	Surface Inlet Pits	Surface Inlet Pit 900x900	15	1.1	14.995	0.1	0	0.5	307966.68	6240451.30	No	129747973	1 x Ku
F\19	Sag	Surface Inlet Pits	Surface Inlet Pit 900x900	15	0.6	14.925	0.1	0	0.5	307971.74	6240490.98	No	129747972	1 x Ku
F\18	Sag	Surface Inlet Pits	Surface Inlet Pit 900x900	15	0.6	14.9	0.1	0	0.5	307976.82	6240530.72	No	129747971	1 x Ku
F\17	Sag	Surface Inlet Pits	Surface Inlet Pit 900x900	15	0.6	14.75	0.1	0	0.5	307984.42	6240590.20	No	129747970	1 x Ku
F\16	Sag	Surface Inlet Pits	Surface Inlet Pit 900x900	15	0.6	14.825	0.1	0	0.5	307992.02	6240649.71	No	129747969	1 x Ku
F\15	Sag	Surface Inlet Pits	Surface Inlet Pit 900x900	15	0.5	14.705	0.1	0	0.5	307999.61	6240709.19	No	129747968	1 x Ku
F\14	Sag	Surface Inlet Pits	Surface Inlet Pit 900x900	15	0.5	14.686	0.1	0	0.5	308007.23	6240768.82	No	129747967	1 x Ku
F\13	Sag	Surface Inlet Pits	Surface Inlet Pit 900x900	15	0.5	14.525	0.1	0	0.5	308017.35	6240848.12	No	129747966	1 x Ku
F\12	Sag	Surface Inlet Pits	Surface Inlet Pit 900x900	15	0.5	14.475	0.1	0	0.5	308027.49	6240927.46	No	129747965	1 x Ku
F\11	Sag	Surface Inlet Pits	Surface Inlet Pit 900x900	15	0.4	14.55	0.1	0	0.5	308035.09	6240986.98	No	129747964	1 x Ku
F\10	Sag	Surface Inlet Pits	Surface Inlet Pit 900x900	15	0.4	14.525	0.1	0	0.5	308040.16	6241026.67	No	129747963	1 x Ku
F\09	Sag	Surface Inlet Pits	Surface Inlet Pit 900x900	15	0.0	14.5	0.1	0	0.5	308045.22	6241066.33	No	129747962	1 x Ku
F\08	Sag	Surface Inlet Pits	Surface Inlet Pit 900x900	15	0.4	14.475	0.1	0	0.5	308050.28	6241105.94	No	129747961	1 x Ku
F\07	Sag	Surface Inlet Pits	Surface Inlet Pit 900x900	15	0.4	14.45	0.1	0	0.5	308055.43	6241146.26	No	129747960	1 x Ku
F\06	Sag	Surface Inlet Pits	Surface Inlet Pit 900x900	15	0.4	14.431	0.1	0	0.5	308060.16	6241183.24	No	129747959	1 x Ku
F\05	Sag	Surface Inlet Pits	Surface Inlet Pit 900x900	15	0.4	14.4	0.1	0	0.5	308065.04	6241222.31	No	129747958	1 x Ku
F\04	Sag	Surface Inlet Pits	Surface Inlet Pit 900x900	15	0.4	14.369	0.1	0	0.5	308071.48	6241271.88	No	129747957	1 x Ku
AA\06	OnGrade	Standard Pits	1.8m lintel		4.0	15.988		0	0.3	308132.48	6241320.76	No	129747765	1 x Ku
AA\05	Sag	Surface Inlet Pits	Surface Inlet Pit 1200x1200	15	2.0	16.27	0.15	0	0.5	308126.72	6241278.53	No	129747764	1 x Ku
AA\04	Sag	Surface Inlet Pits	Surface Inlet Pit 1200x1200	15	2.0	16.264	0.15	0	0.5	308120.86	6241235.58	No	129747763	1 x Ku
AA\03	Sag	Surface Inlet Pits	Surface Inlet Pit 1200x1200	15	2.0	16.314	0.15	0	0.5	308095.63	6241238.85	No	129747762	1 x Ku
AA\02	OnGrade	Gross Pollutant T	GPT		2.0	16.4		0	0.3	308087.10	6241239.88	No	129747761	1 x Ku
AA Outlet	Node					16.7		0		308031.80	6241231.939		103214619	
AB\02	OnGrade	Standard Pits	1.8m lintel		4.0	15.737		0	0.3	308117.60	6241340.94	No	129747767	1 x Ku
AB\01	Sag	Surface Inlet Pits	Surface Inlet Pit 1200x1200	15	2.0	16.318	0.15	0	0.5	308100.73	6241281.80	No	129747766	1 x Ku
BA\11	Sag	Surface Inlet Pits	Surface Inlet Pit 1200x1200	15	4.0	16.44	0.1	0	0.5	308210.09	6241049.62	No	129747778	1 x Ku
BA\10	Sag	Surface Inlet Pits	Surface Inlet Pit 1200x1200	15	1.5	16.44	0.1	0	0.5	308214.78	6241086.32	No	129747777	1 x Ku
BA\09	Sag	Surface Inlet Pits	Surface Inlet Pit 1200x1200	15	1.2	16.5	0.1	0	0.5	308223.08	6241128.02	No	129747776	1 x Ku
BA\08	Sag	Surface Inlet Pits	Surface Inlet Pit 1200x1200	15	2.5	16.5	0.1	0	0.5	308229.17	6241175.69	No	129747775	1 x Ku
BA\07	Sag	Surface Inlet Pits	Surface Inlet Pit 1200x1200	15	2.0	16.446	0.1	0	0.5	308200.11	6241179.40	No	129747774	1 x Ku
BA\06	Sag	Surface Inlet Pits	Surface Inlet Pit 1200x1200	15	2.0	16.393	0.1	0	0.5	308171.04	6241183.13	No	129747773	1 x Ku
BA\05	Sag	Surface Inlet Pits	Surface Inlet Pit 1200x1200	15	2.0	16.339	0.1	0	0.5	308141.98	6241186.83	No	129747772	1 x Ku
BA\04	Sag	Surface Inlet Pits	Surface Inlet Pit 1200x1200	15	1.5	16.326	0.1	0	0.5	308115.92	6241190.15	No	129747771	1 x Ku
BA\03	Sag	Surface Inlet Pits	Surface Inlet Pit 1200x1200	15	0.5	16.286	0.1	0	0.5	308092.64	6241193.16	No	129747770	1 x Ku
BA\02	Sag	Surface Inlet Pits	Surface Inlet Pit 1200x1200	15	0.5	16.4	0.1	0	0.5	308081.32	6241194.60	No	129747769	1 x Ku
BA\01	OnGrade	Gross Pollutant T	GPT		2.0	16.4		0	0.3	308078.84	6241194.86	No	129747922	1 x Ku
BA Outlet	Node					16.7		0		308016.29	6241203.413		12508345	
BB\03	Sag	Surface Inlet Pits	Surface Inlet Pit 1200x1200	15	4.0	16.421	0.1	0	0.5	308176.25	6241053.42	No	129747781	1 x Ku
BB\02	Sag	Surface Inlet Pits	Surface Inlet Pit 1200x1200	15	2.0	16.42	0.1	0	0.5	308181.05	6241090.62	No	129747780	1 x Ku
BB\01	Sag	Surface Inlet Pits	Surface Inlet Pit 1200x1200	15	1.2	16.446	0.1	0	0.5	308194.02	6241131.74	No	129747779	1 x Ku
BC\03	Sag	Surface Inlet Pits	Surface Inlet Pit 1200x1200	15	4.0	16.5	0.1	0	0.5	308148.59	6241057.47	No	129747784	1 x Ku
BC\02	Sag	Surface Inlet Pits	Surface Inlet Pit 1200x1200	15	2.0	16.5	0.1	0	0.5	308153.41	6241095.16	No	129747783	1 x Ku
BC\01	Sag	Surface Inlet Pits	Surface Inlet Pit 1200x1200	15	1.2	16.392	0.1	0	0.5	308164.96	6241135.45	No	129747782	1 x Ku
BD\03	Sag	Surface Inlet Pits	Surface Inlet Pit 1200x1200	15	4.0	16.5	0.1	0	0.5	308128.75	6241060.00	No	129747787	1 x Ku
BD\02	Sag	Surface Inlet Pits	Surface Inlet Pit 1200x1200	15	2.0	16.5	0.1	0	0.5	308133.57	6241097.70	No	129747786	1 x Ku
BD\01	Sag	Surface Inlet Pits	Surface Inlet Pit 1200x1200	15	1.2	16.339	0.1	0	0.5	308135.89	6241139.16	No	129747785	1 x Ku
BE\03	Sag	Surface Inlet Pits	Surface Inlet Pit 1200x1200	15	4.0	16.42	0.1	0	0.5	308100.98	6241063.55	No	129747790	1 x Ku
BE\02	Sag	Surface Inlet Pits	Surface Inlet Pit 1200x1200	15	1.5	16.42	0.1	0	0.5	308105.79	6241101.24	No	129747789	1 x Ku
BE\01	Sag	Surface Inlet Pits	Surface Inlet Pit 1200x1200	15	1.2	16.453	0.1	0	0.5	308113.74	6241162.23	No	129747788	1 x Ku
BF\02	Sag	Surface Inlet Pits	Surface Inlet Pit 1200x1200	15	5.0	16.012	0.1	0	0.5	308096.27	6241158.16	No	129747792	1 x Ku
BF\01	Sag	Surface Inlet Pits	Surface Inlet Pit 1200x1200	15	2.0	15.751	0.1	0	0.5	308077.01	6241160.56	No	129747791	1 x Ku
BG\02	Sag	Surface Inlet Pits	Surface Inlet Pit 1200x1200	15	2.0	16.4	0.1	0	0.5	308065.17	6241068.10	No	129747794	1 x Ku
BG\01	Sag	Surface Inlet Pits	Surface Inlet Pit 1200x1200	15	2.0	16.4	0.1	0	0.5	308070.24	6241107.83	No	129747793	1 x Ku
Future	OnGrade	Surface Inlet Pits	Unlimited Entry Pit		0.0	16		0	0	308145.91	6241232.29	No	140945127	1 x Ku
OSD 2	Node							0		308101.87	6241525.562		146116653	
OSD 1	Node							0		308101.45	6241466.847		146116654	

DETENTION BASIN DETAILS

Name	Elev	Surf. Area	Not Used	Outlet Type	K	Dia(mm)	Centre RL	Pit Family	Pit Type	x	y	HED	Crest RL	Crest Length
All Stages	13.499	0		None						308078.19	6241547.66	No		
	13.5	6500												
	15	6500												
	15.01	10400												
	15.5	10400												
	15.8	10400												
	16	10400												
	16.01	1												
	20	1												

SUB-CATCHMENT DETAILS

Name	Pit or Node	Total Area	Paved Area	Grass Area	Supp Area	Paved Time	Grass Time	Supp Time	Paved Length	Grass Length	Supp Length	Paved Slope(%)	Grass Slope	Supp Slope
		(ha)	%	%	%	(min)	(min)	(min)	(m)	(m)	(m)	%	%	%
C CA\11	CA\11	0.1086	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C CA\10	CA\10	0.1085	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C CA\09	CA\09	0.1085	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C CA\08	CA\08	0.1085	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C CA\07	CA\07	0.1077	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C CA\06	CA\06	0.0603	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C CA\05	CA\05	0.0600	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C CA\04	CA\04	0.1077	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C CA\03	CA\03	0.0621	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C CB\03	CB\03	0.1086	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C CB\02	CB\02	0.1085	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C CB\01	CB\01	0.1085	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C CC\03	CC\03	0.1077	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C CC\02	CC\02	0.1077	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C CC\01	CC\01	0.1077	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C CD\03	CD\03	0.1077	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C CD\02	CD\02	0.1077	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C CD\01	CD\01	0.1077	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C CE\03	CE\03	0.0603	100.0	0.0	0.0	0	0	0	10	0	0	1	1	1
C CE\02	CE\02	0.0603	100.0	0.0	0.0	0	0	0	10	0	0	1	1	1
C CE\01	CE\01	0.0603	100.0	0.0	0.0	0	0	0	10	0	0	1	1	1
C CF\03	CF\03	0.0603	100.0	0.0	0.0	0	0	0	10	0	0	1	1	1
C CF\02	CF\02	0.0603	100.0	0.0	0.0	0	0	0	10	0	0	1	1	1
C CF\01	CF\01	0.0603	100.0	0.0	0.0	0	0	0	10	0	0	1	1	1
C CG\03	CG\03	0.0600	100.0	0.0	0.0	0	0	0	10	0	0	1	1	1
C CG\02	CG\02	0.0600	100.0	0.0	0.0	0	0	0	10	0	0	1	1	1
C CG\01	CG\01	0.0600	100.0	0.0	0.0	0	0	0	10	0	0	1	1	1
C CH\03	CH\03	0.0600	100.0	0.0	0.0	0	0	0	10	0	0	1	1	1
C CH\02	CH\02	0.0600	100.0	0.0	0.0	0	0	0	10	0	0	1	1	1
C CH\01	CH\01	0.0600	100.0	0.0	0.0	0	0	0	10	0	0	1	1	1
C CJ\03	CJ\03	0.1077	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C CJ\02	CJ\02	0.1077	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C CJ\01	CJ\01	0.1077	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C CK\03	CK\03	0.1077	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C CK\02	CK\02	0.1077	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C CK\01	CK\01	0.1077	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C CL\03	CL\03	0.0621	100.0	0.0	0.0	0	0	0	10	0	0	1	1	1
C CL\02	CL\02	0.0621	100.0	0.0	0.0	0	0	0	10	0	0	1	1	1
C CL\01	CL\01	0.0621	100.0	0.0	0.0	0	0	0	10	0	0	1	1	1
C CM\03	CM\03	0.0621	100.0	0.0	0.0	0	0	0	10	0	0	1	1	1
C CM\02	CM\02	0.0621	100.0	0.0	0.0	0	0	0	10	0	0	1	1	1
C CM\01	CM\01	0.0621	100.0	0.0	0.0	0	0	0	10	0	0	1	1	1
C DA\11	DA\11	0.1082	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C DA\10	DA\10	0.1085	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C DA\09	DA\09	0.1085	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C DA\08	DA\08	0.1084	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C DA\07	DA\07	0.1077	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C DA\06	DA\06	0.0603	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C DA\05	DA\05	0.0600	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C DA\04	DA\04	0.1077	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C DA\03	DA\03	0.0621	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C DB\03	DB\03	0.1085	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C DB\02	DB\02	0.1085	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C DB\01	DB\01	0.1085	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1

C DC\03	DC\03	0.1077	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C DC\02	DC\02	0.1077	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C DC\01	DC\01	0.1077	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C DD\03	DD\03	0.1082	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C DD\02	DD\02	0.1078	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C DD\01	DD\01	0.1077	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C DE\03	DE\03	0.0603	100.0	0.0	0.0	0	0	0	10	0	0	1	1	1
C DE\02	DE\02	0.0603	100.0	0.0	0.0	0	0	0	10	0	0	1	1	1
C DE\01	DE\01	0.0603	100.0	0.0	0.0	0	0	0	10	0	0	1	1	1
C DF\03	DF\03	0.0600	100.0	0.0	0.0	0	0	0	10	0	0	1	1	1
C DF\02	DF\02	0.0602	100.0	0.0	0.0	0	0	0	10	0	0	1	1	1
C DF\01	DF\01	0.0603	100.0	0.0	0.0	0	0	0	10	0	0	1	1	1
C DG\03	DG\03	0.0600	100.0	0.0	0.0	0	0	0	10	0	0	1	1	1
C DG\02	DG\02	0.0600	100.0	0.0	0.0	0	0	0	10	0	0	1	1	1
C DG\01	DG\01	0.0600	100.0	0.0	0.0	0	0	0	10	0	0	1	1	1
C DH\03	DH\03	0.0600	100.0	0.0	0.0	0	0	0	10	0	0	1	1	1
C DH\02	DH\02	0.0600	100.0	0.0	0.0	0	0	0	10	0	0	1	1	1
C DH\01	DH\01	0.0600	100.0	0.0	0.0	0	0	0	10	0	0	1	1	1
C DJ\03	DJ\03	0.1077	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C DJ\02	DJ\02	0.1077	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C DJ\01	DJ\01	0.1077	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C DK\03	DK\03	0.1077	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C DK\02	DK\02	0.1077	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C DK\01	DK\01	0.1077	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C DL\03	DL\03	0.0621	100.0	0.0	0.0	0	0	0	10	0	0	1	1	1
C DL\02	DL\02	0.0621	100.0	0.0	0.0	0	0	0	10	0	0	1	1	1
C DL\01	DL\01	0.0621	100.0	0.0	0.0	0	0	0	10	0	0	1	1	1
C DM\03	DM\03	0.0621	100.0	0.0	0.0	0	0	0	10	0	0	1	1	1
C DM\02	DM\02	0.0621	100.0	0.0	0.0	0	0	0	10	0	0	1	1	1
C DM\01	DM\01	0.0621	100.0	0.0	0.0	0	0	0	10	0	0	1	1	1
C EA\11	EA\11	0.1352	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C EA\10	EA\10	0.1082	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C EA\09	EA\09	0.1083	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C EA\08	EA\08	0.1082	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C EA\07	EA\07	0.1083	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C EA\06	EA\06	0.0600	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C EA\05	EA\05	0.0600	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C EA\04	EA\04	0.1077	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C EA\03	EA\03	0.0621	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C EB\03	EB\03	0.1080	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C EB\02	EB\02	0.1080	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C EB\01	EB\01	0.1080	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C EC\03	EC\03	0.1083	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C EC\02	EC\02	0.1083	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C EC\01	EC\01	0.1083	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C ED\03	ED\03	0.1353	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C ED\02	ED\02	0.1083	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C ED\01	ED\01	0.1083	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C EE\03	EE\03	0.0600	100.0	0.0	0.0	0	0	0	10	0	0	1	1	1
C EE\02	EE\02	0.0600	100.0	0.0	0.0	0	0	0	10	0	0	1	1	1
C EE\01	EE\01	0.0600	100.0	0.0	0.0	0	0	0	10	0	0	1	1	1
C EF\03	EF\03	0.0751	100.0	0.0	0.0	0	0	0	10	0	0	1	1	1
C EF\02	EF\02	0.0600	100.0	0.0	0.0	0	0	0	10	0	0	1	1	1
C EF\01	EF\01	0.0600	100.0	0.0	0.0	0	0	0	10	0	0	1	1	1
C EG\03	EG\03	0.0600	100.0	0.0	0.0	0	0	0	10	0	0	1	1	1
C EG\02	EG\02	0.0600	100.0	0.0	0.0	0	0	0	10	0	0	1	1	1
C EG\01	EG\01	0.0600	100.0	0.0	0.0	0	0	0	10	0	0	1	1	1
C EH\03	EH\03	0.0750	100.0	0.0	0.0	0	0	0	10	0	0	1	1	1
C EH\02	EH\02	0.0600	100.0	0.0	0.0	0	0	0	10	0	0	1	1	1
C EH\01	EH\01	0.0600	100.0	0.0	0.0	0	0	0	10	0	0	1	1	1
C EJ\03	EJ\03	0.1077	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C EJ\02	EJ\02	0.1077	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C EJ\01	EJ\01	0.1077	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C EK\03	EK\03	0.1350	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C EK\02	EK\02	0.1077	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C EK\01	EK\01	0.1077	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C EL\03	EL\03	0.0621	100.0	0.0	0.0	0	0	0	10	0	0	1	1	1
C EL\02	EL\02	0.0621	100.0	0.0	0.0	0	0	0	10	0	0	1	1	1
C EL\01	EL\01	0.0621	100.0	0.0	0.0	0	0	0	10	0	0	1	1	1
C EM\03	EM\03	0.0361	100.0	0.0	0.0	0	0	0	10	0	0	1	1	1
C EM\02	EM\02	0.0621	100.0	0.0	0.0	0	0	0	10	0	0	1	1	1
C EM\01	EM\01	0.0621	100.0	0.0	0.0	0	0	0	10	0	0	1	1	1
CatchC1Ex	N60922	2.4310	81.8	18.2	-0.0	7	7	0						
CatchCEx	HW Moore	39.9000	60.7	39.3	0.0	25	30	0						
Existing Remaing	HW4	12.2900	60.7	39.3	0.0	12	15	5						
Existing S1	N147129	27.6100	60.9	39.1	0.0	15	20	5						
CatC1	N147132	2.4310	81.8	18.2	-0.0	7	7	0						
C F\03	F\03	0.1019	40.0	60.0	0.0	5	5	0						
C F\02	F\02	0.2462	90.0	10.0	0.0	5	10	0						
Remaing Swale	F\01	0.3500	40.0	60.0	0.0	10	10	0						
Cat Carpark Ex	HW46	2.0850	100.0	0.0	0.0	5	0	0						
Cat320370	HW57	2.0850	100.0	0.0	0.0	5	0	0						
CatC1Ex	External	2.4310	81.8	18.2	-0.0	7	7	0						
C Remaining North	NRemaining	17.6800	100.0	0.0	0.0	4	0	0						
C OSD 3	All Stages	0.6500	0.0	100.0	0.0	5	1	0						
C F\21	F\21	0.7998	0.0	100.0	0.0	5	7	0						
C F\20	F\20	0.1835	40.0	60.0	0.0	5	5	0						
C F\19	F\19	0.0824	90.0	10.0	0.0	5	10	0						
C F\18	F\18	0.0834	40.0	60.0	0.0	5	5	0						
C F\17	F\17	0.1652	90.0	10.0	0.0	5	10	0						
C F\16	F\16	0.0825	40.0	60.0	0.0	5	5	0						
C F\15	F\15	0.1636	40.0	60.0	0.0	5	5	0						
C F\14	F\14	0.1220	40.0	60.0	0.0	5	5	0						
C F\13	F\13	0.1621	40.0	60.0	0.0	5	5	0						
C F\12	F\12	0.1627	40.0	60.0	0.0	5	5	0						
C F\11	F\11	0.0811	40.0	60.0	0.0	5	5	0						
C F\10	F\10	0.0806	40.0	60.0	0.0	5	5	0						
C F\09	F\09	0.0808	40.0	60.0	0.0	5	5	0						
C F\08	F\08	0.0814	40.0	60.0	0.0	5	5	0						
C F\07	F\07	0.0853	40.0	60.0	0.0	5	5	0						
C F\06	F\06	0.0940	40.0	60.0	0.0	5	5	0						
C F\05	F\05	0.0903	40.0	60.0	0.0	5	5	0						
C F\04	F\04	0.1005	40.0	60.0	0.0	5	5	0						
C AA\06	AA\06	0.0331	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C AA\05	AA\05	0.1456	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C AA\04	AA\04	0.1631	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C AA\03	AA\03	0.0853	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C AB\02	AB\02	0.0453	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C AB\01	AB\01	0.0858	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C BA\11	BA\11	0.1661	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C BA\10	BA\10	0.1148	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C BA\09	BA\09	0.1527	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C BA\08	BA\08	0.1528	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C BA\07	BA\07	0.1408	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C BA\06	BA\06	0.1408	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C BA\05	BA\05	0.1408	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C BA\04	BA\04	0.1157	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C BA\03	BA\03	0.1296	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C BB\03	BB\03	0.1651	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C BB\02	BB\02	0.1149	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C BB\01	BB\01	0.1408	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C BC\03	BC\03	0.0924	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C BC\02	BC\02	0.0686	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C BC\01	BC\01	0.1408	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C BD\03	BD\03	0.0918	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C BD\02	BD\02	0.0690	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C BD\01	BD\01	0.1401	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C BE\03	BE\03	0.1657	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C BE\02	BE\02	0.1136	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C BF\02	BF\02	0.0821	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C BF\01	BF\01	0.1355	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C BG\02	BG\02	0.0950	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C BG\01	BG\01	0.0668	100.0	0.0	0.0	0	0	0	17.5	0	0	1	1	1
C Future	Future	3.2900	100.0	0.0	0.0	4	0	0						
C OSD 2	OSD 2	0.1100	0.0	100.0	0.0	5	1	0						
C OSD 1	OSD 1	0.5750	0.0	100.0	0.0	5	1	0						

PIPE DETAILS

Name	From	To	Length (m)	U/S IL (m)	D/S IL (m)	Slope (%)	Type	Dia (mm)	I.D. (mm)	Rough	Pipe Is	No. Pipes	Chg From	At Chg
P CA\11	CA\11	CA\10	30.001	15.530	15.230	1.00	RCP Class 2	375	375	0.3	New	1	CA\11	0
P CA\10	CA\10	CA\09	30	15.210	14.910	1.00	RCP Class 2	450	450	0.3	New	1	CA\10	0
P CA\09	CA\09	CA\08	30	14.890	14.590	1.00	RCP Class 2	525	525	0.3	New	1	CA\09	0
P CA\08	CA\08	CA\07	34	14.570	14.230	1.00	Box Culverts	1.5W x 0.6H		0.3	NewFixed	1	CA\08	0
P CA\07	CA\07	CA\06	28	14.210	14.070	0.50	Box Culverts	1.5W x 0.6H		0.3	NewFixed	1	CA\07	0
P CA\06	CA\06	CA\05	20.001	14.050	13.950	0.50	Box Culverts	1.5W x 0.9H		0.3	NewFixed	1	CA\06	0
P CA\05	CA\05	CA\04	28	13.930	13.790	0.50	Box Culverts	1.5W x 0.9H		0.3	NewFixed	1	CA\05	0
P CA\04	CA\04	CA\03	36.096	13.770	13.590	0.50	Box Culverts	1.5W x 1.2H		0.3	NewFixed	1	CA\04	0
P CA\03	CA\03	CA\02	6	13.570	13.563	0.12	Box Culverts	1.5W x 1.2H		0.3	NewFixed	1	CA\03	0
P CA\02	CA\02	CA Outlet	6	13.543	13.500	0.72	Box Culverts	1.5W x 1.2H		0.3	NewFixed	1	CA\02	0
P CB\03	CB\03	CB\02	30	15.530	15.230	1.00	RCP Class 2	375	375	0.3	New	1	CB\03	0
P CB\02	CB\02	CB\01	30	15.210	14.910	1.00	RCP Class 2	450	450	0.3	New	1	CB\02	0

P CB\01	CB\01	CA\08	30.001	14.890	14.590	1.00	RCP Class 2	525	525	0.3	New	1	CB\01	0
P CC\03	CC\03	CC\02	30	15.510	15.210	1.00	RCP Class 2	375	375	0.3	New	1	CC\03	0
P CC\02	CC\02	CC\01	30	15.190	14.890	1.00	RCP Class 2	450	450	0.3	New	1	CC\02	0
P CC\01	CC\01	CA\07	30.001	14.870	14.570	1.00	RCP Class 2	525	525	0.3	New	1	CC\01	0
P CD\03	CD\03	CD\02	30.001	15.510	15.210	1.00	RCP Class 2	375	375	0.3	New	1	CD\03	0
P CD\02	CD\02	CD\01	30	15.190	14.890	1.00	RCP Class 2	450	450	0.3	New	1	CD\02	0
P CD\01	CD\01	CA\07	30	14.870	14.570	1.00	RCP Class 2	525	525	0.3	New	1	CD\01	0
P CE\03	CE\03	CE\02	30	15.590	15.290	1.00	RCP Class 2	375	375	0.3	New	1	CE\03	0
P CE\02	CE\02	CE\01	30	15.270	14.970	1.00	RCP Class 2	375	375	0.3	New	1	CE\02	0
P CE\01	CE\01	CA\06	30.001	14.950	14.650	1.00	RCP Class 2	375	375	0.3	New	1	CE\01	0
P CF\03	CF\03	CF\02	30	15.590	15.290	1.00	RCP Class 2	375	375	0.3	New	1	CF\03	0
P CF\02	CF\02	CF\01	30	15.270	14.970	1.00	RCP Class 2	375	375	0.3	New	1	CF\02	0
P CF\01	CF\01	CA\06	30	14.950	14.650	1.00	RCP Class 2	375	375	0.3	New	1	CF\01	0
P CG\03	CG\03	CG\02	30	15.590	15.290	1.00	RCP Class 2	375	375	0.3	New	1	CG\03	0
P CG\02	CG\02	CG\01	30.001	15.270	14.970	1.00	RCP Class 2	375	375	0.3	New	1	CG\02	0
P CG\01	CG\01	CA\05	30	14.950	14.650	1.00	RCP Class 2	375	375	0.3	New	1	CG\01	0
P CH\03	CH\03	CH\02	30	15.590	15.290	1.00	RCP Class 2	375	375	0.3	New	1	CH\03	0
P CH\02	CH\02	CH\01	30.001	15.270	14.970	1.00	RCP Class 2	375	375	0.3	New	1	CH\02	0
P CH\01	CH\01	CA\05	30	14.950	14.650	1.00	RCP Class 2	375	375	0.3	New	1	CH\01	0
P CJ\03	CJ\03	CJ\02	30	15.510	15.210	1.00	RCP Class 2	375	375	0.3	New	1	CJ\03	0
P CJ\02	CJ\02	CJ\01	30.001	15.190	14.890	1.00	RCP Class 2	450	450	0.3	New	1	CJ\02	0
P CJ\01	CJ\01	CA\04	30	14.870	14.570	1.00	RCP Class 2	450	450	0.3	New	1	CJ\01	0
P CK\03	CK\03	CK\02	30.001	15.510	15.210	1.00	RCP Class 2	375	375	0.3	New	1	CK\03	0
P CK\02	CK\02	CK\01	30	15.190	14.890	1.00	RCP Class 2	450	450	0.3	New	1	CK\02	0
P CK\01	CK\01	CA\04	30	14.870	14.570	1.00	RCP Class 2	450	450	0.3	New	1	CK\01	0
P CL\03	CL\03	CL\02	30.001	15.790	15.490	1.00	RCP Class 2	375	375	0.3	New	1	CL\03	0
P CL\02	CL\02	CL\01	30	15.470	15.170	1.00	RCP Class 2	375	375	0.3	New	1	CL\02	0
P CL\01	CL\01	CA\03	30	15.150	14.850	1.00	RCP Class 2	375	375	0.3	New	1	CL\01	0
P CM\03	CM\03	CM\02	30	15.790	15.490	1.00	RCP Class 2	375	375	0.3	New	1	CM\03	0
P CM\02	CM\02	CM\01	30	15.470	15.170	1.00	RCP Class 2	375	375	0.3	New	1	CM\02	0
P CM\01	CM\01	CA\03	30.001	15.150	14.850	1.00	RCP Class 2	375	375	0.3	New	1	CM\01	0
P DA\11	DA\11	DA\10	30.001	15.530	15.230	1.00	RCP Class 2	375	375	0.3	New	1	DA\11	0
P DA\10	DA\10	DA\09	30	15.210	14.910	1.00	RCP Class 2	450	450	0.3	New	1	DA\10	0
P DA\09	DA\09	DA\08	30	14.890	14.590	1.00	RCP Class 2	525	525	0.3	New	1	DA\09	0
P DA\08	DA\08	DA\07	34	14.570	14.230	1.00	Box Culverts	1.5W x 0.6H		0.3	NewFixed	1	DA\08	0
P DA\07	DA\07	DA\06	28	14.210	14.070	0.50	Box Culverts	1.5W x 0.6H		0.3	NewFixed	1	DA\07	0
P DA\06	DA\06	DA\05	20.001	14.050	13.950	0.50	Box Culverts	1.5W x 0.9H		0.3	NewFixed	1	DA\06	0
P DA\05	DA\05	DA\04	28	13.930	13.790	0.50	Box Culverts	1.5W x 0.9H		0.3	NewFixed	1	DA\05	0
P DA\04	DA\04	DA\03	36.096	13.770	13.590	0.50	Box Culverts	1.5W x 1.2H		0.3	NewFixed	1	DA\04	0
P DA\03	DA\03	DA\02	6	13.570	13.563	0.12	Box Culverts	1.5W x 1.2H		0.3	NewFixed	1	DA\03	0
P DA\02	DA\02	DA Outlet	6	13.543	13.500	0.72	Box Culverts	1.5W x 1.2H		0.3	NewFixed	1	DA\02	0
P DB\03	DB\03	DB\02	30	15.530	15.230	1.00	RCP Class 2	375	375	0.3	New	1	DB\03	0
P DB\02	DB\02	DB\01	30	15.210	14.910	1.00	RCP Class 2	450	450	0.3	New	1	DB\02	0
P DB\01	DB\01	DA\08	30.001	14.890	14.590	1.00	RCP Class 2	525	525	0.3	New	1	DB\01	0
P DC\03	DC\03	DC\02	30	15.510	15.210	1.00	RCP Class 2	375	375	0.3	New	1	DC\03	0
P DC\02	DC\02	DC\01	30	15.190	14.890	1.00	RCP Class 2	450	450	0.3	New	1	DC\02	0
P DC\01	DC\01	DA\07	30.001	14.870	14.570	1.00	RCP Class 2	525	525	0.3	New	1	DC\01	0
P DD\03	DD\03	DD\02	30.001	15.510	15.210	1.00	RCP Class 2	375	375	0.3	New	1	DD\03	0
P DD\02	DD\02	DD\01	30	15.190	14.890	1.00	RCP Class 2	450	450	0.3	New	1	DD\02	0
P DD\01	DD\01	DA\07	30	14.870	14.570	1.00	RCP Class 2	525	525	0.3	New	1	DD\01	0
P DE\03	DE\03	DE\02	30	15.590	15.290	1.00	RCP Class 2	375	375	0.3	New	1	DE\03	0
P DE\02	DE\02	DE\01	30	15.270	14.970	1.00	RCP Class 2	375	375	0.3	New	1	DE\02	0
P DE\01	DE\01	DA\06	30.001	14.950	14.650	1.00	RCP Class 2	375	375	0.3	New	1	DE\01	0
P DF\03	DF\03	DF\02	30	15.590	15.290	1.00	RCP Class 2	375	375	0.3	New	1	DF\03	0
P DF\02	DF\02	DF\01	30	15.270	14.970	1.00	RCP Class 2	375	375	0.3	New	1	DF\02	0
P DF\01	DF\01	DA\06	30	14.950	14.650	1.00	RCP Class 2	375	375	0.3	New	1	DF\01	0
P DG\03	DG\03	DG\02	30	15.590	15.290	1.00	RCP Class 2	375	375	0.3	New	1	DG\03	0
P DG\02	DG\02	DG\01	30.001	15.270	14.970	1.00	RCP Class 2	375	375	0.3	New	1	DG\02	0
P DG\01	DG\01	DA\05	30	14.950	14.650	1.00	RCP Class 2	375	375	0.3	New	1	DG\01	0
P DH\03	DH\03	DH\02	30	15.590	15.290	1.00	RCP Class 2	375	375	0.3	New	1	DH\03	0
P DH\02	DH\02	DH\01	30.001	15.270	14.970	1.00	RCP Class 2	375	375	0.3	New	1	DH\02	0
P DH\01	DH\01	DA\05	30	14.950	14.650	1.00	RCP Class 2	375	375	0.3	New	1	DH\01	0
P DJ\03	DJ\03	DJ\02	30	15.510	15.210	1.00	RCP Class 2	375	375	0.3	New	1	DJ\03	0
P DJ\02	DJ\02	DJ\01	30.001	15.190	14.890	1.00	RCP Class 2	450	450	0.3	New	1	DJ\02	0
P DJ\01	DJ\01	DA\04	30	14.870	14.570	1.00	RCP Class 2	450	450	0.3	New	1	DJ\01	0
P DK\03	DK\03	DK\02	30.001	15.510	15.210	1.00	RCP Class 2	375	375	0.3	New	1	DK\03	0
P DK\02	DK\02	DK\01	30	15.190	14.890	1.00	RCP Class 2	450	450	0.3	New	1	DK\02	0
P DK\01	DK\01	DA\04	30	14.870	14.570	1.00	RCP Class 2	450	450	0.3	New	1	DK\01	0
P DL\03	DL\03	DL\02	30.001	15.790	15.490	1.00	RCP Class 2	375	375	0.3	New	1	DL\03	0
P DL\02	DL\02	DL\01	30	15.470	15.170	1.00	RCP Class 2	375	375	0.3	New	1	DL\02	0
P DL\01	DL\01	DA\03	30	15.150	14.850	1.00	RCP Class 2	375	375	0.3	New	1	DL\01	0
P DM\03	DM\03	DM\02	30	15.790	15.490	1.00	RCP Class 2	375	375	0.3	New	1	DM\03	0
P DM\02	DM\02	DM\01	30	15.470	15.170	1.00	RCP Class 2	375	375	0.3	New	1	DM\02	0
P DM\01	DM\01	DA\03	30.001	15.150	14.850	1.00	RCP Class 2	375	375	0.3	New	1	DM\01	0
P EA\11	EA\11	EA\10	30.001	15.530	15.230	1.00	RCP Class 2	375	375	0.3	New	1	EA\11	0
P EA\10	EA\10	EA\09	30	15.210	14.910	1.00	RCP Class 2	450	450	0.3	New	1	EA\10	0
P EA\09	EA\09	EA\08	30	14.890	14.590	1.00	RCP Class 2	525	525	0.3	New	1	EA\09	0
P EA\08	EA\08	EA\07	34	14.570	14.230	1.00	Box Culverts	1.5W x 0.6H		0.3	NewFixed	1	EA\08	0
P EA\07	EA\07	EA\06	28	14.210	14.070	0.50	Box Culverts	1.5W x 0.9H		0.3	NewFixed	1	EA\07	0
P EA\06	EA\06	EA\05	20.001	14.050	13.950	0.50	Box Culverts	1.5W x 0.9H		0.3	NewFixed	1	EA\06	0
P EA\05	EA\05	EA\04	28	13.930	13.790	0.50	Box Culverts	1.5W x 1.2H		0.3	NewFixed	1	EA\05	0
P EA\04	EA\04	EA\03	36.096	13.770	13.590	0.50	Box Culverts	1.5W x 1.2H		0.3	NewFixed	1	EA\04	0
P EA\03	EA\03	EA\02	6	13.570	13.563	0.12	Box Culverts	1.5W x 1.2H		0.3	NewFixed	1	EA\03	0
P EA\02	EA\02	EA Outlet	6	13.543	13.500	0.72	Box Culverts	1.5W x 1.2H		0.3	NewFixed	1	EA\02	0
P EB\03	EB\03	EB\02	30	15.530	15.230	1.00	RCP Class 2	375	375	0.3	New	1	EB\03	0
P EB\02	EB\02	EB\01	30	15.210	14.910	1.00	RCP Class 2	450	450	0.3	New	1	EB\02	0
P EB\01	EB\01	EA\08	30.001	14.890	14.590	1.00	RCP Class 2	525	525	0.3	New	1	EB\01	0
P EC\03	EC\03	EC\02	30	15.510	15.210	1.00	RCP Class 2	375	375	0.3	New	1	EC\03	0
P EC\02	EC\02	EC\01	30	15.190	14.890	1.00	RCP Class 2	450	450	0.3	New	1	EC\02	0
P EC\01	EC\01	EA\07	30.001	14.870	14.570	1.00	RCP Class 2	525	525	0.3	New	1	EC\01	0
P ED\03	ED\03	ED\02	30.001	15.510	15.210	1.00	RCP Class 2	375	375	0.3	New	1	ED\03	0
P ED\02	ED\02	ED\01	30	15.190	14.890	1.00	RCP Class 2	450	450	0.3	New	1	ED\02	0
P ED\01	ED\01	EA\07	30	14.870	14.570	1.00	RCP Class 2	525	525	0.3	New	1	ED\01	0
P EE\03	EE\03	EE\02	30	15.590	15.290	1.00	RCP Class 2	375	375	0.3	New	1	EE\03	0
P EE\02	EE\02	EE\01	30	15.270	14.970	1.00	RCP Class 2	375	375	0.3	New	1	EE\02	0
P EE\01	EE\01	EA\06	30.001	14.950	14.650	1.00	RCP Class 2	450	450	0.3	New	1	EE\01	0
P EF\03	EF\03	EF\02	30	15.590	15.290	1.00	RCP Class 2	375	375	0.3	New	1	EF\03	0
P EF\02	EF\02	EF\01	30	15.270	14.970	1.00	RCP Class 2	375	375	0.3	New	1	EF\02	0
P EF\01	EF\01	EA\06	30	14.950	14.650	1.00	RCP Class 2	450	450	0.3	New	1	EF\01	0
P EG\03	EG\03	EG\02	30	15.590	15.290	1.00	RCP Class 2	375	375	0.3	New	1	EG\03	0
P EG\02	EG\02	EG\01	30.001	15.270	14.970	1.00	RCP Class 2	375	375	0.3	New	1	EG\02	0
P EG\01	EG\01	EA\05	30	14.950	14.650	1.00	RCP Class 2	450	450	0.3	New	1	EG\01	0
P EH\03	EH\03	EH\02	30	15.590	15.290	1.00	RCP Class 2	375	375	0.3	New	1	EH\03	0
P EH\02	EH\02	EH\01	30.001	15.270	14.970	1.00	RCP Class 2	375	375	0.3	New	1	EH\02	0
P EH\01	EH\01	EA\05	30	14.950	14.650	1.00	RCP Class 2	450	450	0.3	New	1	EH\01	0
P EJ\03	EJ\03	EJ\02	30	15.510	15.210	1.00	RCP Class 2	375	375	0.3	New	1	EJ\03	0
P EJ\02	EJ\02	EJ\01	30.001	15.190	14.890	1.00	RCP Class 2	450	450	0.3	New	1	EJ\02	0
P EJ\01	EJ\01	EA\04	30	14.870	14.570	1.00	RCP Class 2	525	525	0.3	New	1	EJ\01	0
P EK\03	EK\03	EK\02	30.001	15.510	15.210	1.00	RCP Class 2	375	375	0.3	New	1	EK\03	0
P EK\02	EK\02	EK\01	30	15.190	14.890	1.00	RCP Class 2	450	450	0.3	New	1	EK\02	0
P EK\01	EK\01	EA\04	30	14.870	14.570	1.00	RCP Class 2	525	525	0.3	New	1	EK\01	0
P EL\03	EL\03	EL\02	30.001	15.790	15.490	1.00	RCP Class 2	375	375	0.3	New	1	EL\03	0
P EL\02	EL\02	EL\01	30	15.470	15.170	1.00	RCP Class 2	375	375	0.3	New	1	EL\02	0
P EL\01	EL\01	EA\03	30	15.150	14.850	1.00	RCP Class 2	375	375	0.3	New	1	EL\01	0
P EM\03	EM\03	EM\02	30	15.790	15.490	1.00	RCP Class 2	375	375	0.3	New	1	EM\03	0
P EM\02	EM\02	EM\01	30	15.470	15.170	1.00	RCP Class 2	375	375	0.3	New	1	EM\02	0
P EM\01	EM\01	EA\03	30.001	15.150	14.850	1.00	RCP Class 2	375	375	0.3	New	1	EM\01	0
Pipe56908	HW Moore	Full Existing	21	11.600	11.390	1.00	Box Culverts	2W x 1.8H		0.3	Existing	1	HW Moore	0
P Moorebank Ave	HW4	N60943	21	11.600	11.390	1.00	Box Culverts	2W x 1.8H		0.3	Existing	1	HW4	0
P135082	HW4	N147128	21	11.600	11.390	1.00	Box Culverts	2W x 1.8H		0.3	Existing	1	HW4	0
Pipe140549	Carpark HW	Pit139477	8.77	14.310	13.870	5.02	RCP Class 2	300	300	0.3	NewFixed	1	Carpark HW	0
Pipe299099	Pit139477	F\03	20	12.800	12.600	1.00	RCP Class 2	375	375	0.3	New	1	Pit139477	0
P F\03	F\03	F\02	80.901	12.562	12.400	0.20	Box Culverts	2.4W x 1.2H		0.3	NewFixed	1	F\03	0
P F\02	F\02	F\01	290	12.400	11.747	0.23	Box Culverts	2.6W x 1.5H		0.3	NewFixed	1	F\02	0
Pipe313016	F\01	N351960	20	11.740	11.500	1.20	Box Culverts	2.6W x 1.5H		0.3	Existing	1	F\01	0
P146094	HW46	Pit144889	8.77	14.310	13.870	5.02	RCP Class 2	300	300	0.3	NewFixed	1	HW46	0
P146107	Pit144889	N159649	23.6	13.620	12.990	2.67	RCP Class 2	300	300	0.3	New	1	Pit144889	0
P146120	HW57	Pit144901	8.77	14.310	13.870	5.02	RCP Class 2	300	300	0.3	NewFixed	1	HW57	0
P146133	Pit144901	N147130	23.6	13.620	12.990	2.67	RCP Class 2	300	300	0.3	New	1	Pit144901	0
P F\21	F\20	F\19	48.293	14.414	14.317	0.20	Box Culverts	1.2W x 0.3H		0.3	NewFixed	2	F\21	0
P F\20	F\20	F\19	40.001	14.317	14.237	0.20	Box Culverts	1.2W x 0.3H		0.3	NewFixed	2	F\20	0
P F\19	F\19	F\18	40.06	14.237	14.157	0.20	Box Culverts	1.2W x 0.3H		0.3	NewFixed	2	F\19	0
P F\18	F\18	F\17	59.969	14.157	14.037	0.20	Box Culverts	1.2W x 0.3H		0.3	NewFixed	2	F\18	0
P F\17	F\17	F\16	59.992	14.037	13.917	0.20	Box Culverts	1.2W x 0.3H		0.3	NewFixed	2	F\17	0
P F\16	F\16	F\15	59.957	13.917	13.797	0.20	Box Culverts	1.2W x 0.3H		0.3	NewFixed	2	F\16	0
P F\15	F\15	F\14	60.118	13.797	13.677	0.20	Box Culverts	1.2W x 0.3H		0.3	NewFixed	2	F\15	0
P F\14	F\14	F\13	79.943	13.677	13.517	0.20	Box Culverts	1.8W x 0.6H		0.3	NewFixed	1	F\14	0
P F\13	F\13	F\12	79.987	13.517	13.357	0.20	Box Culverts	1.8W x 0.6H		0.3	NewFixed	1	F\13	0
P F\12	F\12	F\11	60	13.357	13.237	0.20	Box Culverts	1.8W x 0.6H		0.3	NewFixed	1	F\12	0
P F\11	F\11	F\10	40.014	13.237	13.157	0.20	Box Culverts	1.8W x 0.6H		0.3	NewFixed	1	F\11	0
P F\10	F\10	F\09	39.98	13.157	13.077	0.20	Box Culverts	1.8W x 0.6H		0.3	NewFixed	1	F\10	0
P F\09	F\09	F\08	39.936	13.077	12.997	0.20	Box Culverts	2.1W x 0.9H		0.3	NewFixed	1	F\09	0
P F\08	F\08	F\07	40.646	12.997	12.916	0.20	Box Culverts	2.1W x 0.9H		0.3	NewFixed	1	F\08	0
P F\07	F\07	F\06	37.284	12.916	12.842	0.20	Box Culverts	2.1W x 0.9H		0.3	NewFixed	1	F\07	0
P F\06	F\06	F\05	39.367	12.842	12.763	0.20	Box Culverts	2.1W x 0.9H		0.3	NewFixed	1	F\06	0
P F\05	F\05	F\04	49.986	12.763	12.663	0.20	Box Culverts	2.4W x 1.2H		0.3	NewFixed	1	F\05	0
P F\04	F\04	F\03	50.511	12.663	12.562	0.20	Box Culverts	2.4W x 1.2H		0.3	NewFixed	1	F\04	0
P AA\06	AA\06	AA\05	42.617	15.088	14.662	1.00	RCP Class 2	375	375	0.3	New	1	AA\06	0
P AA\05	AA\05	AA\04	43.348	14.642	14.208	1.00	RCP Class 2	375	375	0.3	New	1	AA\05	0
P AA\04	AA\04	AA\03	25.439	13.723	13.596	0.50	Box Culverts	2.1W x 1.2H		0.3	NewFixed	1	AA\04	0
P AA\03	AA\03	AA\02	8.592	13.576	13.533	0.50	Box Culverts	2.1W x 1.2H		0.3	NewFixed	1	AA\03	0
P AA\02	AA\02	AA Outlet	10	13.513	13.500	0.13	Box Culverts	2.1W x 1.2H		0.3	NewFixed	1	AA\02	0

P AB\02	AB\02	AB\01	61.496	14.841	14.226	1.00	RCP Class 2	375	375	0.3	New	1	AB\02	0	
P AB\01	AB\01	AA\03	43.251	14.206	13.990	0.50	RCP Class 2	375	375	0.3	New	1	AB\01	0	
P BA\11	BA\11	BA\10	37	15.530	15.160	1.00	RCP Class 2	375	375	0.3	New	1	BA\11	0	
P BA\10	BA\10	BA\09	42.525	15.160	14.735	1.00	RCP Class 2	450	450	0.3	New	1	BA\10	0	
P BA\09	BA\09	BA\08	48.054	14.735	14.254	1.00	RCP Class 2	525	525	0.3	New	1	BA\09	0	
P BA\08	BA\08	BA\07	29.3	14.254	14.108	0.50	Box Culverts	1.5W x 0.6H		0.3	NewFixed	1	BA\08	0	
P BA\07	BA\07	BA\06	29.3	14.108	13.985	0.42	Box Culverts	1.5W x 0.9H		0.3	NewFixed	1	BA\07	0	
P BA\06	BA\06	BA\05	29.3	13.985	13.838	0.50	Box Culverts	1.5W x 1.2H		0.3	NewFixed	1	BA\06	0	
P BA\05	BA\05	BA\04	26.275	13.838	13.707	0.50	Box Culverts	1.5W x 1.2H		0.3	NewFixed	1	BA\05	0	
P BA\04	BA\04	BA\03	23.467	13.707	13.590	0.50	Box Culverts	1.5W x 1.2H		0.3	NewFixed	1	BA\04	0	
P BA\03	BA\03	BA\02	11.408	13.590	13.533	0.50	Box Culverts	1.5W x 1.2H		0.3	NewFixed	1	BA\03	0	
P BA\02	BA\02	BA\01	10	13.513	13.500	0.13	Box Culverts	1.8W x 1.2H		0.3	NewFixed	1	BA\02	0	
P BA\01	BA\01	BA Outlet	10	13.513	13.500	0.13	Box Culverts	1.8W x 1.2H		0.3	NewFixed	1	BA\01	0	
P BB\03	BB\03	BB\02	37.514	15.511	15.135	1.00	RCP Class 2	375	375	0.3	New	1	BB\03	0	
P BB\02	BB\02	BB\01	43.107	15.115	14.684	1.00	RCP Class 2	450	450	0.3	New	1	BB\02	0	
P BB\01	BB\01	BA\07	48.054	14.664	14.184	1.00	RCP Class 2	525	525	0.3	New	1	BB\01	0	
P BC\03	BC\03	BC\02	38	15.590	15.210	1.00	RCP Class 2	375	375	0.3	New	1	BC\03	0	
P BC\02	BC\02	BC\01	41.907	15.190	14.771	1.00	RCP Class 2	450	450	0.3	New	1	BC\02	0	
P BC\01	BC\01	BA\06	48.068	14.751	14.270	1.00	RCP Class 2	525	525	0.3	New	1	BC\01	0	
P BD\03	BD\03	BD\02	38	15.590	15.210	1.00	RCP Class 2	375	375	0.3	New	1	BD\03	0	
P BD\02	BD\02	BD\01	41.527	15.190	14.775	1.00	RCP Class 2	450	450	0.3	New	1	BD\02	0	
P BD\01	BD\01	BA\05	48.054	14.755	14.274	1.00	RCP Class 2	525	525	0.3	New	1	BD\01	0	
P BE\03	BE\03	BE\02	38	15.510	15.130	1.00	RCP Class 2	375	375	0.3	New	1	BE\03	0	
P BE\02	BE\02	BE\01	61.498	15.110	14.495	1.00	RCP Class 2	450	450	0.3	New	1	BE\02	0	
P BE\01	BE\01	BA\04	28.012	14.475	14.195	1.00	RCP Class 2	525	525	0.3	New	1	BE\01	0	
P BF\02	BF\02	BF\01	19.409	15.099	14.851	1.28	RCP Class 2	375	375	0.3	New	1	BF\02	0	
P BF\01	BF\01	BA\02	34.303	14.518	14.175	1.00	RCP Class 2	525	525	0.3	New	1	BF\01	0	
P BG\02	BG\02	BG\01	40.052	15.490	15.089	1.00	RCP Class 2	375	375	0.3	New	1	BG\02	0	
P BG\01	BG\01	BF\01	53.17	15.069	14.538	1.00	RCP Class 2	375	375	0.3	New	1	BG\01	0	
P Future	Future	AA\04	25.5	13.737	13.610	0.50	Box Culverts	2.1W x 1.2H		0.3	NewFixed	1	Future	0	

DETAILS of SERVICES CROSSING PIPES

Pipe	Chg	Bottom	Height of Service	Chg	Bottom	Height of S	Chg	Bottom	Height of S	etc
	(m)	Elev (m)	(m)	(m)	Elev (m)	(m)	(m)	Elev (m)	(m)	etc

CHANNEL DETAILS

Name	From	To	Type	Length	U/S IL	D/S IL	Slope	Base Width	L.B. Slope	R.B. Slope	Manning	Depth	Roofed
				(m)	(m)	(m)	(%)	(m)	(1:?)	(1:?)	n	(m)	

OVERFLOW ROUTE DETAILS

Name	From	To	Travel	Spill	Crest	Weir	Cross	Safe Depth	SafeDepth	Safe	Bed	D/S Area		id
			Time	Level	Length	Coeff. C	Section	Major Storm	Minor Storm	DxV	Slope	Contributing		
			(min)	(m)	(m)			(m)	(m)	(sq.m/sec)	(%)	%		
F CA\11	CA\11	CA\10	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508719
F CA\10	CA\10	CA\09	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508718
F CA\09	CA\09	CA\08	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508717
F CA\08	CA\08	CB\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508716
F CA\07	CA\07	CC\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508715
F CA\06	CA\06	CE\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508714
F CA\05	CA\05	CG\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508713
F CA\04	CA\04	CJ\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508712
F CA\03	CA\03	CL\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508711
F CA\02	CA\02	O CA\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508710
OF313093	CB\03	BA\11	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		140945097
F CB\02	CB\02	CB\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508721
F CB\01	CB\01	CB\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508720
OF313088	CC\03	BB\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		140945092
F CC\02	CC\02	CC\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508724
F CC\01	CC\01	CC\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508723
F CD\03	CD\03	CD\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508728
F CD\02	CD\02	CD\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508727
F CD\01	CD\01	CA\07	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508726
OF313085	CE\03	BC\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		140945089
F CE\02	CE\02	CE\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508730
F CE\01	CE\01	CE\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508729
F CF\03	CF\03	CF\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508734
F CF\02	CF\02	CF\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508733
F CF\01	CF\01	CA\06	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508732
OF313082	CG\03	BD\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		140945086
F CG\02	CG\02	CG\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508736
F CG\01	CG\01	CG\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508735
F CH\03	CH\03	CH\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508740
F CH\02	CH\02	CH\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508739
F CH\01	CH\01	CA\05	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508738
OF313080	CJ\03	BE\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		140945084
F CJ\02	CJ\02	CJ\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508742
F CJ\01	CJ\01	CJ\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508741
F CK\03	CK\03	CK\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508746
F CK\02	CK\02	CK\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508745
F CK\01	CK\01	CA\04	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508744
OF313075	CL\03	BG\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		140945079
F CL\02	CL\02	CL\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508748
F CL\01	CL\01	CL\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508747
F CM\03	CM\03	CM\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508752
F CM\02	CM\02	CM\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508751
F CM\01	CM\01	CA\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508750
F DA\11	DA\11	DA\10	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508762
F DA\10	DA\10	DA\09	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508761
F DA\09	DA\09	DA\08	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508760
F DA\08	DA\08	DB\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508759
F DA\07	DA\07	DC\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508758
F DA\06	DA\06	DE\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508757
F DA\05	DA\05	DG\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508756
F DA\04	DA\04	DJ\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508755
F DA\03	DA\03	DL\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508754
F DA\02	DA\02	O DA\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508753
F DB\03	DB\03	CA\11	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508765
F DB\02	DB\02	DB\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508764
F DB\01	DB\01	DB\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508763
F DC\03	DC\03	CD\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508768
F DC\02	DC\02	DC\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508767
F DC\01	DC\01	DC\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508766
F DD\03	DD\03	DD\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508771
F DD\02	DD\02	DD\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508770
F DD\01	DD\01	DA\07	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508769
F DE\03	DE\03	CF\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508774
F DE\02	DE\02	DE\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508773
F DE\01	DE\01	DE\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508772
F DF\03	DF\03	DF\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508777
F DF\02	DF\02	DF\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508776
F DF\01	DF\01	DA\06	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508775
F DG\03	DG\03	CH\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508780
F DG\02	DG\02	DG\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508779
F DG\01	DG\01	DG\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508778
F DH\03	DH\03	DH\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508783
F DH\02	DH\02	DH\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508782
F DH\01	DH\01	DA\05	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508781
F DJ\03	DJ\03	CK\03	1				Dummy used to model flow across road low points	0.3	0.3	0.6	1	0		12508786
F DJ\02	DJ\02	DJ\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508785
F DJ\01	DJ\01	DJ\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508784
F DK\03	DK\03	DK\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508789
F DK\02	DK\02	DK\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508788
F DK\01	DK\01	DA\04	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508787
F DL\03	DL\03	CM\03	1				Dummy used to model flow across road low points	0.3	0.3	0.6	1	0		12508792
F DL\02	DL\02	DL\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508791
F DL\01	DL\01	DL\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508790
F DM\03	DM\03	DM\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508795
F DM\02	DM\02	DM\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508794
F DM\01	DM\01	DA\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508793
F EA\11	EA\11	EA\10	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508805
F EA\10	EA\10	EA\09	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508804
F EA\09	EA\09	EA\08	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508803
F EA\08	EA\08	EB\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508802
F EA\07	EA\07	EC\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508801
F EA\06	EA\06	EE\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508800
F EA\05	EA\05	EG\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508799
F EA\04	EA\04	EJ\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508798
F EA\03	EA\03	EL\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508797
F EB\03	EB\03	DA\11	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508808
F EB\02	EB\02	EB\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508807
F EB\01	EB\01	EB\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508806
F EC\03	EC\03	DD\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508811
F EC\02	EC\02	EC\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508810
F EC\01	EC\01	EC\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508809
F ED\03	ED\03	ED\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508814
F ED\02	ED\02	ED\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508813
F ED\01	ED\01	EA\07	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508812
F EE\03	EE\03	DF\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508817
F EE\02	EE\02	EE\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508816
F EE\01	EE\01	EE\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508815
F EF\03	EF\03	EF\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508820
F EF\02	EF\02	EF\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508819

F EF\01	EF\01	EA\06	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508818
F EG\03	EG\03	DH\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508823
F EG\02	EG\02	EG\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508822
F EG\01	EG\01	EG\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508821
F EH\03	EH\03	EH\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508826
F EH\02	EH\02	EH\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508825
F EH\01	EH\01	EA\05	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508824
F EJ\03	EJ\03	DK\03	1				Dummy used to model flow across road low points	0.3	0.3	0.6	1	0		12508829
F EJ\02	EJ\02	EJ\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508828
F EJ\01	EJ\01	EJ\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508827
F EK\03	EK\03	EK\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508832
F EK\02	EK\02	EK\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508831
F EK\01	EK\01	EA\04	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508830
F EL\03	EL\03	DM\03	1				Dummy used to model flow across road low points	0.3	0.3	0.6	1	0		12508835
F EL\02	EL\02	EL\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508834
F EL\01	EL\01	EL\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508833
F EM\03	EM\03	EM\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508838
F EM\02	EM\02	EM\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508837
F EM\01	EM\01	EA\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		12508836
OF South Catch	N60922	HW Moore	0.1				Dummy used to model flow across road low points	0.2	0.05	0.6	1	0		18017984
Moorebank Ave Xir	HW Moore	Full Existing	0.1	14.200	20	1.6	Dummy used to model flow across road low points	0.2	0.05	0.6	1	0		18017997
OF306154	Full Existing	N60923	0.1				Dummy used to model flow across road low points	0.2	0.05	0.6	1	0		130407849
F Moorebank Ave	HW4	N60943	0.1	14.200	20	1.6	Dummy used to model flow across road low points	0.2	0.05	0.6	1	0		18018340
OF261707	N60943	N280923	0.1				Dummy used to model flow across road low points	0.2	0.05	0.6	1	0		100162549
OF137724	HW4	N147128	0.1	14.200	20	1.6	Dummy used to model flow across road low points	0.2	0.05	0.6	1	0		63827571
OF293087	N147128	N314881	0.1				Dummy used to model flow across road low points	0.2	0.05	0.6	1	0		121083527
OF137727	N147129	HW4	7				Dummy used to model flow across road low points	0.2	0.05	0.6	1	0		63827577
OF137716	N147132	HW4	0.1				Dummy used to model flow across road low points	0.2	0.05	0.6	1	0		63827561
OF143570	Carpark HW	N60943	0.1	14.700	20	1.6	Dummy used to model flow across road low points	0.2	0.05	0.6	1	0		64605375
F F\03	F\03	F\02	0.1				Dummy used to model flow across road low points	0.2	0.05	0.6	1	0		129748047
F F\02	F\02	F\01	6				Dummy used to model flow across road low points	0.2	0.05	0.6	1	0		144405803
OF331549	F\01	N351960	0.1				Dummy used to model flow across road low points	0.2	0.05	0.6	1	0		145257130
OF327512	N351960	N60943	0.1				Dummy used to model flow across road low points	0.2	0.05	0.6	1	0		144405801
OF149489	HW46	Full Existing	0.1	14.700	20	1.6	Dummy used to model flow across road low points	0.2	0.05	0.6	1	0		65725100
OF151533	Pit144889	N159649	0.1				Dummy used to model flow across road low points	0.2	0.05	0.6	1	0		66103611
OF Carpark	N159649	HW Moore	0.1				Dummy used to model flow across road low points	0.2	0.05	0.6	1	0		18017983
OF149506	HW57	N147128	0.1	14.700	20	1.6	Dummy used to model flow across road low points	0.2	0.05	0.6	1	0		65725169
OF149518	Pit144901	N147130	0.1				Dummy used to model flow across road low points	0.2	0.05	0.6	1	0		65725193
OF137717	N147130	HW4	0.1				Dummy used to model flow across road low points	0.2	0.05	0.6	1	0		63827562
F External	External	All Stages	0.1				Dummy used to model flow across road low points	0.2	0.05	0.6	1	0		100162536
F NRemaining	NRemaining	All Stages	0.1				Dummy used to model flow across road low points	0.2	0.05	0.6	1	0		100162538
Stage Discharge	All Stages	HW4	0.1	13.700			Dummy used to model flow across road low points	0.2	0.05	0.6	1	0		100162551
F F\21	F\21	F\20	0.1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129748020
F F\20	F\20	F\19	0.1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129748019
F F\19	F\19	F\18	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129748018
F F\18	F\18	F\17	0.1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129748017
F F\17	F\17	F\16	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129748016
F F\16	F\16	F\15	0.1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129748015
F F\15	F\15	F\14	0.1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129748014
F F\14	F\14	F\13	0.1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129748013
F F\13	F\13	F\12	0.1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129748012
F F\12	F\12	F\11	0.1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129748011
F F\11	F\11	F\10	0.1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129748010
F F\10	F\10	F\09	0.1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129748009
F F\09	F\09	F\08	0.1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129748008
F F\08	F\08	F\07	0.1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129748007
F F\07	F\07	F\06	0.1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129748006
F F\06	F\06	F\05	0.1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129748005
F F\05	F\05	F\04	0.1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129748004
F F\04	F\04	F\03	0.1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129748003
F AA\06	AA\06	AA\05	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129747859
F AA\05	AA\05	AA\04	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129747858
F AA\04	AA\04	AA\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129747857
F AA\03	AA\03	AA\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129747856
F AA\02	AA\02	All Stages	0.1				Dummy used to model flow across road low points	0.2	0.05	0.6	1	0		129747919
OF313095	AB\02	F\02	2				Dummy used to model flow across road low points	0.2	0.05	0.6	1	0		140945116
F AB\01	AB\01	AA\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129747860
F BA\11	BA\11	BA\10	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129747869
F BA\10	BA\10	BA\09	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129747868
F BA\09	BA\09	BA\08	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129747867
F BA\08	BA\08	BA\07	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129747866
F BA\07	BA\07	BA\06	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129747865
F BA\06	BA\06	BA\05	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129747864
F BA\05	BA\05	BA\04	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129747863
F BA\04	BA\04	BA\03	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129747862
F BA\03	BA\03	BA\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129747861
F BA\02	BA\02	AA\02	0.1				Dummy used to model flow across road low points	0.2	0.05	0.6	1	0		129747892
OF360759	BA\01	All Stages	0.1				Dummy used to model flow across road low points	0.2	0.05	0.6	1	0		132320174
F BB\03	BB\03	BB\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129747872
F BB\02	BB\02	BB\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129747871
F BB\01	BB\01	BA\07	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129747870
F BC\03	BC\03	BC\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129747875
F BC\02	BC\02	BC\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129747874
F BC\01	BC\01	BA\06	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129747873
F BD\03	BD\03	BD\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129747878
F BD\02	BD\02	BD\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129747877
F BD\01	BD\01	BA\05	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129747876
F BE\03	BE\03	BE\02	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129747881
F BE\02	BE\02	BE\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129747880
F BE\01	BE\01	BA\04	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129747879
F BF\02	BF\02	BF\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129747882
F BF\01	BF\01	BA\02	1				Dummy used to model flow across road low points	0.2	0.05	0.6	1	0		131543381
F BG\02	BG\02	BG\01	1				8 m wide road (half section)	0.14	0.14	0.6	1	0		129747883
F BG\01	BG\01	BF\01	1				Dummy used to model flow across road low points	0.2	0.05	0.6	1	0		131543380
F Future	Future	AA\04	0.1				Dummy used to model flow across road low points	0.2	0.05	0.6	1	0		140945143
F OSD 2	OSD 2	All Stages	0.1				Dummy used to model flow across road low points	0.2	0.05	0.6	1	0		146116667
F OSD 1	OSD 1	OSD 2	0.1				Dummy used to model flow across road low points	0.2	0.05	0.6	1	0		146116666

PROJECT	SIMTA				
TITLE	100 YEAR ARI RESULTS ALL STAGES	JOB No		AA003760	
		PREPARED	GD	DATE	24/02/2015
		CHECKED		DATE	

DRAINS File Path:	F:\AA003760\D-Calcs\A-Civil\A-Stormwater\A-DRAINS
DRAINS Version:	DRAINS Version 2015.02 - 4 Februrary 2015
Modeller's Name:	George Dunstan
Description:	Existing and Proposed

DRAINS results prepared 24 February, 2015 from Version 2015.02

RESULTS 100 YEAR ARI

PIT / NODE DETAILS — Version 8

Name	Max HGL	Max Pond HGL	Max Surface Flow Arriving (cu.m/s)	Max Pond Volume (cu.m)	Min Freeboard (m)	Overflow (cu.m/s)	Constraint
CA\11	16.54	16.55	0.068	2.5	-0.10	0.000	Outlet System
CA\10	16.45	16.47	0.068	0.4	-0.01	0.000	Outlet System
CA\09	16.38	16.45	0.068	0.2	0.06	0.000	Inlet Capacity
CA\08	16.28	16.45	0.068	0.2	0.16	0.000	Inlet Capacity
CA\07	16.26	16.43	0.067	0.2	0.16	0.000	Inlet Capacity
CA\06	16.14	16.51	0.038	0.1	0.36	0.000	Inlet Capacity
CA\05	16.08	16.51	0.037	0.1	0.42	0.000	Inlet Capacity
CA\04	15.95	16.43	0.067	0.2	0.47	0.000	Inlet Capacity
CA\03	15.85	16.71	0.039	0.1	0.85	0.000	Inlet Capacity
CA\02	15.77		0.000		0.33	0.000	None
CA Outlet	15.70		0.000				
CB\03	16.54	16.55	0.068	2.5	-0.10	0.000	Outlet System
CB\02	16.45	16.47	0.068	0.4	-0.01	0.000	Outlet System
CB\01	16.38	16.45	0.068	0.2	0.06	0.000	Inlet Capacity
CC\03	16.52	16.53	0.067	2.3	-0.10	0.000	Outlet System
CC\02	16.43	16.44	0.067	0.3	-0.01	0.000	Outlet System
CC\01	16.34	16.43	0.067	0.2	0.08	0.000	Inlet Capacity
CD\03	16.52	16.53	0.067	2.3	-0.10	0.000	Outlet System
CD\02	16.43	16.44	0.067	0.3	-0.01	0.000	Outlet System
CD\01	16.34	16.43	0.067	0.2	0.08	0.000	Inlet Capacity
CE\03	16.51	16.52	0.038	0.3	-0.01	0.000	Outlet System
CE\02	16.52	16.51	0.038	0.2	-0.02	0.000	Outlet System
CE\01	16.35	16.51	0.038	0.1	0.15	0.000	Inlet Capacity
CF\03	16.51	16.52	0.038	0.3	-0.01	0.000	Outlet System
CF\02	16.52	16.51	0.038	0.2	-0.02	0.000	Outlet System
CF\01	16.35	16.51	0.038	0.1	0.15	0.000	Inlet Capacity
CG\03	16.51	16.51	0.037	0.2	-0.01	0.000	Outlet System
CG\02	16.51	16.51	0.037	0.1	-0.01	0.000	Outlet System
CG\01	16.41	16.51	0.037	0.1	0.09	0.000	Inlet Capacity
CH\03	16.51	16.51	0.037	0.2	-0.01	0.000	Outlet System
CH\02	16.51	16.51	0.037	0.1	-0.01	0.000	Outlet System
CH\01	16.41	16.51	0.037	0.1	0.09	0.000	Inlet Capacity
CJ\03	16.39	16.43	0.067	0.2	0.03	0.000	Inlet Capacity
CJ\02	16.27	16.43	0.067	0.2	0.15	0.000	Inlet Capacity
CJ\01	16.16	16.43	0.067	0.2	0.26	0.000	Inlet Capacity
CK\03	16.39	16.43	0.067	0.2	0.03	0.000	Inlet Capacity
CK\02	16.27	16.43	0.067	0.2	0.15	0.000	Inlet Capacity
CK\01	16.16	16.43	0.067	0.2	0.26	0.000	Inlet Capacity
CL\03	16.43	16.71	0.039	0.1	0.27	0.000	Inlet Capacity
CL\02	16.21	16.71	0.039	0.1	0.49	0.000	Inlet Capacity
CL\01	16.12	16.71	0.039	0.1	0.58	0.000	Inlet Capacity
CM\03	16.24	16.71	0.039	0.1	0.46	0.000	Inlet Capacity
CM\02	16.19	16.71	0.039	0.1	0.51	0.000	Inlet Capacity
CM\01	16.06	16.71	0.039	0.1	0.64	0.000	Inlet Capacity
DA\11	16.54	16.55	0.067	2.5	-0.10	0.000	Outlet System
DA\10	16.45	16.46	0.068	0.4	-0.01	0.000	Outlet System
DA\09	16.38	16.45	0.068	0.2	0.06	0.000	Inlet Capacity
DA\08	16.28	16.45	0.067	0.2	0.16	0.000	Inlet Capacity
DA\07	16.26	16.43	0.067	0.2	0.16	0.000	Inlet Capacity
DA\06	16.14	16.51	0.038	0.1	0.36	0.000	Inlet Capacity
DA\05	16.08	16.51	0.037	0.1	0.42	0.000	Inlet Capacity
DA\04	15.95	16.43	0.067	0.2	0.47	0.000	Inlet Capacity
DA\03	15.85	16.71	0.039	0.1	0.85	0.000	Inlet Capacity
DA\02	15.77		0.000		0.33	0.000	None
DA Outlet	15.70		0.000				
DB\03	16.54	16.55	0.068	2.5	-0.10	0.000	Outlet System
DB\02	16.45	16.46	0.068	0.4	-0.01	0.000	Outlet System
DB\01	16.38	16.45	0.068	0.2	0.06	0.000	Inlet Capacity
DC\03	16.52	16.53	0.067	2.3	-0.10	0.000	Outlet System
DC\02	16.43	16.44	0.067	0.3	-0.01	0.000	Outlet System
DC\01	16.34	16.43	0.067	0.2	0.08	0.000	Inlet Capacity
DD\03	16.52	16.53	0.067	2.4	-0.10	0.000	Outlet System
DD\02	16.43	16.44	0.067	0.3	-0.01	0.000	Outlet System
DD\01	16.34	16.43	0.067	0.2	0.08	0.000	Inlet Capacity
DE\03	16.51	16.52	0.038	0.3	-0.01	0.000	Outlet System
DE\02	16.53	16.51	0.038	0.2	-0.03	0.000	Outlet System
DE\01	16.35	16.51	0.038	0.1	0.15	0.000	Inlet Capacity
DF\03	16.51	16.52	0.037	0.3	-0.01	0.000	Outlet System
DF\02	16.53	16.51	0.037	0.2	-0.03	0.000	Outlet System
DF\01	16.35	16.51	0.038	0.1	0.15	0.000	Inlet Capacity
DG\03	16.51	16.51	0.037	0.2	-0.01	0.000	Outlet System
DG\02	16.51	16.51	0.037	0.1	-0.01	0.000	Outlet System
DG\01	16.41	16.51	0.037	0.1	0.09	0.000	Inlet Capacity
DH\03	16.51	16.51	0.037	0.2	-0.01	0.000	Outlet System
DH\02	16.51	16.51	0.037	0.1	-0.01	0.000	Outlet System
DH\01	16.41	16.51	0.037	0.1	0.09	0.000	Inlet Capacity
DJ\03	16.39	16.43	0.067	0.2	0.03	0.000	Inlet Capacity
DJ\02	16.27	16.43	0.067	0.2	0.15	0.000	Inlet Capacity
DJ\01	16.16	16.43	0.067	0.2	0.26	0.000	Inlet Capacity
DK\03	16.39	16.43	0.067	0.2	0.03	0.000	Inlet Capacity
DK\02	16.27	16.43	0.067	0.2	0.15	0.000	Inlet Capacity
DK\01	16.16	16.43	0.067	0.2	0.26	0.000	Inlet Capacity
DL\03	16.43	16.71	0.039	0.1	0.27	0.000	Inlet Capacity
DL\02	16.21	16.71	0.039	0.1	0.49	0.000	Inlet Capacity
DL\01	16.12	16.71	0.039	0.1	0.58	0.000	Inlet Capacity
DM\03	16.24	16.71	0.039	0.1	0.46	0.000	Inlet Capacity
DM\02	16.19	16.71	0.039	0.1	0.51	0.000	Inlet Capacity
DM\01	16.06	16.71	0.039	0.1	0.64	0.000	Inlet Capacity
EA\11	16.55	16.56	0.084	2.9	-0.11	0.000	Outlet System
EA\10	16.43	16.45	0.067	0.2	0.01	0.000	Inlet Capacity
EA\09	16.34	16.45	0.067	0.2	0.10	0.000	Inlet Capacity
EA\08	16.24	16.45	0.067	0.2	0.20	0.000	Inlet Capacity
EA\07	16.20	16.43	0.067	0.2	0.22	0.000	Inlet Capacity
EA\06	16.14	16.51	0.037	0.1	0.36	0.000	Inlet Capacity
EA\05	16.06	16.51	0.037	0.1	0.44	0.000	Inlet Capacity
EA\04	15.99	16.43	0.067	0.2	0.43	0.000	Inlet Capacity
EA\03	15.87	16.71	0.039	0.1	0.83	0.000	Inlet Capacity
EA\02	15.78		0.000		0.32		None
EA Outlet	15.70		0.000				
EB\03	16.49	16.50	0.067	1.0	-0.05	0.000	Outlet System
EB\02	16.43	16.45	0.067	0.2	0.01	0.000	Inlet Capacity
EB\01	16.35	16.45	0.067	0.2	0.09	0.000	Inlet Capacity
EC\03	16.46	16.48	0.067	0.9	-0.04	0.000	Outlet System
EC\02	16.38	16.43	0.067	0.2	0.04	0.000	Inlet Capacity
EC\01	16.29	16.43	0.067	0.2	0.13	0.000	Inlet Capacity

ED\03	16.53	16.54	0.084	2.8	-0.11	0.000	Outlet System					
ED\02	16.41	16.43	0.067	0.2	0.01	0.000	Inlet Capacity					
ED\01	16.29	16.43	0.067	0.2	0.13	0.000	Inlet Capacity					
EE\03	16.51	16.52	0.037	0.2	-0.01	0.000	Outlet System					
EE\02	16.50	16.51	0.037	0.1	-0.00	0.000	Outlet System					
EE\01	16.36	16.51	0.037	0.1	0.14	0.000	Inlet Capacity					
EF\03	16.51	16.52	0.047	0.3	-0.01	0.000	Outlet System					
EF\02	16.51	16.51	0.037	0.1	-0.01	0.000	Outlet System					
EF\01	16.34	16.51	0.037	0.1	0.16	0.000	Inlet Capacity					
EG\03	16.50	16.51	0.037	0.2	-0.00	0.000	Outlet System					
EG\02	16.50	16.51	0.037	0.1	-0.00	0.000	Outlet System					
EG\01	16.37	16.51	0.037	0.1	0.13	0.000	Inlet Capacity					
EH\03	16.50	16.51	0.047	0.2	-0.00	0.000	Outlet System					
EH\02	16.49	16.51	0.037	0.1	0.01	0.000	Inlet Capacity					
EH\01	16.30	16.51	0.037	0.1	0.20	0.000	Inlet Capacity					
EJ\03	16.35	16.43	0.067	0.2	0.07	0.000	Inlet Capacity					
EJ\02	16.24	16.43	0.067	0.2	0.18	0.000	Inlet Capacity					
EJ\01	16.12	16.43	0.067	0.2	0.30	0.000	Inlet Capacity					
EK\03	16.42	16.44	0.084	0.3	-0.00	0.000	Outlet System					
EK\02	16.26	16.43	0.067	0.2	0.16	0.000	Inlet Capacity					
EK\01	16.12	16.43	0.067	0.2	0.30	0.000	Inlet Capacity					
EL\03	16.47	16.71	0.039	0.1	0.23	0.000	Inlet Capacity					
EL\02	16.27	16.71	0.039	0.1	0.43	0.000	Inlet Capacity					
EL\01	16.09	16.71	0.039	0.1	0.61	0.000	Inlet Capacity					
EM\03	16.61	16.70	0.022	0.1	0.09	0.000	Inlet Capacity					
EM\02	16.14	16.71	0.039	0.1	0.56	0.000	Inlet Capacity					
EM\01	16.09	16.71	0.039	0.1	0.61	0.000	Inlet Capacity					
HW Moore	13.89		11.758		0.31	0.000	None					
Full Existing	12.40		1.122									
HW4	13.38		2.420		0.82	0.000	None					
N60943	13.10		1.473									
HW4	14.22		15.175		-0.02	0.085	Headwall height/system capacity					
N147128	12.50		1.122									
Carpark HW	14.31		0.000		0.39	0.000	None					
Pit139477	13.24	14.55	0.000	0.0	1.31		None					
F\03	13.24	14.46	0.053	5.6	1.16	0.000	Inlet Capacity					
F\02	13.21	14.65	0.173	12.4	1.29	0.000	Inlet Capacity					
F\01	13.12		0.156		1.88	0.000	None					
N351960	13.10		0.000									
HW46	14.81		1.228		-0.11	1.122	Headwall height/system capacity					
Pit144889	13.92		0.000		0.63	0.000	None					
N159649	13.15		0.000									
HW57	14.81		1.228		-0.11	1.122	Headwall height/system capacity					
Pit144901	13.92		0.000		0.63	0.000	None					
N147130	13.15		0.000									
F\21	14.65	14.96	0.356	8.7	0.20	0.000	Inlet Capacity					
F\20	14.52	15.08	0.095	10.4	0.48	0.000	Inlet Capacity					
F\19	14.43	14.98	0.045	4.8	0.49	0.000	Inlet Capacity					
F\18	14.36	14.95	0.043	4.6	0.54	0.000	Inlet Capacity					
F\17	14.26	14.84	0.091	9.9	0.49	0.000	Inlet Capacity					
F\16	14.16	14.88	0.043	4.5	0.66	0.000	Inlet Capacity					
F\15	14.07	14.79	0.085	9.1	0.63	0.000	Inlet Capacity					
F\14	13.99	14.76	0.063	6.6	0.69	0.000	Inlet Capacity					
F\13	13.86	14.61	0.084	9.0	0.67	0.000	Inlet Capacity					
F\12	13.72	14.56	0.084	9.1	0.75	0.000	Inlet Capacity					
F\11	13.61	14.60	0.042	4.5	0.94	0.000	Inlet Capacity					
F\10	13.53	14.58	0.042	4.4	1.00	0.000	Inlet Capacity					
F\09	13.45	14.55	0.042	4.4	1.05	0.000	Inlet Capacity					
F\08	13.42	14.53	0.042	4.5	1.05	0.000	Inlet Capacity					
F\07	13.37	14.51	0.044	4.7	1.08	0.000	Inlet Capacity					
F\06	13.33	14.49	0.049	5.1	1.10	0.000	Inlet Capacity					
F\05	13.29	14.46	0.047	4.9	1.11	0.000	Inlet Capacity					
F\04	13.26	14.43	0.052	5.5	1.11	0.000	Inlet Capacity					
AA\06	15.99		0.021		-0.00	0.026	Outlet System					
AA\05	16.01	16.35	0.116	4.6	0.26	0.000	Inlet Capacity					
AA\04	15.88	16.35	0.101	4.9	0.38	0.000	Inlet Capacity					
AA\03	15.79	16.37	0.053	2.7	0.53	0.000	Inlet Capacity					
AA\02	15.69		0.000		0.71	0.000	None					
AA Outlet	15.60		0.000									
AB\02	15.75		0.028		-0.01	0.038	Outlet System					
AB\01	15.82	16.37	0.053	2.7	0.50	0.000	Inlet Capacity					
BA\11	16.44	16.52	0.103	8.8	-0.00	0.000	Outlet System					
BA\10	16.26	16.51	0.071	5.9	0.18	0.000	Inlet Capacity					
BA\09	16.10	16.58	0.095	8.0	0.40	0.000	Inlet Capacity					
BA\08	15.89	16.58	0.095	8.0	0.61	0.000	Inlet Capacity					
BA\07	15.86	16.52	0.088	7.4	0.58	0.000	Inlet Capacity					
BA\06	15.84	16.47	0.088	7.4	0.56	0.000	Inlet Capacity					
BA\05	15.81	16.41	0.088	7.4	0.53	0.000	Inlet Capacity					
BA\04	15.76	16.39	0.072	6.0	0.57	0.000	Inlet Capacity					
BA\03	15.70	16.36	0.081	6.7	0.58	0.000	Inlet Capacity					
BA\02	15.68	16.40	0.000	0.0	0.72	0.000	None					
BA\01	15.66		0.000		0.74	0.000	None					
BA Outlet	15.60		0.000									
BB\03	16.42	16.50	0.103	8.8	-0.00	0.000	Outlet System					
BB\02	16.22	16.49	0.071	5.9	0.20	0.000	Inlet Capacity					
BB\01	16.04	16.52	0.088	7.4	0.40	0.000	Inlet Capacity					
BC\03	16.45	16.56	0.057	4.8	0.05	0.000	Inlet Capacity					
BC\02	16.29	16.55	0.043	3.6	0.21	0.000	Inlet Capacity					
BC\01	16.06	16.47	0.088	7.4	0.34	0.000	Inlet Capacity					
BD\03	16.35	16.56	0.057	4.8	0.15	0.000	Inlet Capacity					
BD\02	16.12	16.55	0.043	3.6	0.38	0.000	Inlet Capacity					
BD\01	16.02	16.41	0.087	7.3	0.32	0.000	Inlet Capacity					
BE\03	16.25	16.50	0.103	8.8	0.17	0.000	Inlet Capacity					
BE\02	16.03	16.48	0.071	5.9	0.39	0.000	Inlet Capacity					
BE\01	15.83	16.45	0.000	0.0	0.62	0.000	None					
BF\02	15.85	16.06	0.051	4.3	0.16	0.000	Inlet Capacity					
BF\01	15.79	15.84	0.084	11.3	-0.04	0.000	Outlet System					
BG\02	16.03	16.46	0.059	4.9	0.37	0.000	Inlet Capacity					
BG\01	15.97	16.45	0.042	3.5	0.43	0.000	Inlet Capacity					
Future	15.89		2.047		0.11	0.000	None					
SUB-CATCHMENT DETAILS												
Name	Max	Paved	Grassed	Paved	Grassed	Supp.	Due to Storm					
	Flow Q	Max Q	Max Q	Tc	Tc	Tc						
	(cu.m/s)	(cu.m/s)	(cu.m/s)	(min)	(min)	(min)						
C CA\11	0.068	0.068	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C CA\10	0.068	0.068	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C CA\09	0.068	0.068	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C CA\08	0.068	0.068	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C CA\07	0.067	0.067	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C CA\06	0.038	0.038	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C CA\05	0.037	0.037	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C CA\04	0.067	0.067	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C CA\03	0.039	0.039	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C CB\03	0.068	0.068	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C CB\02	0.068	0.068	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C CB\01	0.068	0.068	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C CC\03	0.067	0.067	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C CC\02	0.067	0.067	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C CC\01	0.067	0.067	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C CD\03	0.067	0.067	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					
C CD\02	0.067	0.067	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1					

C CD\01	0.067	0.067	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C CE\03	0.038	0.038	0.000	1.21	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C CE\02	0.038	0.038	0.000	1.21	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C CE\01	0.038	0.038	0.000	1.21	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C CF\03	0.038	0.038	0.000	1.21	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C CF\02	0.038	0.038	0.000	1.21	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C CF\01	0.038	0.038	0.000	1.21	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C CG\03	0.037	0.037	0.000	1.21	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C CG\02	0.037	0.037	0.000	1.21	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C CG\01	0.037	0.037	0.000	1.21	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C CH\03	0.037	0.037	0.000	1.21	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C CH\02	0.037	0.037	0.000	1.21	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C CH\01	0.037	0.037	0.000	1.21	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C CJ\03	0.067	0.067	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C CJ\02	0.067	0.067	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C CJ\01	0.067	0.067	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C CK\03	0.067	0.067	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C CK\02	0.067	0.067	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C CK\01	0.067	0.067	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C CL\03	0.039	0.039	0.000	1.21	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C CL\02	0.039	0.039	0.000	1.21	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C CL\01	0.039	0.039	0.000	1.21	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C CM\03	0.039	0.039	0.000	1.21	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C CM\02	0.039	0.039	0.000	1.21	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C CM\01	0.039	0.039	0.000	1.21	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DA\11	0.067	0.067	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DA\10	0.068	0.068	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DA\09	0.068	0.068	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DA\08	0.067	0.067	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DA\07	0.067	0.067	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DA\06	0.038	0.038	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DA\05	0.037	0.037	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DA\04	0.067	0.067	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DA\03	0.039	0.039	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DB\03	0.068	0.068	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DB\02	0.068	0.068	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DB\01	0.068	0.068	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DC\03	0.067	0.067	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DC\02	0.067	0.067	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DC\01	0.067	0.067	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DD\03	0.067	0.067	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DD\02	0.067	0.067	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DD\01	0.067	0.067	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DE\03	0.038	0.038	0.000	1.21	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DE\02	0.038	0.038	0.000	1.21	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DE\01	0.038	0.038	0.000	1.21	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DF\03	0.037	0.037	0.000	1.21	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DF\02	0.037	0.037	0.000	1.21	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DF\01	0.038	0.038	0.000	1.21	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DG\03	0.037	0.037	0.000	1.21	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DG\02	0.037	0.037	0.000	1.21	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DG\01	0.037	0.037	0.000	1.21	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DH\03	0.037	0.037	0.000	1.21	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DH\02	0.037	0.037	0.000	1.21	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DH\01	0.037	0.037	0.000	1.21	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DJ\03	0.067	0.067	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DJ\02	0.067	0.067	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DJ\01	0.067	0.067	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DK\03	0.067	0.067	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DK\02	0.067	0.067	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DK\01	0.067	0.067	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DL\03	0.039	0.039	0.000	1.21	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DL\02	0.039	0.039	0.000	1.21	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DL\01	0.039	0.039	0.000	1.21	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DM\03	0.039	0.039	0.000	1.21	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DM\02	0.039	0.039	0.000	1.21	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C DM\01	0.039	0.039	0.000	1.21	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EA\11	0.084	0.084	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EA\10	0.067	0.067	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EA\09	0.067	0.067	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EA\08	0.067	0.067	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EA\07	0.067	0.067	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EA\06	0.037	0.037	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EA\05	0.037	0.037	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EA\04	0.067	0.067	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EA\03	0.039	0.039	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EB\03	0.067	0.067	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EB\02	0.067	0.067	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EB\01	0.067	0.067	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EC\03	0.067	0.067	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EC\02	0.067	0.067	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EC\01	0.067	0.067	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C ED\03	0.084	0.084	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C ED\02	0.067	0.067	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C ED\01	0.067	0.067	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EE\03	0.037	0.037	0.000	1.21	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EE\02	0.037	0.037	0.000	1.21	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EE\01	0.037	0.037	0.000	1.21	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EF\03	0.047	0.047	0.000	1.21	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EF\02	0.037	0.037	0.000	1.21	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EF\01	0.037	0.037	0.000	1.21	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EG\03	0.037	0.037	0.000	1.21	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EG\02	0.037	0.037	0.000	1.21	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EG\01	0.037	0.037	0.000	1.21	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EH\03	0.047	0.047	0.000	1.21	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EH\02	0.037	0.037	0.000	1.21	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EH\01	0.037	0.037	0.000	1.21	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EJ\03	0.067	0.067	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EJ\02	0.067	0.067	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EJ\01	0.067	0.067	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EK\03	0.084	0.084	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EK\02	0.067	0.067	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EK\01	0.067	0.067	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EL\03	0.039	0.039	0.000	1.21	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EL\02	0.039	0.039	0.000	1.21	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EL\01	0.039	0.039	0.000	1.21	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EM\03	0.022	0.022	0.000	1.21	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EM\02	0.039	0.039	0.000	1.21	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C EM\01	0.039	0.039	0.000	1.21	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
CatchC1Ex	1.231	1.034	0.197	7.00	7.00	0.00	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1	
CatchCEx	11.037	7.731	3.613	25.00	30.00	0.00	AR&R 100 year, 1 hour storm, average 70.0 mm/h, Zone 1	
Existing Rema	4.781	3.394	1.497	12.00	15.00	5.00	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1	
Existing S1	9.318	6.968	2.542	15.00	20.00	5.00	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1	
CatC1	1.231	1.034	0.197	7.00	7.00	0.00	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1	
C F\03	0.053	0.023	0.030	5.00	5.00	0.00	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
C F\02	0.135	0.130	0.005	5.00	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
Remaing Swa	0.156	0.069	0.088	10.00	10.00	0.00	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1	
Cat Carpark	1.228	1.228	0.000	5.00	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
Cat320370	1.228	1.228	0.000	5.00	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
CatC1Ex	1.231	1.034	0.197	7.00	7.00	0.00	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1	
C Remaining	11.001	11.001	0.000	4.00	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C OSD 3	0.351	0.000	0.351	5.00	1.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	

C F\21	0.356	0.000	0.356	5.00	7.00	0.00	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1	
C F\20	0.095	0.041	0.054	5.00	5.00	0.00	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
C F\19	0.045	0.044	0.002	5.00	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C F\18	0.043	0.019	0.024	5.00	5.00	0.00	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
C F\17	0.091	0.088	0.003	5.00	10.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C F\16	0.043	0.019	0.024	5.00	5.00	0.00	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
C F\15	0.085	0.037	0.048	5.00	5.00	0.00	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
C F\14	0.063	0.028	0.036	5.00	5.00	0.00	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
C F\13	0.084	0.037	0.047	5.00	5.00	0.00	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
C F\12	0.084	0.037	0.048	5.00	5.00	0.00	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
C F\11	0.042	0.018	0.024	5.00	5.00	0.00	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
C F\10	0.042	0.018	0.024	5.00	5.00	0.00	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
C F\09	0.042	0.018	0.024	5.00	5.00	0.00	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
C F\08	0.042	0.018	0.024	5.00	5.00	0.00	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
C F\07	0.044	0.019	0.025	5.00	5.00	0.00	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
C F\06	0.049	0.021	0.027	5.00	5.00	0.00	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
C F\05	0.047	0.020	0.026	5.00	5.00	0.00	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
C F\04	0.052	0.023	0.029	5.00	5.00	0.00	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1	
C AA\06	0.021	0.021	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C AA\05	0.091	0.091	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C AA\04	0.101	0.101	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C AA\03	0.053	0.053	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C AB\02	0.028	0.028	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C AB\01	0.053	0.053	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C BA\11	0.103	0.103	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C BA\10	0.071	0.071	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C BA\09	0.095	0.095	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C BA\08	0.095	0.095	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C BA\07	0.088	0.088	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C BA\06	0.088	0.088	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C BA\05	0.088	0.088	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C BA\04	0.072	0.072	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C BA\03	0.081	0.081	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C BB\03	0.103	0.103	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C BB\02	0.071	0.071	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C BB\01	0.088	0.088	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C BC\03	0.057	0.057	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C BC\02	0.043	0.043	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C BC\01	0.088	0.088	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C BD\03	0.057	0.057	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C BD\02	0.043	0.043	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C BD\01	0.087	0.087	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C BE\03	0.103	0.103	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C BE\02	0.071	0.071	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C BF\02	0.051	0.051	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C BF\01	0.084	0.084	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C BG\02	0.059	0.059	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C BG\01	0.042	0.042	0.000	1.69	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C Future	2.047	2.047	0.000	4.00	0.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C OSD 2	0.059	0.000	0.059	5.00	1.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	
C OSD 1	0.310	0.000	0.310	5.00	1.00	0.00	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1	

Outflow Volumes for Total Catchment (95.1 impervious + 36.1 pervious = 131 total ha)

Storm	Total Rainfall	Total Runoff	Impervious R	Pervious Runoff
	cu.m	cu.m (Runoff	cu.m (Runoff	cu.m (Runoff %)
AR&R 100 ye	24486.73	19357.59 (79	16800.18 (94	2557.41 (38.0%)
AR&R 100 ye	37604.62	31847.86 (84	26311.43 (96	5536.43 (53.5%)
AR&R 100 ye	47224.40	40971.97 (86	33281.63 (97	7690.34 (59.2%)
AR&R 100 ye	55095.14	48403.85 (87	38991.90 (97	9411.95 (62.1%)
AR&R 100 ye	61216.82	53999.66 (88	43428.73 (97	10570.93 (62.8%)
AR&R 100 ye	66901.24	59238.13 (88	47547.96 (98	11690.17 (63.5%)
AR&R 100 ye	80673.92	71938.62 (89	57524.99 (98	14413.63 (65.0%)
AR&R 100 ye	91825.23	82239.84 (89	65604.03 (98	16635.81 (65.9%)
AR&R 100 ye	108222.59	97251.08 (89	77527.47 (98	19723.61 (66.3%)
AR&R 100 ye	120687.85	108470.76 (8	86528.41 (98	21942.34 (66.1%)
AR&R 100 ye	140886.14	126622.23 (8	101190.32 (9	25431.91 (65.6%)
AR&R 100 ye	164695.09	147598.40 (8	118528.38 (9	29070.03 (64.2%)

PIPE DETAILS

Name	Max Q	Max V	Max U/S	Max D/S	Due to Storm
	(cu.m/s)	(m/s)	HGL (m)	HGL (m)	
P CA\11	0.119	1.07	16.478	16.453	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1
P CA\10	0.153	0.96	16.409	16.381	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1
P CA\09	0.196	0.91	16.349	16.281	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1
P CA\08	0.471	0.52	16.271	16.256	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1
P CA\07	0.915	1.02	16.175	16.138	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1
P CA\06	1.173	0.87	16.103	16.082	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1
P CA\05	1.435	1.06	16.053	15.948	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1
P CA\04	1.903	1.06	15.909	15.854	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1
P CA\03	2.173	1.21	15.780	15.775	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1
P CA\02	2.173	1.21	15.721	15.700	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1
P CB\03	0.119	1.08	16.478	16.453	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1
P CB\02	0.153	0.96	16.409	16.381	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1
P CB\01	0.196	0.91	16.349	16.281	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1
P CC\03	0.115	1.04	16.454	16.429	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1
P CC\02	0.151	0.95	16.395	16.341	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1
P CC\01	0.196	0.90	16.305	16.256	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1
P CD\03	0.115	1.04	16.454	16.429	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1
P CD\02	0.151	0.95	16.395	16.341	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1
P CD\01	0.196	0.90	16.305	16.256	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1
P CE\03	0.059	0.53	16.507	16.524	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1
P CE\02	0.093	0.85	16.521	16.349	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1
P CE\01	0.132	1.20	16.321	16.138	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1
P CF\03	0.059	0.53	16.507	16.524	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1
P CF\02	0.093	0.85	16.521	16.349	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1
P CF\01	0.132	1.20	16.321	16.138	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1
P CG\03	0.055	0.50	16.500	16.506	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1
P CG\02	0.097	0.88	16.496	16.409	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1
P CG\01	0.131	1.19	16.378	16.082	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1
P CH\03	0.055	0.50	16.500	16.506	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1
P CH\02	0.097	0.88	16.496	16.409	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1
P CH\01	0.131	1.19	16.378	16.082	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1
P CJ\03	0.070	0.63	16.318	16.267	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1
P CJ\02	0.138	0.87	16.216	16.160	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1
P CJ\01	0.206	1.30	16.071	15.948	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1
P CK\03	0.070	0.63	16.318	16.267	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1
P CK\02	0.138	0.87	16.216	16.160	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1
P CK\01	0.206	1.30	16.071	15.948	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1
P CL\03	0.052	0.47	16.285	16.208	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1
P CL\02	0.087	0.78	16.162	16.118	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1
P CL\01	0.129	1.17	16.050	15.854	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1
P CM\03	0.048	0.43	16.221	16.187	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1
P CM\02	0.085	0.77	16.143	16.062	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1
P CM\01	0.128	1.16	15.998	15.854	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1
P DA\11	0.119	1.07	16.477	16.453	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1
P DA\10	0.153	0.96	16.409	16.380	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1
P DA\09	0.196	0.91	16.348	16.280	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1
P DA\08	0.470	0.52	16.271	16.256	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1
P DA\07	0.916	1.02	16.174	16.138	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1
P DA\06	1.173	0.87	16.104	16.082	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1
P DA\05	1.435	1.06	16.053	15.948	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1

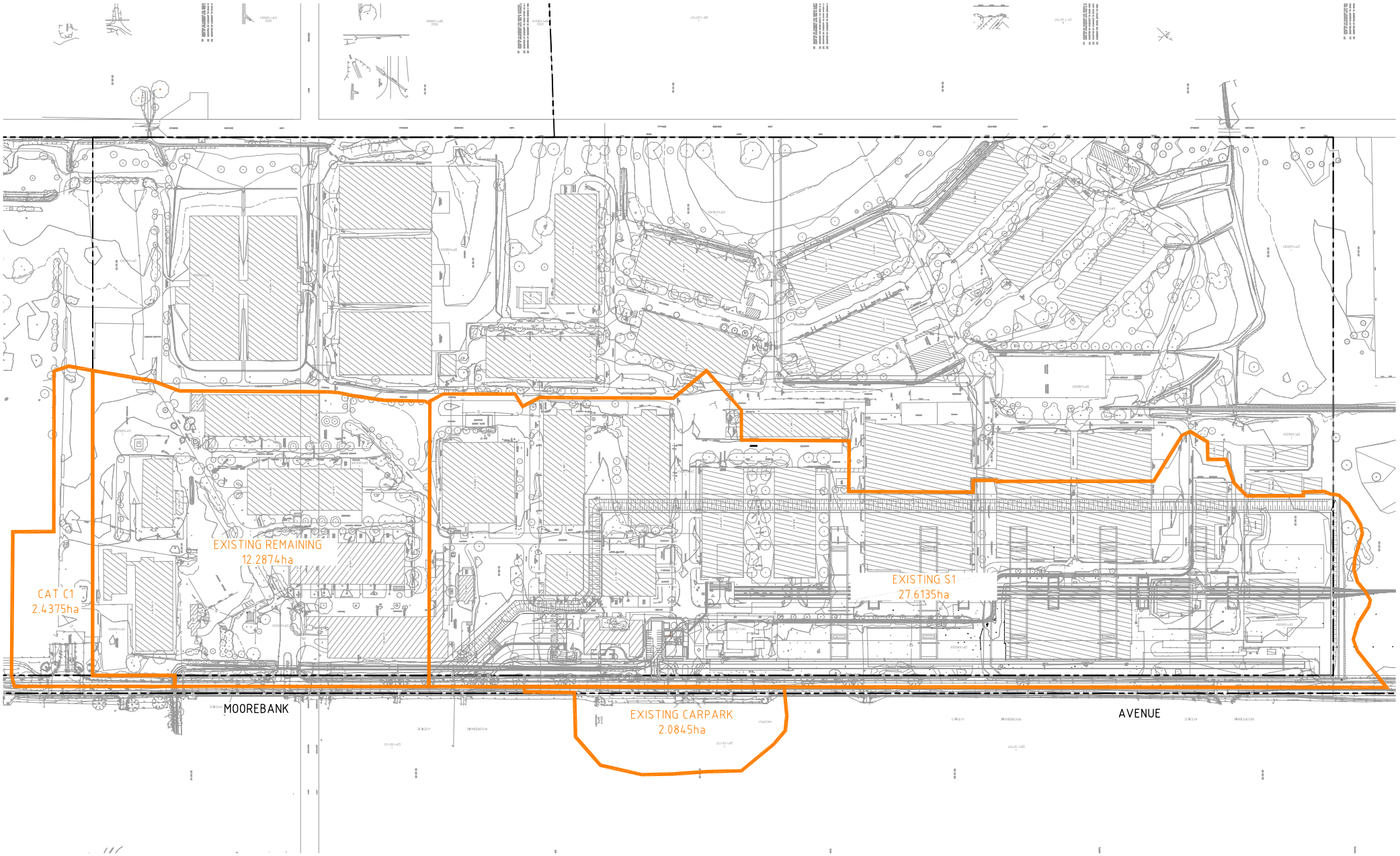
P DA\04	1.903	1.06	15.908	15.854	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P DA\03	2.173	1.21	15.781	15.775	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P DA\02	2.173	1.21	15.721	15.700	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P DB\03	0.119	1.07	16.478	16.453	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P DB\02	0.153	0.96	16.410	16.380	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P DB\01	0.196	0.91	16.348	16.280	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P DC\03	0.115	1.04	16.454	16.429	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P DC\02	0.151	0.95	16.394	16.341	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P DC\01	0.195	0.90	16.304	16.256	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P DD\03	0.115	1.05	16.454	16.430	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P DD\02	0.151	0.95	16.394	16.341	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P DD\01	0.196	0.90	16.304	16.256	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P DE\03	0.059	0.53	16.507	16.527	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P DE\02	0.093	0.85	16.520	16.348	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P DE\01	0.132	1.19	16.321	16.138	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P DF\03	0.059	0.53	16.507	16.535	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P DF\02	0.093	0.84	16.527	16.351	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P DF\01	0.131	1.19	16.321	16.138	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P DG\03	0.055	0.50	16.500	16.506	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P DG\02	0.097	0.88	16.496	16.410	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P DG\01	0.131	1.19	16.379	16.082	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P DH\03	0.055	0.50	16.500	16.506	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P DH\02	0.097	0.88	16.496	16.410	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P DH\01	0.131	1.19	16.379	16.082	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P DJ\03	0.070	0.63	16.318	16.266	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P DJ\02	0.138	0.87	16.214	16.159	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P DJ\01	0.206	1.30	16.071	15.948	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P DK\03	0.070	0.63	16.318	16.266	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P DK\02	0.138	0.87	16.214	16.159	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P DK\01	0.206	1.30	16.071	15.948	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P DL\03	0.052	0.47	16.284	16.207	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P DL\02	0.086	0.78	16.161	16.118	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P DL\01	0.129	1.17	16.049	15.854	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P DM\03	0.048	0.43	16.221	16.187	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P DM\02	0.085	0.77	16.143	16.062	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P DM\01	0.128	1.16	15.997	15.854	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P EA\11	0.138	1.25	16.452	16.430	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P EA\10	0.173	1.09	16.379	16.340	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P EA\09	0.213	0.98	16.293	16.241	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P EA\08	0.478	0.53	16.225	16.202	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P EA\07	0.957	0.71	16.155	16.137	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P EA\06	1.228	0.91	16.088	16.064	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P EA\05	1.500	0.83	16.045	15.989	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P EA\04	1.990	1.11	15.917	15.866	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P EA\03	2.252	1.25	15.790	15.780	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P EA\02	2.254	1.25	15.723	15.700	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P EB\03	0.094	0.85	16.414	16.429	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P EB\02	0.147	0.92	16.382	16.349	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P EB\01	0.200	0.92	16.304	16.241	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P EC\03	0.094	0.85	16.391	16.383	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P EC\02	0.144	0.91	16.360	16.289	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P EC\01	0.201	0.93	16.247	16.202	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P ED\03	0.133	1.20	16.428	16.407	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P ED\02	0.168	1.06	16.379	16.293	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P ED\01	0.211	0.98	16.267	16.202	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P EE\03	0.064	0.58	16.502	16.505	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P EE\02	0.100	0.90	16.493	16.355	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P EE\01	0.140	0.88	16.331	16.137	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P EF\03	0.064	0.58	16.498	16.505	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P EF\02	0.101	0.91	16.496	16.341	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P EF\01	0.147	0.93	16.339	16.137	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P EG\03	0.066	0.60	16.497	16.501	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P EG\02	0.098	0.88	16.483	16.375	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P EG\01	0.141	0.89	16.356	16.064	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P EH\03	0.059	0.54	16.492	16.487	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P EH\02	0.102	0.93	16.459	16.299	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P EH\01	0.138	0.87	16.262	16.064	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P EJ\03	0.070	0.64	16.279	16.243	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P EJ\02	0.138	0.87	16.187	16.118	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P EJ\01	0.210	0.97	16.058	15.989	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P EK\03	0.089	0.80	16.325	16.260	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P EK\02	0.156	0.98	16.210	16.123	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P EK\01	0.223	1.03	16.053	15.989	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P EL\03	0.048	0.44	16.302	16.267	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P EL\02	0.087	0.79	16.219	16.090	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P EL\01	0.132	1.19	16.012	15.866	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P EM\03	0.035	0.34	16.110	16.139	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P EM\02	0.068	0.62	16.113	16.095	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P EM\01	0.110	1.00	16.036	15.866	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
Pipe56908	11.774	5.82	12.617	12.401	AR&R 100 year, 1.5 hours storm, average 55.0 mm/h, Zone 1			
P Moorebank	2.420	0.79	13.130	13.100	AR&R 100 year, 2 hours storm, average 46.0 mm/h, Zone 1			
P135082	13.358	6.00	12.714	12.502	AR&R 100 year, 1 hour storm, average 70.0 mm/h, Zone 1			
Pipe140549	0.000	0.00	14.310	13.870	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
Pipe299099	0.007	0.06	13.242	13.241	AR&R 100 year, 4.5 hours storm, average 27.9 mm/h, Zone 1			
P F\03	1.135	0.72	13.219	13.206	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1			
P F\02	1.327	0.66	13.177	13.116	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1			
Pipe313016	1.473	0.41	13.106	13.100	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1			
P146094	0.110	3.64	14.443	14.003	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P146107	0.114	3.23	13.770	13.154	AR&R 100 year, 1.5 hours storm, average 55.0 mm/h, Zone 1			
P146120	0.110	3.64	14.443	14.003	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P146133	0.114	3.23	13.770	13.154	AR&R 100 year, 1.5 hours storm, average 55.0 mm/h, Zone 1			
P F\21	0.356	0.99	14.564	14.515	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1			
P F\20	0.432	1.18	14.470	14.435	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1			
P F\19	0.472	1.17	14.405	14.364	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1			
P F\18	0.511	1.21	14.332	14.265	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1			
P F\17	0.588	1.27	14.230	14.162	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1			
P F\16	0.623	1.23	14.128	14.072	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1			
P F\15	0.687	1.17	14.043	13.994	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1			
P F\14	0.737	1.49	13.952	13.855	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1			
P F\13	0.806	1.52	13.812	13.721	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1			
P F\12	0.864	1.50	13.677	13.608	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1			
P F\11	0.895	1.48	13.572	13.530	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1			
P F\10	0.920	1.52	13.492	13.451	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1			
P F\09	0.953	1.21	13.451	13.420	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1			
P F\08	0.983	1.17	13.396	13.371	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1			
P F\07	1.011	1.11	13.350	13.331	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1			
P F\06	1.047	1.06	13.311	13.295	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1			
P F\05	1.082	0.87	13.281	13.262	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1			
P F\04	1.099	0.78	13.251	13.241	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1			
P AA\06	0.021	0.19	16.011	16.014	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P AA\05	0.103	0.93	15.948	15.884	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P AA\04	2.260	0.90	15.802	15.788	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P AA\03	2.362	0.94	15.699	15.694	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P AA\02	2.365	0.94	15.606	15.600	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P AB\02	0.021	0.19	15.819	15.821	AR&R 100 year, 10 minutes storm, average 172 mm/h, Zone 1			
P AB\01	0.058	0.53	15.806	15.788	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P BA\11	0.094	0.85	16.304	16.259	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P BA\10	0.159	1.00	16.245	16.104	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P BA\09	0.246	1.14	16.076	15.888	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P BA\08	0.333	0.37	15.872	15.862	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P BA\07	0.650	0.48	15.841	15.835	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			
P BA\06	0.904	0.50	15.813	15.806	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1			

P BA\05	1.162	0.65	15.779	15.757	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1							
P BA\04	1.387	0.77	15.742	15.702	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1							
P BA\03	1.463	0.81	15.694	15.681	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1							
P BA\02	1.647	0.76	15.666	15.663	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1							
P BA\01	1.648	0.76	15.619	15.600	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1							
P BB\03	0.092	0.84	16.289	16.225	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1							
P BB\02	0.157	0.99	16.178	16.044	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1							
P BB\01	0.238	1.10	15.990	15.862	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1							
P BC\03	0.080	0.72	16.433	16.295	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1							
P BC\02	0.099	0.62	16.270	16.056	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1							
P BC\01	0.176	0.81	16.040	15.835	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1							
P BD\03	0.069	0.62	16.334	16.117	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1							
P BD\02	0.096	0.60	16.086	16.021	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1							
P BD\01	0.177	0.82	15.998	15.806	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1							
P BE\03	0.095	0.86	16.128	16.032	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1							
P BE\02	0.160	1.01	15.997	15.830	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1							
P BE\01	0.161	0.74	15.821	15.757	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1							
P BF\02	0.048	0.43	15.806	15.795	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1							
P BF\01	0.186	0.86	15.726	15.681	AR&R 100 year, 15 minutes storm, average 144 mm/h, Zone 1							
P BG\02	0.055	0.50	16.005	15.971	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1							
P BG\01	0.094	0.85	15.929	15.795	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1							
P Future	2.062	0.82	15.895	15.884	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1							
CHANNEL DETAILS												
Name	Max Q	Max V			Due to Storm							
	(cu.m/s)	(m/s)										
OVERFLOW ROUTE DETAILS												
Name	Max Q U/S	Max Q D/S	Safe Q	Max D	Max DxV	Max Width	Max V	Due to Storm				
F CA\11	0	0	0.000	0	0	0	0					
F CA\10	0	0	0.000	0	0	0	0					
F CA\09	0	0	0.000	0	0	0	0					
F CA\08	0	0	0.000	0	0	0	0					
F CA\07	0	0	0.000	0	0	0	0					
F CA\06	0	0	0.000	0	0	0	0					
F CA\05	0	0	0.000	0	0	0	0					
F CA\04	0	0	0.000	0	0	0	0					
F CA\03	0	0	0.000	0	0	0	0					
F CA\02	0	0	0.000	0	0	0	0					
OF313093	0	0	0.000	0	0	0	0					
F CB\02	0	0	0.000	0	0	0	0					
F CB\01	0	0	0.000	0	0	0	0					
OF313088	0	0	0.000	0	0	0	0					
F CC\02	0	0	0.000	0	0	0	0					
F CC\01	0	0	0.000	0	0	0	0					
F CD\03	0	0	0.000	0	0	0	0					
F CD\02	0	0	0.000	0	0	0	0					
F CD\01	0	0	0.000	0	0	0	0					
OF313085	0	0	0.000	0	0	0	0					
F CE\02	0	0	0.000	0	0	0	0					
F CE\01	0	0	0.000	0	0	0	0					
F CF\03	0	0	0.000	0	0	0	0					
F CF\02	0	0	0.000	0	0	0	0					
F CF\01	0	0	0.000	0	0	0	0					
OF313082	0	0	0.000	0	0	0	0					
F CG\02	0	0	0.000	0	0	0	0					
F CG\01	0	0	0.000	0	0	0	0					
F CH\03	0	0	0.000	0	0	0	0					
F CH\02	0	0	0.000	0	0	0	0					
F CH\01	0	0	0.000	0	0	0	0					
OF313080	0	0	0.000	0	0	0	0					
F CJ\02	0	0	0.000	0	0	0	0					
F CJ\01	0	0	0.000	0	0	0	0					
F CK\03	0	0	0.000	0	0	0	0					
F CK\02	0	0	0.000	0	0	0	0					
F CK\01	0	0	0.000	0	0	0	0					
OF313075	0	0	0.000	0	0	0	0					
F CL\02	0	0	0.000	0	0	0	0					
F CL\01	0	0	0.000	0	0	0	0					
F CM\03	0	0	0.000	0	0	0	0					
F CM\02	0	0	0.000	0	0	0	0					
F CM\01	0	0	0.000	0	0	0	0					
F DA\11	0	0	0.000	0	0	0	0					
F DA\10	0	0	0.000	0	0	0	0					
F DA\09	0	0	0.000	0	0	0	0					
F DA\08	0	0	0.000	0	0	0	0					
F DA\07	0	0	0.000	0	0	0	0					
F DA\06	0	0	0.000	0	0	0	0					
F DA\05	0	0	0.000	0	0	0	0					
F DA\04	0	0	0.000	0	0	0	0					
F DA\03	0	0	0.000	0	0	0	0					
F DA\02	0	0	0.000	0	0	0	0					
F DB\03	0	0	0.000	0	0	0	0					
F DB\02	0	0	0.000	0	0	0	0					
F DB\01	0	0	0.000	0	0	0	0					
F DC\03	0	0	0.000	0	0	0	0					
F DC\02	0	0	0.000	0	0	0	0					
F DC\01	0	0	0.000	0	0	0	0					
F DD\03	0	0	0.000	0	0	0	0					
F DD\02	0	0	0.000	0	0	0	0					
F DD\01	0	0	0.000	0	0	0	0					
F DE\03	0	0	0.000	0	0	0	0					
F DE\02	0	0	0.000	0	0	0	0					
F DE\01	0	0	0.000	0	0	0	0					
F DF\03	0	0	0.000	0	0	0	0					
F DF\02	0	0	0.000	0	0	0	0					
F DF\01	0	0	0.000	0	0	0	0					
F DG\03	0	0	0.000	0	0	0	0					
F DG\02	0	0	0.000	0	0	0	0					
F DG\01	0	0	0.000	0	0	0	0					
F DH\03	0	0	0.000	0	0	0	0					
F DH\02	0	0	0.000	0	0	0	0					
F DH\01	0	0	0.000	0	0	0	0					
F DJ\03	0	0	0.000	0	0	0	0					
F DJ\02	0	0	0.000	0	0	0	0					
F DJ\01	0	0	0.000	0	0	0	0					
F DK\03	0	0	0.000	0	0	0	0					
F DK\02	0	0	0.000	0	0	0	0					
F DK\01	0	0	0.000	0	0	0	0					
F DL\03	0	0	0.000	0	0	0	0					
F DL\02	0	0	0.000	0	0	0	0					
F DL\01	0	0	0.000	0	0	0	0					
F DM\03	0	0	0.000	0	0	0	0					
F DM\02	0	0	0.000	0	0	0	0					
F DM\01	0	0	0.000	0	0	0	0					
F EA\11	0	0	0.000	0	0	0	0					
F EA\10	0	0	0.000	0	0	0	0					
F EA\09	0	0	0.000	0	0	0	0					
F EA\08	0	0	0.000	0	0	0	0					
F EA\07	0	0	0.000	0	0	0	0					
F EA\06	0	0	0.000	0	0	0	0					
F EA\05	0	0	0.000	0	0	0	0					

F EA\04	0	0	0.000	0	0	0	0					
F EA\03	0	0	0.000	0	0	0	0					
F EB\03	0	0	0.000	0	0	0	0					
F EB\02	0	0	0.000	0	0	0	0					
F EB\01	0	0	0.000	0	0	0	0					
F EC\03	0	0	0.000	0	0	0	0					
F EC\02	0	0	0.000	0	0	0	0					
F EC\01	0	0	0.000	0	0	0	0					
F ED\03	0	0	0.000	0	0	0	0					
F ED\02	0	0	0.000	0	0	0	0					
F ED\01	0	0	0.000	0	0	0	0					
F EE\03	0	0	0.000	0	0	0	0					
F EE\02	0	0	0.000	0	0	0	0					
F EE\01	0	0	0.000	0	0	0	0					
F EF\03	0	0	0.000	0	0	0	0					
F EF\02	0	0	0.000	0	0	0	0					
F EF\01	0	0	0.000	0	0	0	0					
F EG\03	0	0	0.000	0	0	0	0					
F EG\02	0	0	0.000	0	0	0	0					
F EG\01	0	0	0.000	0	0	0	0					
F EH\03	0	0	0.000	0	0	0	0					
F EH\02	0	0	0.000	0	0	0	0					
F EH\01	0	0	0.000	0	0	0	0					
F EJ\03	0	0	0.000	0	0	0	0					
F EJ\02	0	0	0.000	0	0	0	0					
F EJ\01	0	0	0.000	0	0	0	0					
F EK\03	0	0	0.000	0	0	0	0					
F EK\02	0	0	0.000	0	0	0	0					
F EK\01	0	0	0.000	0	0	0	0					
F EL\03	0	0	0.000	0	0	0	0					
F EL\02	0	0	0.000	0	0	0	0					
F EL\01	0	0	0.000	0	0	0	0					
F EM\03	0	0	0.000	0	0	0	0					
F EM\02	0	0	0.000	0	0	0	0					
F EM\01	0	0	0.000	0	0	0	0					
OF South Car	1.231	1.231	0.000	0.095	0.10	22.95	1.01	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1				
Moorebank A	0	0	0.000	0	0	0	0					
OF306154	12.789	12.789	0.000	0.230	0.48	49.99	2.08	AR&R 100 year, 1.5 hours storm, average 55.0 mm/h, Zone 1				
F Moorebank	0	0	0.000	0	0	0	0					
OF261707	3.428	3.428	0.000	0.144	0.19	32.83	1.32	AR&R 100 year, 2 hours storm, average 46.0 mm/h, Zone 1				
OF137724	0.085	0.085	0.000	0.033	0.02	10.56	0.48	AR&R 100 year, 1 hour storm, average 70.0 mm/h, Zone 1				
OF293087	13.797	13.797	0.000	0.230	0.52	49.99	2.24	AR&R 100 year, 1 hour storm, average 70.0 mm/h, Zone 1				
OF137727	9.318	9.318	0.000	0.216	0.37	47.20	1.70	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1				
OF137716	1.231	1.231	0.000	0.095	0.10	22.95	1.01	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1				
OF143570	0	0	0.000	0	0	0	0					
F F\03	0	0	0.000	0	0	0	0					
F F\02	0	0	0.000	0	0	0	0					
OF331549	0	0	0.000	0	0	0	0					
OF327512	1.473	1.473	0.000	0.102	0.11	24.39	1.06	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1				
OF149489	1.122	1.122	0.000	0.091	0.09	22.23	0.99	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1				
OF151533	0	0	0.000	0	0	0	0					
OF Carpark	0.114	0.114	0.000	0.036	0.02	11.27	0.52	AR&R 100 year, 1.5 hours storm, average 55.0 mm/h, Zone 1				
OF149506	1.122	1.122	0.000	0.091	0.09	22.23	0.99	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1				
OF149518	0	0	0.000	0	0	0	0					
OF137717	0.114	0.114	0.000	0.036	0.02	11.27	0.52	AR&R 100 year, 1.5 hours storm, average 55.0 mm/h, Zone 1				
F External	1.231	1.231	0.000	0.095	0.10	22.95	1.01	AR&R 100 year, 20 minutes storm, average 126 mm/h, Zone 1				
F NRemaining	11.001	11.001	0.000	0.230	0.41	49.99	1.79	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1				
Stage Discha	2.420	2.420	0.000	0.125	0.15	29.06	1.20	AR&R 100 year, 2 hours storm, average 46.0 mm/h, Zone 1				
F F\21	0	0	0.000	0	0	0	0					
F F\20	0	0	0.000	0	0	0	0					
F F\19	0	0	0.000	0	0	0	0					
F F\18	0	0	0.000	0	0	0	0					
F F\17	0	0	0.000	0	0	0	0					
F F\16	0	0	0.000	0	0	0	0					
F F\15	0	0	0.000	0	0	0	0					
F F\14	0	0	0.000	0	0	0	0					
F F\13	0	0	0.000	0	0	0	0					
F F\12	0	0	0.000	0	0	0	0					
F F\11	0	0	0.000	0	0	0	0					
F F\10	0	0	0.000	0	0	0	0					
F F\09	0	0	0.000	0	0	0	0					
F F\08	0	0	0.000	0	0	0	0					
F F\07	0	0	0.000	0	0	0	0					
F F\06	0	0	0.000	0	0	0	0					
F F\05	0	0	0.000	0	0	0	0					
F F\04	0	0	0.000	0	0	0	0					
F AA\06	0.026	0.026	0.000	0.077	0.06	1.20	0.84	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1				
F AA\05	0	0	0.000	0	0	0	0					
F AA\04	0	0	0.000	0	0	0	0					
F AA\03	0	0	0.000	0	0	0	0					
F AA\02	0	0	0.000	0	0	0	0					
OF313095	0.038	0.038	0.000	0.025	0.01	8.23	0.37	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1				
F AB\01	0	0	0.000	0	0	0	0					
F BA\11	0	0	0.000	0	0	0	0					
F BA\10	0	0	0.000	0	0	0	0					
F BA\09	0	0	0.000	0	0	0	0					
F BA\08	0	0	0.000	0	0	0	0					
F BA\07	0	0	0.000	0	0	0	0					
F BA\06	0	0	0.000	0	0	0	0					
F BA\05	0	0	0.000	0	0	0	0					
F BA\04	0	0	0.000	0	0	0	0					
F BA\03	0	0	0.000	0	0	0	0					
F BA\02	0	0	0.000	0	0	0	0					
OF360759	0	0	0.000	0	0	0	0					
F BB\03	0	0	0.000	0	0	0	0					
F BB\02	0	0	0.000	0	0	0	0					
F BB\01	0	0	0.000	0	0	0	0					
F BC\03	0	0	0.000	0	0	0	0					
F BC\02	0	0	0.000	0	0	0	0					
F BC\01	0	0	0.000	0	0	0	0					
F BD\03	0	0	0.000	0	0	0	0					
F BD\02	0	0	0.000	0	0	0	0					
F BD\01	0	0	0.000	0	0	0	0					
F BE\03	0	0	0.000	0	0	0	0					
F BE\02	0	0	0.000	0	0	0	0					
F BE\01	0	0	0.000	0	0	0	0					
F BF\02	0	0	0.000	0	0	0	0					
F BF\01	0	0	0.000	0	0	0	0					
F BG\02	0	0	0.000	0	0	0	0					
F BG\01	0	0	0.000	0	0	0	0					
F Future	0	0	0.000	0	0	0	0					
F OSD 2	0.369	0.369	0.000	0.058	0.04	15.58	0.73	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1				
F OSD 1	0.310	0.310	0.000	0.054	0.04	14.87	0.69	AR&R 100 year, 5 minutes storm, average 224 mm/h, Zone 1				
DETENTION BASIN DETAILS												
Name	Max WL	MaxVol	Max Q	Max Q	Max Q							
			Total	Low Level	High Level							
All Stages	15.04	10128.5	2.420	0.000	2.420							
CONTINUITY CHECK for AR&R 100 year, 1 hour storm, average 70.0 mm/h, Zone 1												
Node	Inflow	Outflow	Storage Char	Difference								

	(cu.m)	(cu.m)	(cu.m)	%								
CA\11	74.93	74.95	0.00	-0.0								
CA\10	149.82	149.81	0.00	0.0								
CA\09	224.68	224.69	0.00	-0.0								
CA\08	524.24	524.26	0.00	-0.0								
CA\07	1044.49	1044.49	0.00	0.0								
CA\06	1335.79	1335.84	0.00	-0.0								
CA\05	1625.70	1625.62	0.00	0.0								
CA\04	2145.86	2145.84	0.00	0.0								
CA\03	2445.77	2463.61	0.00	-0.7								
CA\02	2463.61	2487.51	0.00	-1.0								
CA Outlet	2487.51	2487.51	0.00	0.0								
CB\03	74.93	74.95	0.00	-0.0								
CB\02	149.82	149.82	0.00	-0.0								
CB\01	224.69	224.69	0.00	-0.0								
CC\03	74.31	74.33	0.00	-0.0								
CC\02	148.64	148.63	0.00	0.0								
CC\01	222.95	222.96	0.00	-0.0								
CD\03	74.31	74.33	0.00	-0.0								
CD\02	148.64	148.64	0.00	0.0								
CD\01	222.95	222.96	0.00	-0.0								
CE\03	41.61	41.61	0.00	-0.0								
CE\02	83.22	83.24	0.00	-0.0								
CE\01	124.85	124.85	0.00	0.0								
CF\03	41.61	41.60	0.00	0.0								
CF\02	83.21	83.23	0.00	-0.0								
CF\01	124.84	124.84	0.00	0.0								
CG\03	41.40	41.40	0.00	-0.0								
CG\02	82.80	82.81	0.00	-0.0								
CG\01	124.21	124.22	0.00	-0.0								
CH\03	41.40	41.40	0.00	-0.0								
CH\02	82.80	82.81	0.00	-0.0								
CH\01	124.21	124.22	0.00	-0.0								
CJ\03	74.31	74.33	0.00	-0.0								
CJ\02	148.64	148.65	0.00	-0.0								
CJ\01	222.96	222.96	0.00	0.0								
CK\03	74.31	74.33	0.00	-0.0								
CK\02	148.64	148.64	0.00	-0.0								
CK\01	222.96	222.96	0.00	-0.0								
CL\03	42.85	42.87	0.00	-0.0								
CL\02	85.72	85.74	0.00	-0.0								
CL\01	128.58	128.55	0.00	0.0								
CM\03	42.85	42.88	0.00	-0.1								
CM\02	85.73	85.74	0.00	-0.0								
CM\01	128.59	128.54	0.00	0.0								
DA\11	74.66	74.68	0.00	-0.0								
DA\10	149.54	149.55	0.00	-0.0								
DA\09	224.42	224.42	0.00	-0.0								
DA\08	523.84	523.87	0.00	-0.0								
DA\07	1044.54	1044.53	0.00	0.0								
DA\06	1335.56	1335.61	0.00	-0.0								
DA\05	1625.43	1625.39	0.00	0.0								
DA\04	2145.63	2145.57	0.00	0.0								
DA\03	2445.49	2463.16	0.00	-0.7								
DA\02	2463.16	2486.11	0.00	-0.9								
DA Outlet	2486.11	2486.11	0.00	0.0								
DB\03	74.87	74.88	0.00	-0.0								
DB\02	149.75	149.76	0.00	-0.0								
DB\01	224.62	224.63	0.00	-0.0								
DC\03	74.31	74.33	0.00	-0.0								
DC\02	148.65	148.65	0.00	-0.0								
DC\01	222.96	222.97	0.00	-0.0								
DD\03	74.66	74.68	0.00	-0.0								
DD\02	149.06	149.06	0.00	0.0								
DD\01	223.38	223.39	0.00	-0.0								
DE\03	41.61	41.61	0.00	-0.0								
DE\02	83.22	83.24	0.00	-0.0								
DE\01	124.85	124.85	0.00	0.0								
DF\03	41.40	41.40	0.00	0.0								
DF\02	82.94	82.96	0.00	-0.0								
DF\01	124.57	124.57	0.00	-0.0								
DG\03	41.40	41.40	0.00	0.0								
DG\02	82.80	82.80	0.00	-0.0								
DG\01	124.20	124.21	0.00	-0.0								
DH\03	41.40	41.40	0.00	0.0								
DH\02	82.80	82.80	0.00	-0.0								
DH\01	124.20	124.21	0.00	-0.0								
DJ\03	74.31	74.32	0.00	-0.0								
DJ\02	148.64	148.64	0.00	-0.0								
DJ\01	222.96	222.97	0.00	-0.0								
DK\03	74.31	74.33	0.00	-0.0								
DK\02	148.64	148.64	0.00	0.0								
DK\01	222.95	222.96	0.00	-0.0								
DL\03	42.85	42.87	0.00	-0.0								
DL\02	85.72	85.74	0.00	-0.0								
DL\01	128.59	128.54	0.00	0.0								
DM\03	42.85	42.88	0.00	-0.1								
DM\02	85.73	85.74	0.00	-0.0								
DM\01	128.59	128.54	0.00	0.0								
EA\11	93.29	93.30	0.00	-0.0								
EA\10	167.96	167.95	0.00	0.0								
EA\09	242.68	242.70	0.00	-0.0								
EA\08	540.93	540.95	0.00	-0.0								
EA\07	1082.73	1082.71	0.00	0.0								
EA\06	1383.01	1383.08	0.00	-0.0								
EA\05	1683.29	1683.20	0.00	0.0								
EA\04	2222.26	2222.38	0.00	-0.0								
EA\03	2504.35	2486.08	0.00	0.7								
EA\02	2486.08	2466.13	0.00	0.8								
EA Outlet	2466.13	2466.13	0.00	0.0								
EB\03	74.52	74.53	0.00	-0.0								
EB\02	149.05	149.06	0.00	-0.0								
EB\01	223.58	223.58	0.00	-0.0								
EC\03	74.73	74.75	0.00	-0.0								
EC\02	149.47	149.48	0.00	-0.0								
EC\01	224.21	224.20	0.00	0.0								
ED\03	93.36	93.38	0.00	-0.0								
ED\02	168.11	168.11	0.00	0.0								
ED\01	242.84	242.85	0.00	-0.0								
EE\03	41.40	41.41	0.00	-0.0								
EE\02	82.81	82.82	0.00	-0.0								
EE\01	124.22	124.24	0.00	-0.0								
EF\03	51.82	51.83	0.00	-0.0								
EF\02	93.23	93.25	0.00	-0.0								
EF\01	134.65	134.66	0.00	-0.0								
EG\03	41.40	41.40	0.00	-0.0								
EG\02	82.80	82.82	0.00	-0.0								
EG\01	124.22	124.22	0.00	-0.0								
EH\03	51.75	51.76	0.00	-0.0								
EH\02	93.16	93.17	0.00	-0.0								
EH\01	134.57	134.57	0.00	-0.0								
EJ\03	74.31	74.33	0.00	-0.0								

EJ\02	148.64	148.64	0.00	-0.0								
EJ\01	222.96	222.95	0.00	0.0								
EK\03	93.15	93.16	0.00	-0.0								
EK\02	167.47	167.48	0.00	-0.0								
EK\01	241.80	241.81	0.00	-0.0								
EL\03	42.85	42.86	0.00	-0.0								
EL\02	85.71	85.73	0.00	-0.0								
EL\01	128.58	128.54	0.00	0.0								
EM\03	24.91	24.92	0.00	-0.0								
EM\02	67.77	67.78	0.00	-0.0								
EM\01	110.63	110.58	0.00	0.0								
O CA\02	0.00	0.00	0.00	0.0								
O DA\02	0.00	0.00	0.00	0.0								
N60922	1578.86	1578.86	0.00	0.0								
N60923	26905.47	26905.47	0.00	0.0								
HW Moore	25824.38	25828.02	0.00	-0.0								
Full Existing	26905.46	26905.47	0.00	-0.0								
HW4	11120.75	11102.92	0.00	0.2								
N60943	13018.53	13013.63	0.00	0.0								
HW4	25917.32	25924.92	0.00	-0.0								
N147128	27002.37	27002.37	0.00	-0.0								
N147129	16588.37	16588.37	0.00	0.0								
N147132	1578.86	1578.86	0.00	0.0								
Carpark HW	0.00	0.00	0.00	0.0								
Pit139477	0.00	0.01	0.00	0.0								
F\03	1546.38	1548.06	0.00	-0.1								
F\02	1717.80	1720.16	0.00	-0.1								
F\01	1914.65	1915.51	0.00	-0.0								
N351960	1915.51	1915.56	0.00	-0.0								
N153349	0.00	0.00	0.00	0.0								
HW46	1438.65	1438.79	0.00	-0.0								
Pit144889	361.34	361.25	0.00	0.0								
N159649	361.25	361.25	0.00	0.0								
HW57	1438.65	1438.79	0.00	-0.0								
Pit144901	361.34	361.25	0.00	0.0								
N147130	361.25	361.25	0.00	0.0								
O EA\02	0.00	0.00	0.00	0.0								
External	1578.86	1578.86	0.00	0.0								
NRemaining	12199.20	12199.20	0.00	0.0								
All Stages	14405.06	11125.68	3281.87	-0.0								
N280923	13008.73	13008.73	0.00	0.0								
N314881	27002.37	27002.37	0.00	0.0								
F\21	373.75	374.35	0.00	-0.2								
F\20	476.53	477.74	0.00	-0.3								
F\19	532.75	533.50	0.00	-0.1								
F\18	579.94	580.81	0.00	-0.2								
F\17	691.10	692.40	0.00	-0.2								
F\16	738.34	739.60	0.00	-0.2								
F\15	830.70	832.41	0.00	-0.2								
F\14	900.35	902.31	0.00	-0.2								
F\13	992.58	994.86	0.00	-0.2								
F\12	1085.46	1087.80	0.00	-0.2								
F\11	1132.97	1134.76	0.00	-0.2								
F\10	1179.64	1181.24	0.00	-0.1								
F\09	1226.23	1228.11	0.00	-0.2								
F\08	1273.44	1275.74	0.00	-0.2								
F\07	1323.24	1325.35	0.00	-0.2								
F\06	1377.69	1379.52	0.00	-0.1								
F\05	1429.81	1431.69	0.00	-0.1								
F\04	1487.65	1489.62	0.00	-0.1								
AA\06	22.84	22.93	0.00	-0.4								
AA\05	123.39	123.43	0.00	-0.0								
AA\04	2506.06	2506.26	0.00	-0.0								
AA\03	2650.40	2650.67	0.00	-0.0								
AA\02	2650.67	2650.24	0.00	0.0								
AA Outlet	2650.24	2650.24	0.00	0.0								
AB\02	31.26	31.43	0.00	-0.5								
AB\01	85.25	85.29	0.00	-0.0								
BA\11	114.61	114.90	0.00	-0.3								
BA\10	194.11	194.29	0.00	-0.1								
BA\09	299.65	299.88	0.00	-0.1								
BA\08	405.31	405.54	0.00	-0.1								
BA\07	793.76	794.00	0.00	-0.0								
BA\06	1099.90	1100.14	0.00	-0.0								
BA\05	1405.45	1405.50	0.00	-0.0								
BA\04	1678.52	1679.08	0.00	-0.0								
BA\03	1768.50	1767.02	0.00	0.1								
BA\02	2029.40	2033.59	0.00	-0.2								
BA\01	2033.59	2029.18	0.00	0.2								
BA Outlet	2029.18	2029.18	0.00	0.0								
BB\03	113.92	114.23	0.00	-0.3								
BB\02	193.51	193.70	0.00	-0.1								
BB\01	290.85	291.07	0.00	-0.1								
BC\03	63.76	63.92	0.00	-0.3								
BC\02	111.26	111.39	0.00	-0.1								
BC\01	208.54	208.75	0.00	-0.1								
BD\03	63.34	63.52	0.00	-0.3								
BD\02	111.13	111.28	0.00	-0.1								
BD\01	207.95	208.15	0.00	-0.1								
BE\03	114.33	114.61	0.00	-0.2								
BE\02	193.00	193.17	0.00	-0.1								
BE\01	193.17	193.18	0.00	-0.0								
BF\02	56.65	56.77	0.00	-0.2								
BF\01	262.18	262.38	0.00	-0.1								
BG\02	65.55	65.73	0.00	-0.3								
BG\01	111.82	111.91	0.00	-0.1								
Future	2270.10	2270.10	0.00	0.0								
OSD 2	321.73	321.73	0.00	-0.0								
OSD 1	270.07	270.07	0.00	0.0								
Run Log for EISConceptUltimate.drn run at 09:23:29 on 24/2/2015												
Upwelling occurred at AB\02, AA\06, DF\02, DE\02, CF\02, CE\02												
Freeboard was inadequate at more than 20 pits.												
The maximum flow exceeded the safe value in the following overflow routes: OF306154, OF293087, F NRemaining, OF137727												



DRAFT

Issue	Description	Date
01	ISSUE FOR INFORMATION	XX/XX/15

0 50 100 150 200m

1 : 2000

Client: SIMTA / TACTICAL GROUP

Status: **PRELIMINARY**
NOT TO BE USED FOR CONSTRUCTION

Scales	1:2000	Current Issue Signatures	
		Drawn	A.ZHAO
Original Size	A1	Designed	G.DUNSTAN
Height Datum	AHD	Checked	B.CALDWELL
Grid	MGA	Approved	B.LUSTY

Filename:

Project: SIMTA INTERMODAL TERMINAL FACILITY (STAGE 1)

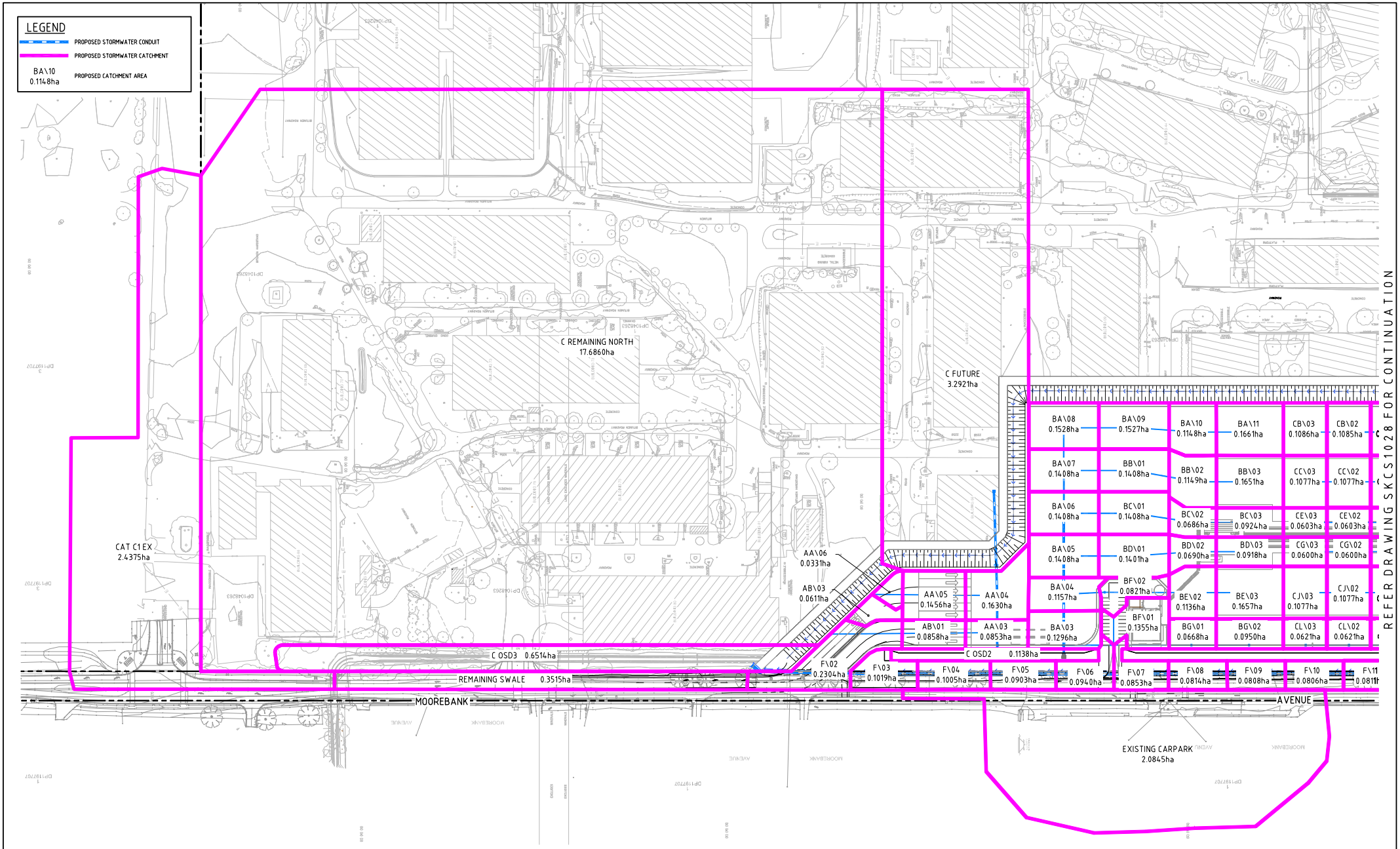
Title: EXISTING CATCHMENT PLAN

HYDER CONSULTING PTY LTD
ABN 76 104 485 289
Level 5, 141 Walker St
North Sydney NSW 2060
Australia
Tel: +61 (0)2 8907 9000
Fax: +61 (0)2 8907 9001
www.hyderconsulting.com

Drawing No.	Project No.	Issue
EISC1051	AA003760	01

10mm on Original

Date Plotted: 20 Feb 2015 - 10:26AM File Name: F:\AA003760\E-CAD\C-Civil\D-Final\B-Stage 1_EIS\EISC1051-AA003760-NSD-ExistingCatchmentPlan.dwg V1



DRAFT

Issue	Description	Date
01	ISSUE FOR INFORMATION	20/02/15

0 20 40 60 80 100 120m

1 : 1200

Client: SIMTA / TACTICAL GROUP

Status: PRELIMINARY
NOT TO BE USED FOR CONSTRUCTION

Scales	1:1200	Current Issue Signatures	
		Drawn	A.ZHAO
Original Size	A1	Designed	G.DUNSTAN
Height Datum	AHD	Checked	B.CALDWELL
Grid	MGA	Approved	B.LUSTY

Filename:

Project: SIMTA INTERMODAL TERMINAL FACILITY (STAGE 1)

Title: OVERALL PROPOSED CATCHMENT PLAN SHEET 1

HYDER CONSULTING PTY LTD
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Level 5, 141 Walker St
North Sydney NSW 2060
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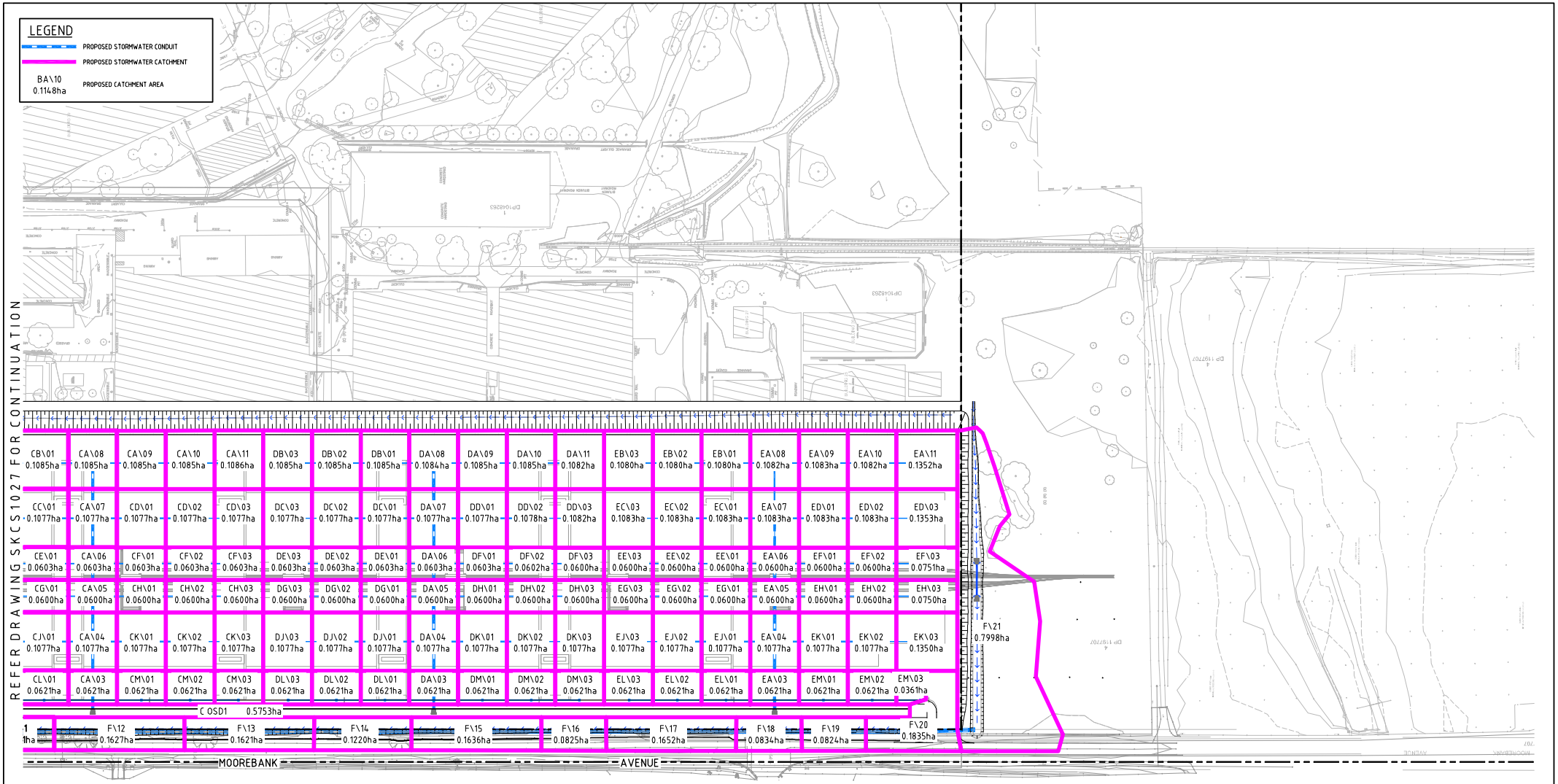
Drawing No.	Project No.	Issue
SKCS1027	AA003760	01

10mm on Original

Date Plotted: 20 Feb 2015 - 03:37PM File Name: F:\AA003760\E-CAD\C-Civil\B-Sketches\SKCS1027-AA003760-NSD-OverallProposedCatchmentPlanSheet1.dwg V1



DRAFT

Issue	Description	Date
01	ISSUE FOR INFORMATION	20/02/15

0 20 40 60 80 100 120m

1 : 1200

Client: SIMTA / TACTICAL GROUP

Status: PRELIMINARY
NOT TO BE USED FOR CONSTRUCTION

Scales	1:1200	Current Issue Signatures	
		Drawn	A.ZHAO
Original Size	A1	Designed	G.DUNSTAN
Height Datum	AHD	Checked	B.CALDWELL
Grid	MGA	Approved	B.LUSTY

Filename:

Project: SIMTA INTERMODAL TERMINAL FACILITY (STAGE 1)

Title: OVERALL PROPOSED CATCHMENT PLAN SHEET 2

HYDER CONSULTING PTY LTD
ABN 76 104 485 289
Level 5, 141 Walker St
North Sydney NSW 2060
Australia
Tel: +61 (0)2 8907 9000
Fax: +61 (0)2 8907 9001
www.hyderconsulting.com

Drawing No.	Project No.	Issue
SKCS1028	AA003760	01

10mm on Original

Date Plotted: 20 Feb 2015 - 03:36PM File Name: F:\AA003760\E-CAD\C-Civil\B-Sketches\SKCS1028-AA003760-NSD-OverallProposedCatchmentPlanSheet2.dwg V1

DRAINS Model Comparison of Existing and Post-Development Flows for Stage 1

PROJECT MITF - Moorebank Intermodal Terminal Facility
TITLE Stage 1 and all stages

PAGE No
JOB No AA003760
PREPARED S.Hossain DATE 19/02/2015
CHECKED B.Caldwell DATE 19/02/2015

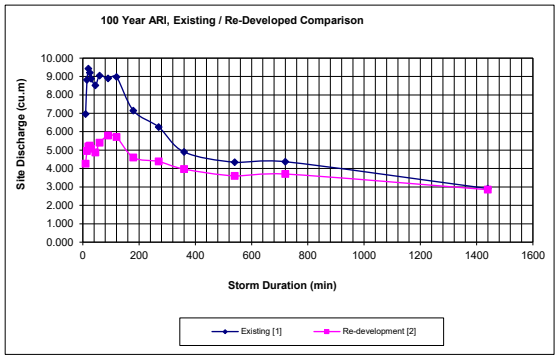
DRAINS Models (existing and proposed): ConceptStage1.drn

Existing and Proposed within the same model

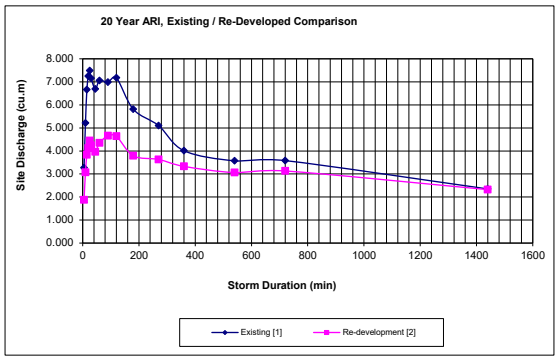
DRAINS Version: 2015.02-4 February 2015
Timestep used: Set by Drains

Existing DRAINS Ref: Existing Channel
Re-Developed DRAINS Ref: F Channel 1

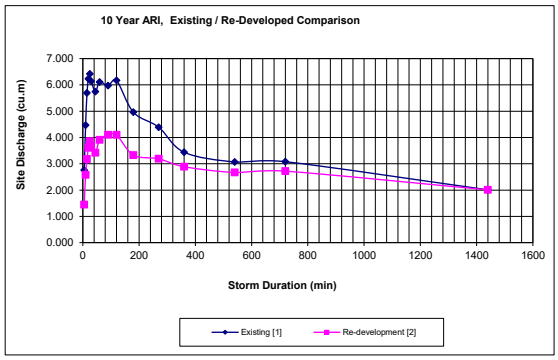
	100yr ARI Total		
Storm Dur. (min)	Existing [1]	Re-development [2]	[2] - [1]
5	4.410	3.050	-1.360
10	6.960	4.260	-2.700
15	8.810	4.950	-3.860
20	9.420	5.200	-4.220
25	9.200	5.240	-3.960
30	8.880	5.070	-3.810
45	8.510	4.870	-3.640
60	9.040	5.400	-3.640
90	8.890	5.790	-3.100
120	8.970	5.710	-3.260
180	7.140	4.600	-2.540
270	6.250	4.380	-1.870
360	4.900	3.970	-0.930
540	4.340	3.600	-0.740
720	4.370	3.700	-0.670
1440	2.910	2.850	-0.060
Max	9.420	5.790	



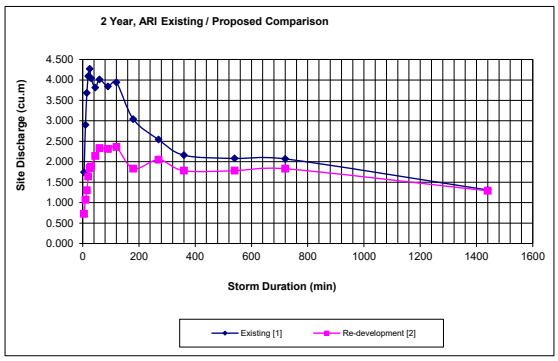
	20yr ARI Total		
Storm Dur. (min)	Existing [1]	Re-development [2]	[2] - [1]
5	3.270	1.870	-1.400
10	5.210	3.070	-2.140
15	6.660	3.830	-2.830
20	7.250	4.120	-3.130
25	7.490	4.450	-3.040
30	7.160	4.240	-2.920
45	6.690	3.960	-2.730
60	7.060	4.350	-2.710
90	6.990	4.660	-2.330
120	7.180	4.640	-2.540
180	5.810	3.790	-2.020
270	5.100	3.630	-1.470
360	4.010	3.330	-0.680
540	3.570	3.060	-0.510
720	3.580	3.130	-0.450
1440	2.350	2.320	-0.030
Max	7.490	4.660	



	10yr ARI Total		
Storm Dur. (min)	Existing [1]	Re-development [2]	[2] - [1]
5	2.760	1.450	-1.310
10	4.470	2.580	-1.890
15	5.690	3.180	-2.510
20	6.230	3.610	-2.620
25	6.420	3.860	-2.560
30	6.140	3.670	-2.470
45	5.740	3.420	-2.320
60	6.110	3.910	-2.200
90	5.970	4.100	-1.870
120	6.170	4.100	-2.070
180	4.960	3.330	-1.630
270	4.390	3.190	-1.200
360	3.440	2.890	-0.550
540	3.070	2.670	-0.400
720	3.080	2.720	-0.360
1440	2.010	2.010	0.000
Max	6.420	4.100	



	2yr ARI Total		
Storm Dur. (min)	Existing [1]	Re-development [2]	[2] - [1]
5	1.740	0.723	-1.017
10	2.900	1.070	-1.830
15	3.680	1.300	-2.380
20	4.090	1.640	-2.450
25	4.270	1.840	-2.430
30	4.040	1.880	-2.160
45	3.810	2.140	-1.670
60	4.010	2.330	-1.680
90	3.840	2.310	-1.530
120	3.940	2.360	-1.580
180	3.040	1.830	-1.210
270	2.540	2.050	-0.490
360	2.160	1.780	-0.380
540	2.080	1.780	-0.300
720	2.070	1.830	-0.240
1440	1.310	1.290	-0.020
Max	4.270	2.360	



APPENDIX E:

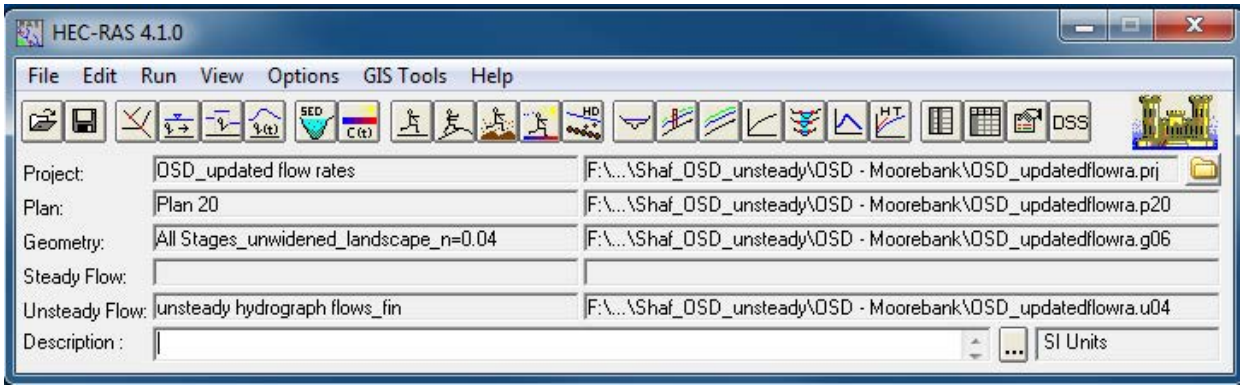
OPERATIONAL AREA HEC-RAS MODELLING

On-Site Detention Waterway – 'All Stages'

Eastern Waterway

Southern Waterway

On-Site Detention Waterway – ‘All Stages’


HEC-RAS 4.1.0
File Edit Run View Options GIS Tools Help
Project: OSD_updated flow rates
F:\...\Shaf_OSD_unsteady\OSD - Moorebank\OSD_updatedflowra.prj
Plan: Plan 20
F:\...\Shaf_OSD_unsteady\OSD - Moorebank\OSD_updatedflowra.p20
Geometry: All Stages_unwidened_landscape_n=0.04
F:\...\Shaf_OSD_unsteady\OSD - Moorebank\OSD_updatedflowra.g06
Steady Flow:
Unsteady Flow: unsteady hydrograph flows_fin
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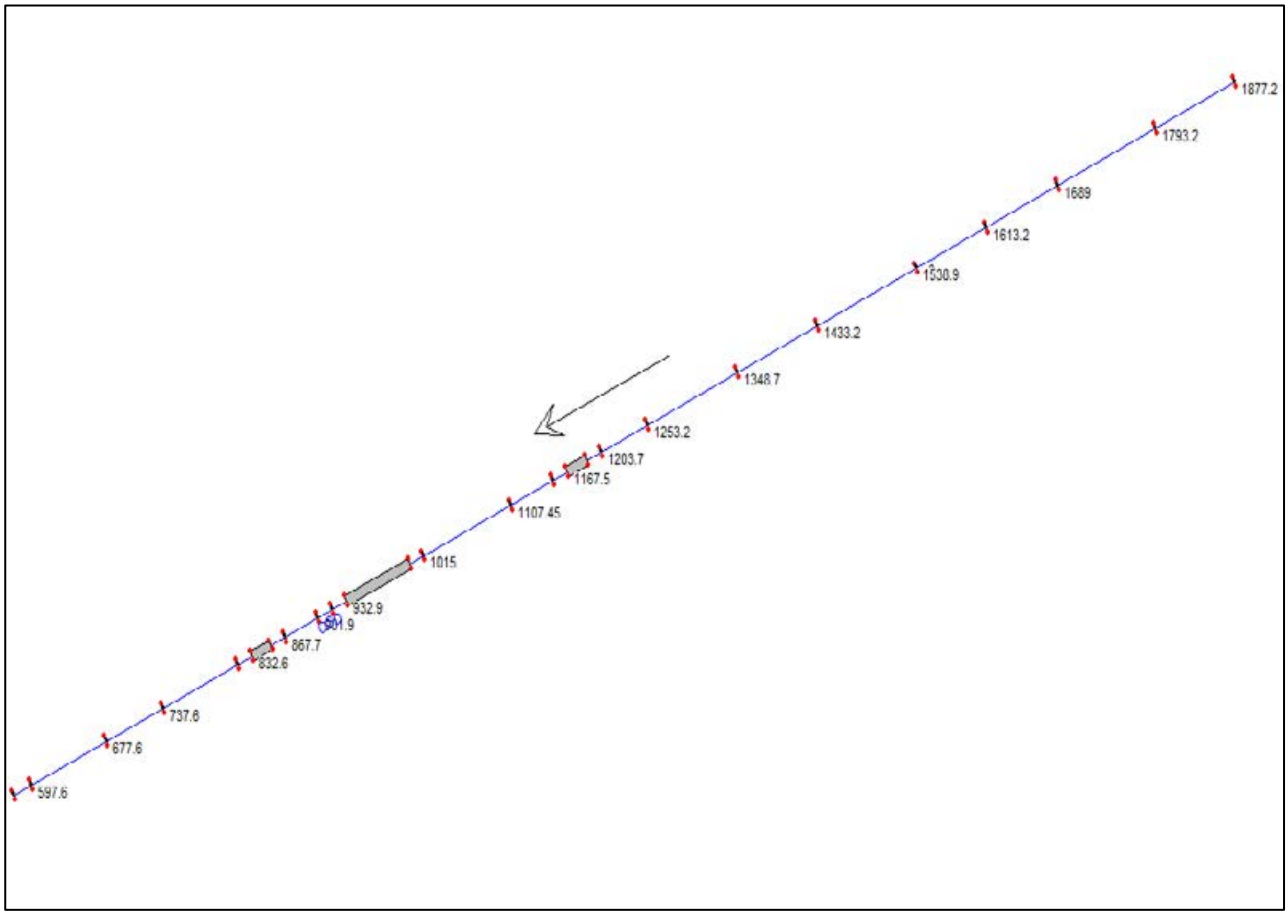
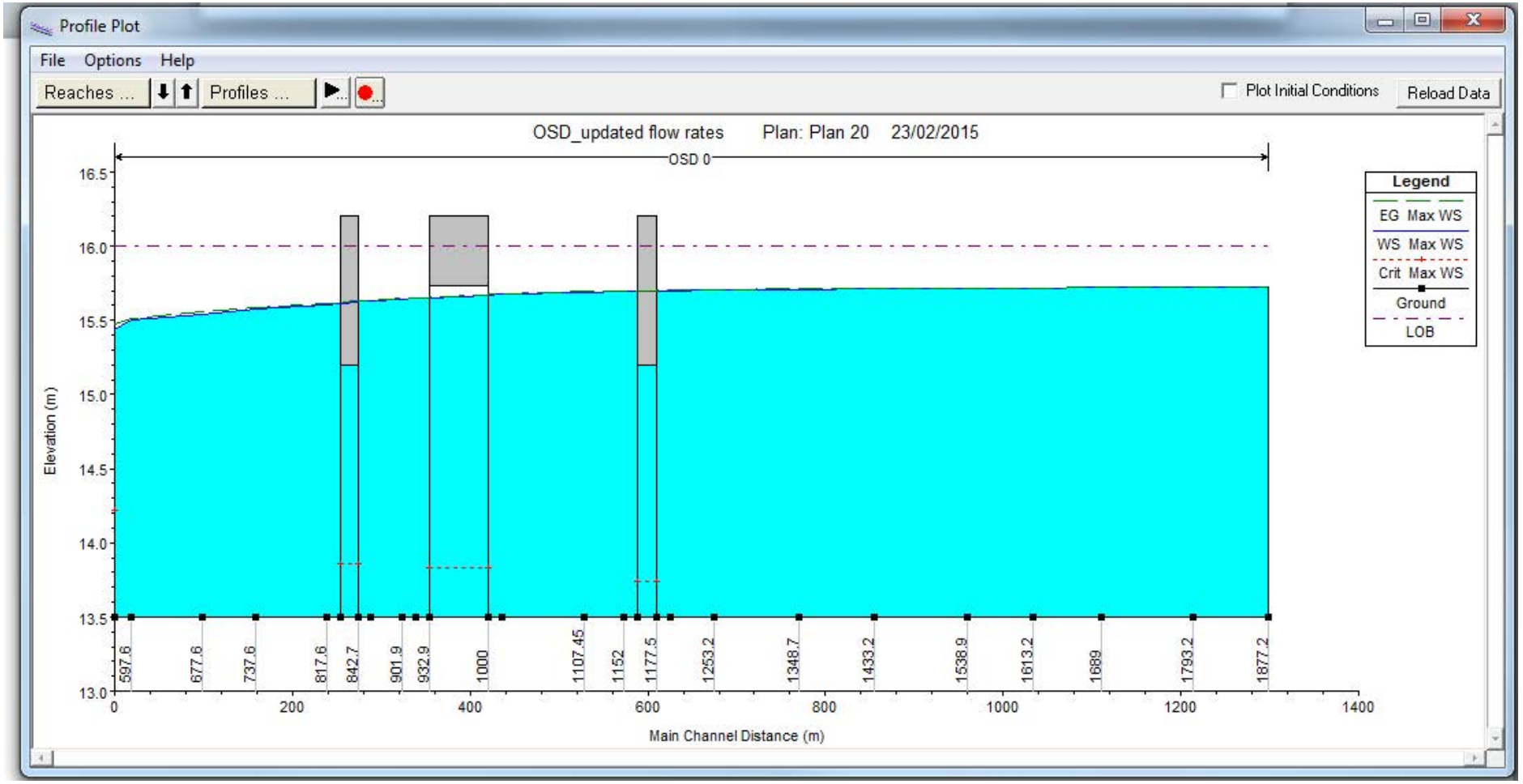
Description :
SI Units


1877.2
1793.2
1689
1613.2
1530.9
1433.2
1348.7
1253.2
1203.7
1167.5
1107.45
1015
932.9
901.9
867.7
832.6
737.6
677.6
597.6

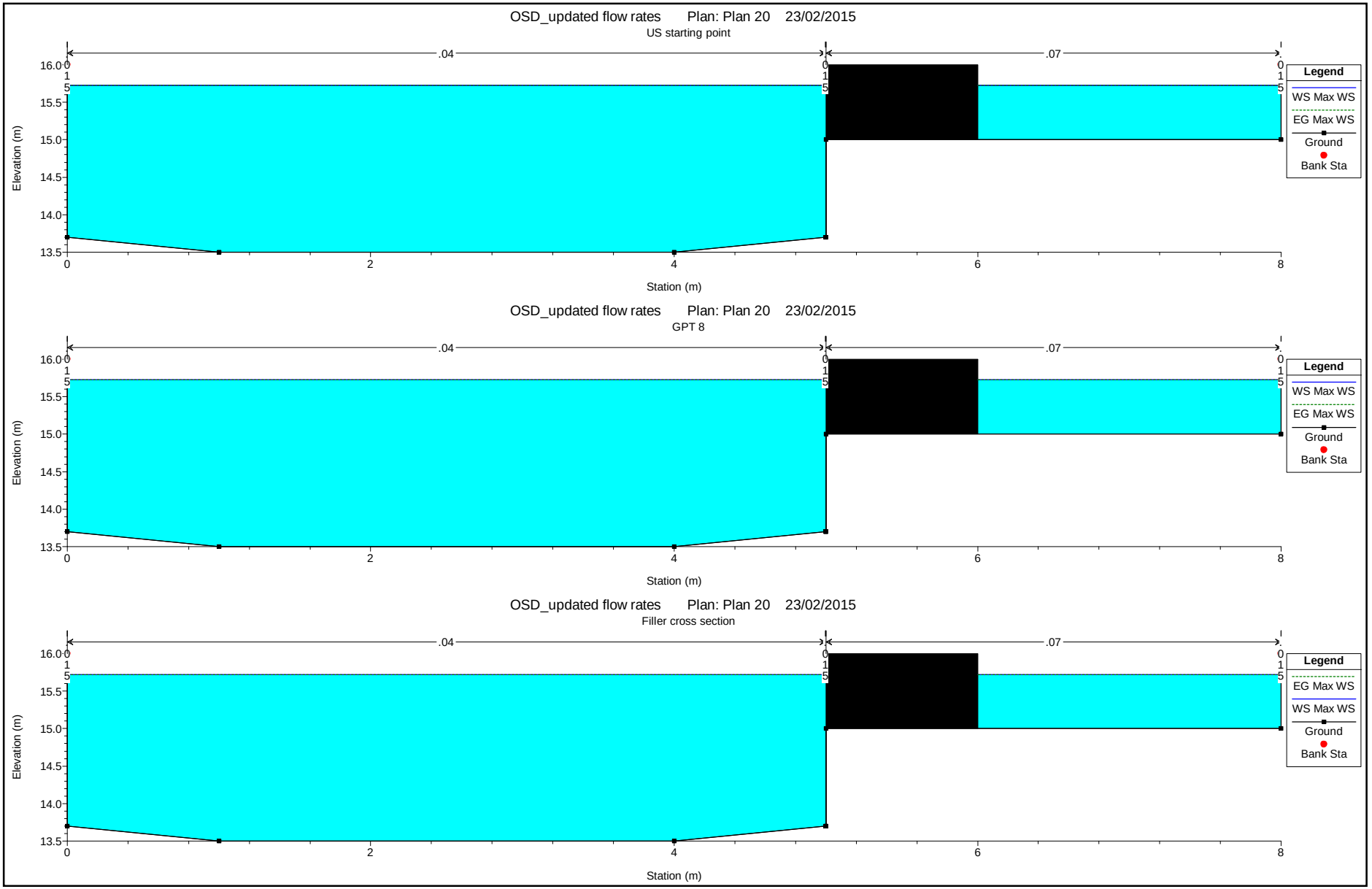

Profile Plot
File Options Help
Reaches ...
Profiles ...
Plot Initial Conditions
Reload Data
OSD_updated flow rates Plan: Plan 20 23/02/2015
OSD 0
Legend
EG Max WS
WS Max WS
Crit Max WS
Ground
LOB
Elevation (m)
16.5
16.0
15.5
15.0
14.5
14.0
13.5
13.0
597.6
677.6
737.6
817.6
842.7
901.9
932.9
1000
1107.45
1152
1177.5
1253.2
1348.7
1433.2
1538.9
1613.2
1689
1793.2
1877.2
0
200
400
600
800
1000
1200
1400
Main Channel Distance (m)

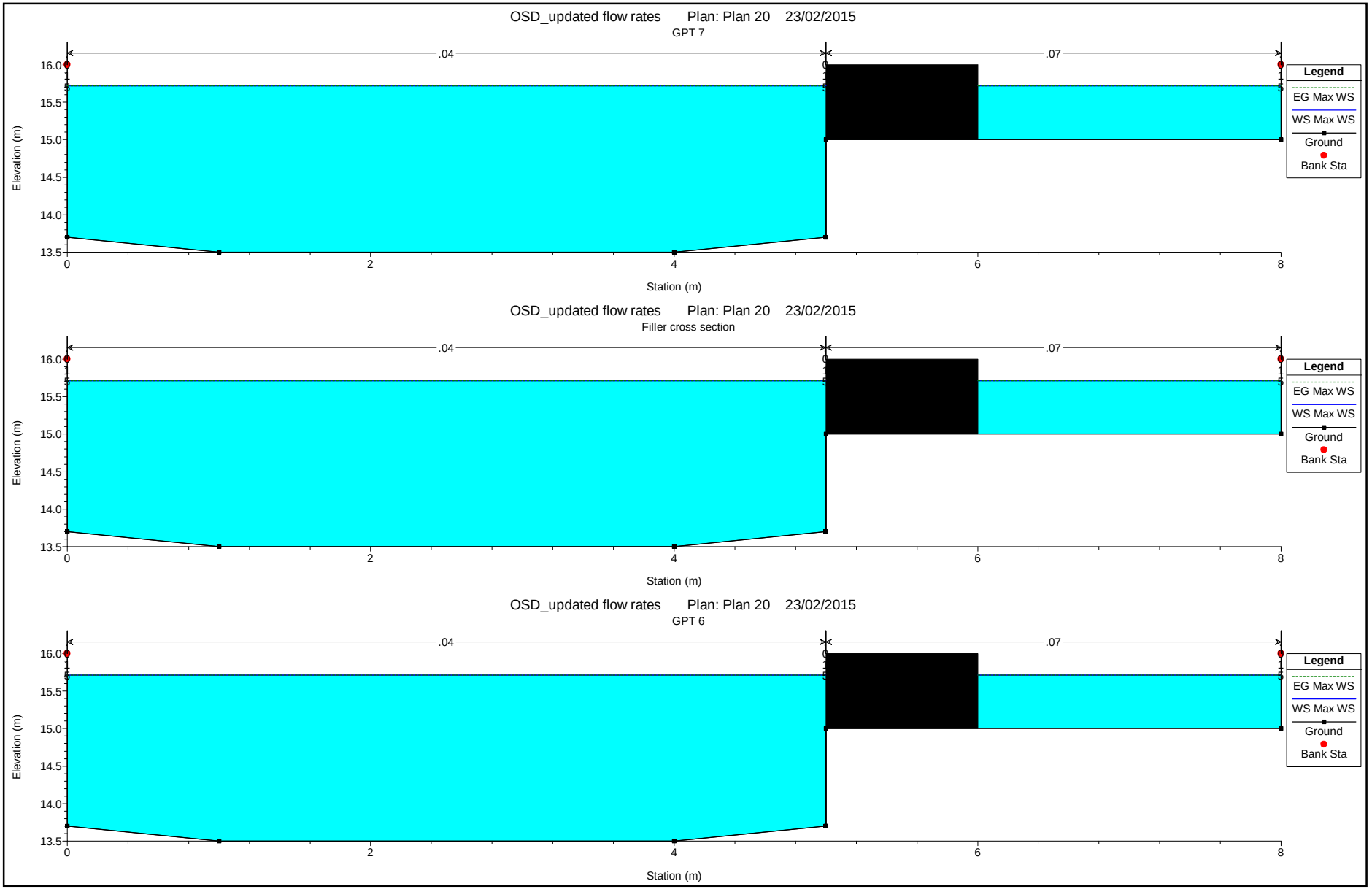
Profile Output Table - Standard Table 1

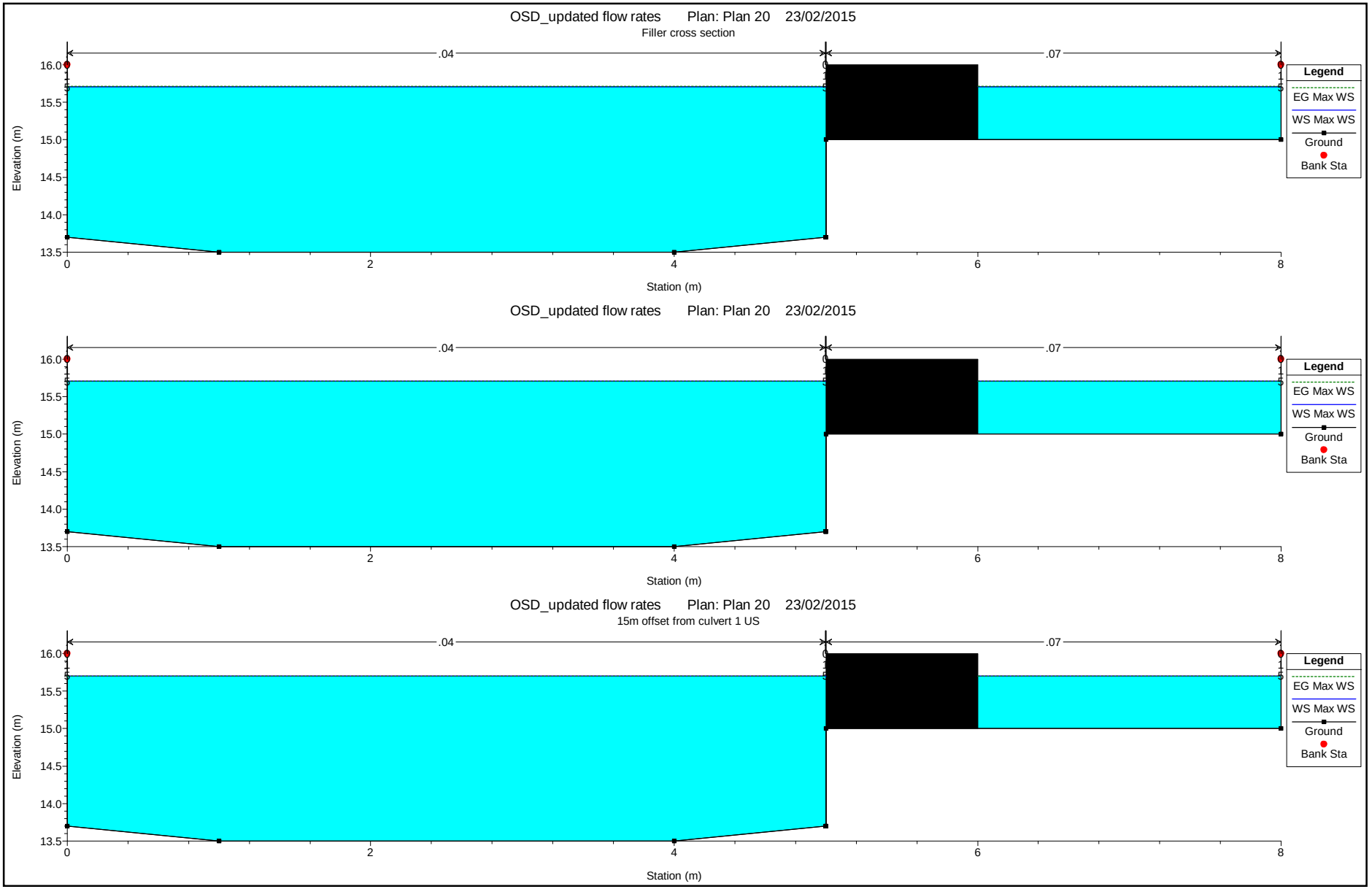
File Options Std. Tables Locations Help

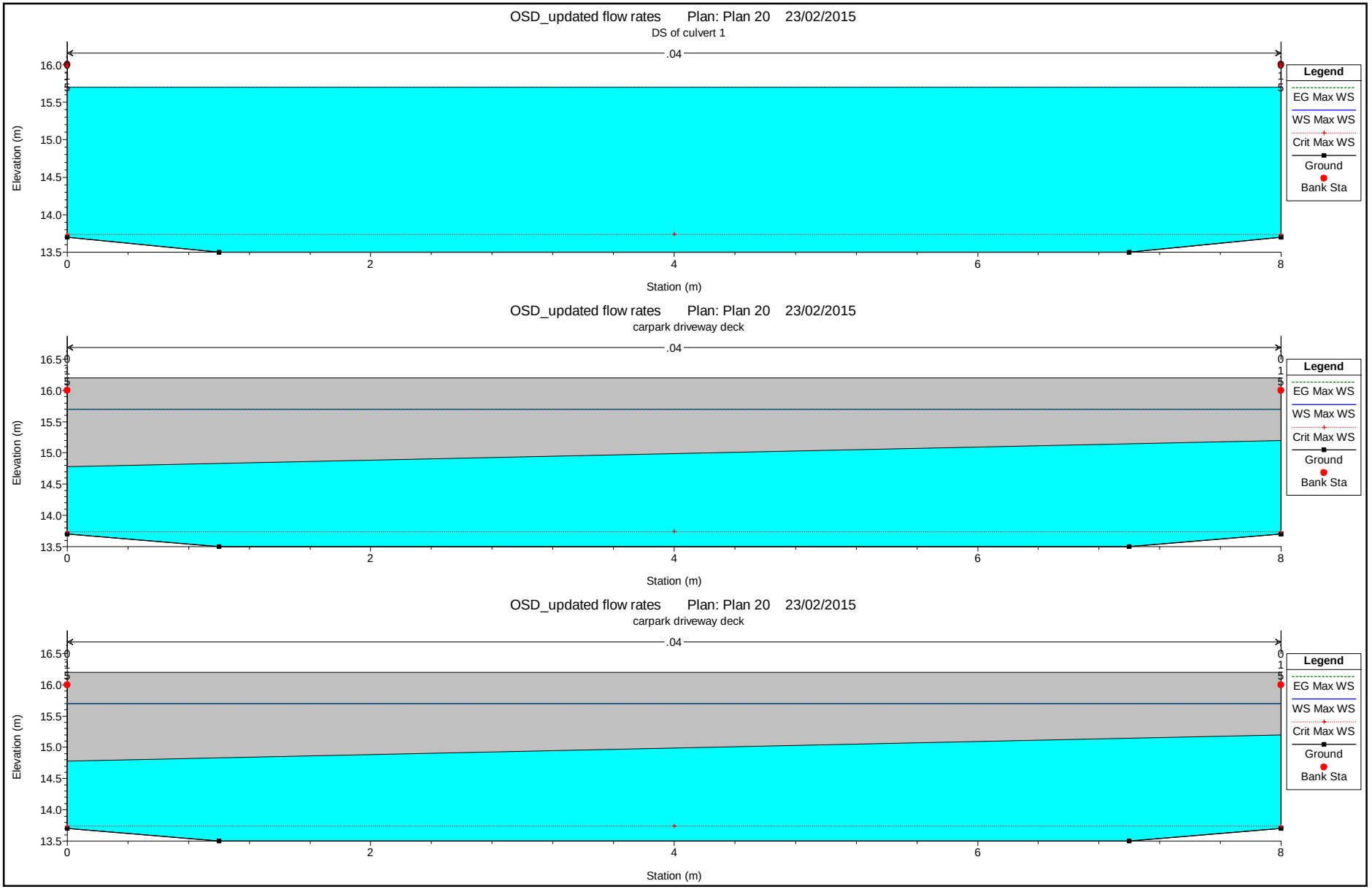
HEC-RAS Plan: Plan 20 River: OSD Reach: 0 Profile: Max WS

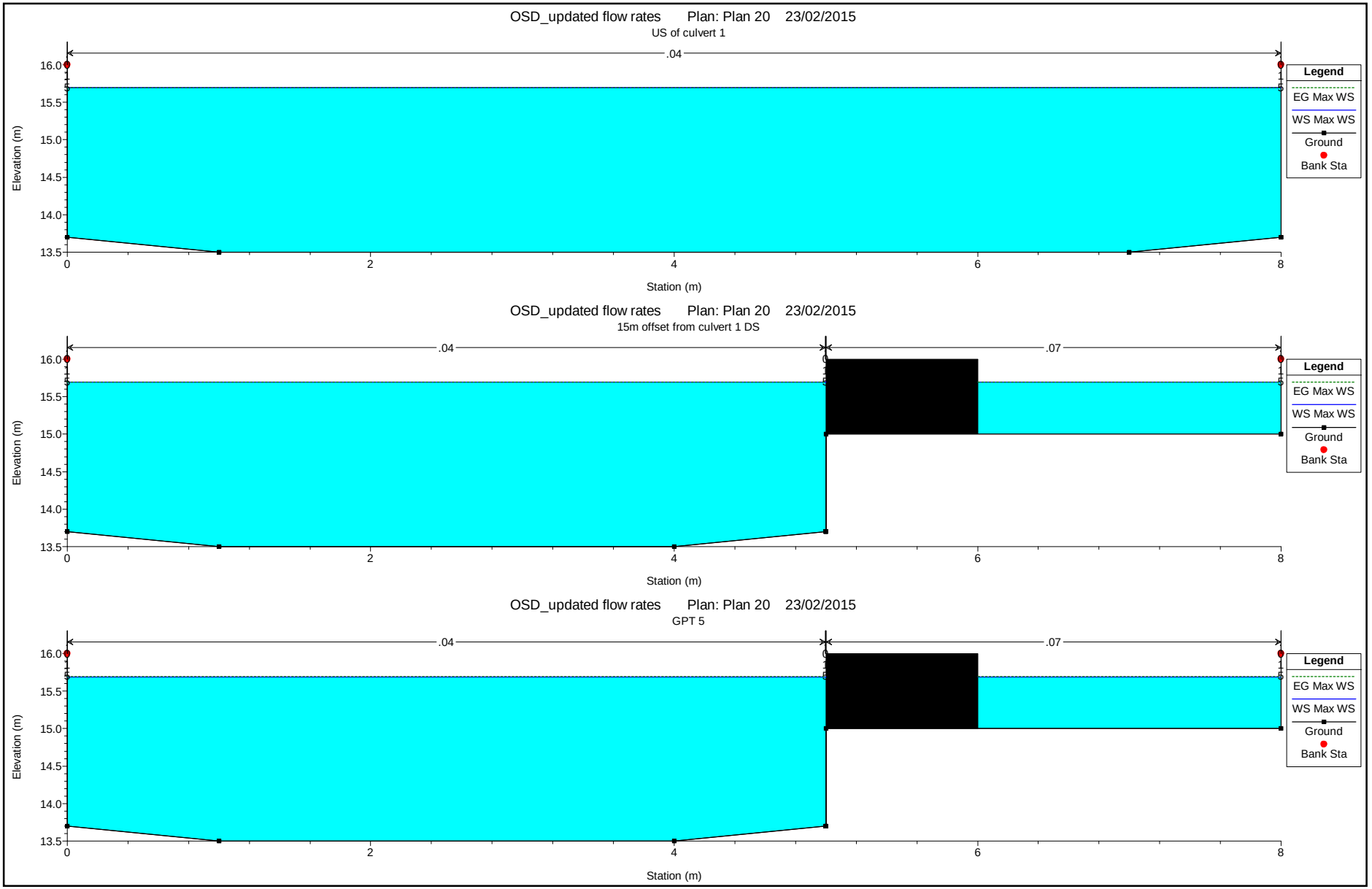
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(m3/s)	(m)	(m)	(m)	(m)	(m/m)	(m/s)	(m2)	(m)	
0	1877.2	Max WS	0.00	13.50	15.73		15.73	0.000000	0.00	12.37	7.00	0.00
0	1793.2	Max WS	0.00	13.50	15.72		15.72	0.000000	0.00	12.36	7.00	0.00
0	1689	Max WS	1.06	13.50	15.72		15.72	0.000012	0.09	12.34	7.00	0.02
0	1613.2	Max WS	1.07	13.50	15.72		15.72	0.000012	0.09	12.33	7.00	0.02
0	1538.9	Max WS	1.93	13.50	15.71		15.72	0.000040	0.16	12.30	7.00	0.04
0	1433.2	Max WS	1.81	13.50	15.71		15.72	0.000035	0.15	12.30	7.00	0.04
0	1348.7	Max WS	2.49	13.50	15.71		15.71	0.000067	0.20	12.27	7.00	0.05
0	1253.2	Max WS	2.49	13.50	15.70		15.71	0.000067	0.20	12.23	7.00	0.05
0	1203.7	Max WS	2.49	13.50	15.70		15.70	0.000068	0.20	12.20	7.00	0.05
0	1188.7	Max WS	2.49	13.50	15.70	13.74	15.70	0.000013	0.14	17.41	8.00	0.03
0	1177.5		Bridge									
0	1167.5	Max WS	2.49	13.50	15.70		15.70	0.000014	0.14	17.37	8.00	0.03
0	1152	Max WS	2.49	13.50	15.69		15.70	0.000068	0.20	12.16	7.00	0.05
0	1107.45	Max WS	2.48	13.50	15.69		15.69	0.000069	0.20	12.13	7.00	0.05
0	1015	Max WS	3.31	13.50	15.67		15.68	0.000125	0.28	12.01	7.00	0.07
0	1000.1	Max WS	4.19	13.50	15.67	13.83	15.67	0.000040	0.24	17.17	8.00	0.05
0	1000		Bridge									
0	932.9	Max WS	4.17	13.50	15.65		15.65	0.000041	0.25	17.01	8.00	0.05
0	917.9	Max WS	4.17	13.50	15.65		15.65	0.000208	0.35	11.82	7.00	0.09
0	901.9	Max WS	4.83	13.50	15.64		15.65	0.000282	0.41	11.76	7.00	0.10
0	867.7	Max WS	4.83	13.50	15.63		15.64	0.000288	0.41	11.69	7.00	0.10
0	852.8	Max WS	4.84	13.50	15.63	13.86	15.63	0.000057	0.29	16.83	8.00	0.06
0	842.7		Bridge									
0	832.6	Max WS	4.83	13.50	15.61		15.62	0.000058	0.29	16.69	8.00	0.06
0	817.6	Max WS	4.83	13.50	15.60		15.61	0.000298	0.42	11.53	7.00	0.10
0	737.6	Max WS	4.83	13.50	15.58		15.59	0.000314	0.43	11.33	7.00	0.11
0	677.6	Max WS	5.55	13.50	15.54		15.56	0.000439	0.50	11.10	7.00	0.13
0	597.6	Max WS	5.40	13.50	15.50		15.51	0.000449	0.50	10.80	7.00	0.13
0	579.2	Max WS	8.72	13.50	15.44	14.21	15.48	0.001310	0.84	10.37	7.00	0.22

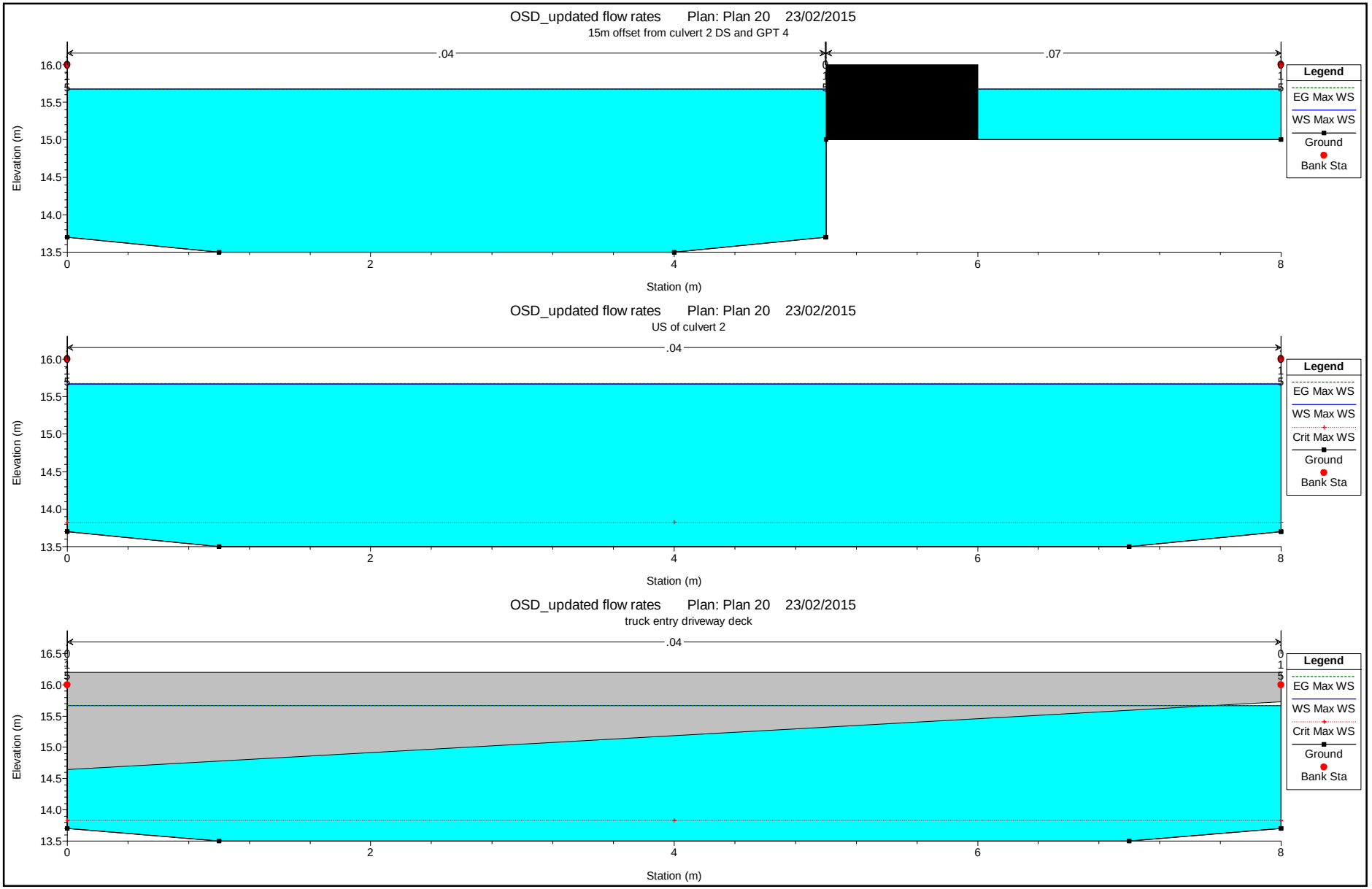

OSD_updated flow rates Plan: Plan 20 23/02/2015
US starting point
.04
.07
Legend
WS Max WS
EG Max WS
Ground
Bank Sta
Elevation (m)
Station (m)
OSD_updated flow rates Plan: Plan 20 23/02/2015
GPT 8
.04
.07
Legend
WS Max WS
EG Max WS
Ground
Bank Sta
Elevation (m)
Station (m)
OSD_updated flow rates Plan: Plan 20 23/02/2015
Filler cross section
.04
.07
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (m)
Station (m)


OSD_updated flow rates Plan: Plan 20 23/02/2015
GPT 7
.04
.07
Elevation (m)
Station (m)
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
OSD_updated flow rates Plan: Plan 20 23/02/2015
Filler cross section
.04
.07
Elevation (m)
Station (m)
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
OSD_updated flow rates Plan: Plan 20 23/02/2015
GPT 6
.04
.07
Elevation (m)
Station (m)
Legend
EG Max WS
WS Max WS
Ground
Bank Sta


OSD_updated flow rates Plan: Plan 20 23/02/2015
Filler cross section
.04
.07
Elevation (m)
Station (m)
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
OSD_updated flow rates Plan: Plan 20 23/02/2015
.04
.07
Elevation (m)
Station (m)
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
OSD_updated flow rates Plan: Plan 20 23/02/2015
15m offset from culvert 1 US
.04
.07
Elevation (m)
Station (m)
Legend
EG Max WS
WS Max WS
Ground
Bank Sta


OSD_updated flow rates Plan: Plan 20 23/02/2015
DS of culvert 1
.04
Elevation (m)
Station (m)
Legend
EG Max WS
WS Max WS
Crit Max WS
Ground
Bank Sta
OSD_updated flow rates Plan: Plan 20 23/02/2015
carpark driveway deck
.04
Elevation (m)
Station (m)
Legend
EG Max WS
WS Max WS
Crit Max WS
Ground
Bank Sta
OSD_updated flow rates Plan: Plan 20 23/02/2015
carpark driveway deck
.04
Elevation (m)
Station (m)
Legend
EG Max WS
WS Max WS
Crit Max WS
Ground
Bank Sta


OSD_updated flow rates Plan: Plan 20 23/02/2015
US of culvert 1
.04
Elevation (m)
Station (m)
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
OSD_updated flow rates Plan: Plan 20 23/02/2015
15m offset from culvert 1 DS
.04
.07
Elevation (m)
Station (m)
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
OSD_updated flow rates Plan: Plan 20 23/02/2015
GPT 5
.04
.07
Elevation (m)
Station (m)
Legend
EG Max WS
WS Max WS
Ground
Bank Sta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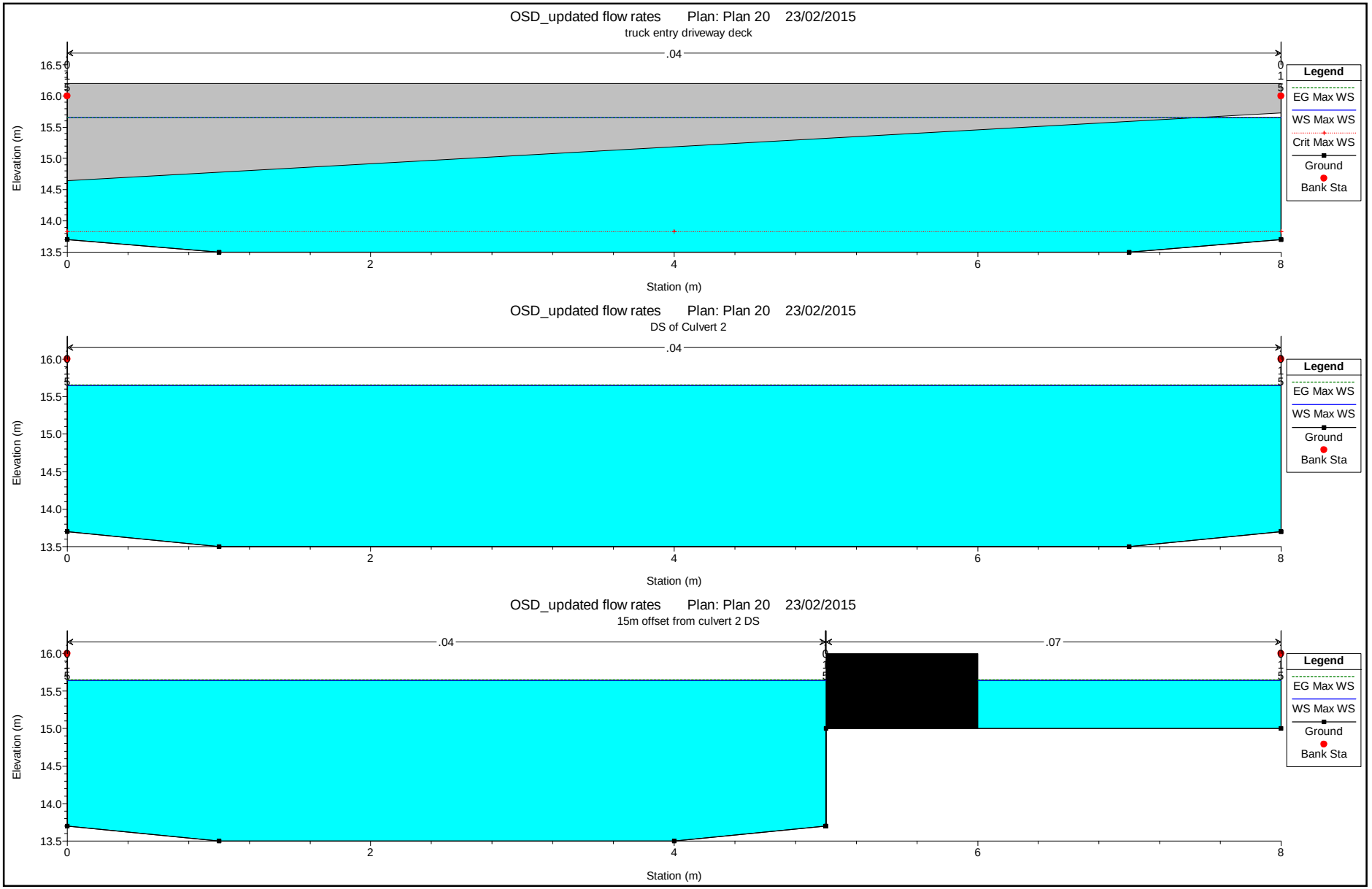
15m offset from culvert 2 DS and GPT 4
.04
.07
Elevation (m)
Station (m)
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
OSD_updated flow rates Plan: Plan 20 23/02/2015
US of culvert 2
.04
Elevation (m)
Station (m)
Legend
EG Max WS
WS Max WS
Crit Max WS
Ground
Bank Sta
OSD_updated flow rates Plan: Plan 20 23/02/2015
truck entry driveway deck
.04
Elevation (m)
Station (m)
Legend
EG Max WS
WS Max WS
Crit Max WS
Ground
Bank Sta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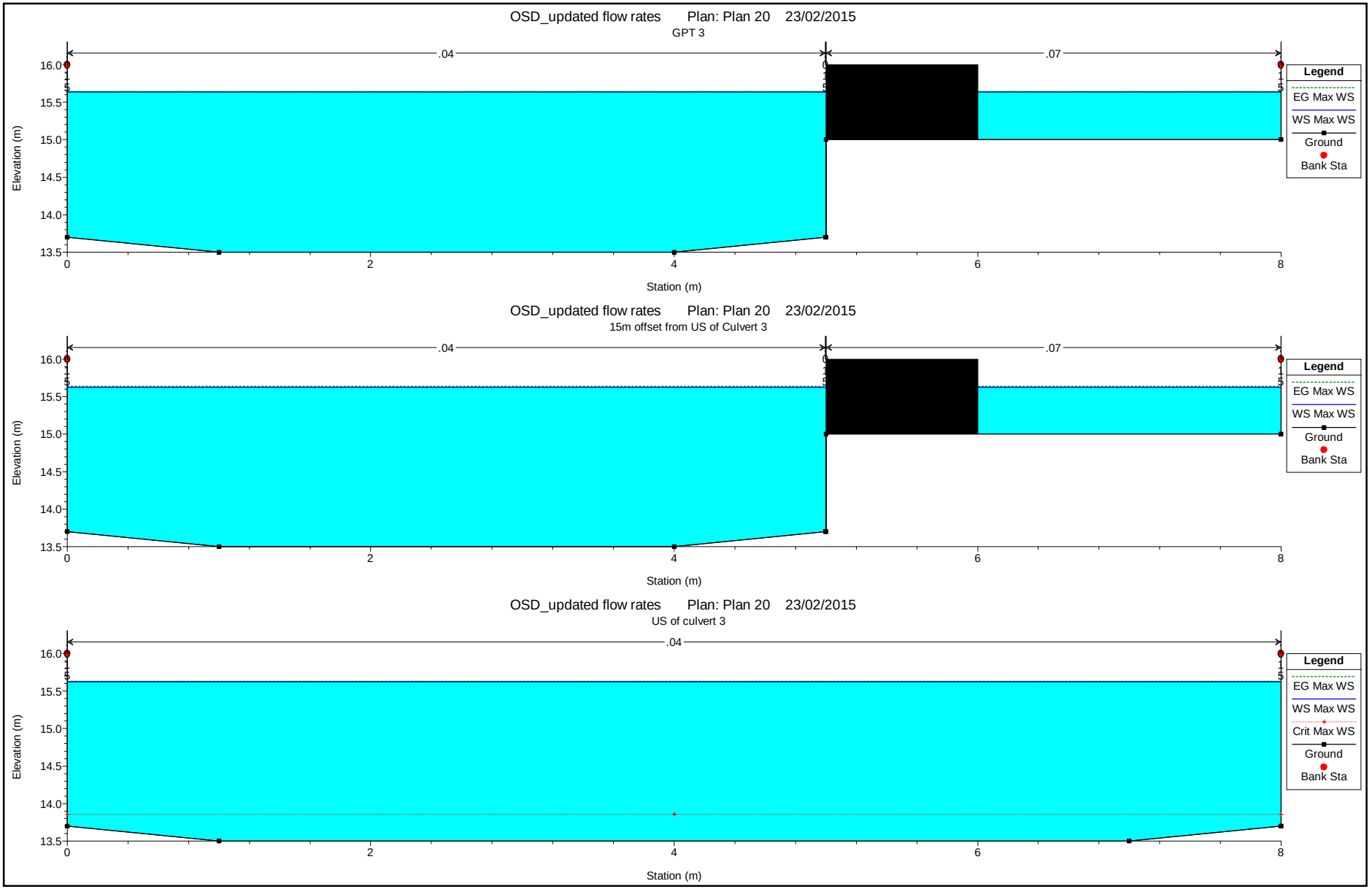
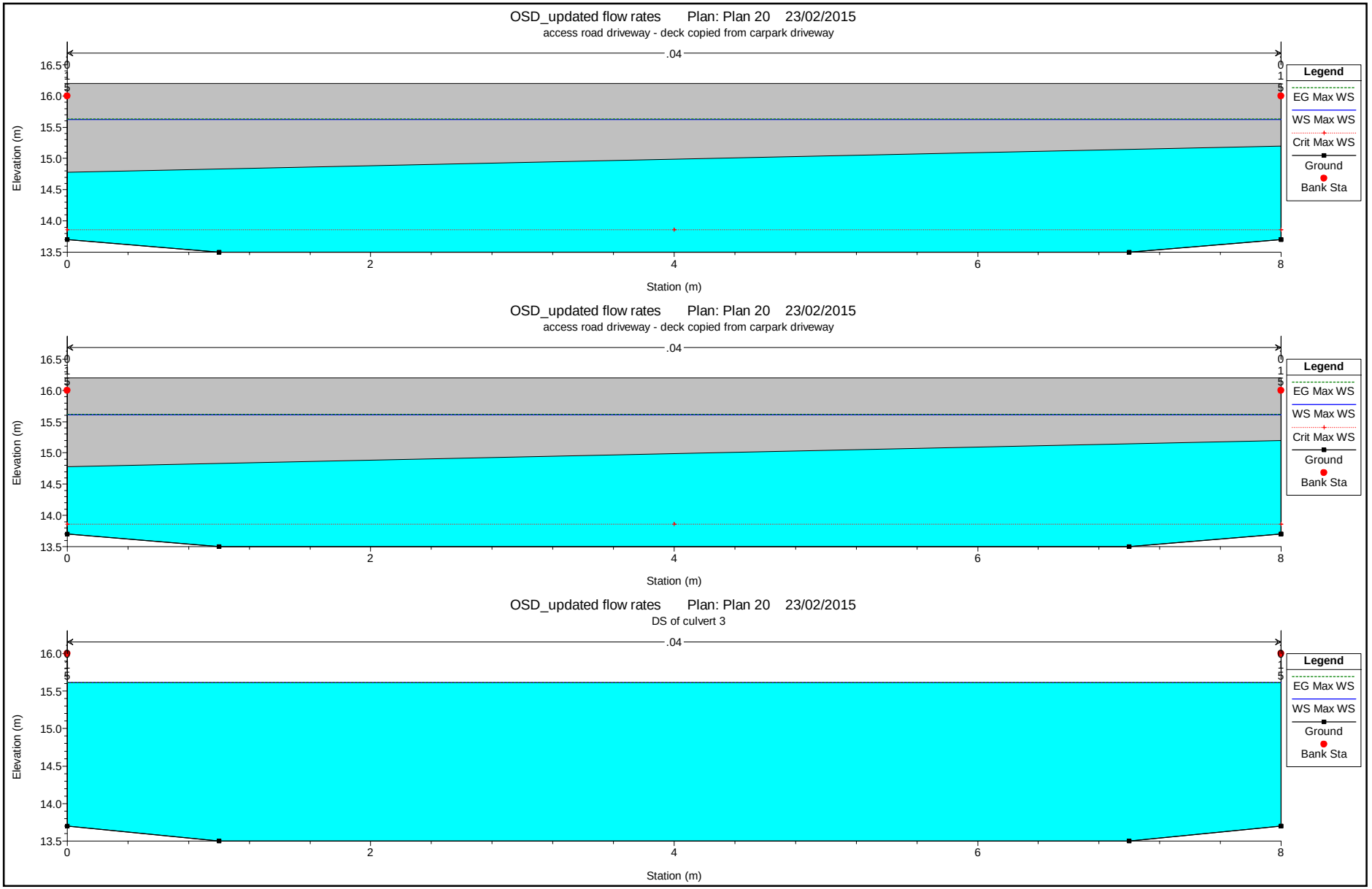
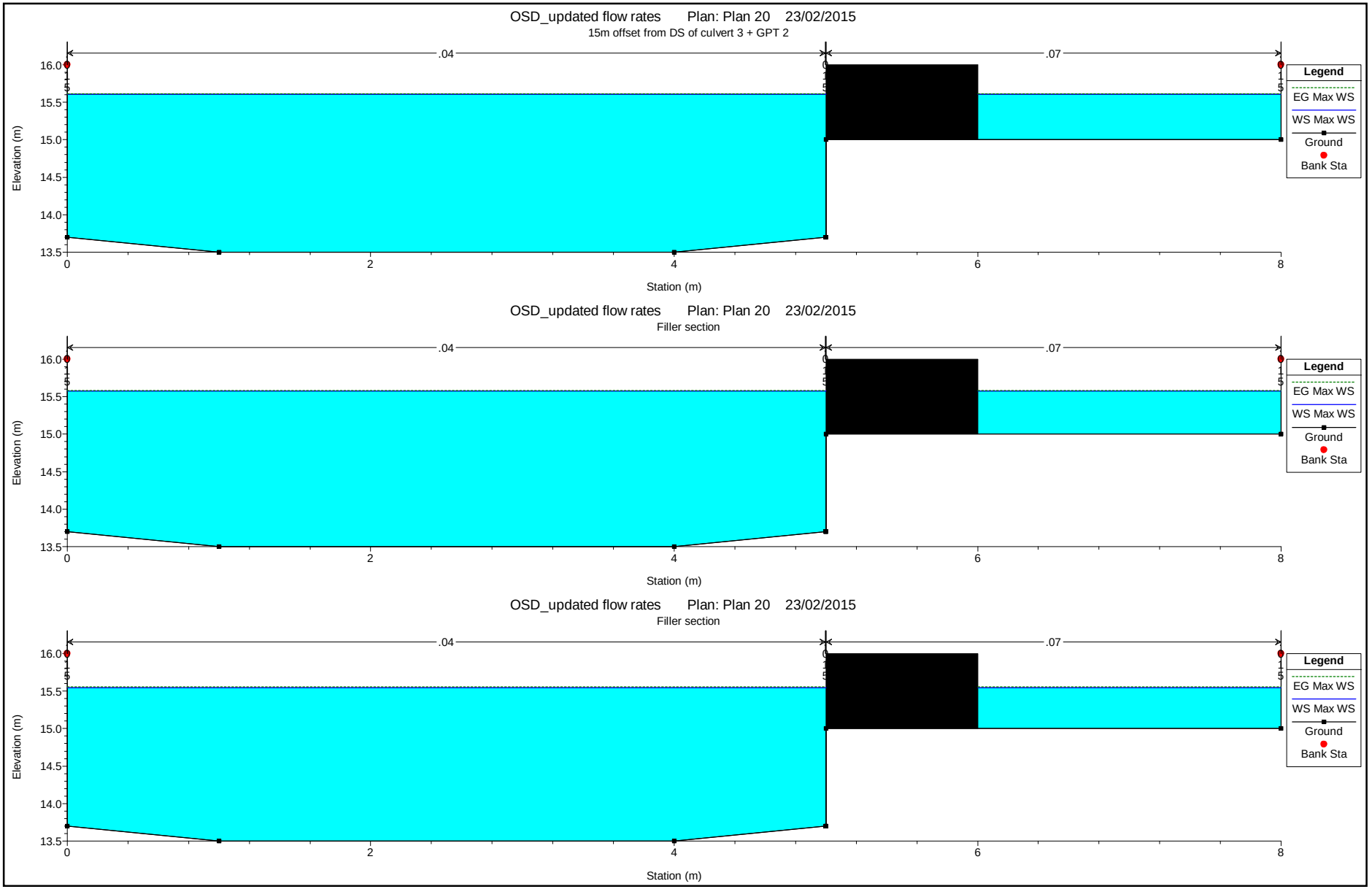
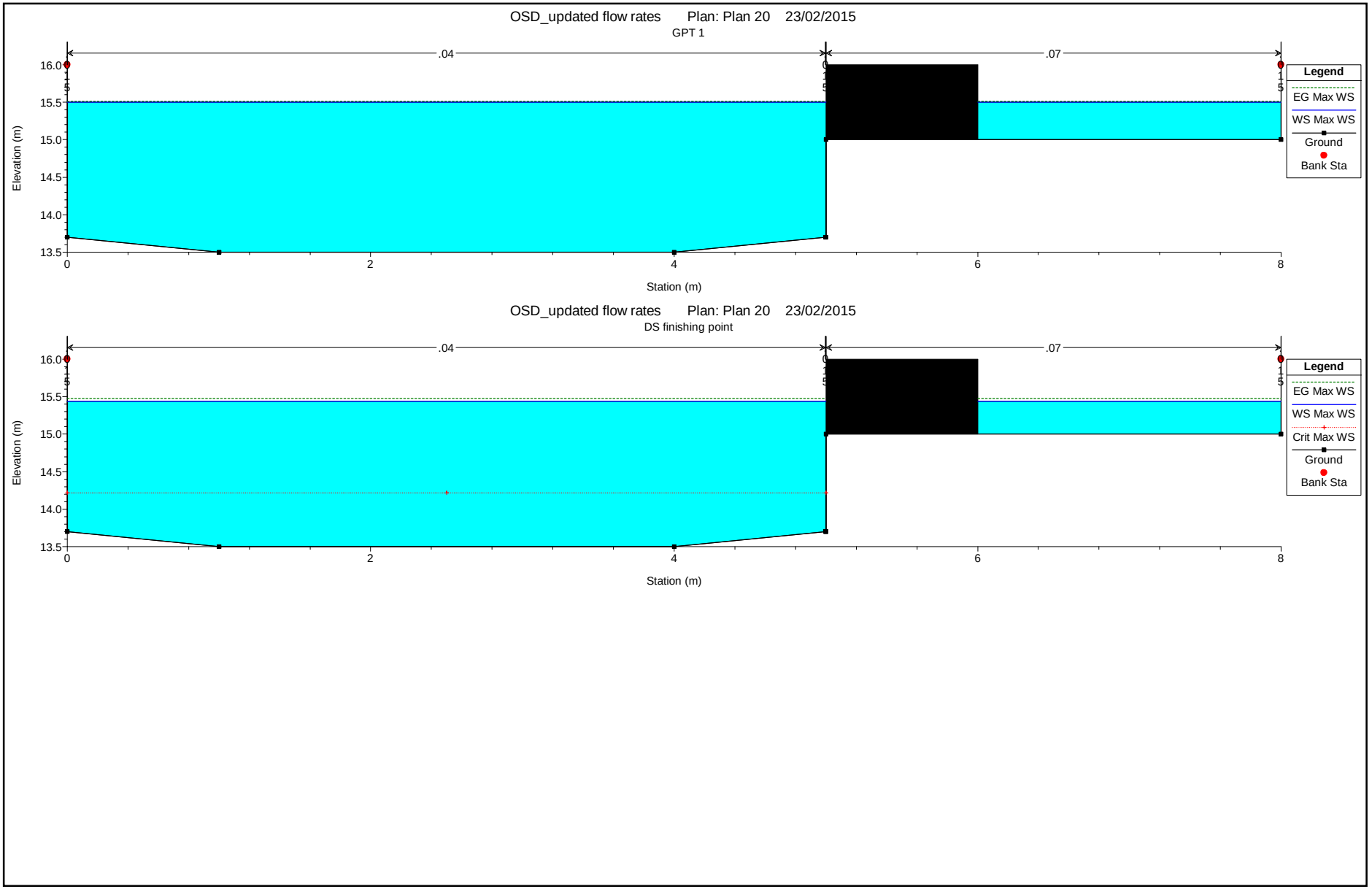
truck entry driveway deck
.04
Elevation (m)
Station (m)
Legend
EG Max WS
WS Max WS
Crit Max WS
Ground
Bank Sta
OSD_updated flow rates Plan: Plan 20 23/02/2015
DS of Culvert 2
.04
Elevation (m)
Station (m)
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
OSD_updated flow rates Plan: Plan 20 23/02/2015
15m offset from culvert 2 DS
.04
.07
Elevation (m)
Station (m)
Legend
EG Max WS
WS Max WS
Ground
Bank Sta

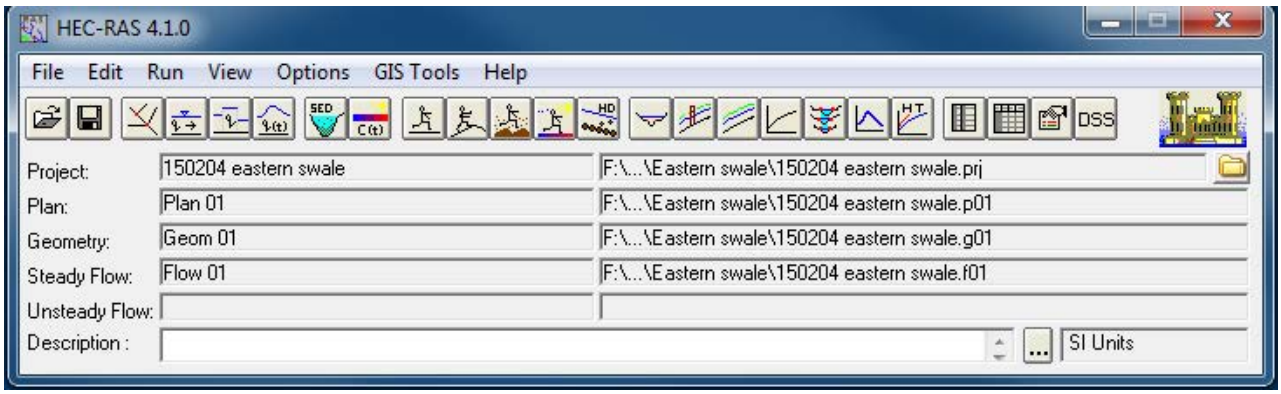

OSD_updated flow rates Plan: Plan 20 23/02/2015
GPT 3
.04
.07
Elevation (m)
Station (m)
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
OSD_updated flow rates Plan: Plan 20 23/02/2015
15m offset from US of Culvert 3
.04
.07
Elevation (m)
Station (m)
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
OSD_updated flow rates Plan: Plan 20 23/02/2015
US of culvert 3
.04
Elevation (m)
Station (m)
Legend
EG Max WS
WS Max WS
Crit Max WS
Ground
Bank Sta


OSD_updated flow rates Plan: Plan 20 23/02/2015
access road driveway - deck copied from carpark driveway
.04
Elevation (m)
Station (m)
Legend
EG Max WS
WS Max WS
Crit Max WS
Ground
Bank Sta
OSD_updated flow rates Plan: Plan 20 23/02/2015
access road driveway - deck copied from carpark driveway
.04
Elevation (m)
Station (m)
Legend
EG Max WS
WS Max WS
Crit Max WS
Ground
Bank Sta
OSD_updated flow rates Plan: Plan 20 23/02/2015
DS of culvert 3
.04
Elevation (m)
Station (m)
Legend
EG Max WS
WS Max WS
Ground
Bank Sta


OSD_updated flow rates Plan: Plan 20 23/02/2015
15m offset from DS of culvert 3 + GPT 2
.04
.07
Elevation (m)
Station (m)
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
OSD_updated flow rates Plan: Plan 20 23/02/2015
Filler section
.04
.07
Elevation (m)
Station (m)
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
OSD_updated flow rates Plan: Plan 20 23/02/2015
Filler section
.04
.07
Elevation (m)
Station (m)
Legend
EG Max WS
WS Max WS
Ground
Bank Sta


OSD_updated flow rates Plan: Plan 20 23/02/2015
GPT 1
.04
.07
Elevation (m)
16.0
15.5
15.0
14.5
14.0
13.5
0
2
4
6
8
Station (m)
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
OSD_updated flow rates Plan: Plan 20 23/02/2015
DS finishing point
.04
.07
Elevation (m)
16.0
15.5
15.0
14.5
14.0
13.5
0
2
4
6
8
Station (m)
Legend
EG Max WS
WS Max WS
Crit Max WS
Ground
Bank Sta

Eastern Waterway


HEC-RAS 4.1.0
File Edit Run View Options GIS Tools Help
Project: 150204 eastern swale
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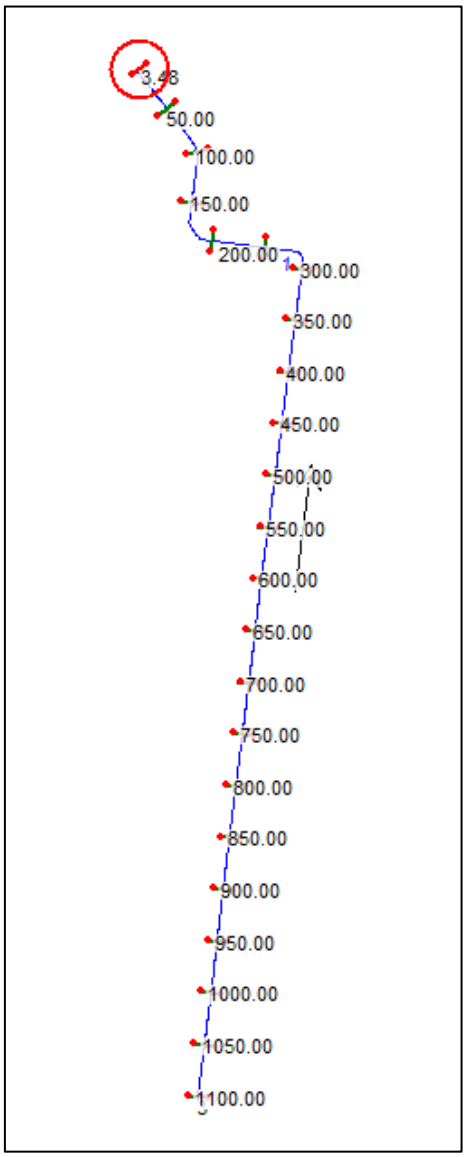
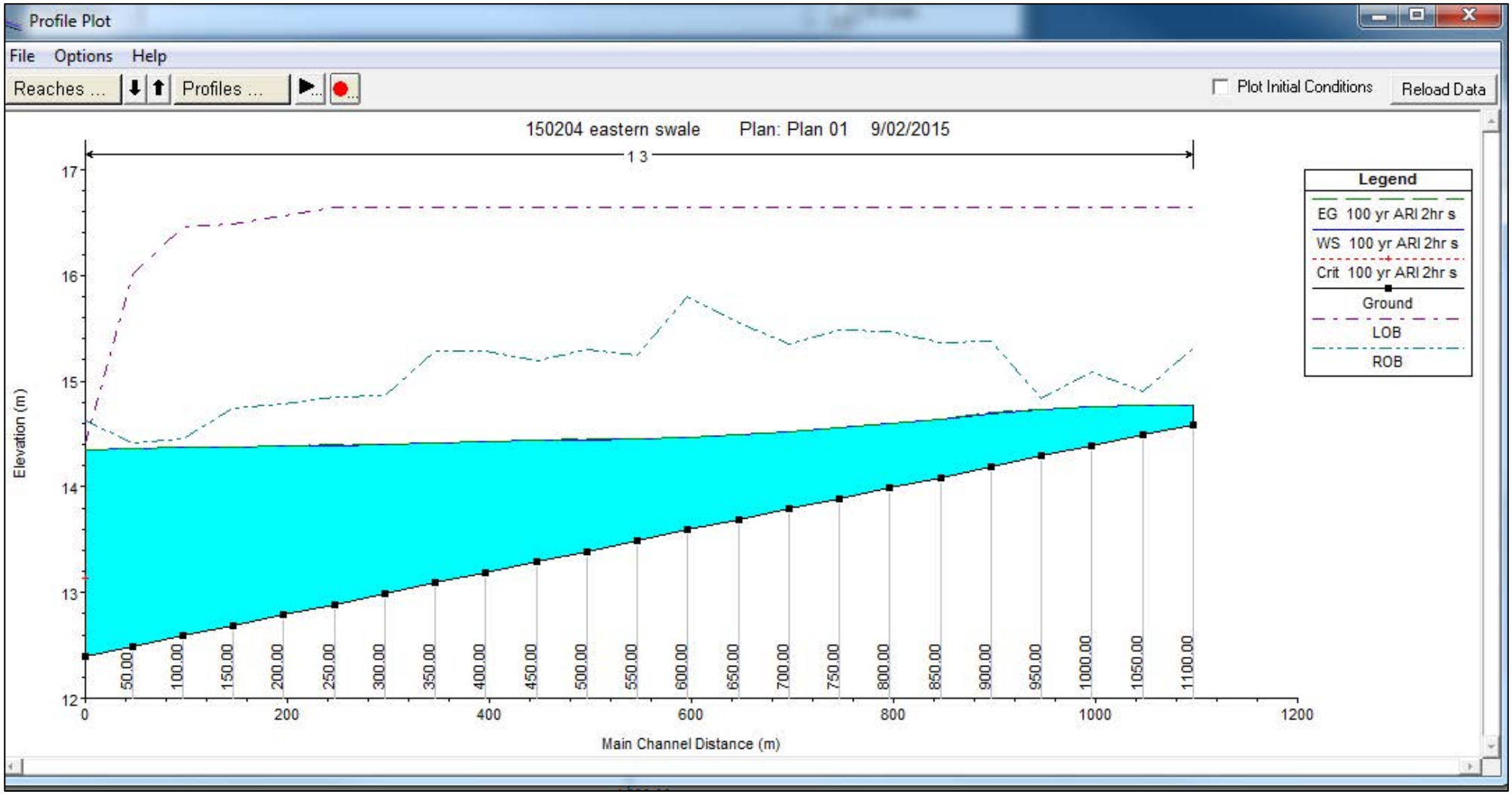
Plan: Plan 01
F:\...\Eastern swale\150204 eastern swale.p01
Geometry: Geom 01
F:\...\Eastern swale\150204 eastern swale.g01
Steady Flow: Flow 01
F:\...\Eastern swale\150204 eastern swale.f01
Unsteady Flow:
Description :
SI Units


3.48
50.00
100.00
150.00
200.00
300.00
350.00
400.00
450.00
500.00
550.00
600.00
650.00
700.00
750.00
800.00
850.00
900.00
950.00
1000.00
1050.00
1100.00

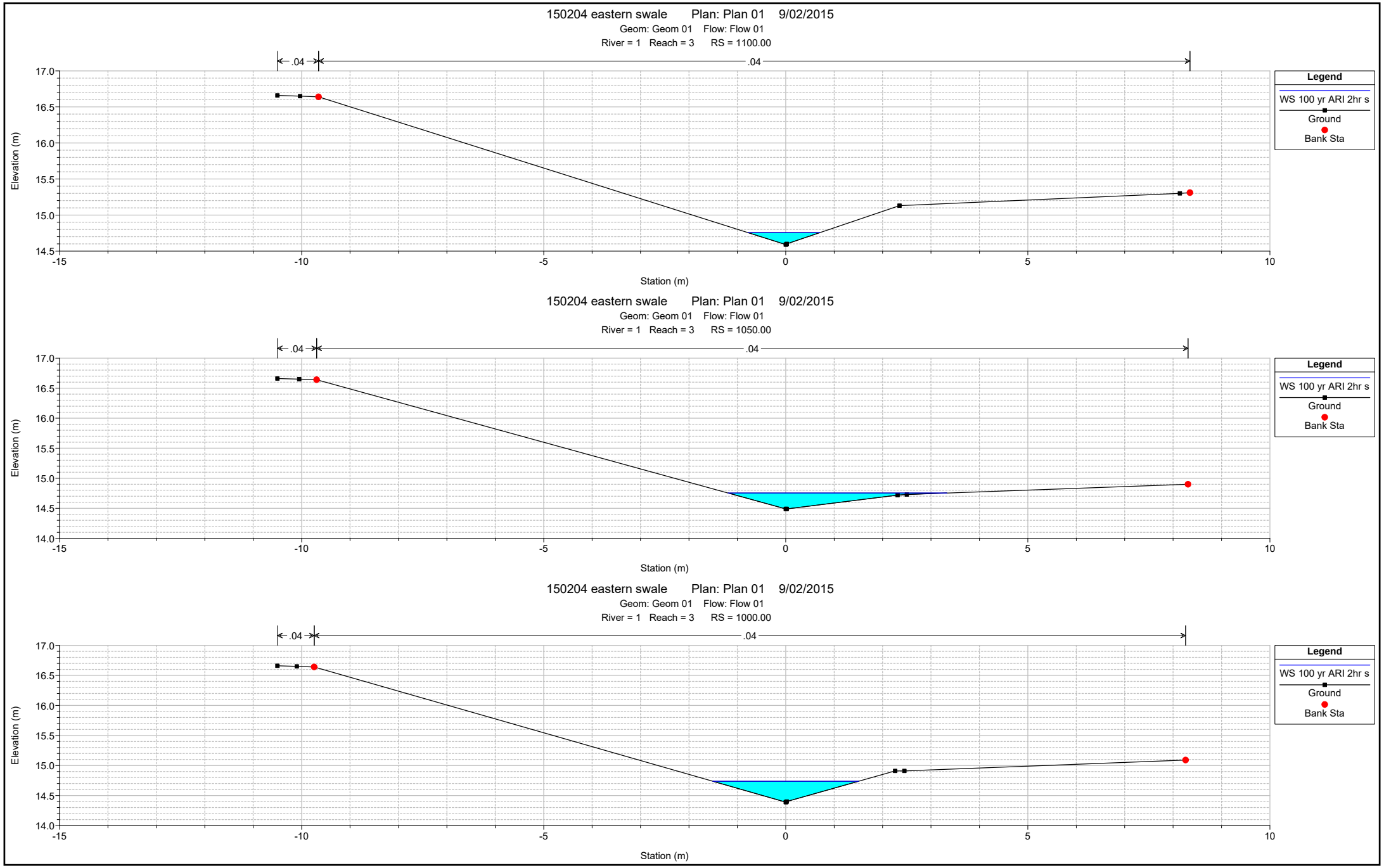

Profile Plot
File Options Help
Reaches ...
Profiles ...
Plot Initial Conditions
Reload Data
150204 eastern swale Plan: Plan 01 9/02/2015
1 3
Legend
EG 100 yr ARI 2hr s
WS 100 yr ARI 2hr s
Crit 100 yr ARI 2hr s
Ground
LOB
ROB
Elevation (m)
Main Channel Distance (m)
50.00
100.00
150.00
200.00
250.00
300.00
350.00
400.00
450.00
500.00
550.00
600.00
650.00
700.00
750.00
800.00
850.00
900.00
950.00
1000.00
1050.00
1100.00

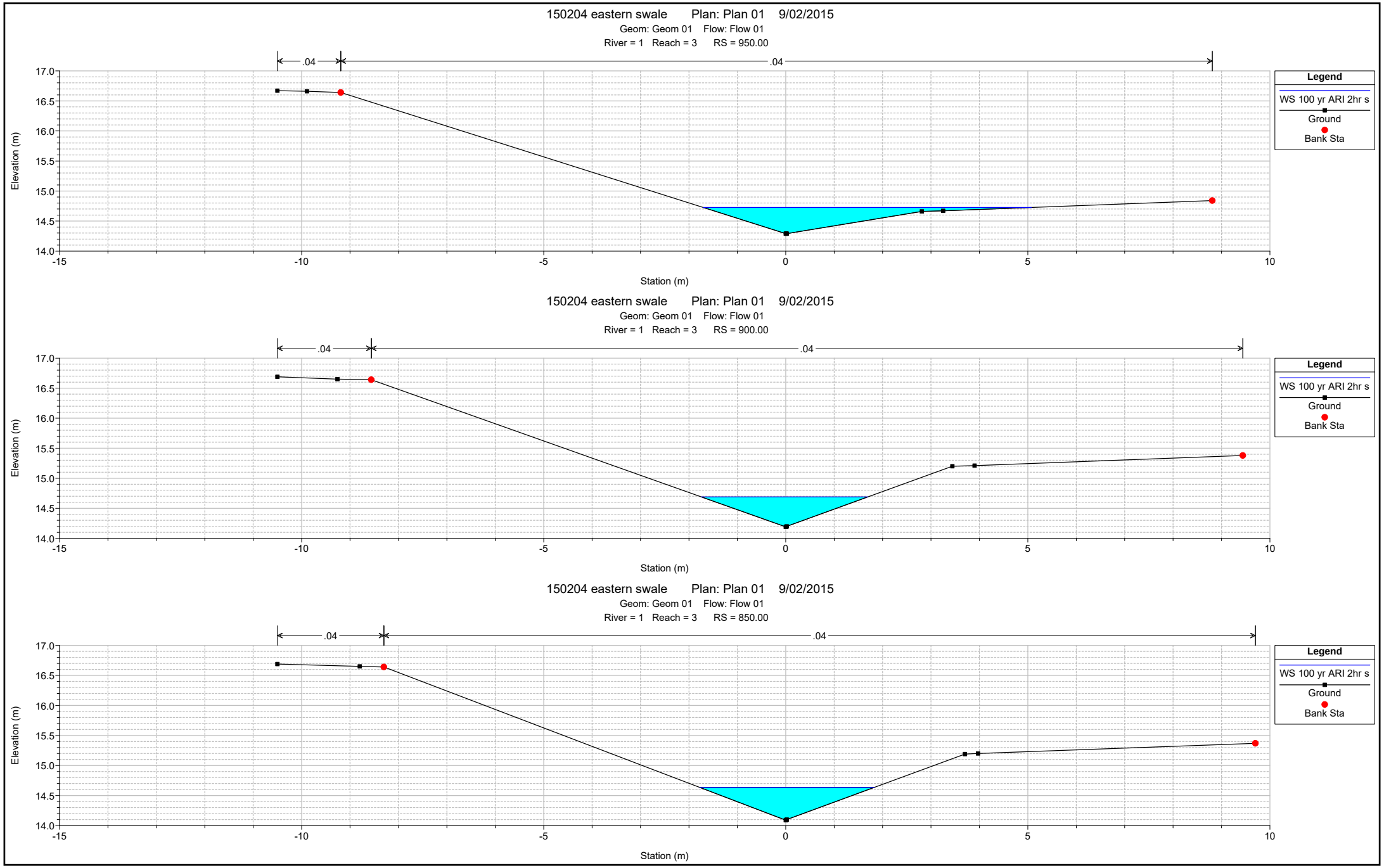
Profile Output Table - Standard Table 1

File Options Std. Tables Locations Help

HEC-RAS Plan: Plan 01 River: 1 Reach: 3 Profile: 100 yr ARI 2hr s

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(m3/s)	(m)	(m)	(m)	(m)	(m/m)	(m/s)	(m2)	(m)	
3	1100.00	100 yr ARI 2hr s	0.01	14.59	14.76		14.76	0.000319	0.08	0.12	1.48	0.09
3	1050.00	100 yr ARI 2hr s	0.01	14.49	14.75		14.75	0.000011	0.02	0.52	4.52	0.02
3	1000.00	100 yr ARI 2hr s	0.11	14.39	14.74		14.74	0.000713	0.20	0.52	3.01	0.16
3	950.00	100 yr ARI 2hr s	0.11	14.29	14.73		14.73	0.000144	0.09	1.16	6.78	0.07
3	900.00	100 yr ARI 2hr s	0.31	14.19	14.69		14.70	0.001400	0.36	0.86	3.44	0.23
3	850.00	100 yr ARI 2hr s	0.31	14.09	14.64		14.64	0.000958	0.32	0.98	3.60	0.19
3	800.00	100 yr ARI 2hr s	0.31	13.99	14.60		14.60	0.000647	0.28	1.11	3.68	0.16
3	750.00	100 yr ARI 2hr s	0.45	13.89	14.55		14.56	0.000967	0.36	1.26	3.80	0.20
3	700.00	100 yr ARI 2hr s	0.45	13.79	14.52		14.52	0.000603	0.30	1.50	4.13	0.16
3	650.00	100 yr ARI 2hr s	0.51	13.69	14.49		14.49	0.000567	0.31	1.65	4.13	0.16
3	600.00	100 yr ARI 2hr s	0.51	13.59	14.46		14.47	0.000428	0.28	1.80	4.12	0.14
3	550.00	100 yr ARI 2hr s	0.51	13.49	14.45		14.45	0.000202	0.21	2.43	5.05	0.10
3	500.00	100 yr ARI 2hr s	0.51	13.39	14.44		14.44	0.000149	0.19	2.68	5.08	0.08
3	450.00	100 yr ARI 2hr s	0.51	13.29	14.44		14.44	0.000098	0.16	3.13	5.47	0.07
3	400.00	100 yr ARI 2hr s	1.02	13.19	14.42		14.43	0.000310	0.30	3.40	5.52	0.12
3	350.00	100 yr ARI 2hr s	1.02	13.09	14.41		14.41	0.000241	0.28	3.70	5.60	0.11
3	300.00	100 yr ARI 2hr s	1.39	12.99	14.40		14.40	0.000286	0.31	4.42	6.28	0.12
3	250.00	100 yr ARI 2hr s	1.39	12.89	14.38		14.39	0.000216	0.28	4.89	6.53	0.10
3	200.00	100 yr ARI 2hr s	1.39	12.79	14.38		14.38	0.000158	0.25	5.49	6.91	0.09
3	150.00	100 yr ARI 2hr s	1.57	12.69	14.37		14.37	0.000159	0.26	5.99	7.13	0.09
3	100.00	100 yr ARI 2hr s	1.57	12.59	14.36		14.36	0.000096	0.19	8.23	11.28	0.07
3	50.00	100 yr ARI 2hr s	1.99	12.49	14.35		14.36	0.000167	0.24	8.37	12.55	0.09
3	3.48	100 yr ARI 2hr s	2.40	12.40	14.35	13.07	14.35	0.000081	0.21	11.23	11.51	0.07

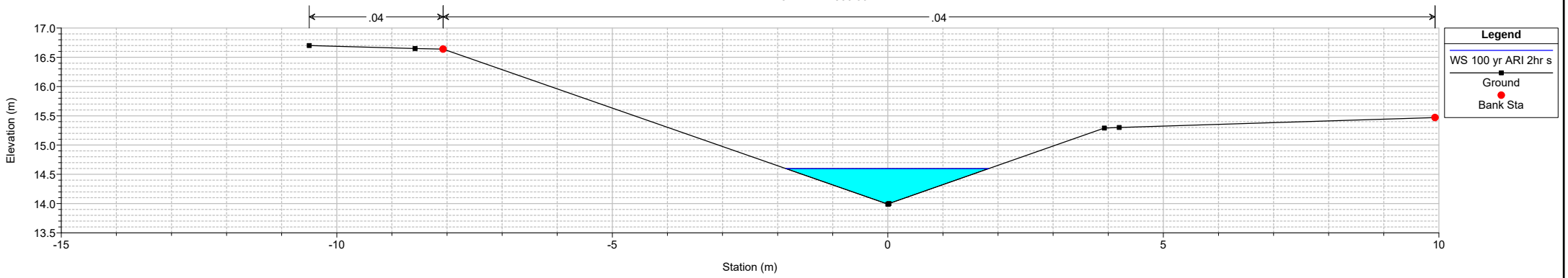

150204 eastern swale Plan: Plan 01 9/02/2015
Geom: Geom 01 Flow: Flow 01
River = 1 Reach = 3 RS = 1100.00
.04
.04
Elevation (m)
Station (m)
Legend
WS 100 yr ARI 2hr s
Ground
Bank Sta
150204 eastern swale Plan: Plan 01 9/02/2015
Geom: Geom 01 Flow: Flow 01
River = 1 Reach = 3 RS = 1050.00
.04
.04
Elevation (m)
Station (m)
Legend
WS 100 yr ARI 2hr s
Ground
Bank Sta
150204 eastern swale Plan: Plan 01 9/02/2015
Geom: Geom 01 Flow: Flow 01
River = 1 Reach = 3 RS = 1000.00
.04
.04
Elevation (m)
Station (m)
Legend
WS 100 yr ARI 2hr s
Ground
Bank Sta


150204 eastern swale Plan: Plan 01 9/02/2015
Geom: Geom 01 Flow: Flow 01
River = 1 Reach = 3 RS = 950.00
.04
.04
Elevation (m)
17.0
16.5
16.0
15.5
15.0
14.5
14.0
-15
-10
-5
0
5
10
Station (m)
Legend
WS 100 yr ARI 2hr s
Ground
Bank Sta
150204 eastern swale Plan: Plan 01 9/02/2015
Geom: Geom 01 Flow: Flow 01
River = 1 Reach = 3 RS = 900.00
.04
.04
Elevation (m)
17.0
16.5
16.0
15.5
15.0
14.5
14.0
-15
-10
-5
0
5
10
Station (m)
Legend
WS 100 yr ARI 2hr s
Ground
Bank Sta
150204 eastern swale Plan: Plan 01 9/02/2015
Geom: Geom 01 Flow: Flow 01
River = 1 Reach = 3 RS = 850.00
.04
.04
Elevation (m)
17.0
16.5
16.0
15.5
15.0
14.5
14.0
-15
-10
-5
0
5
10
Station (m)
Legend
WS 100 yr ARI 2hr s
Ground
Bank Sta

150204 eastern swale Plan: Plan 01 9/02/2015

Geom: Geom 01 Flow: Flow 01

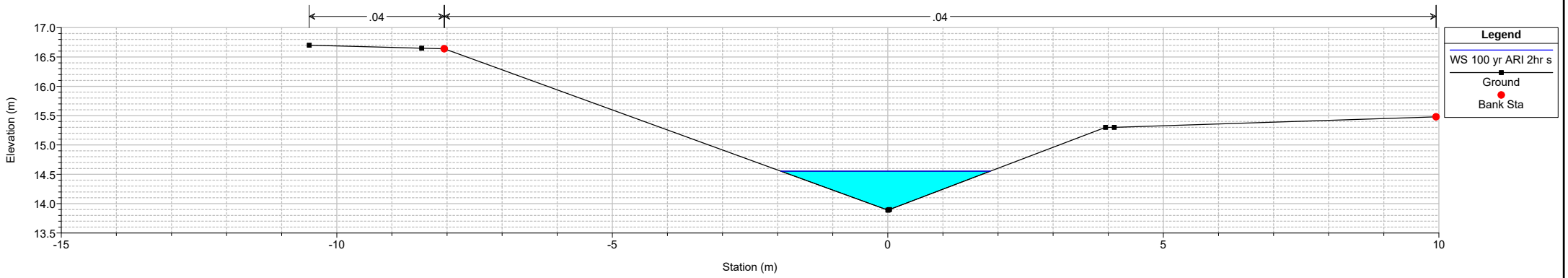
River = 1 Reach = 3 RS = 800.00



150204 eastern swale Plan: Plan 01 9/02/2015

Geom: Geom 01 Flow: Flow 01

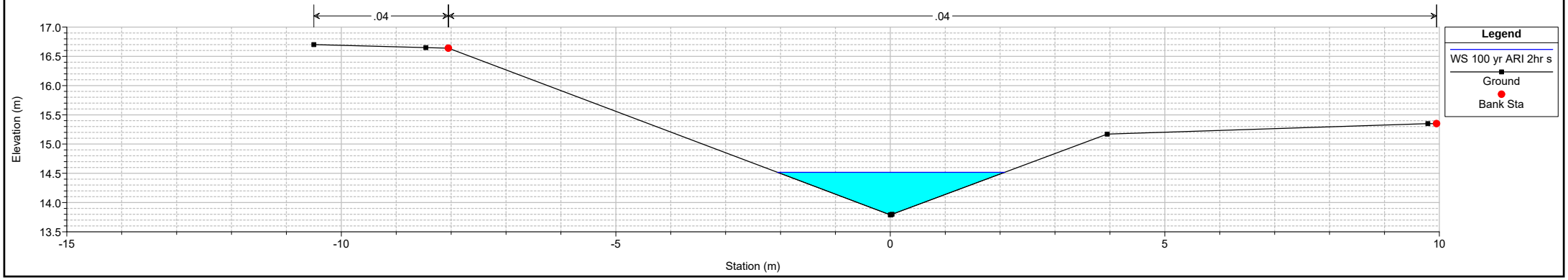
River = 1 Reach = 3 RS = 750.00



150204 eastern swale Plan: Plan 01 9/02/2015

Geom: Geom 01 Flow: Flow 01

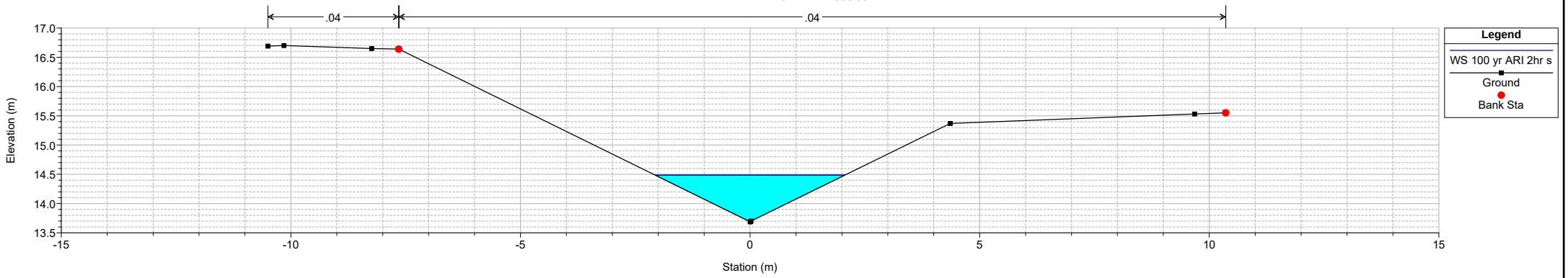
River = 1 Reach = 3 RS = 700.00



150204 eastern swale Plan: Plan 01 9/02/2015

Geom: Geom 01 Flow: Flow 01

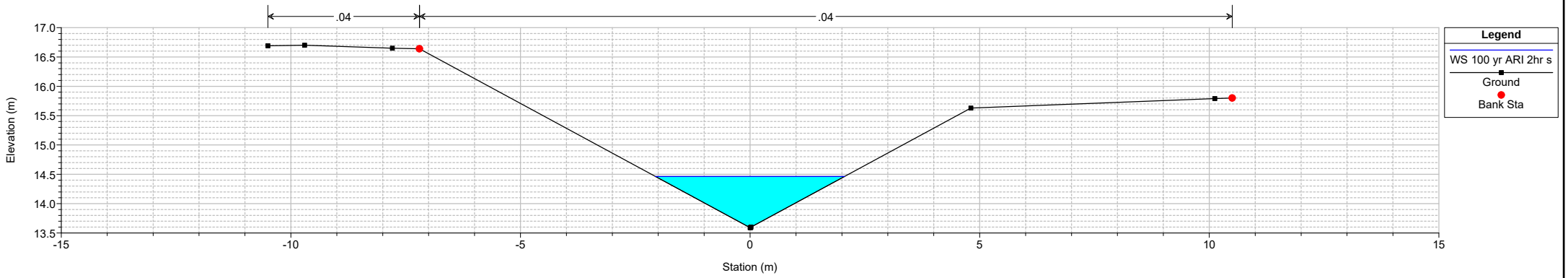
River = 1 Reach = 3 RS = 650.00



150204 eastern swale Plan: Plan 01 9/02/2015

Geom: Geom 01 Flow: Flow 01

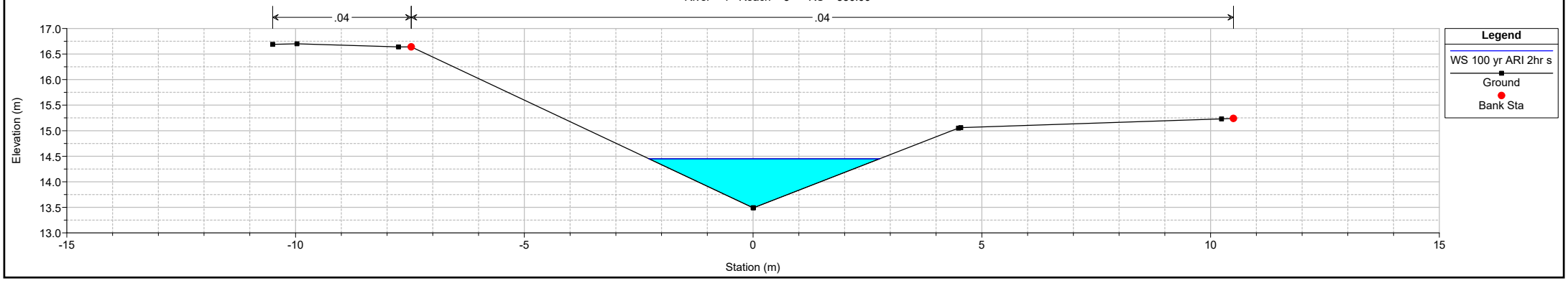
River = 1 Reach = 3 RS = 600.00



150204 eastern swale Plan: Plan 01 9/02/2015

Geom: Geom 01 Flow: Flow 01

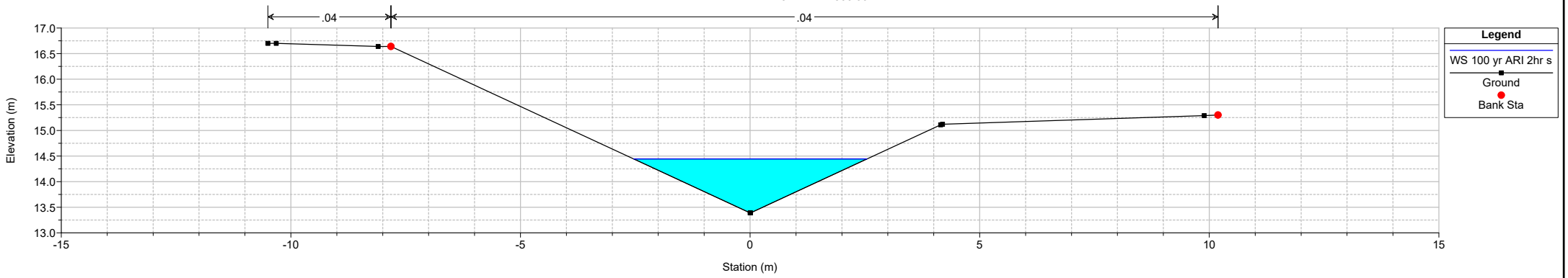
River = 1 Reach = 3 RS = 550.00



150204 eastern swale Plan: Plan 01 9/02/2015

Geom: Geom 01 Flow: Flow 01

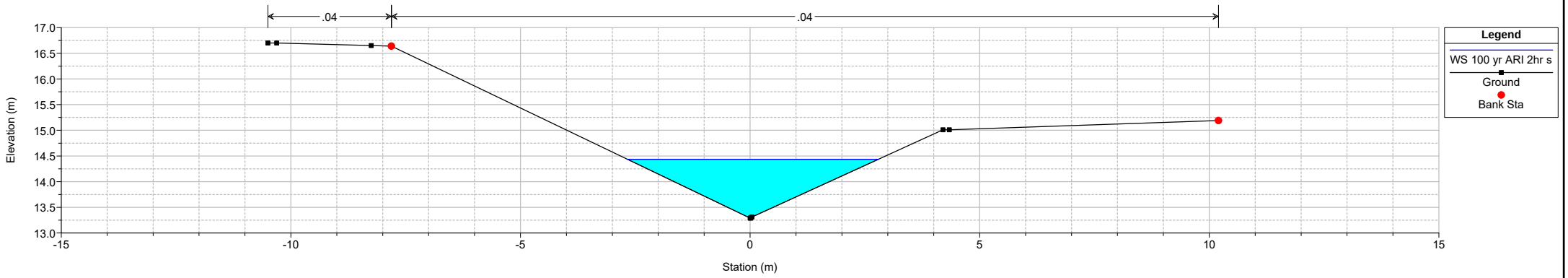
River = 1 Reach = 3 RS = 500.00



150204 eastern swale Plan: Plan 01 9/02/2015

Geom: Geom 01 Flow: Flow 01

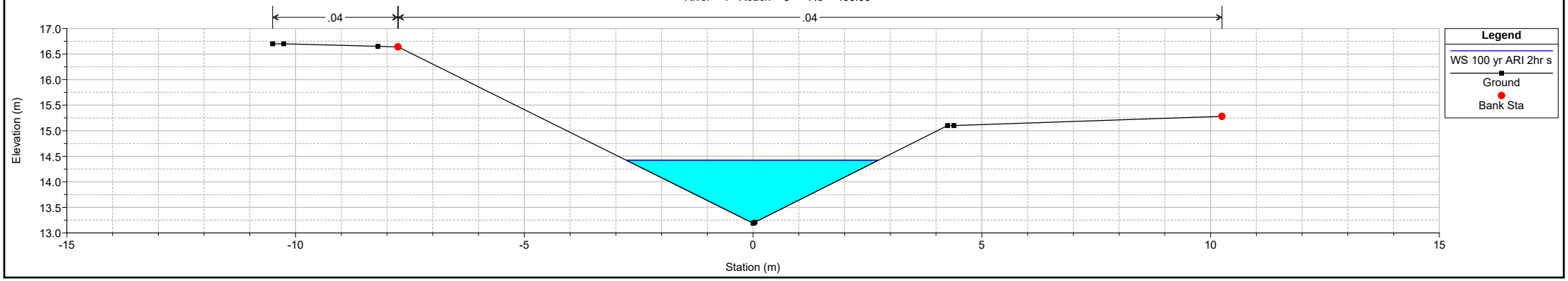
River = 1 Reach = 3 RS = 450.00



150204 eastern swale Plan: Plan 01 9/02/2015

Geom: Geom 01 Flow: Flow 01

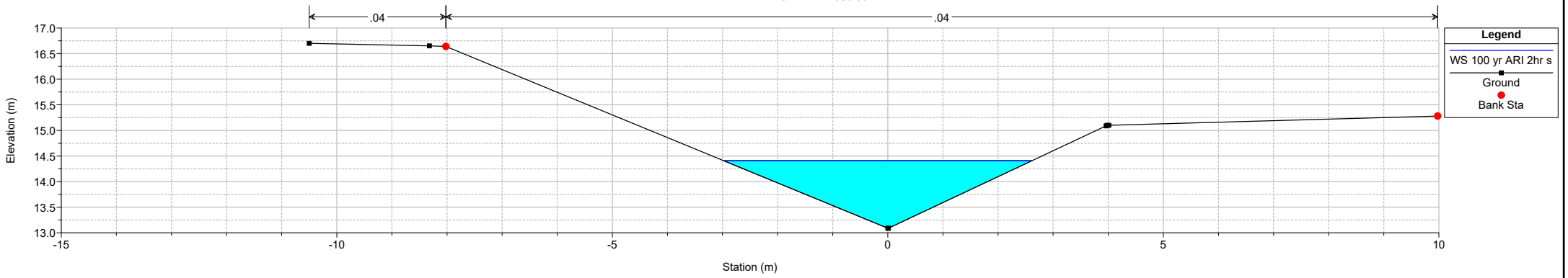
River = 1 Reach = 3 RS = 400.00



150204 eastern swale Plan: Plan 01 9/02/2015

Geom: Geom 01 Flow: Flow 01

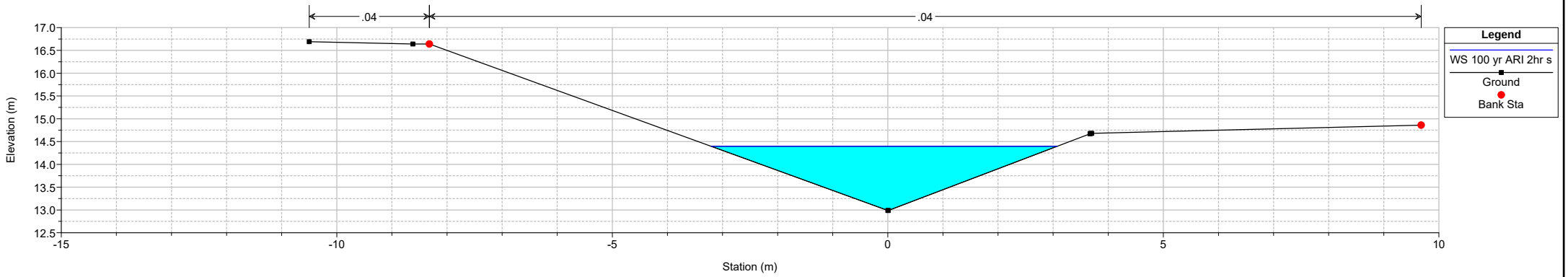
River = 1 Reach = 3 RS = 350.00



150204 eastern swale Plan: Plan 01 9/02/2015

Geom: Geom 01 Flow: Flow 01

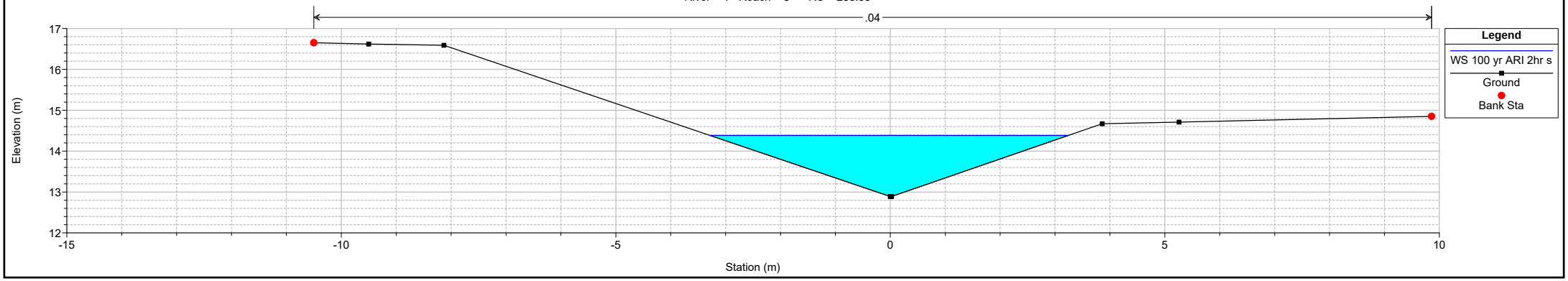
River = 1 Reach = 3 RS = 300.00



150204 eastern swale Plan: Plan 01 9/02/2015

Geom: Geom 01 Flow: Flow 01

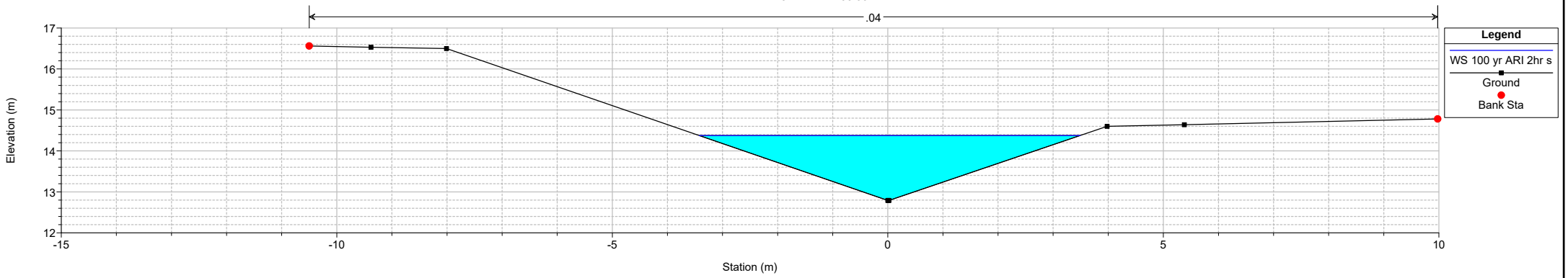
River = 1 Reach = 3 RS = 250.00



150204 eastern swale Plan: Plan 01 9/02/2015

Geom: Geom 01 Flow: Flow 01

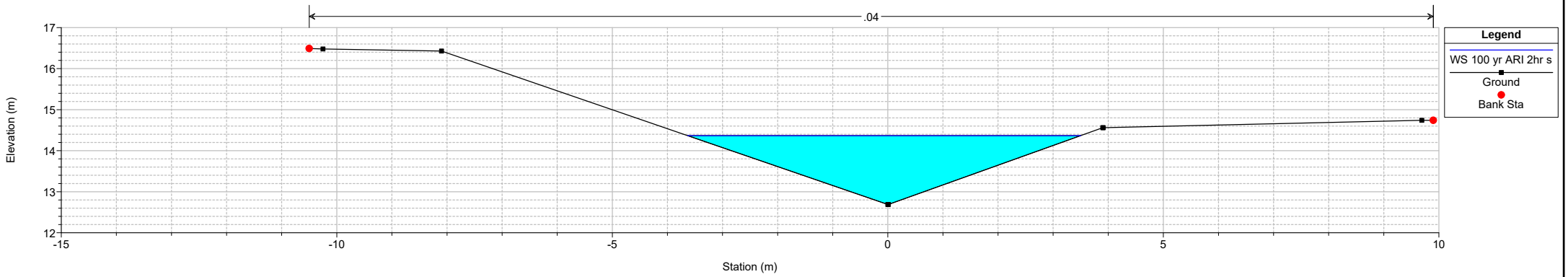
River = 1 Reach = 3 RS = 200.00



150204 eastern swale Plan: Plan 01 9/02/2015

Geom: Geom 01 Flow: Flow 01

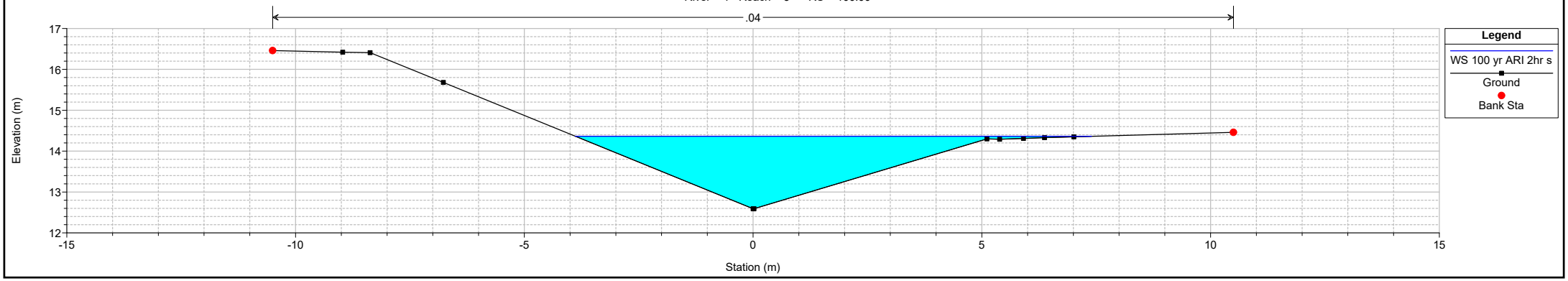
River = 1 Reach = 3 RS = 150.00

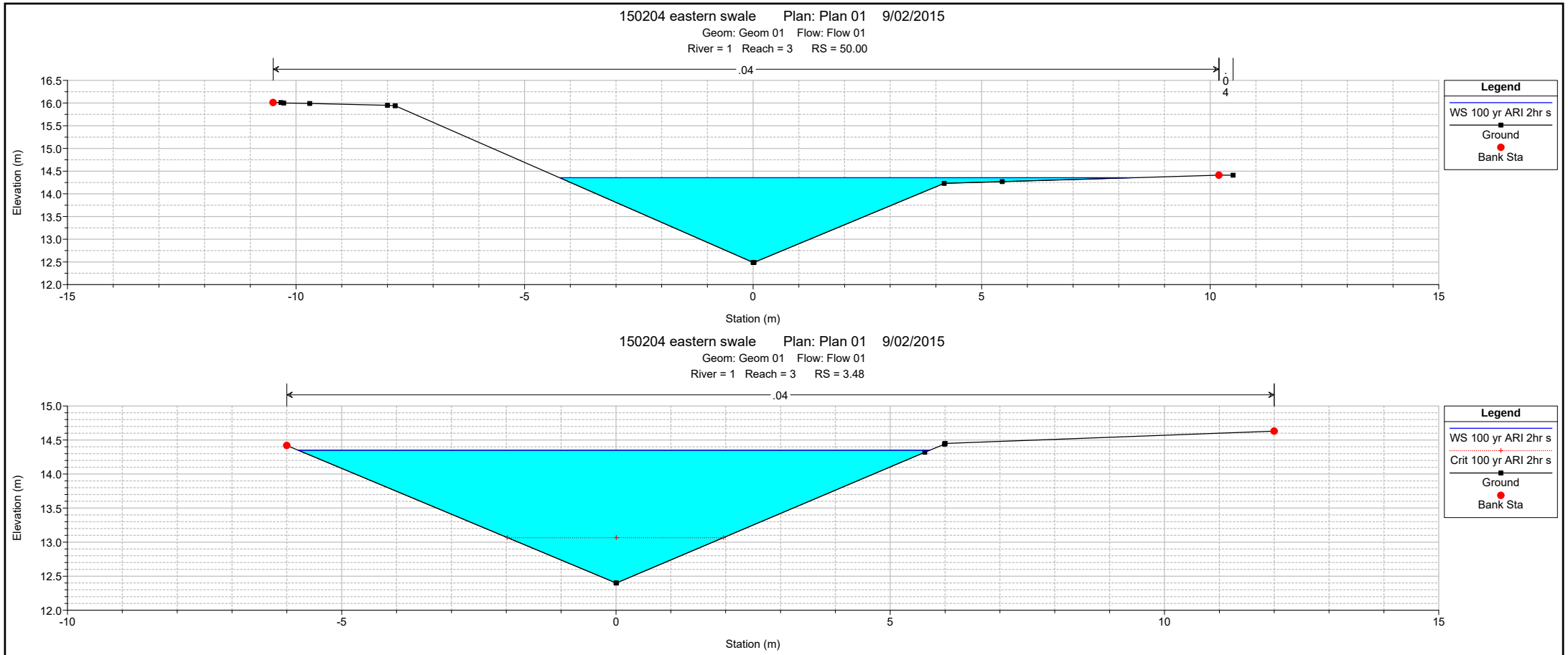


150204 eastern swale Plan: Plan 01 9/02/2015

Geom: Geom 01 Flow: Flow 01

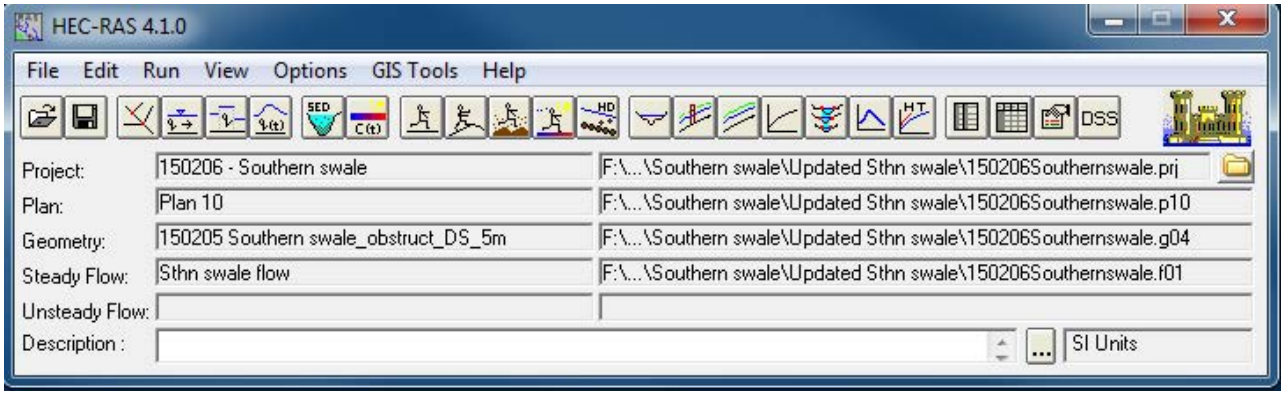
River = 1 Reach = 3 RS = 100.00

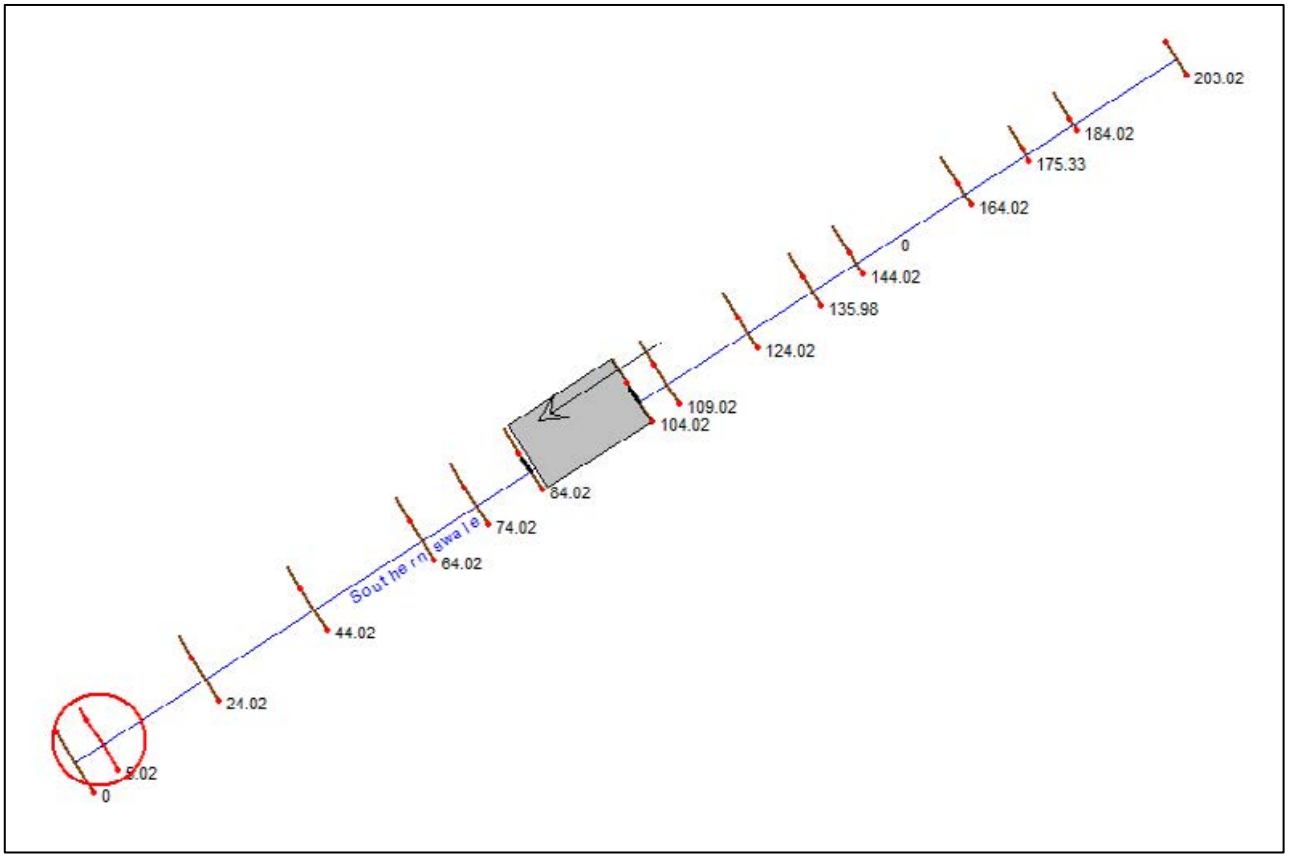


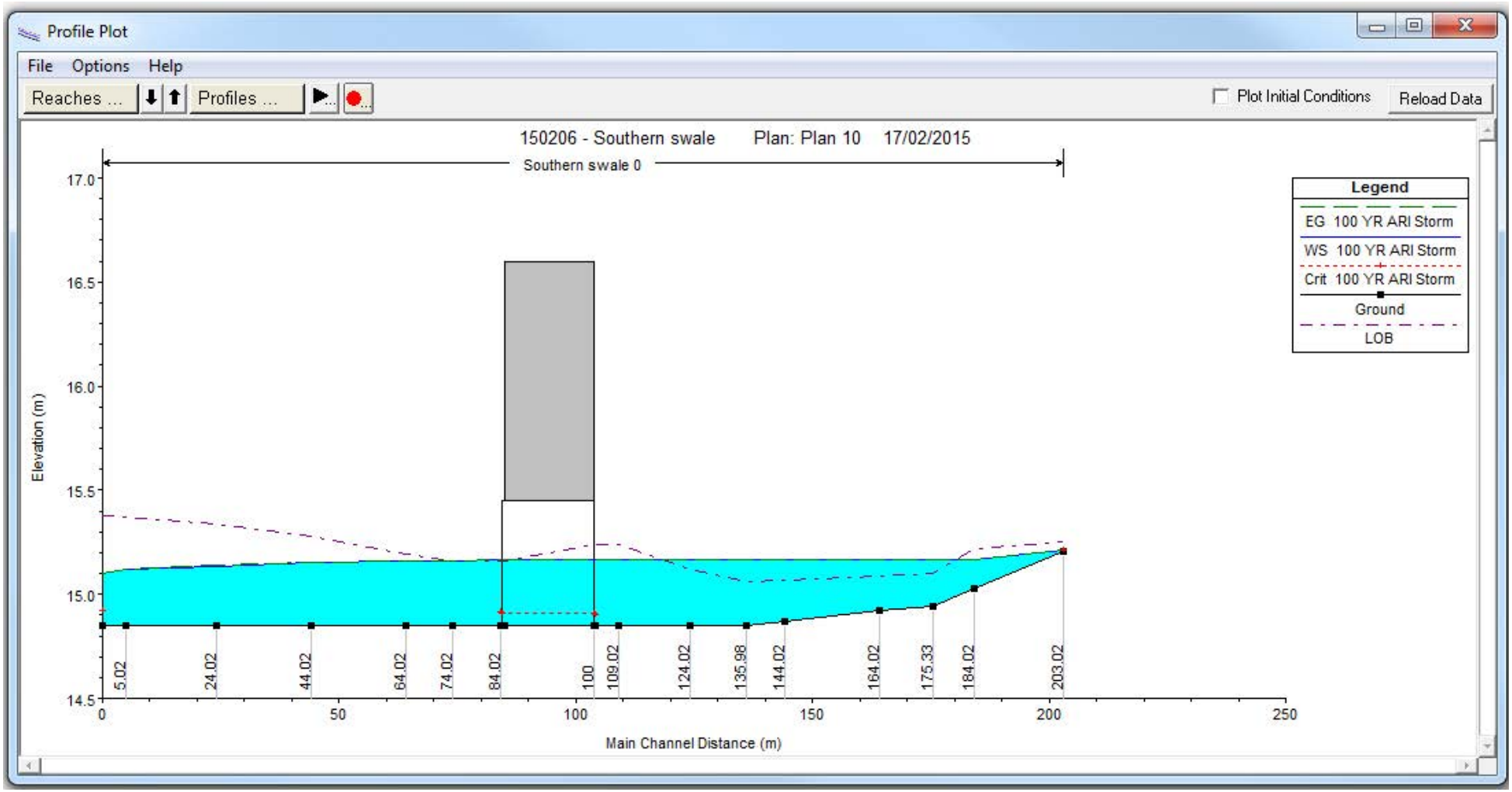

150204 eastern swale Plan: Plan 01 9/02/2015
Geom: Geom 01 Flow: Flow 01
River = 1 Reach = 3 RS = 50.00
.04
.04
Elevation (m)
Station (m)
Legend
WS 100 yr ARI 2hr s
Ground
Bank Sta

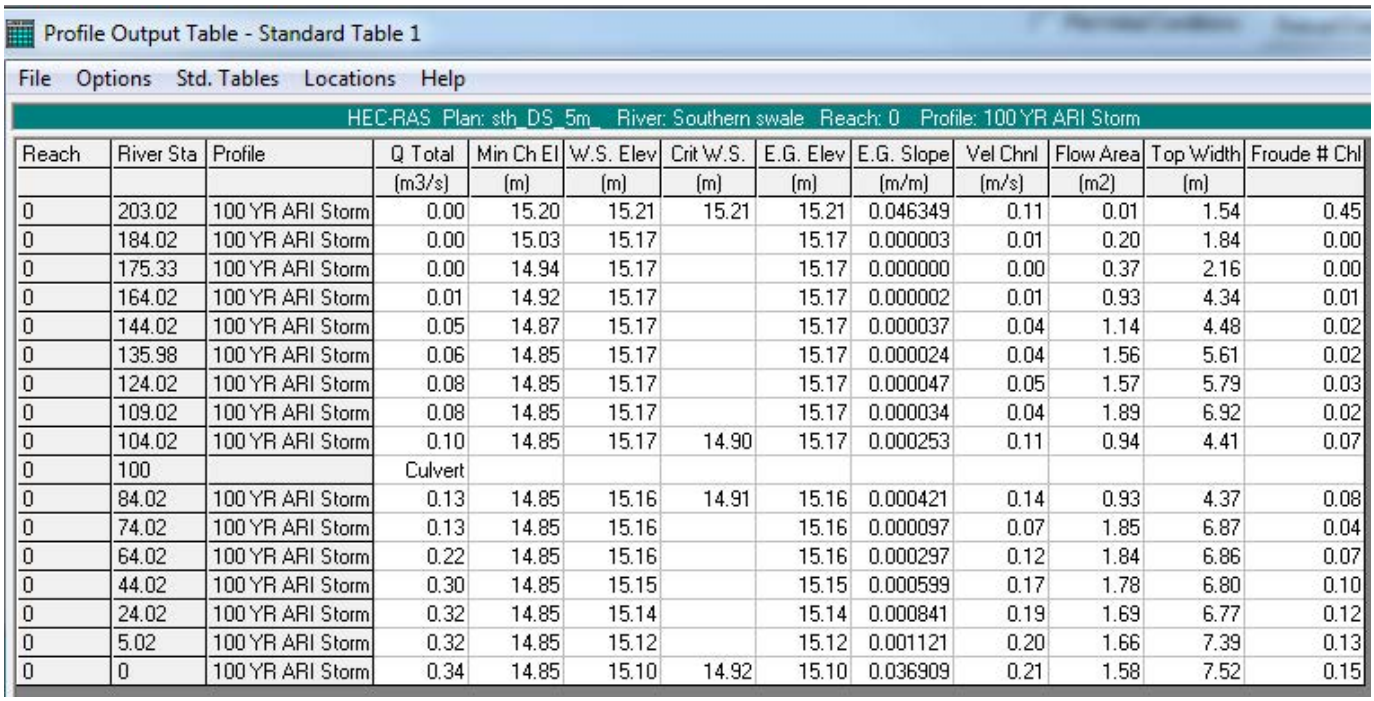
150204 eastern swale Plan: Plan 01 9/02/2015
Geom: Geom 01 Flow: Flow 01
River = 1 Reach = 3 RS = 3.48
.04
Elevation (m)
Station (m)
Legend
WS 100 yr ARI 2hr s
Crit 100 yr ARI 2hr s
Ground
Bank Sta

Southern Waterway

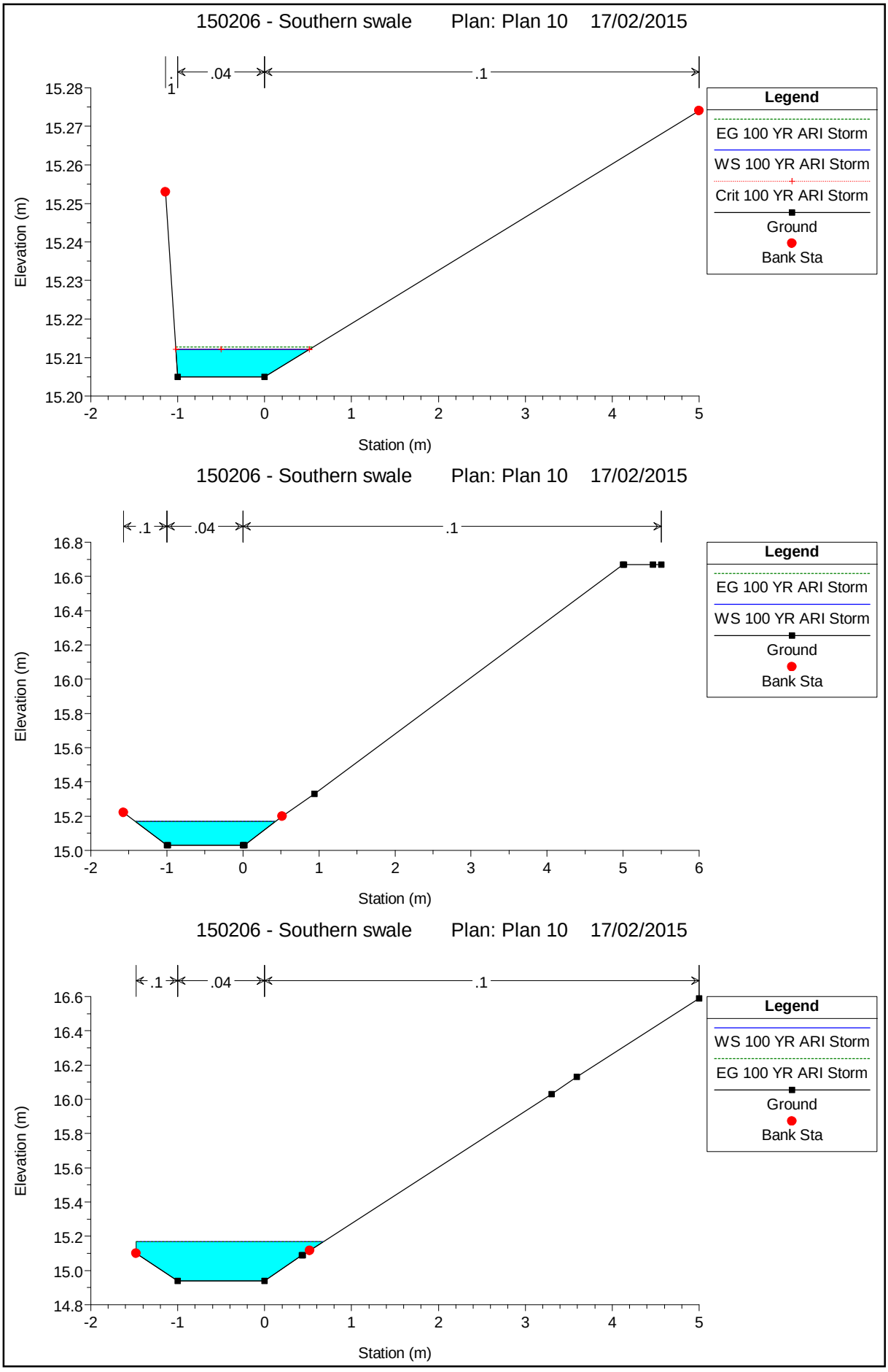

HEC-RAS 4.1.0
File Edit Run View Options GIS Tools Help
Project: 150206 - Southern swale
F:\...\Southern swale\Updated Sthn swale\150206Southernswale.prj
Plan: Plan 10
F:\...\Southern swale\Updated Sthn swale\150206Southernswale.p10
Geometry: 150205 Southern swale_obstruct_DS_5m
F:\...\Southern swale\Updated Sthn swale\150206Southernswale.g04
Steady Flow: Sthn swale flow
F:\...\Southern swale\Updated Sthn swale\150206Southernswale.f01
Unsteady Flow:
Description :
SI Units


203.02
184.02
175.33
164.02
0
144.02
135.98
124.02
109.02
104.02
84.02
74.02
64.02
Southern swale
44.02
24.02
0


Profile Plot
File Options Help
Reaches ...
Profiles ...
Plot Initial Conditions
Reload Data
150206 - Southern swale Plan: Plan 10 17/02/2015
Southern swale 0
Legend
EG 100 YR ARI Storm
WS 100 YR ARI Storm
Crit 100 YR ARI Storm
Ground
LOB
Elevation (m)
17.0
16.5
16.0
15.5
15.0
14.5
5.02
24.02
44.02
64.02
74.02
84.02
100
109.02
124.02
135.98
144.02
164.02
175.33
184.02
203.02
0
50
100
150
200
250
Main Channel Distance (m)



Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(m3/s)	(m)	(m)	(m)	(m)	(m/m)	(m/s)	(m2)	(m)	
0	203.02	100 YR ARI Storm	0.00	15.20	15.21	15.21	15.21	0.046349	0.11	0.01	1.54	0.45
0	184.02	100 YR ARI Storm	0.00	15.03	15.17		15.17	0.000003	0.01	0.20	1.84	0.00
0	175.33	100 YR ARI Storm	0.00	14.94	15.17		15.17	0.000000	0.00	0.37	2.16	0.00
0	164.02	100 YR ARI Storm	0.01	14.92	15.17		15.17	0.000002	0.01	0.93	4.34	0.01
0	144.02	100 YR ARI Storm	0.05	14.87	15.17		15.17	0.000037	0.04	1.14	4.48	0.02
0	135.98	100 YR ARI Storm	0.06	14.85	15.17		15.17	0.000024	0.04	1.56	5.61	0.02
0	124.02	100 YR ARI Storm	0.08	14.85	15.17		15.17	0.000047	0.05	1.57	5.79	0.03
0	109.02	100 YR ARI Storm	0.08	14.85	15.17		15.17	0.000034	0.04	1.89	6.92	0.02
0	104.02	100 YR ARI Storm	0.10	14.85	15.17	14.90	15.17	0.000253	0.11	0.94	4.41	0.07
0	100		Culvert									
0	84.02	100 YR ARI Storm	0.13	14.85	15.16	14.91	15.16	0.000421	0.14	0.93	4.37	0.08
0	74.02	100 YR ARI Storm	0.13	14.85	15.16		15.16	0.000097	0.07	1.85	6.87	0.04
0	64.02	100 YR ARI Storm	0.22	14.85	15.16		15.16	0.000297	0.12	1.84	6.86	0.07
0	44.02	100 YR ARI Storm	0.30	14.85	15.15		15.15	0.000599	0.17	1.78	6.80	0.10
0	24.02	100 YR ARI Storm	0.32	14.85	15.14		15.14	0.000841	0.19	1.69	6.77	0.12
0	5.02	100 YR ARI Storm	0.32	14.85	15.12		15.12	0.001121	0.20	1.66	7.39	0.13
0	0	100 YR ARI Storm	0.34	14.85	15.10	14.92	15.10	0.036909	0.21	1.58	7.52	0.15


150206 - Southern swale Plan: Plan 10 17/02/2015
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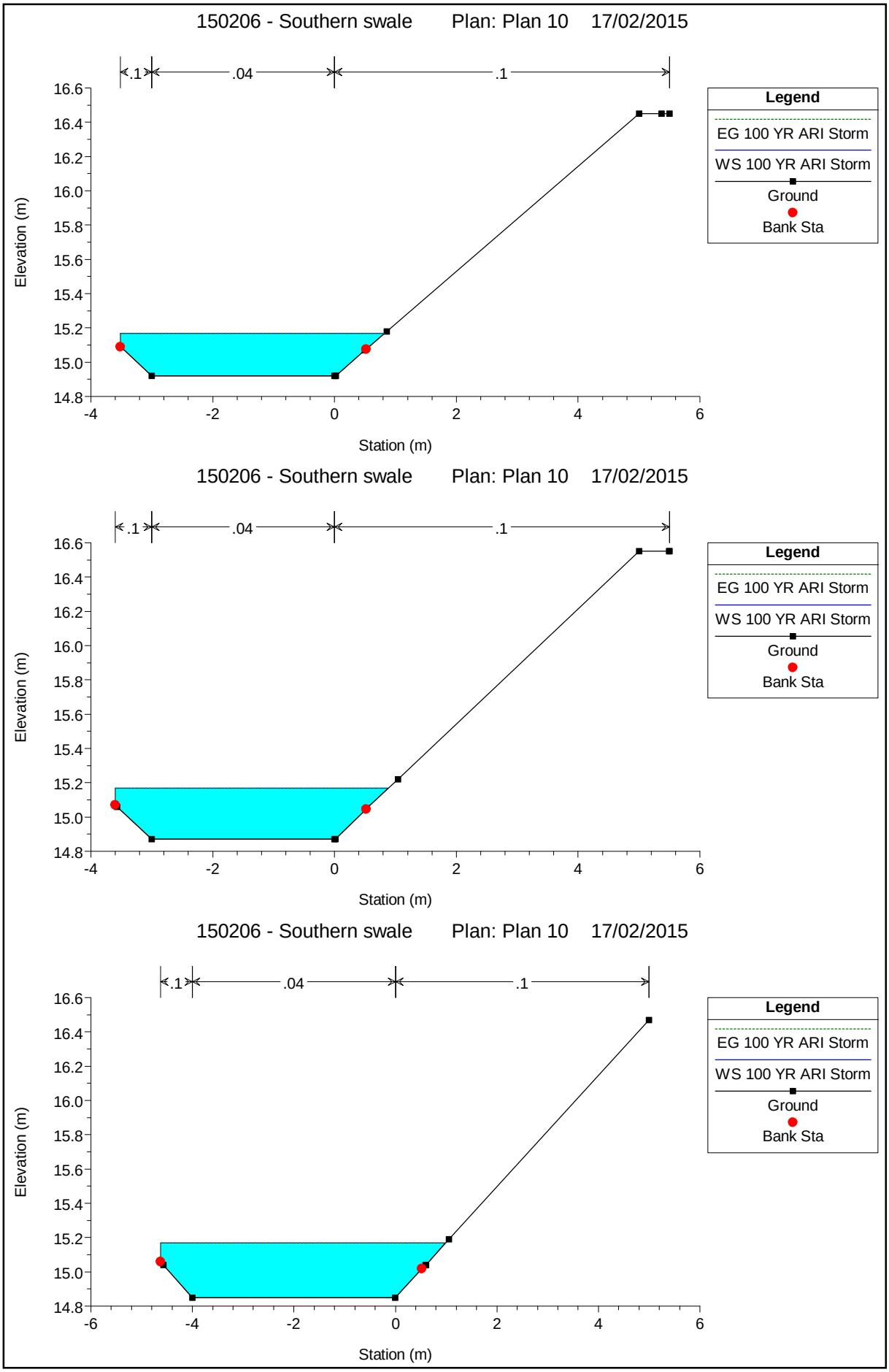
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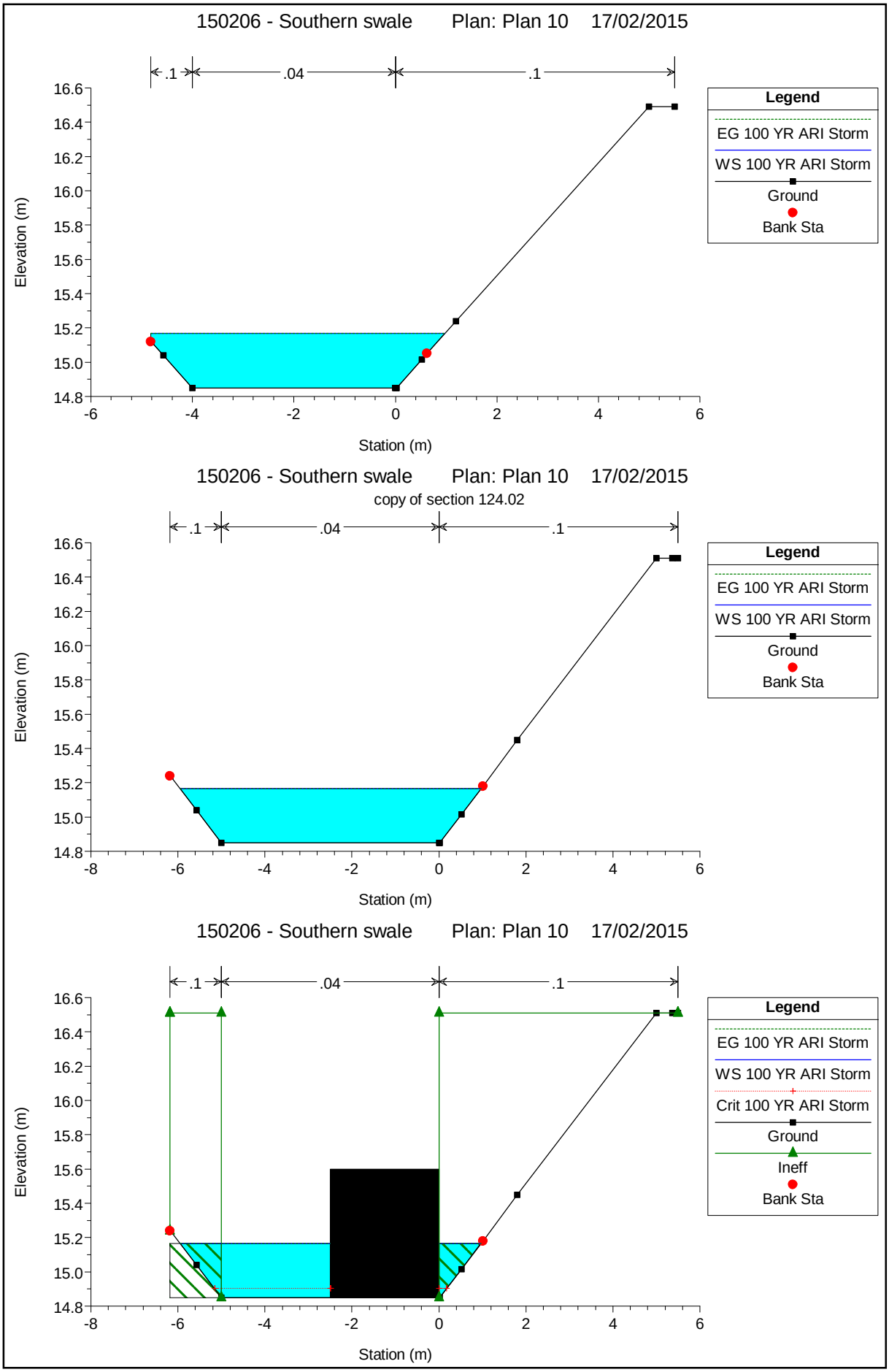
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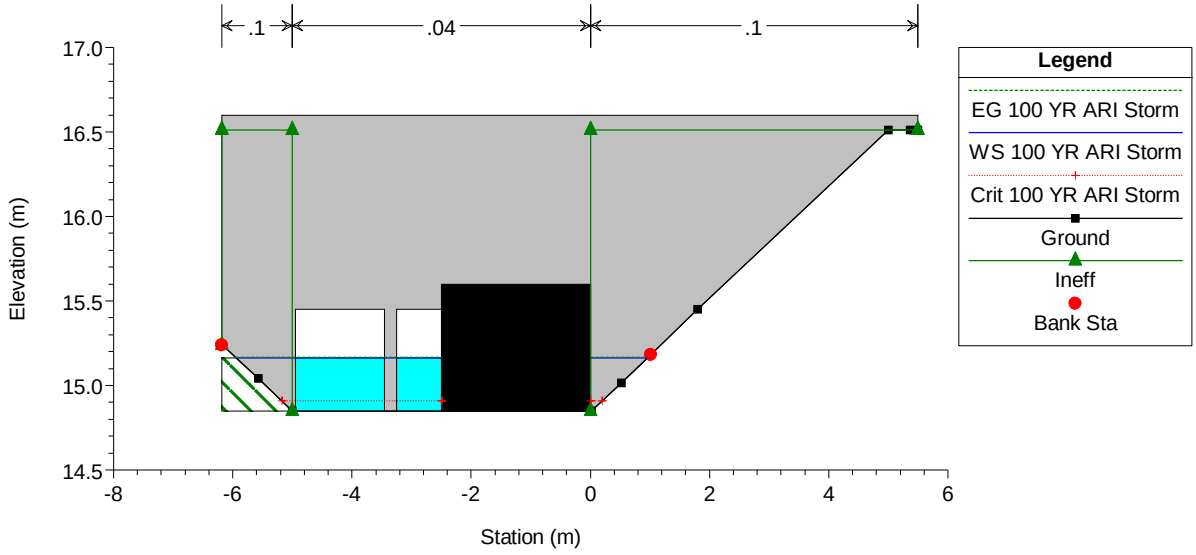
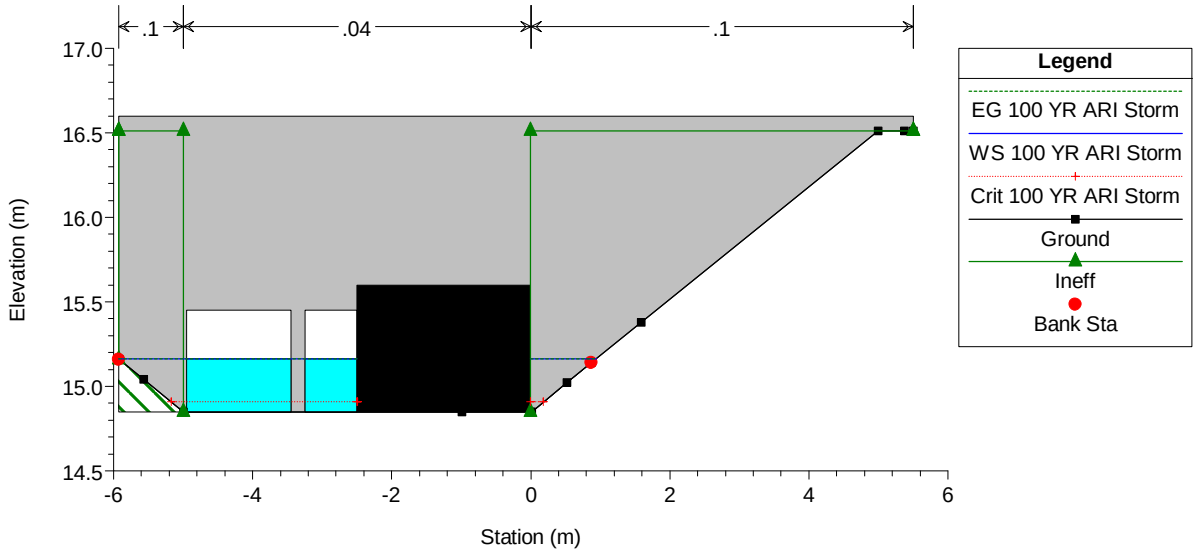
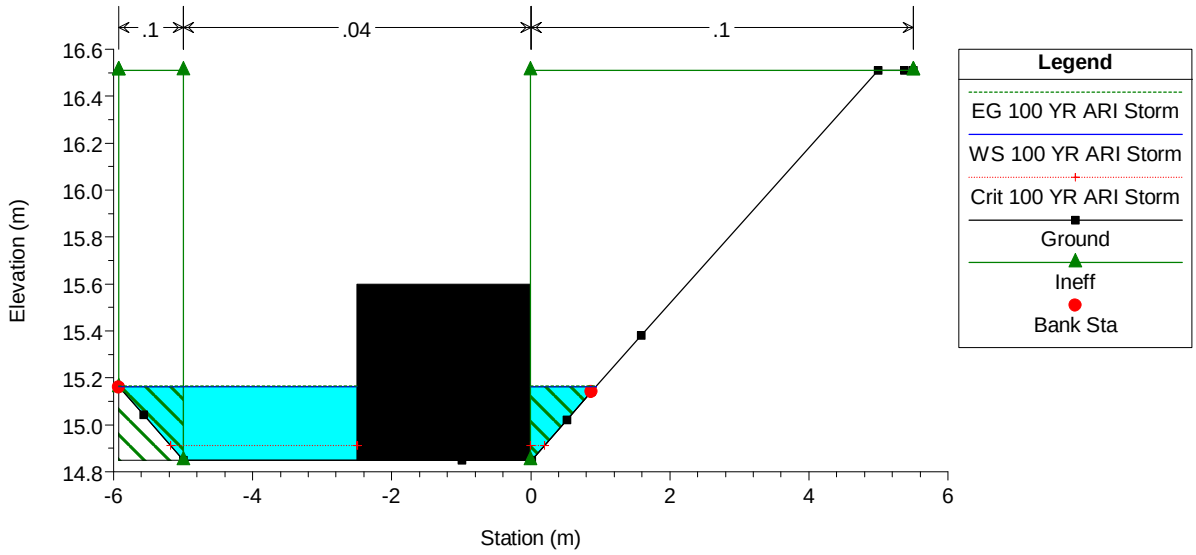
150206 - Southern swale Plan: Plan 10 17/02/2015



150206 - Southern swale Plan: Plan 10 17/02/2015

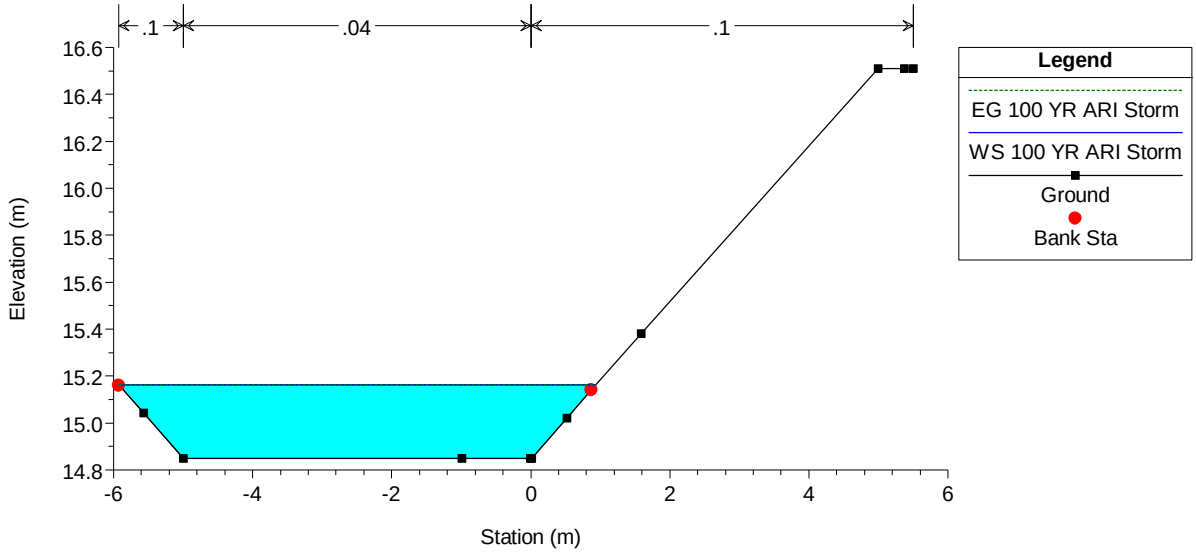


150206 - Southern swale Plan: Plan 10 17/02/2015

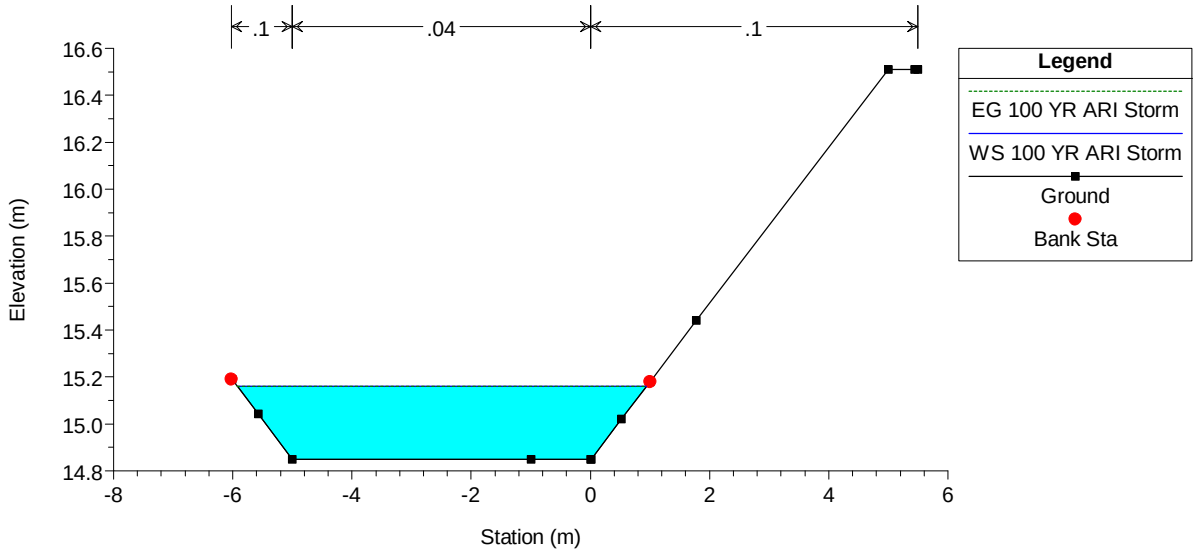


150206 - Southern swale Plan: Plan 10 17/02/2015

copy of section 84.02



150206 - Southern swale Plan: Plan 10 17/02/2015



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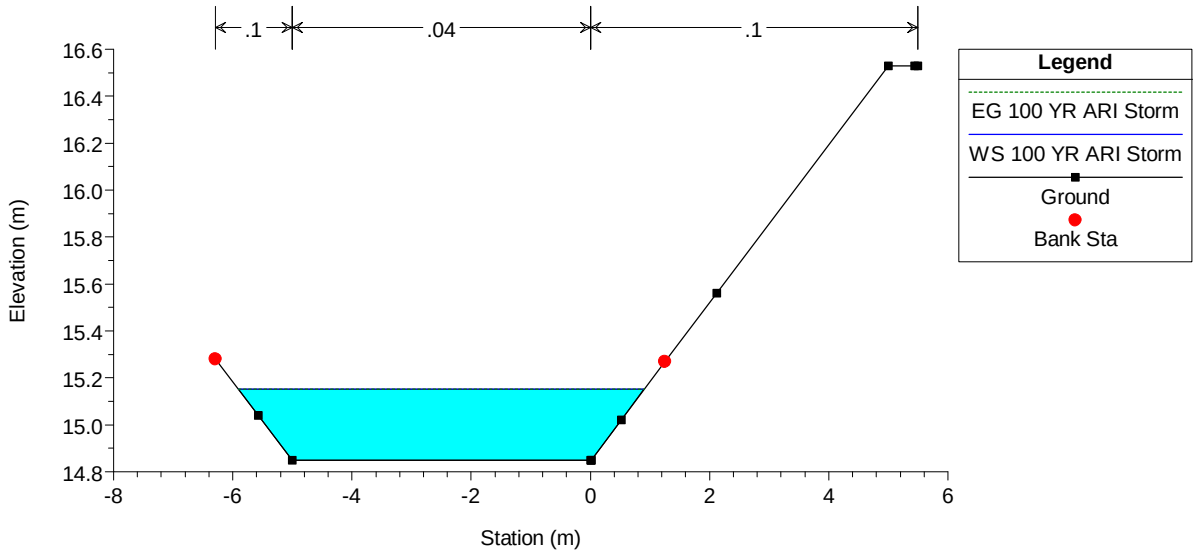

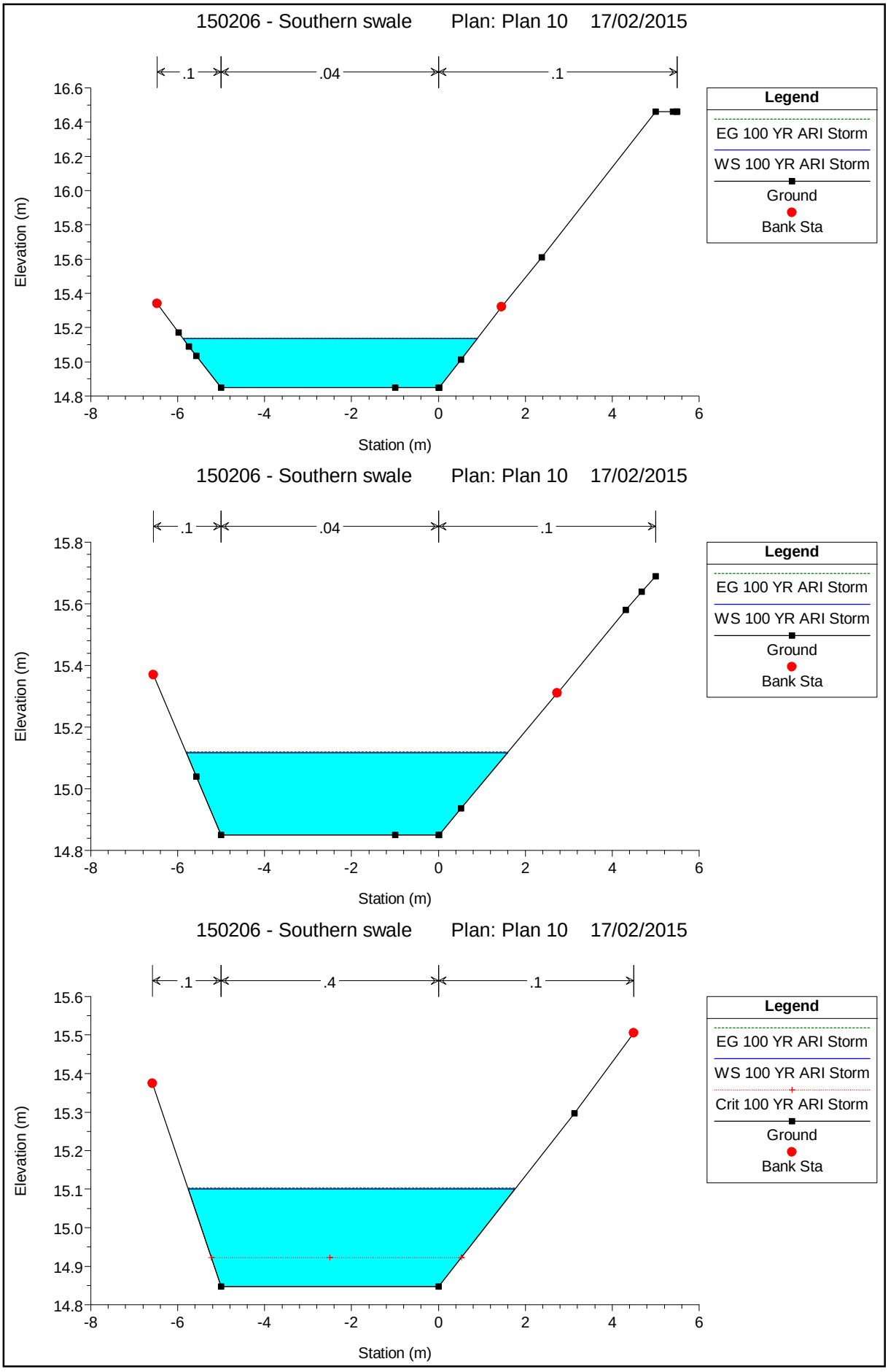
150206 - Southern swale Plan: Plan 10 17/02/2015
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Elevation (m)
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Ground
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APPENDIX F:

OPERATIONAL AREA WATER QUALITY MUSIC MODEL INFORMATION

MUSIC MODELLING DATA & PARAMETERS

The MUSIC models proposed for the Existing and Developed scenarios of the proposed SIMTA Moorebank Intermodal Terminal Facility Site are as indicated in **Figure F1** and **Figure F2** respectively.

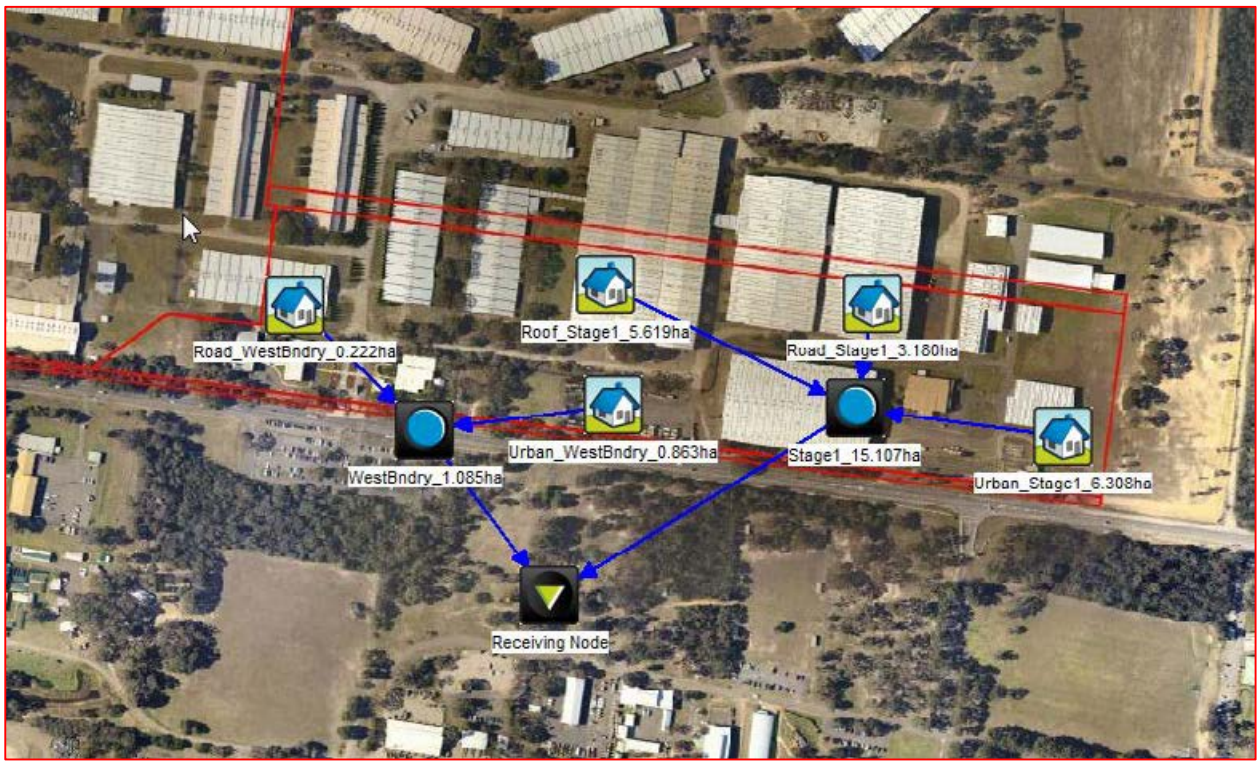


Figure F1 MUSIC Model Layout for Stage 1 Site - Existing Conditions

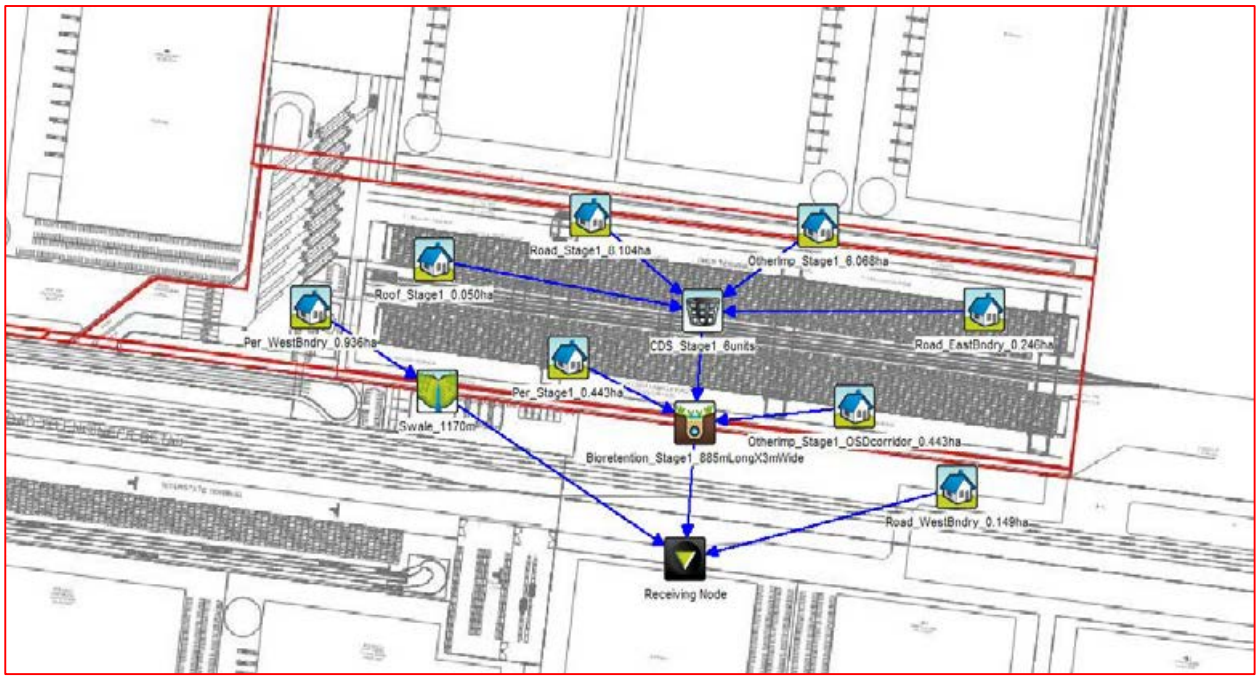


Figure F2 MUSIC Model Layout for Stage 1 Site - Developed Conditions

The same input data and parameters were used in both Existing and Developed MUSIC models. A discussion of these input data and parameters is given below.

RAINFALL DATA

A 6-minute interval pluviograph data from Liverpool's Whitlam Centre (Station No. 067035), which is situated about 3 km north of the SIMTA site, was used in the MUSIC model. Pluviograph record from 1 January 1967 until 31 December 1976 was selected for the MUSIC modelling. The mean annual rainfall for this data period is 857mm, while the 40-year average annual rainfall for Liverpool is 868 mm.

A summary of the rainfall data is given in **Table F1** while a plot of the 10-year pluviograph data is shown in **Figure F3**.

Table F1 Rainfall data used in the model

Station No.	Location	Years of Record	Type of Data
067035	Liverpool	1967-1976 (10 years)	6 minute

EVAPOTRANSPIRATION DATA

Monthly average potential evapotranspiration (PET) data for Sydney was used in the MUSIC model. These PET values are shown in **Table F2** and plotted in **Figure F3**.

Table F2 Monthly potential evapotranspiration (PET) values for Sydney

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
PET (mm)	180	135	128	85	58	43	43	58	88	127	152	163

RAINFALL-RUNOFF PARAMETERS AND POLLUTANT LOADING RATES

The upper soil profile within the Stage 1 site has been generally classified as Clayey Sand (Golder Associates' Geotechnical Report, 2014). The rainfall-runoff parameters corresponding to Clayey Sand adopted for MUSIC model are consistent with the values recommended by SCA's *Using MUSIC in Sydney's Drinking Water Catchment (2012)*. The rainfall-runoff parameters are summarised in **Table F3**.

The pollutant loading rates adopted for TSS, TP and TN for various land use categories are also based on SCA's *Using MUSIC in Sydney's Drinking Water Catchment (2012)*. The event mean concentration values (EMC) and standard deviation values for TSS, TP and TN adopted for both dry and wet weather are summarised in **Table F4**.

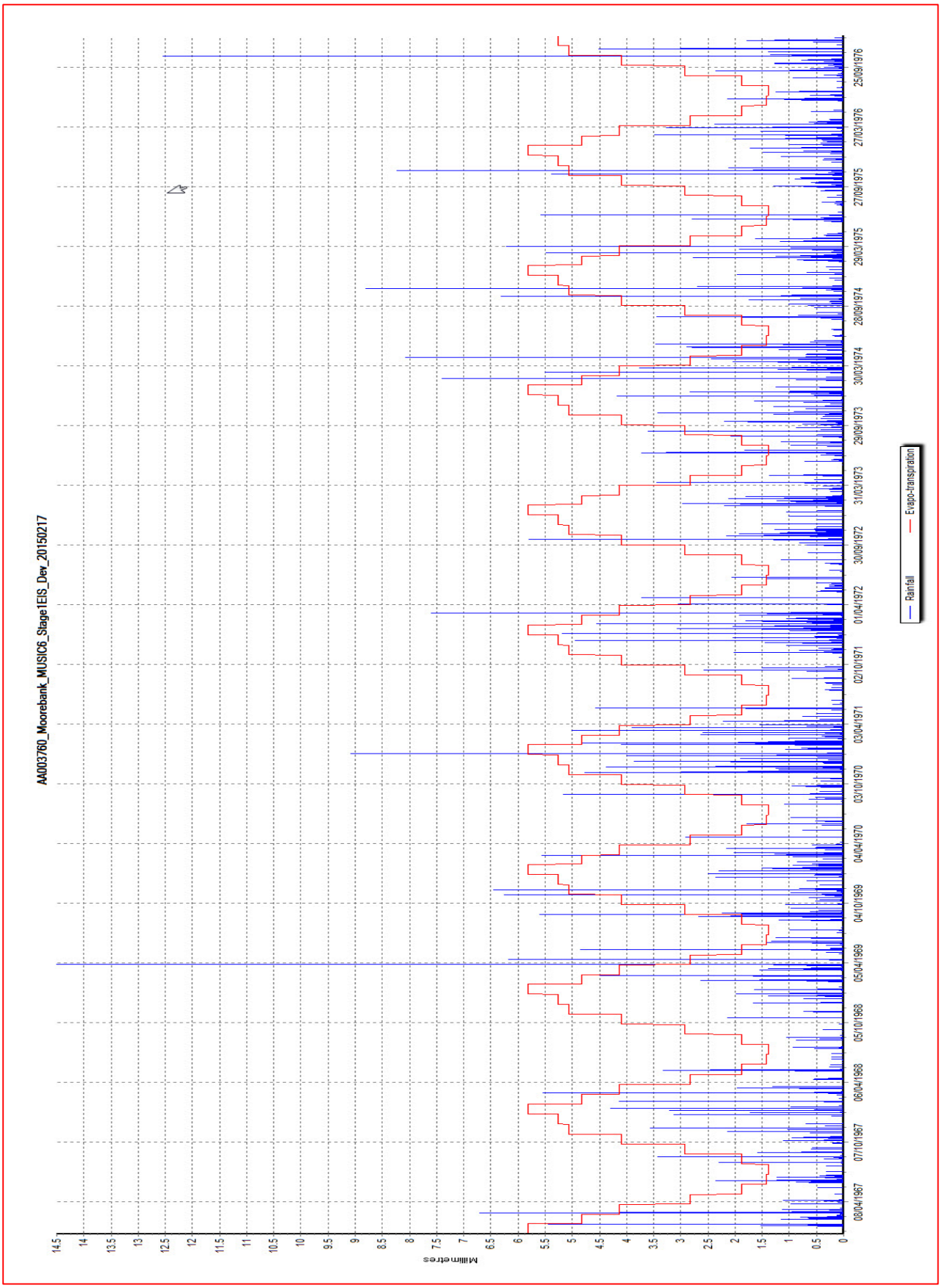


Figure F3 Rainfall and potential evapotranspiration data used in MUSIC for the 1967-1976 period

Table F3 Adopted rainfall-runoff properties for the site

Parameter	Units	Urban
Impervious Areas		
Rainfall Threshold	mm	0.3 (Roofs) 1.5 (Roads) 1.5 (Paved Areas)
Pervious Areas		
Soil Storage Capacity	mm	107
Initial Storage	% of Storage Capacity	30
Field Capacity	mm	75
Infiltration Capacity Coefficient – a	-	250
Infiltration Capacity Coefficient – b	-	1.3
Groundwater Properties		
Initial Depth	mm	10
Daily Recharge Rate	%	60
Daily Baseflow Rate	%	45
Daily Deep Seepage Rate	%	0

Table F4 Adopted mean pollutant concentration and standard deviation values for MUSIC source nodes

Pollutant	Pollutant Concentration (log mg/L)*							
	Roads / Carparks		Roofs		General Urban		General Pervious	
	Wet Weather	Dry Weather	Wet Weather	Dry Weather	Wet Weather	Dry Weather	Wet Weather	Dry Weather
TSS	2.43 (0.32)	1.20 (0.17)	1.30 (0.32)	-	2.15 (0.32)	1.20 (0.17)	2.15 (0.32)	1.20 (0.17)
TP	-0.3 (0.25)	-0.85 (0.19)	-0.89 (0.25)	-	-0.60 (0.25)	-0.85 (0.19)	-0.60 (0.25)	-0.85 (0.19)
TN	0.34 (0.19)	0.11 (0.12)	0.30 (0.19)	-	0.30 (0.19)	0.11 (0.12)	0.30 (0.19)	0.11 (0.12)

* Standard deviation values are in brackets below the log concentration values

STORMWATER TREATMENT DEVICES PROPERTIES

The properties of the bioretention system and gross pollutant trap used in the Developed MUSIC model for Stage 1 are summarised in **Table F5** and **Table F6** respectively.

Table F5 Properties of the bioretention system

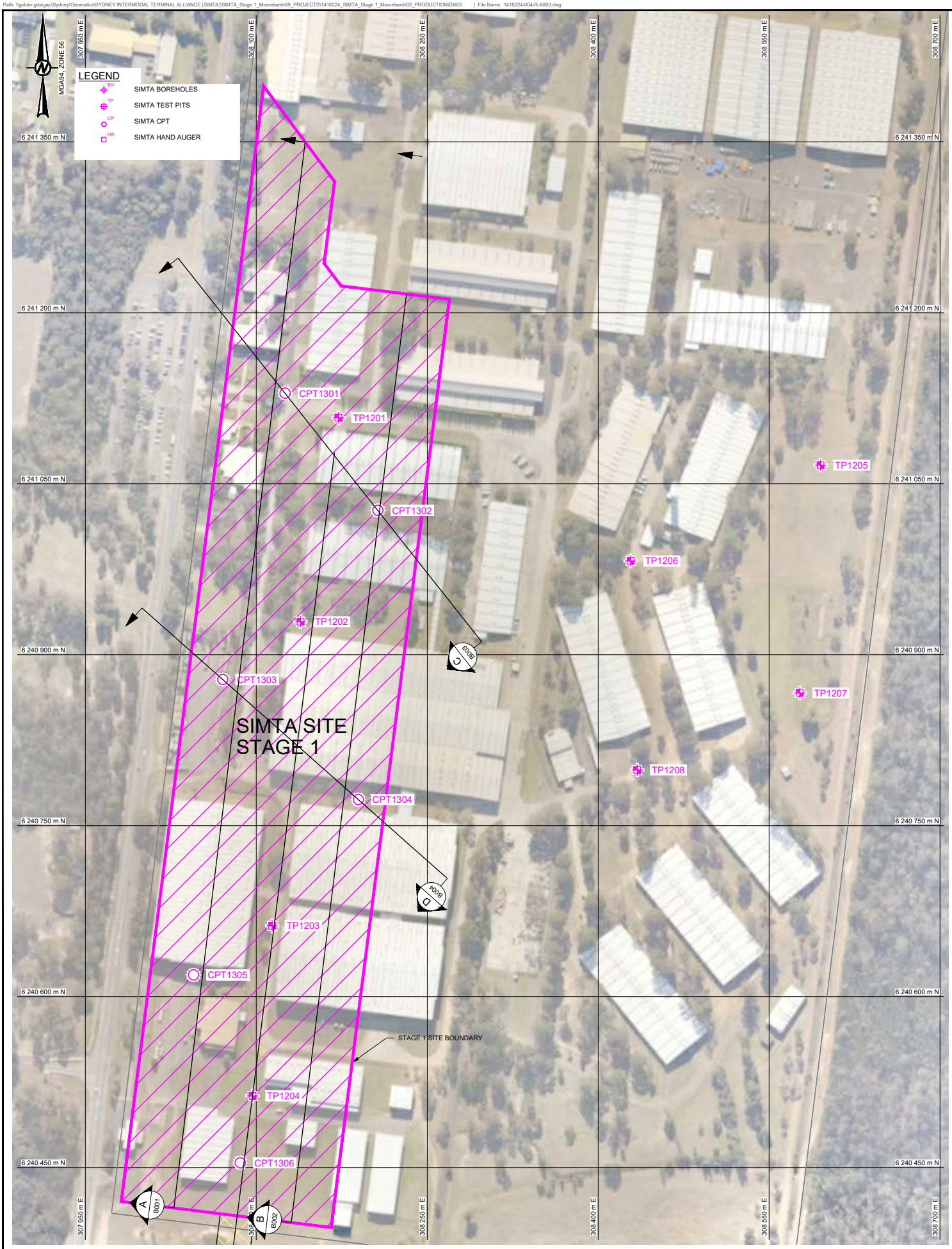
Property	Value
Inlet Properties	
Low Flow Bypass (m^3/s)	0
High Flow Bypass (m^3/s)	100
Storage Properties	
Extended Detention Depth (m)	0.30
Surface Area (m^2)	2655
Filter and Media Properties	
Filter Area (m^2)	2655
Unlined Filter Media Perimeter (m)	0.01
Saturated Hydraulic Conductivity (mm/hr)	100
Filter Depth (m)	0.40
TN Content of Filter Media (mg/kg)	600
Orthophosphate Content of Filter Media (mg/kg)	9
Infiltration Properties	
Exfiltration Rate (mm/hr)	0
Lining Properties	
Is base lined?	Yes
Vegetation Properties	
Vegetated with Effective Nutrient Removal Plants	Yes
Outlet Properties	
Overflow Weir Width (m)	5.0
Underdrain present?	Yes
Submerged Zone with Carbon Present	No

Table F6 Properties of the gross pollutant trap

Property	Value
General Properties	
CDS Vortex type	-
High Flow Bypass (m^3/s)	> 3 month flow
Transfer Function	
Total Suspended Solids (TSS) for concentrations > 75 mg/L	70%
Total Phosphorus (TP) for concentrations > 0.5 mg/L	34%
Total Nitrogen (TN)	0%
Gross Pollutants	90%

APPENDIX G:

GEOTECHNICAL INTERPRETATIVE REPORT EXTRACTS



0 50 100
1:3,000 METRES

IMAGE DATED 2014-06-30
SOURCED WITH PERMISSION FROM NEARMAP ON 2014-09-30
IMAGE GEOREFERENCED BY GOLDER AND INTENDED FOR INDICATIVE PURPOSES ONLY
www.nearmap.com.au

CLIENT
SYDNEY INTERMODAL TERMINAL ALLIANCE (SIMTA)

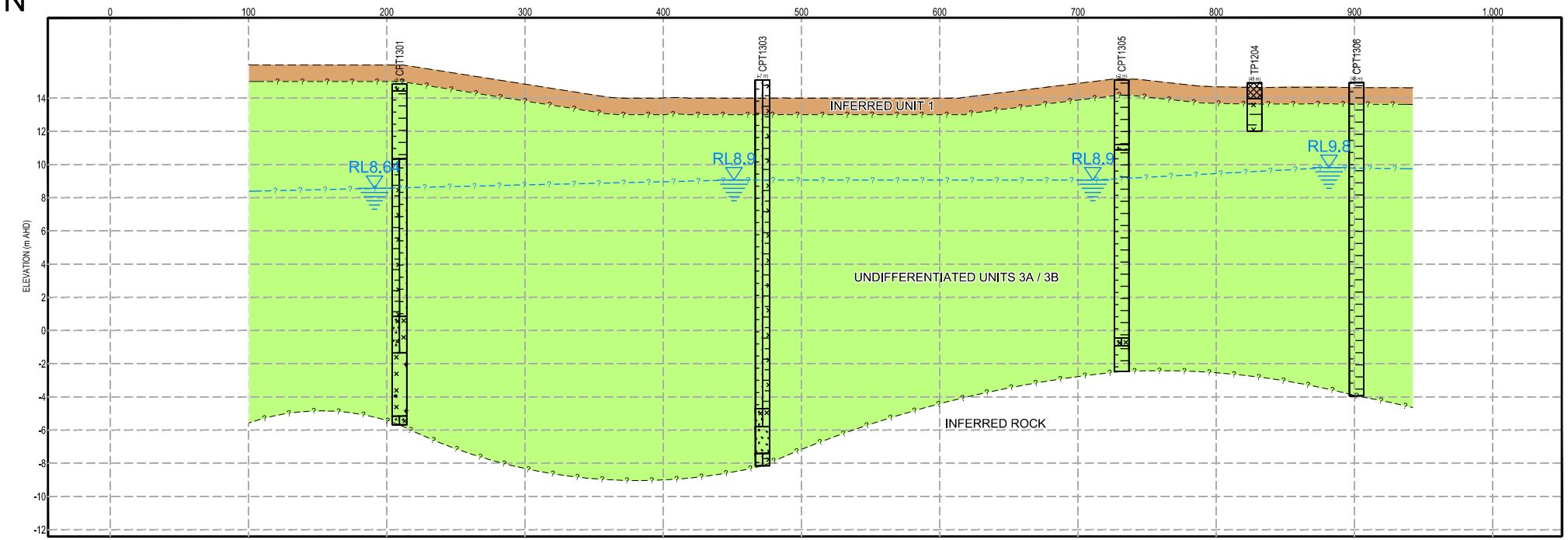
PROJECT
SIMTA MOOREBANK INTERMODAL TERMINAL

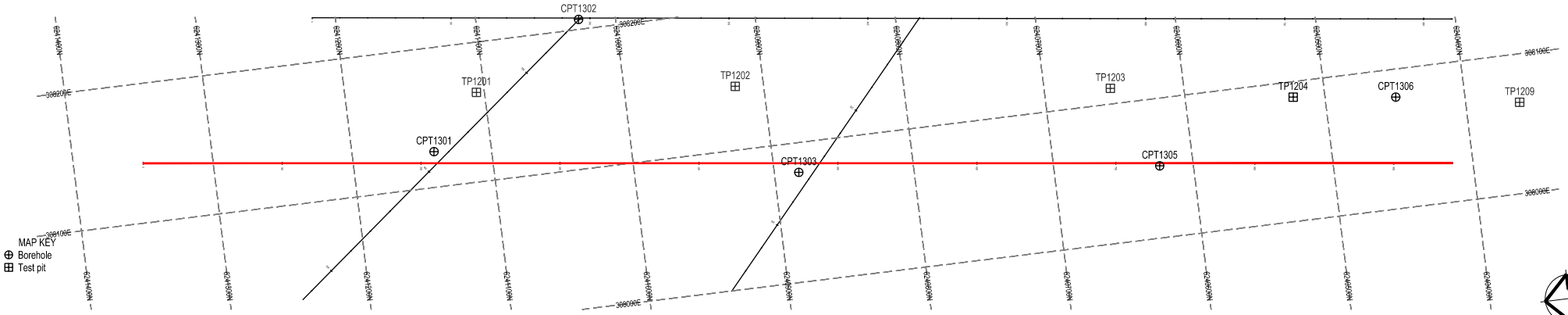
CONSULTANT

YYYY-MM-DD	2015-01-30
PREPARED	EJJ
DESIGN	GKS
REVIEW	GKS
APPROVED	GKS

TITLE
GEOTECHNICAL SITE INVESTIGATION SHEET 3 OF 3

PROJECT No.	REPORT	Rev.	FIGURE
1416224	004-R	1	A003





POST LEGEND

MATERIAL GRAPHIC

Silty CLAY
CLAY
Silty SAND
Sandy SILT
SAND
FILL
WATER LEVEL
WATER INFLOW

GEOTECHNICAL UNITS

UNIT 1 - FILL
UNIT 2 - ALLUVIAL SAND AND CLAY
UNIT 3 - ALLUVIAL SAND AND CLAY
UNIT 4 - SILTSTONE
UNIT 5 - SANDSTONE

H 1:3000
0 30 60 90 120 150m
V 1:250
0 2 4 6 8 10m
Coord.System: MGA94 Zone 56 Height Datum: AHD

CLIENT
SYDNEY INTERMODAL TERMINAL ALLIANCE (SIMTA)

PROJECT
SIMTA MOOREBANK INTERMODAL TERMINAL

CONSULTANT
Golder Associates

YYYY-MM-DD	2015-01-30
PREPARED	EJJ
DESIGN	GKS
REVIEW	GKS
APPROVED	GKS

TITLE
SECTION A - STAGE 1 SITE - NORTH SOUTH SECTION 1

PROJECT No.	REPORT	Rev.	FIGURE
1416224	004-R	1	B001

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM ISO A3
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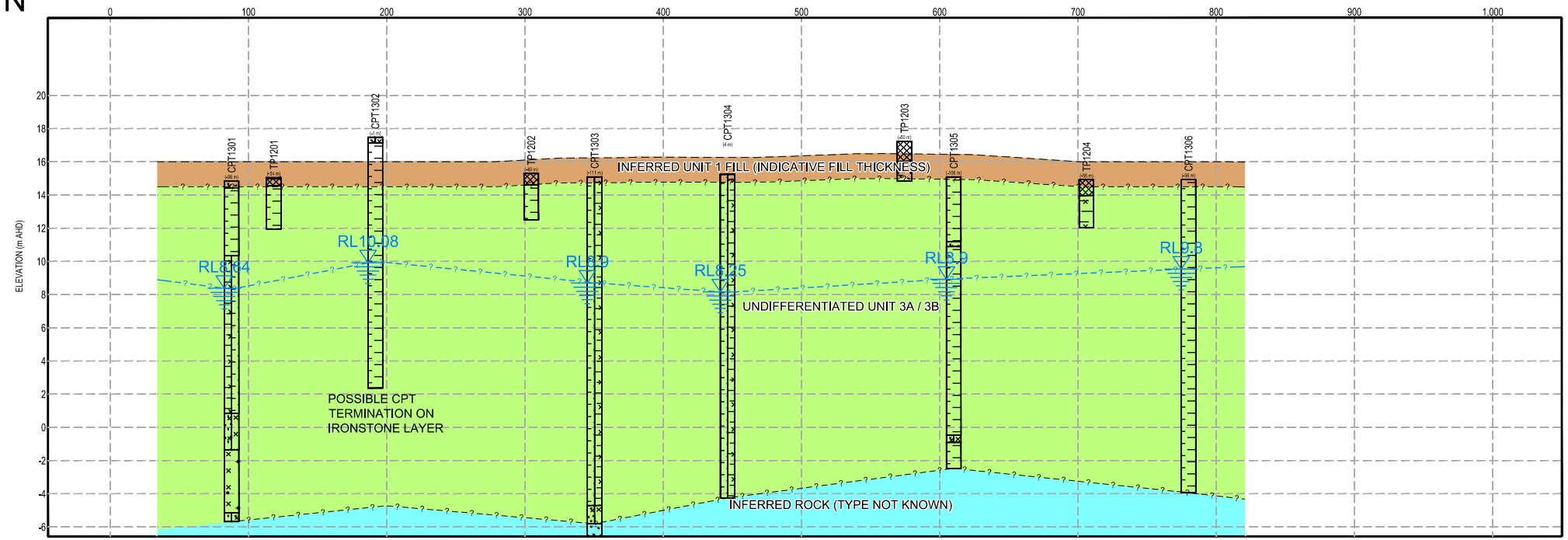

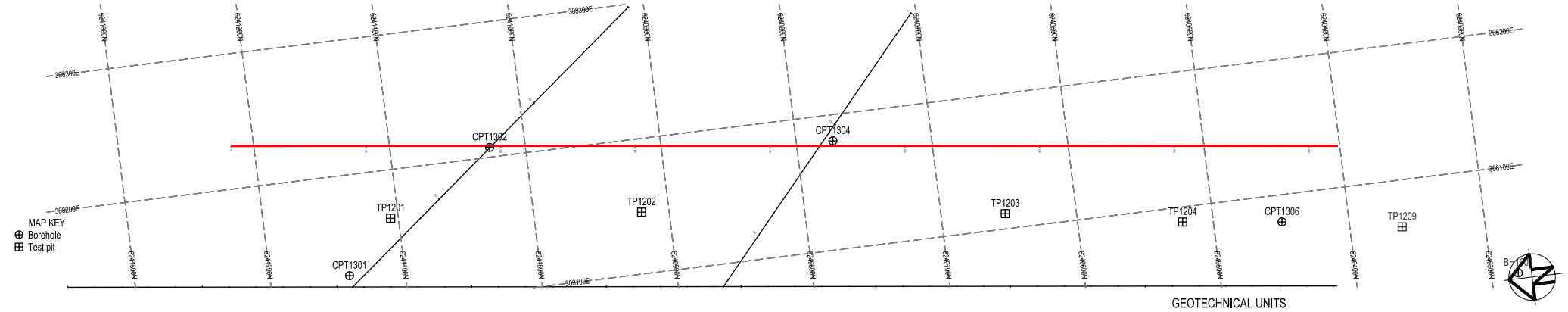

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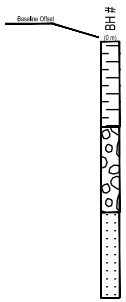

MATERIAL GRAPHIC

- Silty CLAY
- CLAY
- FILL
- Clayey Silty SAND
- Silty SAND
- Sandy SILT
- Clayey SAND
- SAND
- TOPSOIL
- Sandy GRAVEL

WATER LEVEL

WATER INFLOW

GEOTECHNICAL UNITS

- UNIT 1 - FILL
- UNIT 2 - ALLUVIAL SAND AND CLAY
- UNIT 3 - ALLUVIAL SAND AND CLAY
- UNIT 4 - SILTSTONE
- UNIT 5 - SANDSTONE

H 1:3000
0 30 60 90 120 150m

V 1:250
0 2 4 6 8 10m

Coord.System: MGA94 Zone 56 Height Datum: AHD

CLIENT
SYDNEY INTERMODAL TERMINAL ALLIANCE (SIMTA)

PROJECT
SIMTA MOOREBANK INTERMODAL TERMINAL

CONSULTANT
Golder Associates

YYYY-MM-DD	2015-01-30
PREPARED	EJJ
DESIGN	GKS
REVIEW	GKS
APPROVED	GKS

TITLE
SECTION B - STAGE 1 SITE - NORTH SOUTH SECTION 2

PROJECT No.	REPORT	Rev.	FIGURE
1416224	004-R	1	B002

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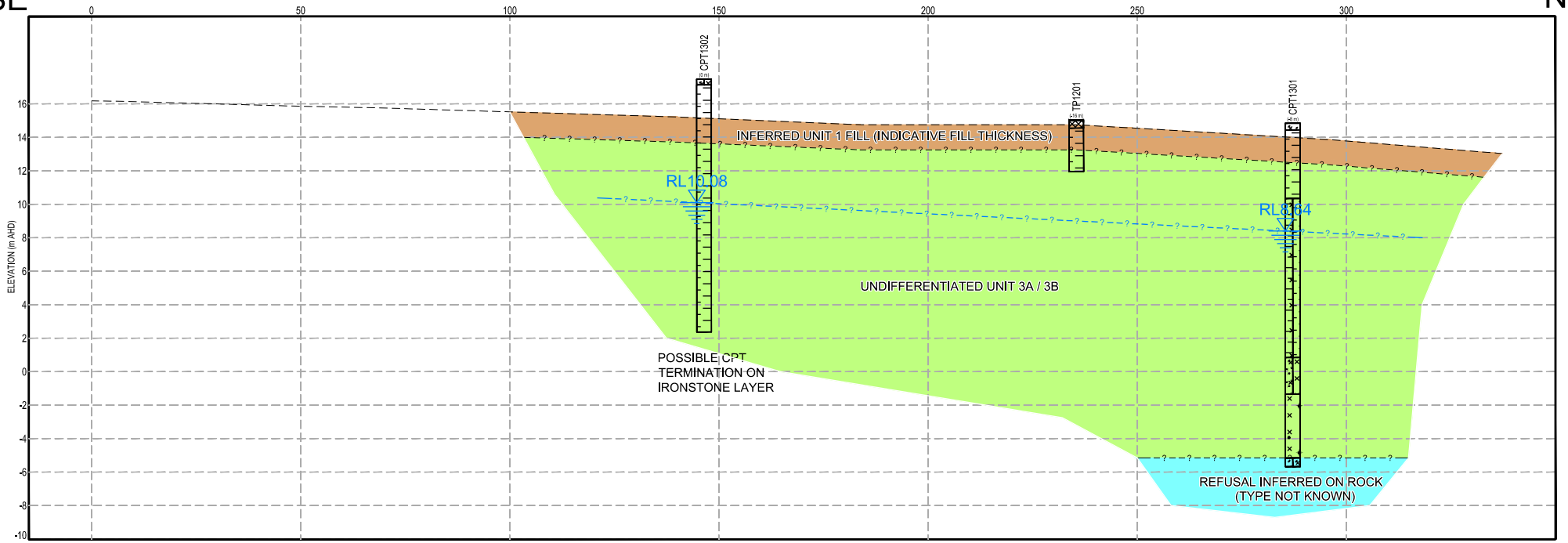
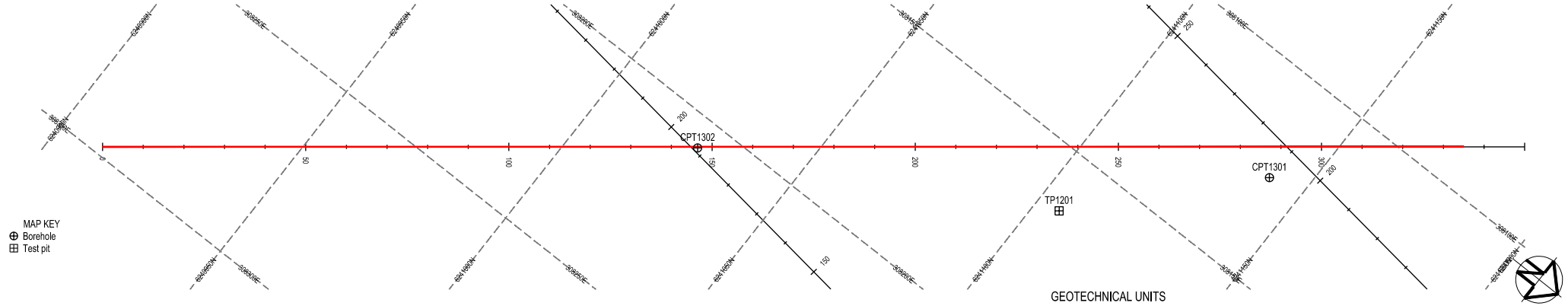
NW





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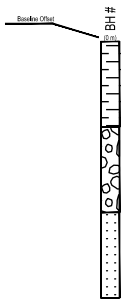


MATERIAL GRAPHIC

- Silty CLAY
- CLAY
- FILL
- Silty SAND
- Sandy SILT
- SAND
- TOPSOIL

- WATER LEVEL
- WATER INFLOW

GEOTECHNICAL UNITS

- UNIT 1 - FILL
- UNIT 2 - ALLUVIAL SAND AND CLAY
- UNIT 3 - ALLUVIAL SAND AND CLAY
- UNIT 4 - SILTSTONE
- UNIT 5 - SANDSTONE

H 1:1000
0 10 20 30 40 50m
V 1:250
0 2 4 6 8 10m
Coord.System: MGA94 Zone 56 Height Datum: AHD

CLIENT
SYDNEY INTERMODAL TERMINAL ALLIANCE (SIMTA)

PROJECT
SIMTA MOOREBANK INTERMODAL TERMINAL

CONSULTANT
Golder Associates

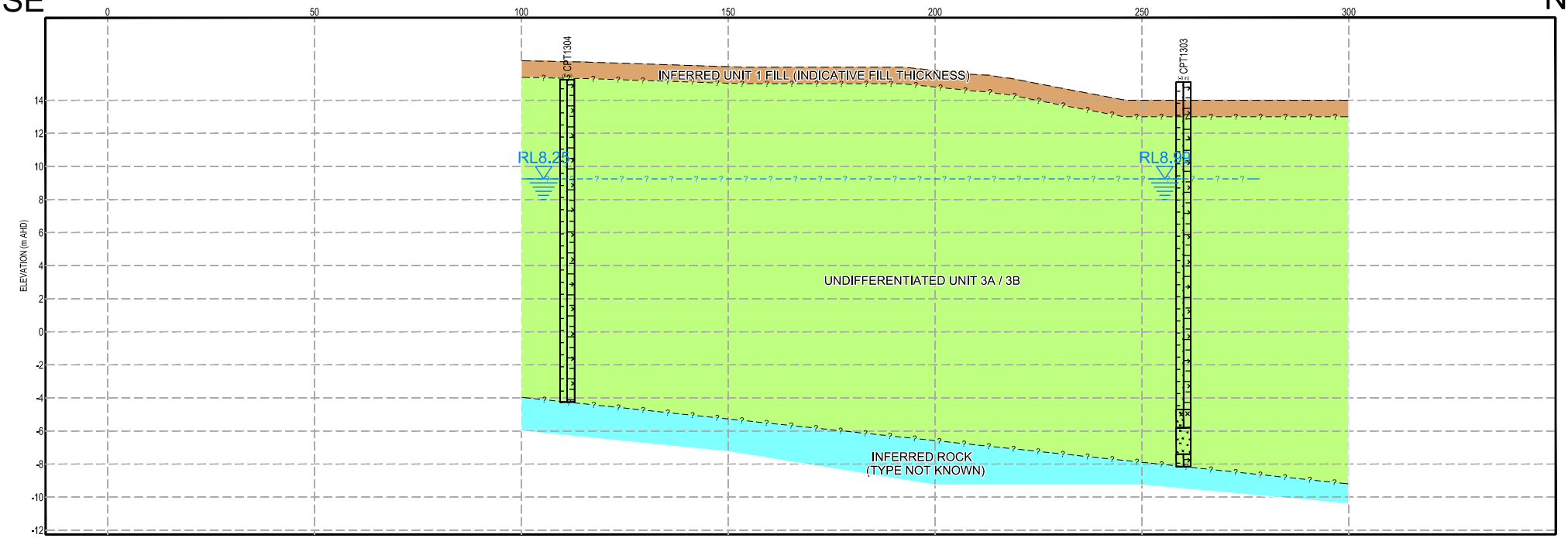
YYYY-MM-DD	2015-01-30
PREPARED	EJJ
DESIGN	GKS
REVIEW	GKS
APPROVED	GKS

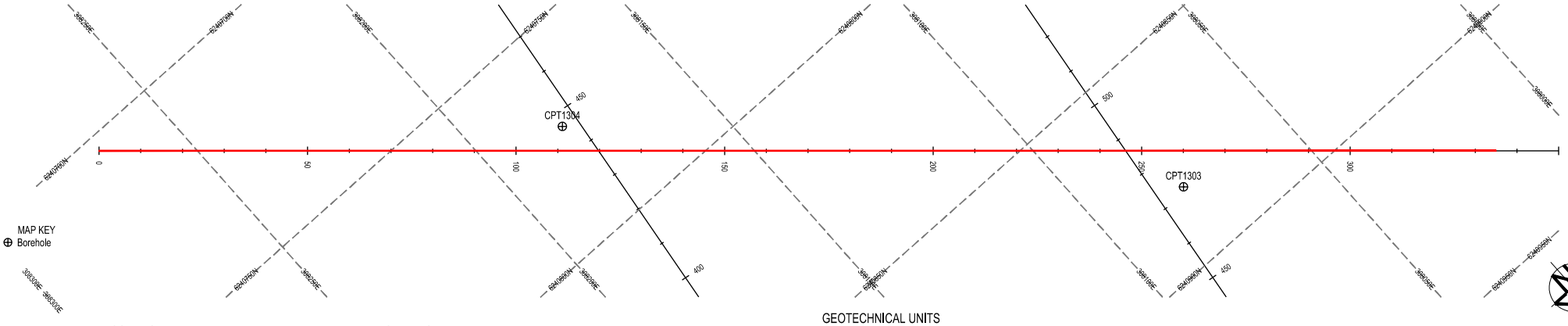
TITLE
SECTION C - STAGE 1 SITE - EAST WEST SECTION 1

PROJECT No.	REPORT	Rev.	FIGURE
1416224	004-R	1	B003

SE

NW





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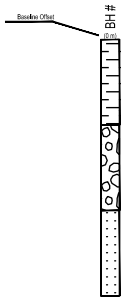

MATERIAL GRAPHIC

- CLAY
- Silty SAND
- SAND

- WATER LEVEL
- WATER INFLOW

GEOTECHNICAL UNITS

- UNIT 1 - FILL
- UNIT 2 - ALLUVIAL SAND AND CLAY
- UNIT 3 - ALLUVIAL SAND AND CLAY
- UNIT 4 - SILTSTONE
- UNIT 5 - SANDSTONE

H 1:1000
V 1:250
Coord.System: MGA94 Zone 56 Height Datum: AHD

CLIENT
SYDNEY INTERMODAL TERMINAL ALLIANCE (SIMTA)

PROJECT
SIMTA MOOREBANK INTERMODAL TERMINAL

CONSULTANT
Golder Associates

YYYY-MM-DD	2015-01-30
PREPARED	EJJ
DESIGN	GKS
REVIEW	GKS
APPROVED	GKS

TITLE
SECTION D - STAGE 1 SITE - EAST WEST SECTION 2

PROJECT No.	REPORT	Rev.	FIGURE
1416224	004-R	1	B004

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM ISO A1
25 mm
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DRAWINGS

SIMTA INTERMODAL TERMINAL FACILITY - STAGE 1

STATE SIGNIFICANT DEVELOPMENT APPLICATION

CIVIL DRAWING LIST

EISC1001	TITLE SHEET, DRAWING LIST AND LOCALITY PLAN
EISC1002	GENERAL ARRANGEMENT PLAN
EISC1011	SEDIMENTATION AND EROSION CONTROL PLAN
EISC1021	STAGE 1 SITE CUT AND FILL PLAN
EISC1031	SITEWORKS AND STORMWATER PLAN - SHEET 1
EISC1032	SITEWORKS AND STORMWATER PLAN - SHEET 2
EISC1041	TYPICAL STORMWATER DRAINAGE SECTIONS
EISC1051	EXISTING CATCHMENT PLAN
EISC1056	PROPOSED CATCHMENT PLAN - SHEET 1
EISC1057	PROPOSED CATCHMENT PLAN - SHEET 2
EISC1101	RAIL EMBANKMENT SEDIMENTATION AND EROSION CONTROL PLAN - SHEET 1
EISC1102	RAIL EMBANKMENT SEDIMENTATION AND EROSION CONTROL PLAN - SHEET 2
EISC1103	RAIL EMBANKMENT SEDIMENTATION AND EROSION CONTROL PLAN - SHEET 3
EISC1106	RAIL EMBANKMENT CUT AND FILL PLAN - SHEET 1
EISC1107	RAIL EMBANKMENT CUT AND FILL PLAN - SHEET 2
EISC1108	RAIL EMBANKMENT CUT AND FILL PLAN - SHEET 3
EISC1111	RAIL EMBANKMENT DRAINAGE PLAN - SHEET 1
EISC1112	RAIL EMBANKMENT DRAINAGE PLAN - SHEET 2
EISC1113	RAIL EMBANKMENT DRAINAGE PLAN - SHEET 3

LOCALITY PLAN
NTS

Issue	Description	Date
01	ISSUE FOR SSD APPLICATION	10.04.15

100mm on Original

Client: SIMTA / TACTICAL GROUP

Status: PRELIMINARY
NOT TO BE USED FOR CONSTRUCTION

		Current Issue Signatures	
Scales	NTS	Drawn	A.ZHAO
Original Size	A1	Designed	K.MCAREAVEY
Height Datum	AHD	Checked	B.LUSTY
Grid	MGA	Approved	G.HUZIJ
Filename:			

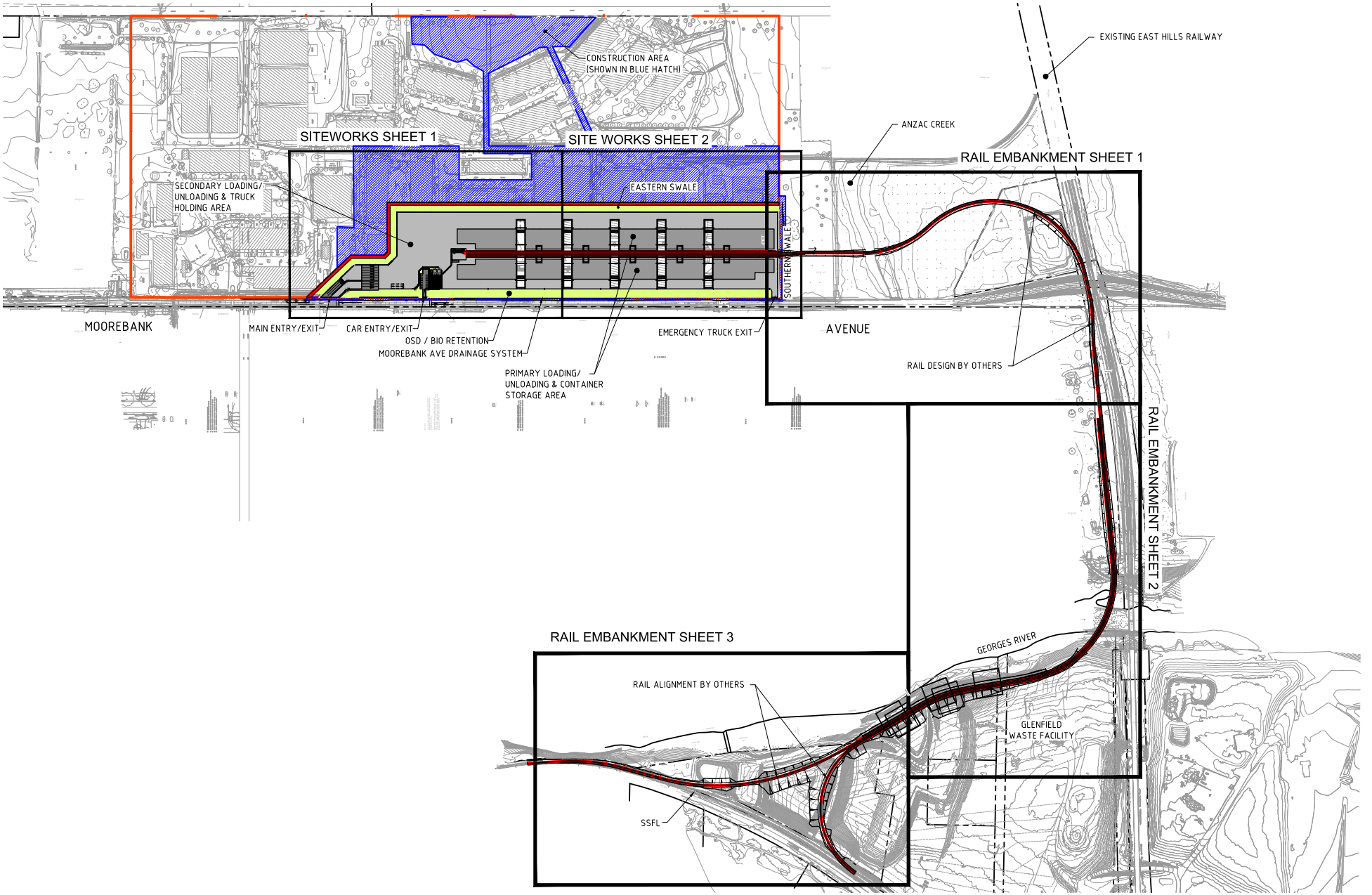
Project: SIMTA INTERMODAL TERMINAL FACILITY (STAGE 1)

Title: TITLE SHEET, DRAWING LIST AND LOCALITY PLAN

HYDER CONSULTING PTY LTD
ABN 76 104 485 289
Level 5, 141 Walker St
North Sydney NSW 2060
Australia
Tel: +61 (0)2 8907 9000
Fax: +61 (0)2 8907 9001
www.hyderconsulting.com

Drawing No.	Project No.	Issue
EISC1001	AA003760	01

Date Plotted: 10 Apr 2015 - 06:36PM File Name: F:\AA003760\E-CAD\C-Civil\D-Final\B-Stage 1_EIS\EISC1001-AA003760-NSD-TitleSheetDrawingListAndLocalityPlan.dwg V1



Issue	Description	Date
01	ISSUE FOR SSD APPLICATION	10.04.15

0 100 200 300 400m

1 : 4000

Client: SIMTA / TACTICAL GROUP

Status: **PRELIMINARY**
NOT TO BE USED FOR CONSTRUCTION

Scales	1:4000	Current Issue Signatures	
		Drawn	A.ZHAO
Original Size	A1	Designed	K.MCAREAVEY
Height Datum	AHD	Checked	B.LUSTY
Grid	MGA	Approved	G.HUZIJ

Filename:

Project: SIMTA INTERMODAL TERMINAL FACILITY (STAGE 1)

Title: GENERAL ARRANGEMENT PLAN

HYDER CONSULTING PTY LTD
ABN 76 104 485 289
Level 5, 141 Walker St
North Sydney NSW 2060
Australia
Tel: +61 (0)2 8907 9000
Fax: +61 (0)2 8907 9001
www.hyderconsulting.com

Drawing No.	Project No.	Issue
EISC1002	AA003760	01

100mm on Original

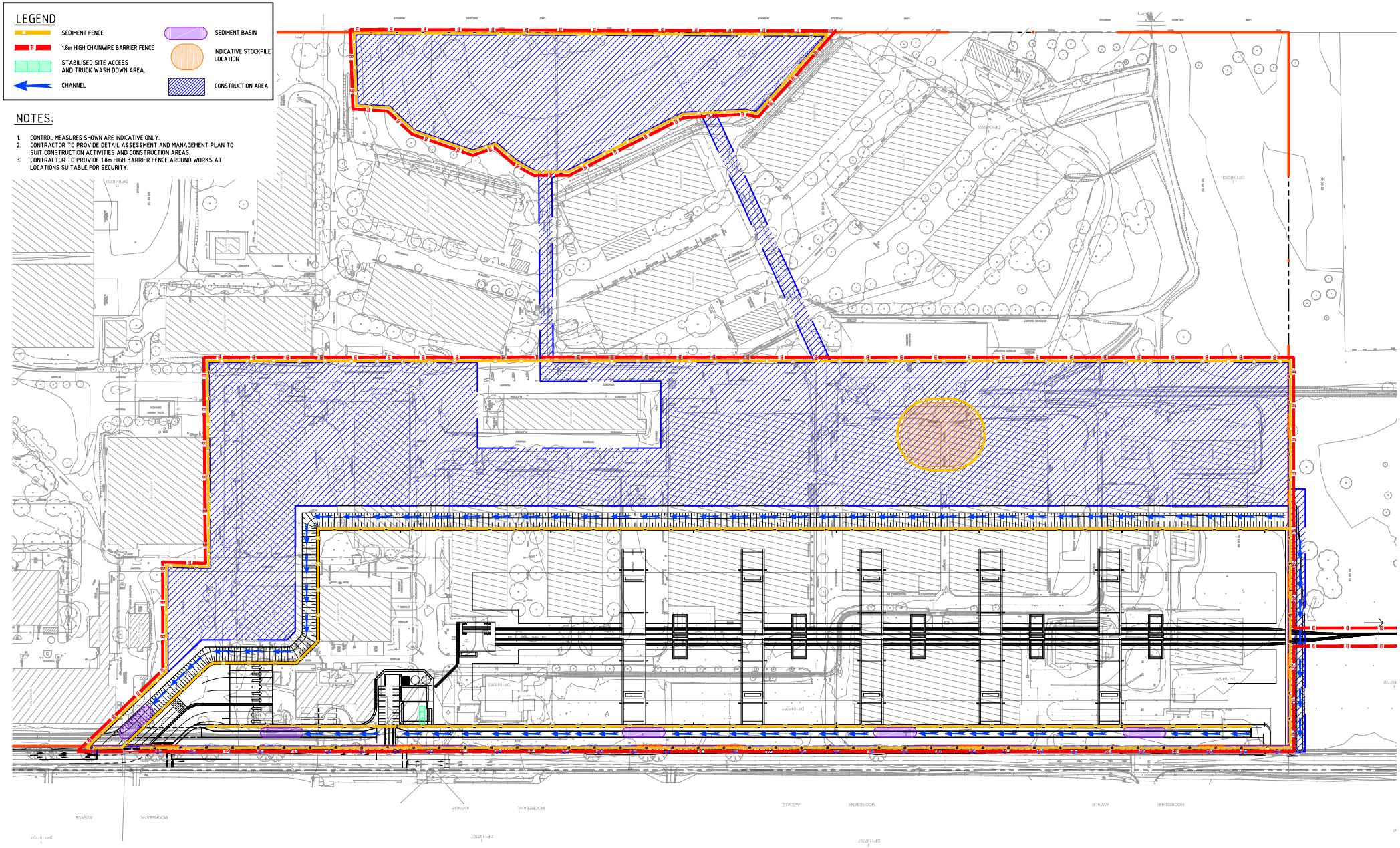
Date Plotted: 10 Apr 2015 - 06:04PM File Name: F:\AA003760\E-CAD\C-Civil\D-Final\B-Stage 1_EIS\EISC1002-AA003760-NSD-GeneralArrangementPlan.dwg V1

LEGEND

- SEDIMENT FENCE
- 1.8m HIGH CHAINWIRE BARRIER FENCE
- STABILISED SITE ACCESS AND TRUCK WASH DOWN AREA.
- CHANNEL
- SEDIMENT BASIN
- INDICATIVE STOCKPILE LOCATION
- CONSTRUCTION AREA

NOTES:

1. CONTROL MEASURES SHOWN ARE INDICATIVE ONLY.
2. CONTRACTOR TO PROVIDE DETAIL ASSESSMENT AND MANAGEMENT PLAN TO SUIT CONSTRUCTION ACTIVITIES AND CONSTRUCTION AREAS.
3. CONTRACTOR TO PROVIDE 1.8m HIGH BARRIER FENCE AROUND WORKS AT LOCATIONS SUITABLE FOR SECURITY.



Issue	Description	Date
01	ISSUE FOR SSD APPLICATION	10.04.15

0 30 60 90 120 150m

1 : 1500

Client: SIMTA / TACTICAL GROUP

Status: **PRELIMINARY** NOT TO BE USED FOR CONSTRUCTION

Scales	1:1500	Current Issue Signatures	
		Drawn	A.ZHAO
Original Size	A1	Designed	D.STONE
Height Datum	AHD	Checked	B.LUSTY
Grid	MGA	Approved	G.HUZIJ
Filename:			

Project: SIMTA INTERMODAL TERMINAL FACILITY (STAGE 1)

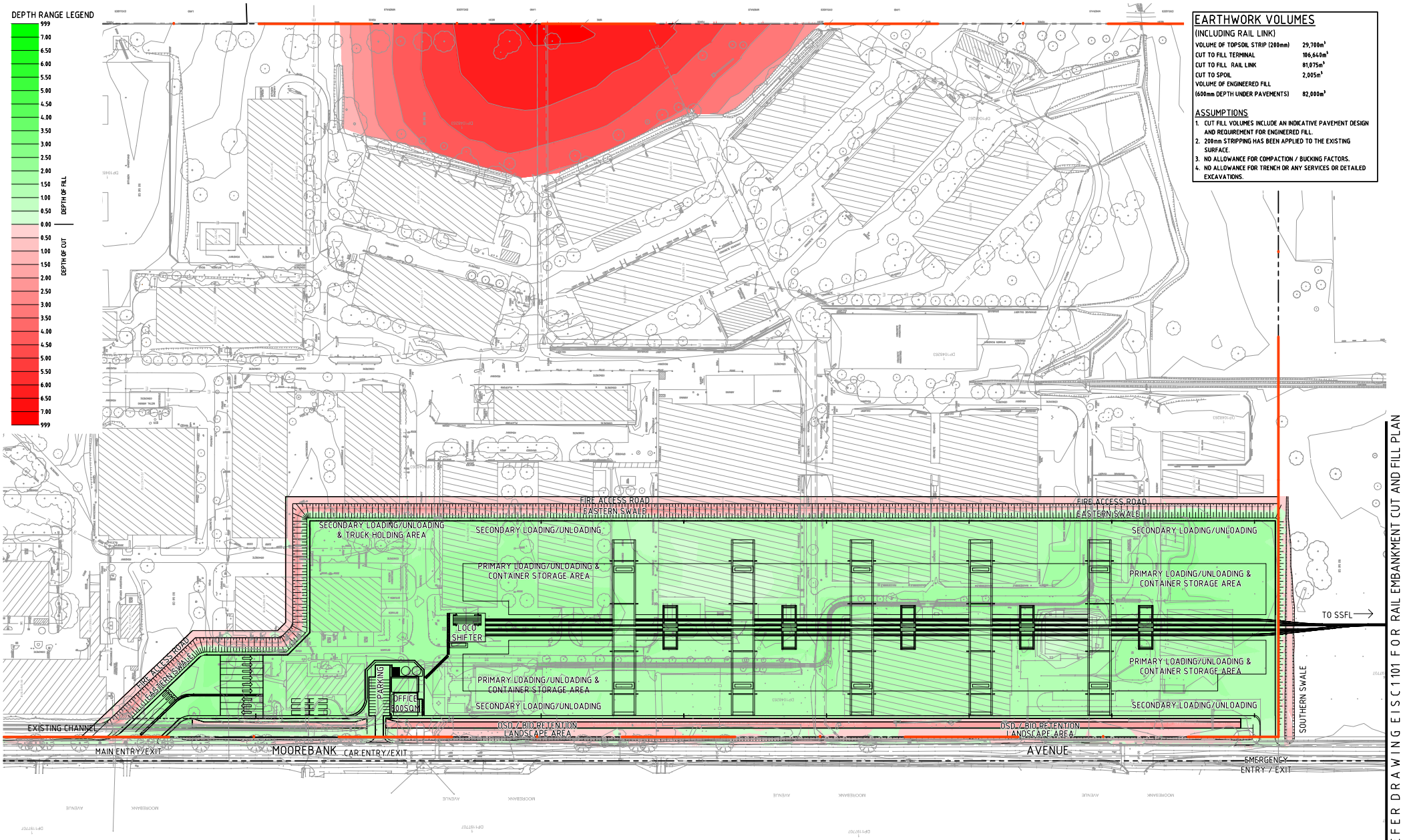
Title: SEDIMENTATION AND EROSION CONTROL PLAN

HYDER CONSULTING PTY LTD
ABN 76 104 485 289
Level 5, 141 Walker St
North Sydney NSW 2060
Australia
Tel: +61 (0)2 8907 9000
Fax: +61 (0)2 8907 9001
www.hyderconsulting.com

Drawing No.	Project No.	Issue
EISC1011	AA003760	01

100mm on Original

Date Plotted: 10 Apr 2015 - 06:05PM File Name: F:\AA003760\E-CAD\C-Civil\D-Final\B-Stage 1_EIS\EISC1011-AA003760-NSD-SedimentationAndErosionControlPlan.dwg V1



Issue	Description	Date
01	ISSUE FOR SSD APPLICATION	10.04.15

0 30 60 90 120 150m

1 : 1500

Client: SIMTA / TACTICAL GROUP

Status: PRELIMINARY
NOT TO BE USED FOR CONSTRUCTION

Scales	1:1500	Current Issue Signatures	
		Drawn	A.ZHAO
Original Size	A1	Designed	K.MCAREAVEY
Height Datum	AHD	Checked	B.LUSTY
Grid	MGA	Approved	G.HUZIJ

Filename:

Project: SIMTA INTERMODAL TERMINAL FACILITY (STAGE 1)

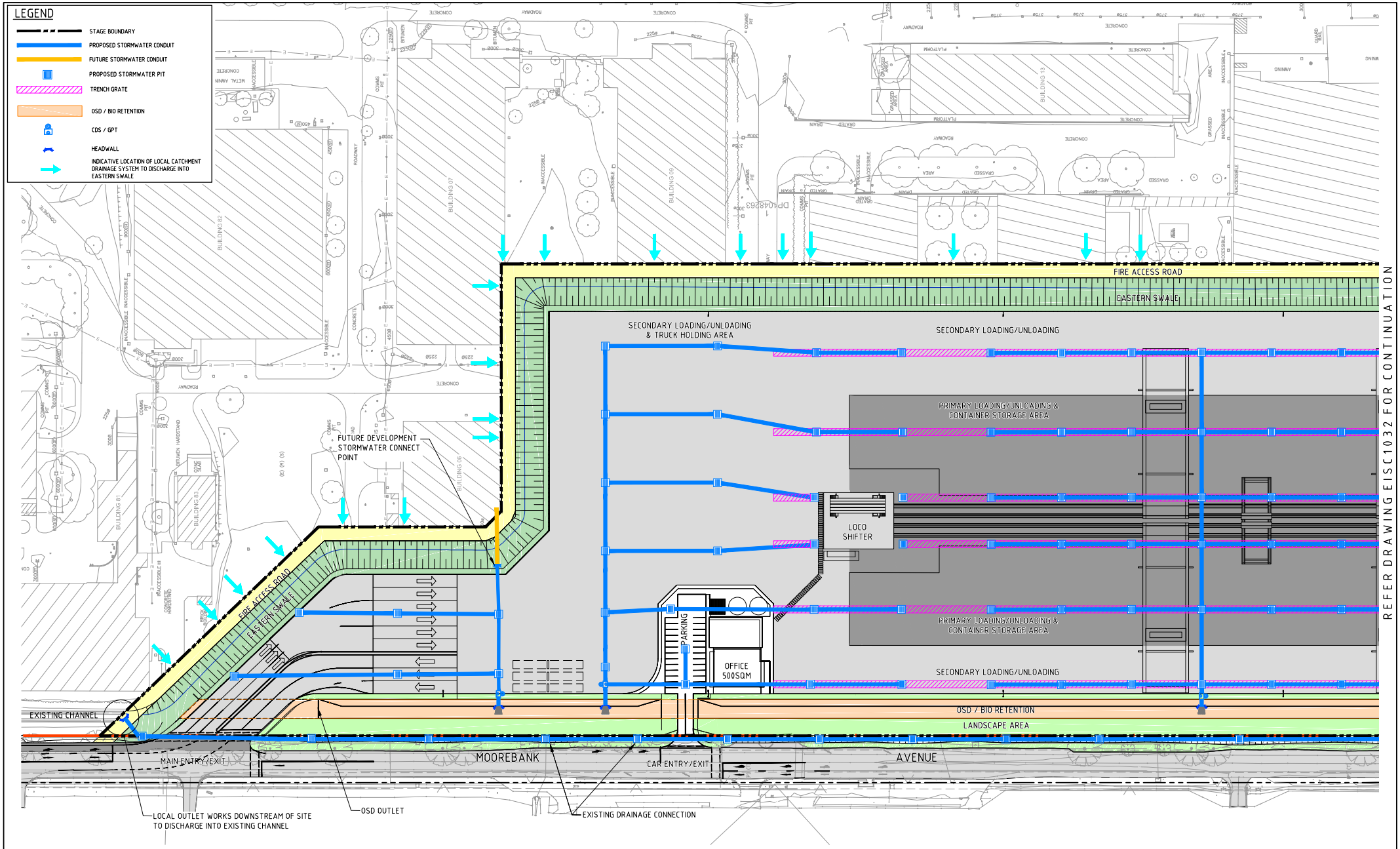
Title: STAGE 1 SITE CUT AND FILL PLAN

HYDER CONSULTING PTY LTD
ABN 76 104 485 289
Level 5, 141 Walker St
North Sydney NSW 2060
Australia
Tel: +61 (0)2 8907 9000
Fax: +61 (0)2 8907 9001
www.hyderconsulting.com

Drawing No.	Project No.	Issue
EISC1021	AA003760	01

100mm on Original

Date Plotted: 10 Apr 2015 - 06:06PM File Name: F:\AA003760\E-CAD\C-Civil\D-Final\B-Stage 1_EIS\EISC1021-AA003760-NSD-CutAndFillPlan.dwg V1



Issue	Description	Date
01	ISSUE FOR SSD APPLICATION	10.04.15

0 15 30 45 60 75m

1 : 750

Client: SIMTA / TACTICAL GROUP

Status: **PRELIMINARY** NOT TO BE USED FOR CONSTRUCTION

Scales	1:750	Current Issue Signatures	
		Drawn	A.ZHAO
Original Size	A1	Designed	G.DUNSTAN
Height Datum	AHD	Checked	B.CALDWELL
Grid	MGA	Approved	G.HUZIJ

Filename:

Project: SIMTA INTERMODAL TERMINAL FACILITY (STAGE 1)

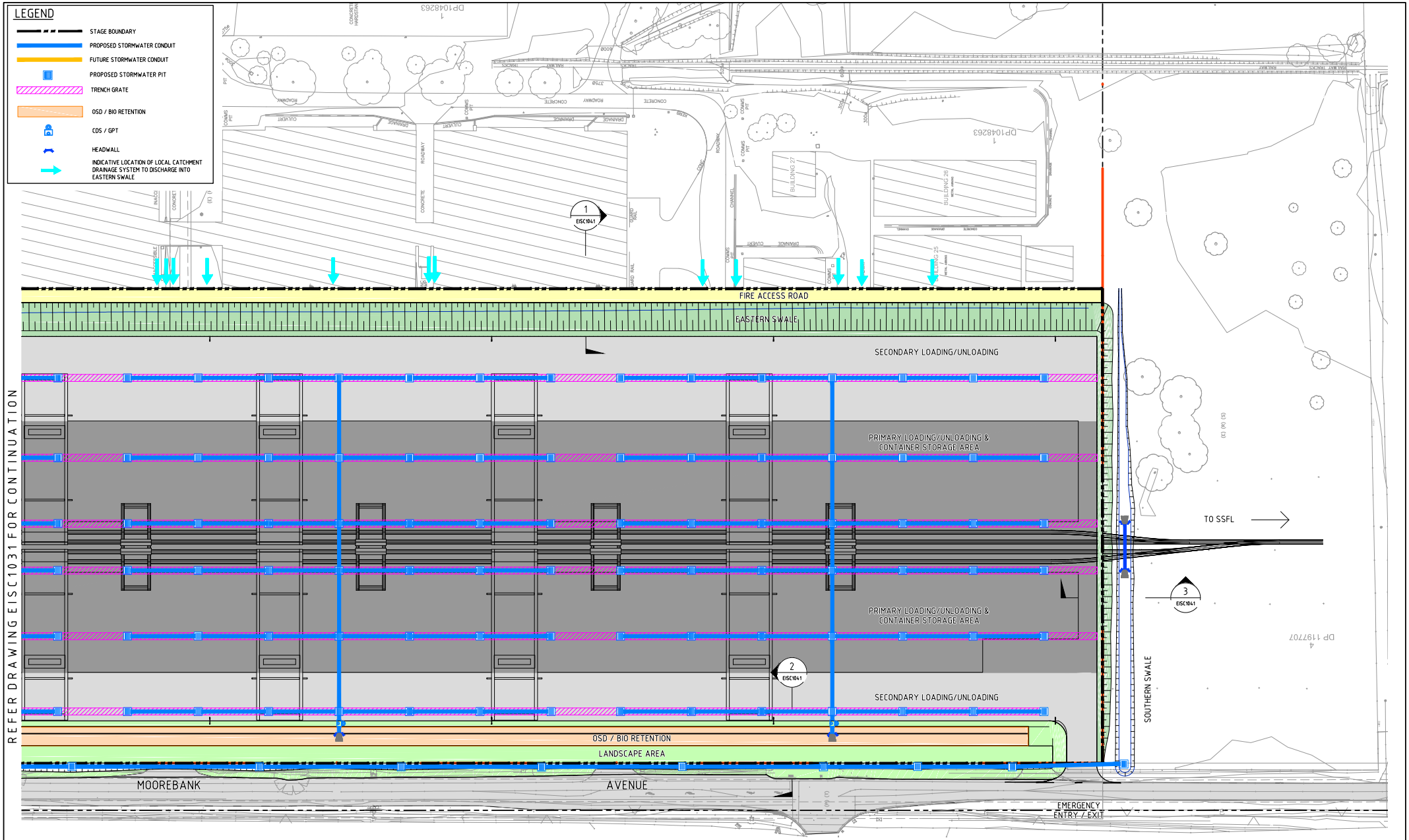
Title: SITEWORKS AND STORMWATER PLAN SHEET 1

HYDER CONSULTING PTY LTD
ABN 76 104 485 289
Level 5, 141 Walker St
North Sydney NSW 2060
Australia
Tel: +61 (0)2 8907 9000
Fax: +61 (0)2 8907 9001
www.hyderconsulting.com

Drawing No.	Project No.	Issue
EISC1031	AA003760	01

100mm on Original

Date Plotted: 10 Apr 2015 - 06:37PM File Name: F:\AA003760\E-CAD\C-Civil\D-Final\B-Stage 1_EIS\EISC1031-AA003760-NSD-SiteworksAndStormwaterPlanSheet1.dwg V1



Issue	Description	Date
01	ISSUE FOR SSD APPLICATION	10.04.15

0 15 30 45 60 75m

1 : 750

Client: SIMTA / TACTICAL GROUP

Status: **PRELIMINARY** NOT TO BE USED FOR CONSTRUCTION

		Current Issue Signatures	
Scales	1:750	Drawn	A.ZHAO
Original Size	A1	Designed	G.DUNSTAN
Height Datum	AHD	Checked	B.CALDWELL
Grid	MGA	Approved	G.HUZIJ
Filename:			

Project: SIMTA INTERMODAL TERMINAL FACILITY (STAGE 1)

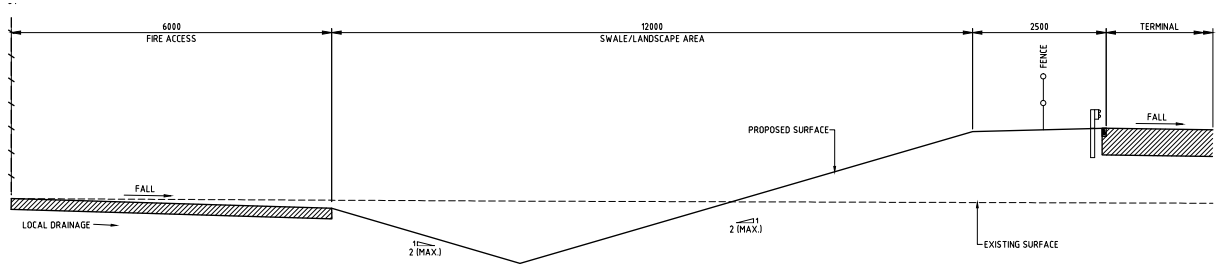
Title: SITEWORKS AND STORMWATER PLAN SHEET 2

HYDER CONSULTING PTY LTD
ABN 76 104 485 289
Level 5, 141 Walker St
North Sydney NSW 2060
Australia
Tel: +61 (0)2 8907 9000
Fax: +61 (0)2 8907 9001
www.hyderconsulting.com

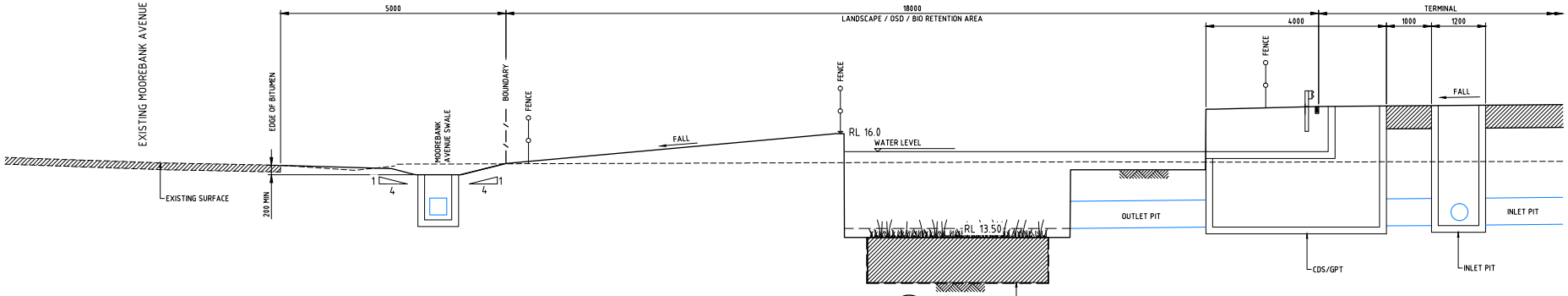
Drawing No.	Project No.	Issue
EISC1032	AA003760	01

100mm on Original

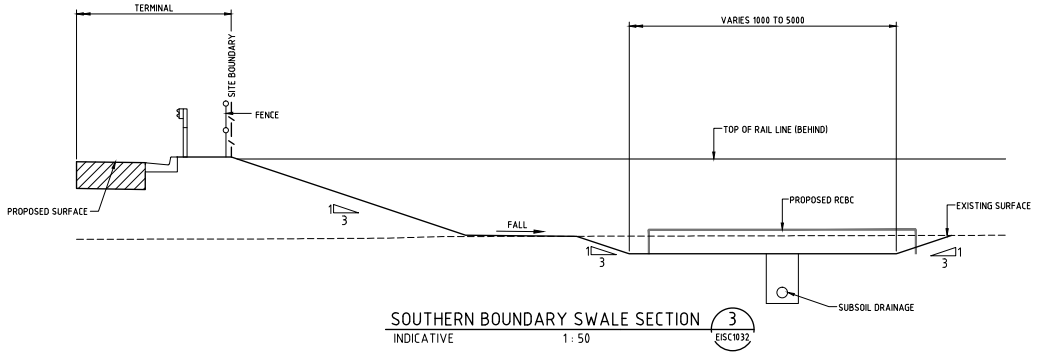
Date Plotted: 10 Apr 2015 - 06:38PM File Name: F:\AA003760\E-CAD\C-Civil\D-Final\B-Stage 1_EIS\EISC1032-AA003760-NSD-SiteworksAndStormwaterPlanSheet2.dwg V1



EASTERN BOUNDARY INTERFACE 1
INDICATIVE 1 : 50 EISC1032



STORMWATER DRAINAGE ALONG MOOREBANK AVENUE 2
INDICATIVE 1 : 50 EISC1032



SOUTHERN BOUNDARY SWALE SECTION 3
INDICATIVE 1 : 50 EISC1032

ALL LEVELS AND DIMENSIONS ARE PRELIMINARY AND SUBJECT TO FUTURE DESIGN.

Issue	Description	Date
01	ISSUE FOR SSD APPLICATION	10.04.15

0 1 2 3 4 5m
1 : 50

Client: SIMTA / TACTICAL GROUP

Status: PRELIMINARY
NOT TO BE USED FOR CONSTRUCTION

Scales	AS SHOWN	Current Issue Signatures	
		Drawn	A.ZHAO
Original Size	A1	Designed	K.MCAREAVEY
Height Datum	AHD	Checked	B.LUSTY
Grid	MGA	Approved	G.HUZIJ

Filename:

Project: SIMTA INTERMODAL TERMINAL FACILITY (STAGE 1)

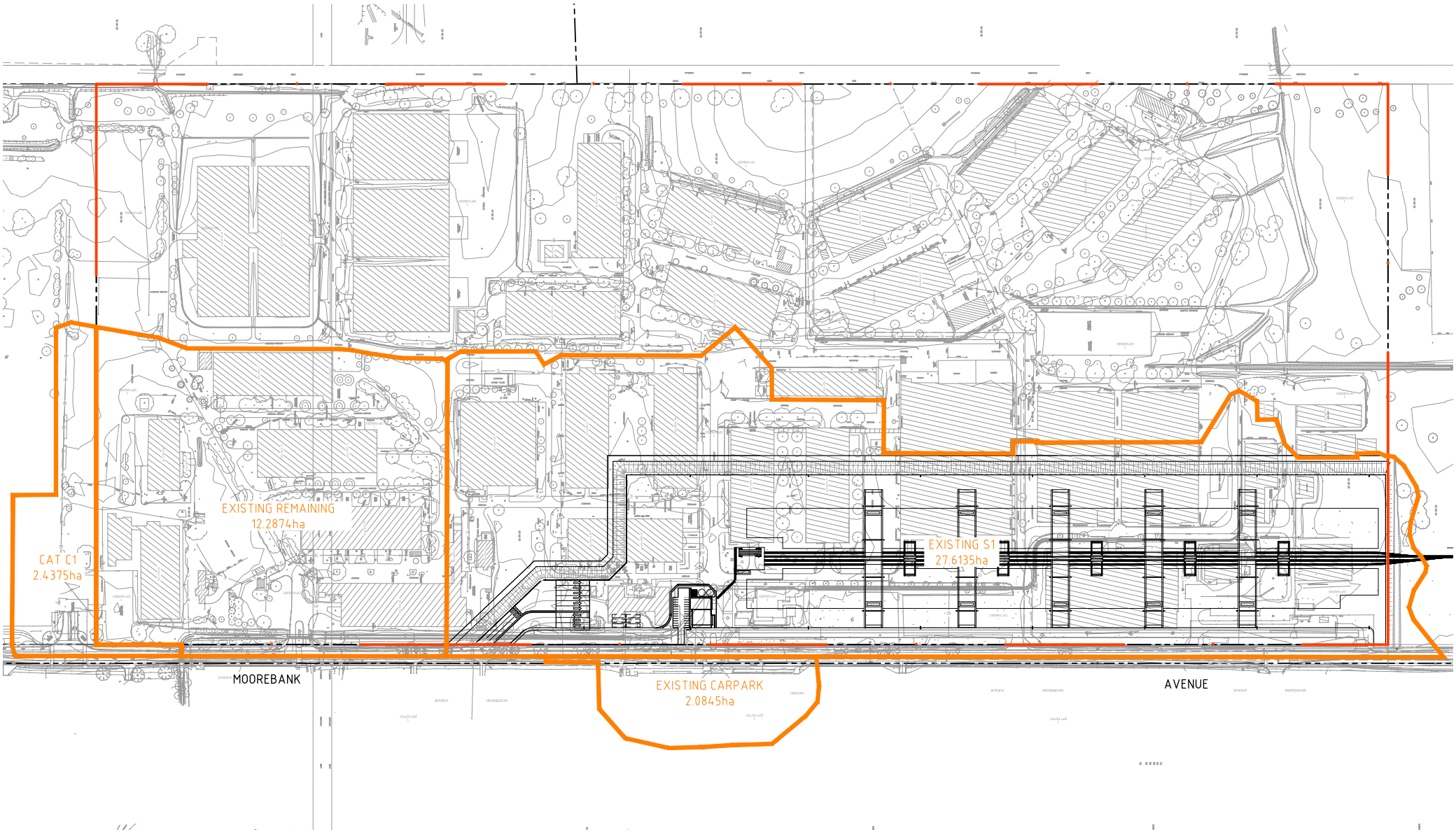
Title: TYPICAL STORMWATER DRAINAGE SECTIONS

HYDER CONSULTING PTY LTD
ABN 76 104 485 289
Level 5, 141 Walker St
North Sydney NSW 2060
Australia
Tel: +61 (0)2 8907 9000
Fax: +61 (0)2 8907 9001
www.hyderconsulting.com

Drawing No.	Project No.	Issue
EISC1041 – AA003760 – 01		

100mm on Original

Date Plotted: 10 Apr 2015 - 06:08PM File Name: F:\AA003760\E-CAD\C-Civil\D-Final\B-Stage 1_EIS\EISC1041-AA003760-NSD-TypicalDrainageSections.dwg V1



Issue	Description	Date
01	ISSUE FOR SSD APPLICATION	10.04.15

0 50 100 150 200m

1 : 2000

Client: SIMTA / TACTICAL GROUP

Status: PRELIMINARY
NOT TO BE USED FOR CONSTRUCTION

Scales	1:2000	Current Issue Signatures	
		Drawn	A.ZHAO
Original Size	A1	Designed	G.DUNSTAN
Height Datum	AHD	Checked	B.CALDWELL
Grid	MGA	Approved	G.HUZIJ

Filename:

Project: SIMTA INTERMODAL TERMINAL FACILITY (STAGE 1)

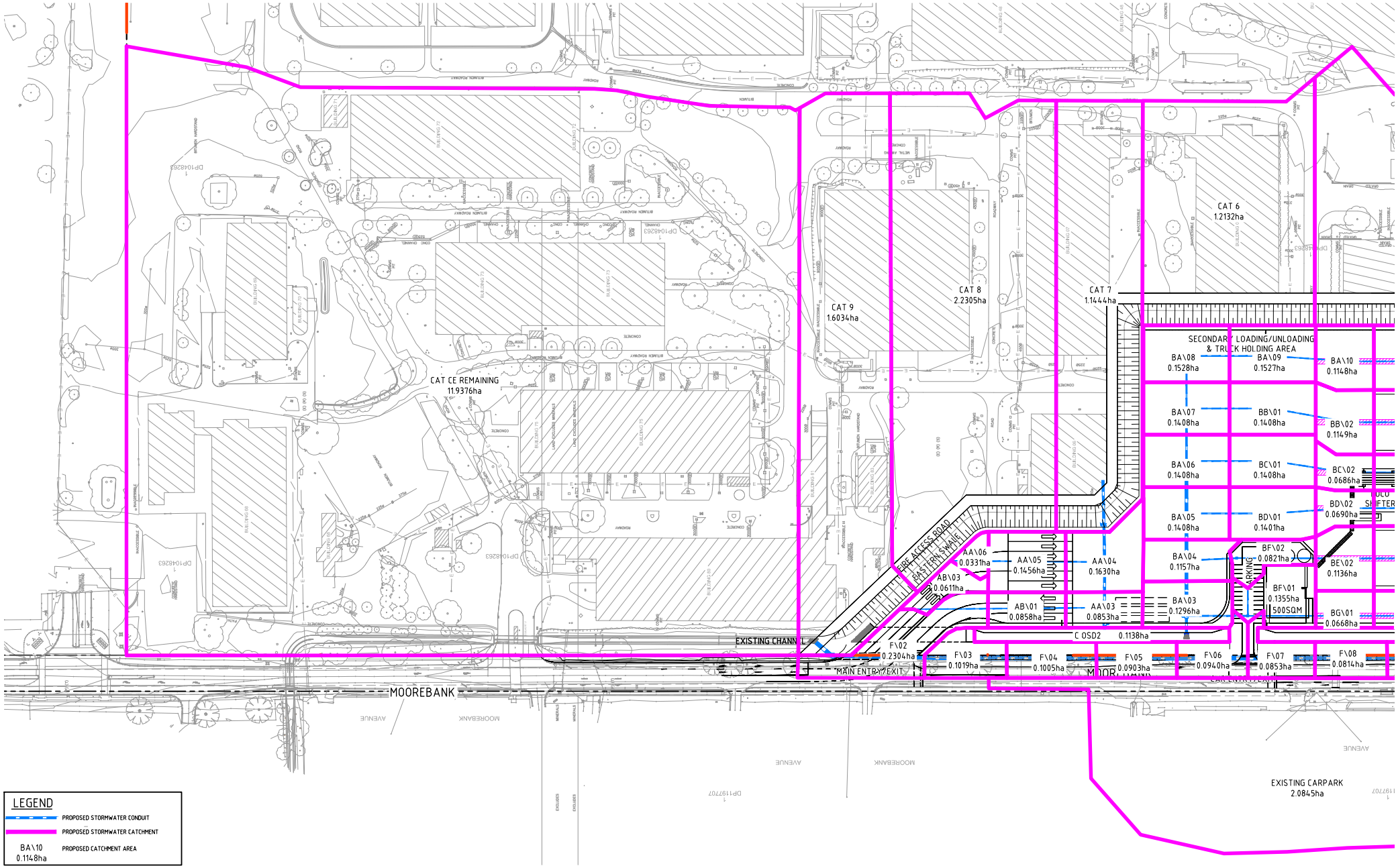
Title: EXISTING CATCHMENT PLAN

HYDER CONSULTING PTY LTD
ABN 76 104 485 289
Level 5, 141 Walker St
North Sydney NSW 2060
Australia
Tel: +61 (0)2 8907 9000
Fax: +61 (0)2 8907 9001
www.hyderconsulting.com

Drawing No.	Project No.	Issue
EISC1051	AA003760	01

100mm on Original

Date Plotted: 10 Apr 2015 - 06:08PM File Name: F:\AA003760\E-CAD\C-Civil\D-Final\B-Stage 1_EIS\EISC1051-AA003760-NSD-ExistingCatchmentPlan.dwg V1



LEGEND

- PROPOSED STORMWATER CONDUIT
- PROPOSED STORMWATER CATCHMENT
- BA\10 0.1148ha — PROPOSED CATCHMENT AREA

Issue	Description	Date
01	ISSUE FOR SSD APPLICATION	10.04.15

0 20 40 60 80 100m

1 : 1000

Client: SIMTA / TACTICAL GROUP

Status: PRELIMINARY
NOT TO BE USED FOR CONSTRUCTION

Scales	1:1000	Current Issue Signatures	
		Drawn	A.ZHAO
Original Size	A1	Designed	G.DUNSTAN
Height Datum	AHD	Checked	B.CALDWELL
Grid	MGA	Approved	G.HUZIJ
Filename:			

Project: SIMTA INTERMODAL TERMINAL FACILITY (STAGE 1)

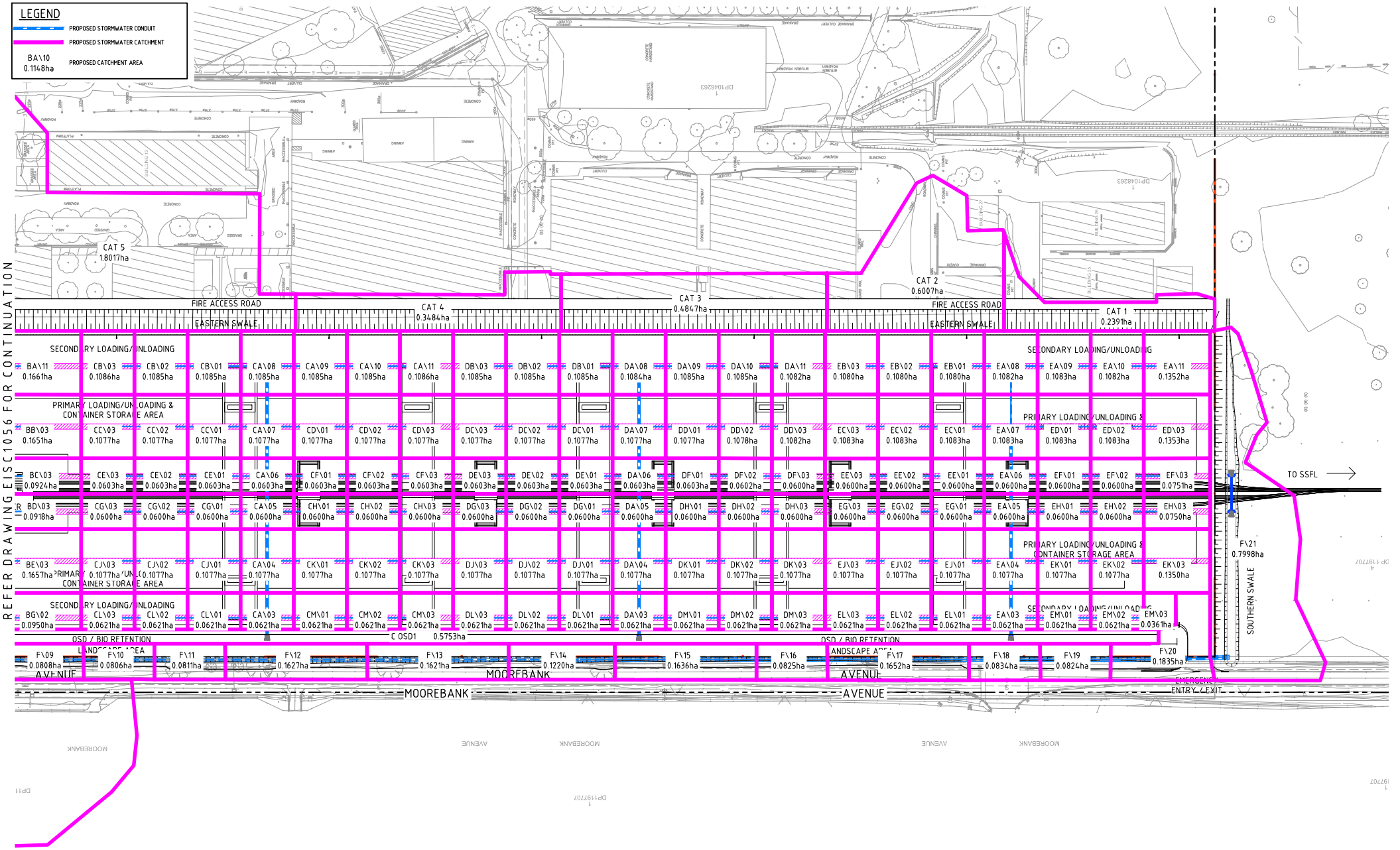
Title: PROPOSED CATCHMENT PLAN SHEET 1

HYDER CONSULTING PTY LTD
ABN 76 104 485 289
Level 5, 141 Walker St
North Sydney NSW 2060
Australia
Tel: +61 (0)2 8907 9000
Fax: +61 (0)2 8907 9001
www.hyderconsulting.com

Drawing No.	Project No.	Issue
EISC1056	AA003760	01

100mm on Original

Date Plotted: 10 Apr 2015 - 06:09PM File Name: F:\AA003760\E-CAD\C-Civil\D-Final\B-Stage 1_EIS\EISC1056-AA003760-NSD-ProposedCatchmentPlanSheet1.dwg V1



Issue	Description	Date
01	ISSUE FOR SSD APPLICATION	10.04.15

0 20 40 60 80 100m
1 : 1000

Client: SIMTA / TACTICAL GROUP

Status: PRELIMINARY
NOT TO BE USED FOR CONSTRUCTION

Scales	1:1000	Current Issue Signatures	
		Drawn	A.ZHAO
Original Size	A1	Designed	G.DUNSTAN
Height Datum	AHD	Checked	B.CALDWELL
Grid	MGA	Approved	G.HUZIJ

Filename:

Project: SIMTA INTERMODAL TERMINAL FACILITY (STAGE 1)

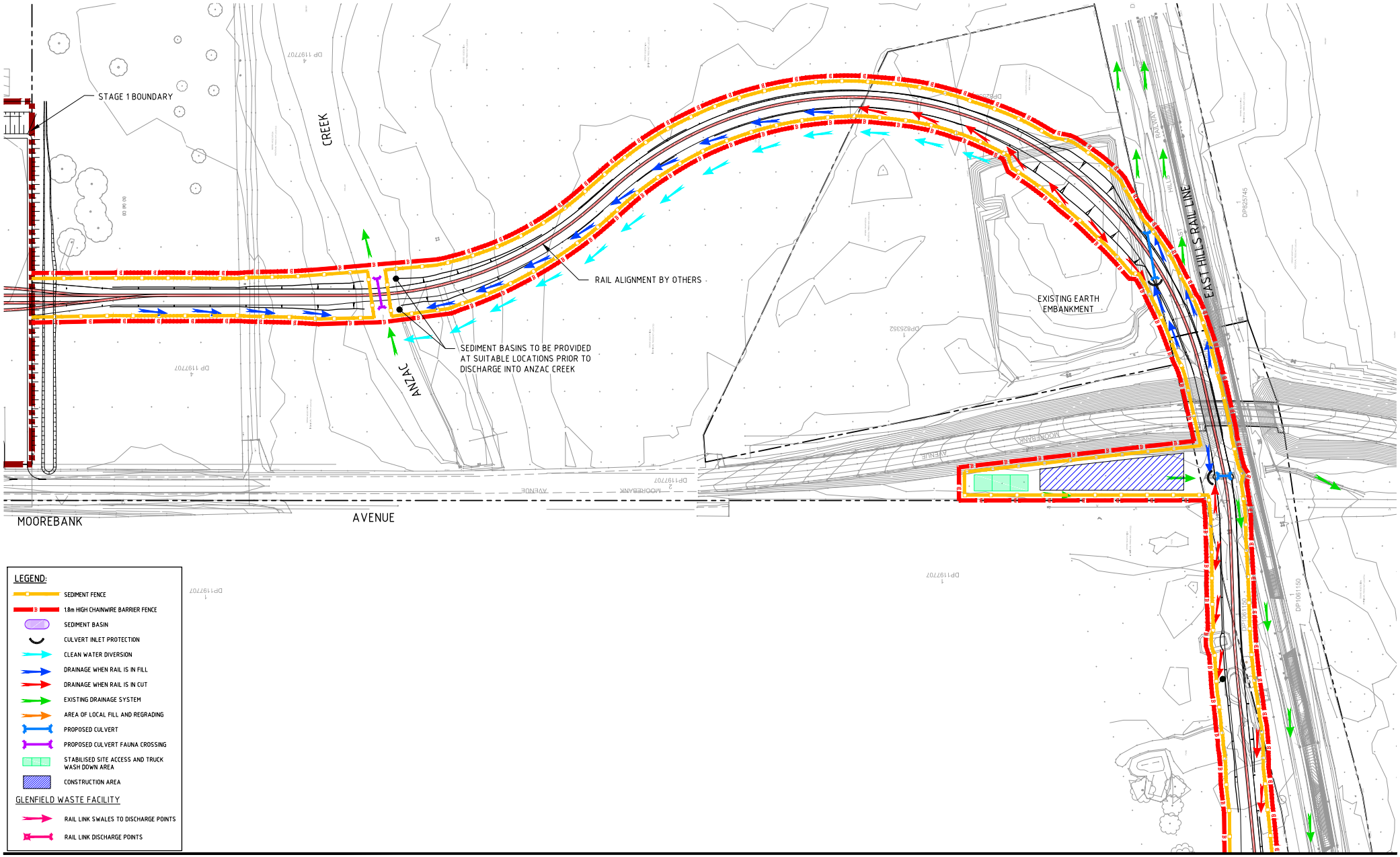
Title: PROPOSED CATCHMENT PLAN SHEET 2

HYDER CONSULTING PTY LTD
ABN 76 104 485 289
Level 5, 141 Walker St
North Sydney NSW 2060
Australia
Tel: +61 (0)2 8907 9000
Fax: +61 (0)2 8907 9001
www.hyderconsulting.com

Drawing No.	Project No.	Issue
EISC1057	AA003760	01

100mm on Original

Date Plotted: 10 Apr 2015 - 06:10PM File Name: F:\AA003760\E-CAD\C-Civil\D-Final\B-Stage 1_EIS\EISC1057-AA003760-NSD-ProposedCatchmentPlanSheet2.dwg V1



REFER DRAWING EISC1102 FOR CONTINUATION

Issue	Description	Date
02	RE-ISSUE FOR SSD APPLICATION	20.04.15
01	ISSUE FOR SSD APPLICATION	10.04.15

0 20 40 60 80 100m

1 : 1000

Client: SIMTA / TACTICAL GROUP

Status: **PRELIMINARY** NOT TO BE USED FOR CONSTRUCTION

Scales	1:1000	Current Issue Signatures	
		Drawn	A.ZHAO
Original Size	A1	Designed	K.MCAREAVEY
Height Datum	AHD	Checked	B.LUSTY
Grid	MGA	Approved	G.HUZIJ

Filename:

Project: SIMTA INTERMODAL TERMINAL FACILITY (STAGE 1)

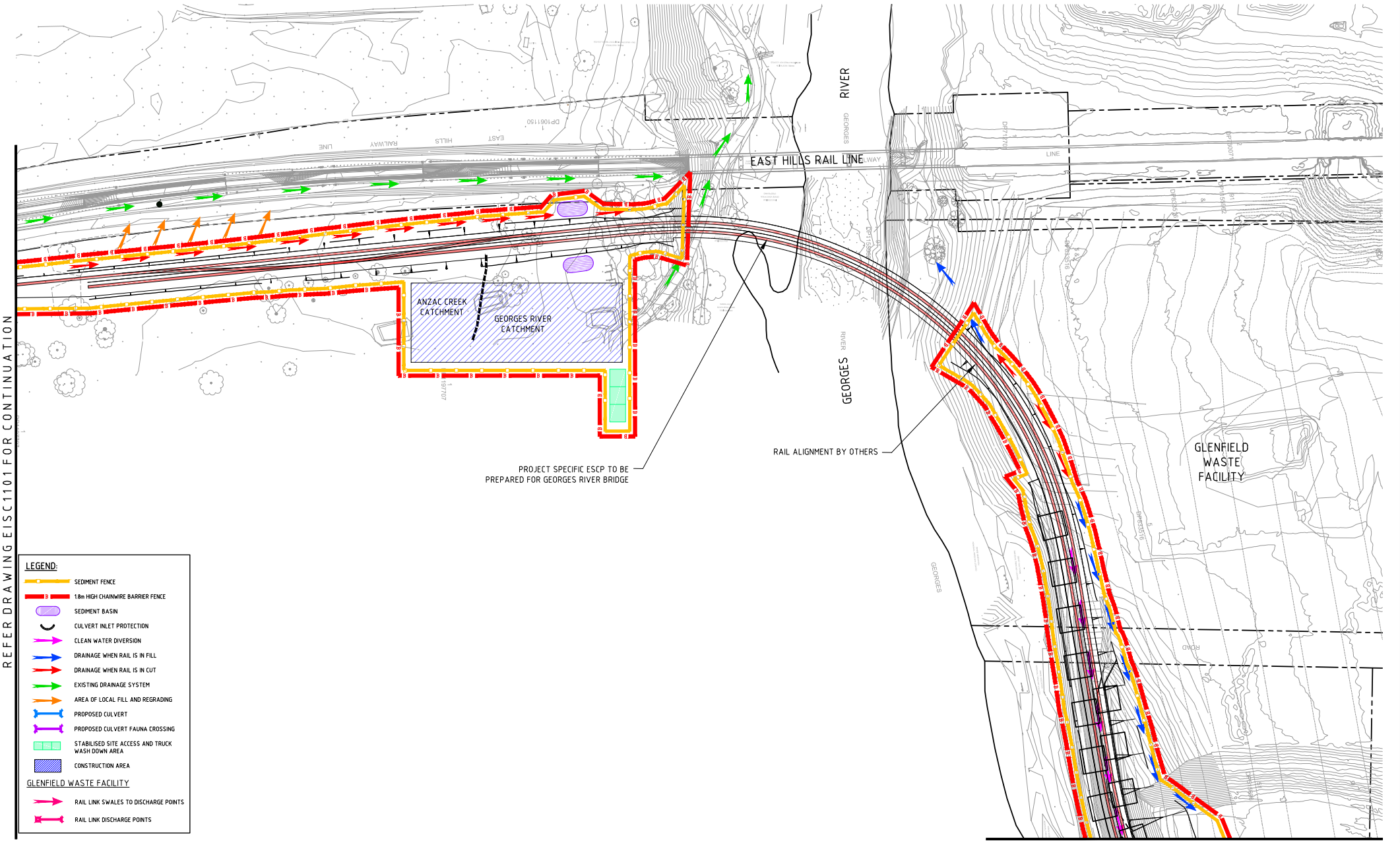
Title: RAIL EMBANKMENT SEDIMENTATION AND EROSION CONTROL PLAN SHEET 1

HYDER CONSULTING PTY LTD
ABN 76 104 485 289
Level 5, 141 Walker St
North Sydney NSW 2060
Australia
Tel: +61 (0)2 8907 9000
Fax: +61 (0)2 8907 9001
www.hyderconsulting.com

Drawing No.	Project No.	Issue
EISC1101	AA003760	02

100mm on Original

Date Plotted: 20 Apr 2015 - 04:00PM File Name: F:\AA003760\E-CAD\C-Civil\D-Final\B-Stage 1_EIS\EISC1101-AA003760-NSD-RailEmbankmentSedimentationAndErosionControlPlanSheet1.dwg V1



Issue	Description	Date
01	ISSUE FOR SSD APPLICATION	10.04.15

0 20 40 60 80 100m

1 : 1000

Client: SIMTA / TACTICAL GROUP

Status: PRELIMINARY
NOT TO BE USED FOR CONSTRUCTION

Scales	1:1000	Current Issue Signatures	
		Drawn	A.ZHAO
Original Size	A1	Designed	K.MCAREAVEY
Height Datum	AHD	Checked	B.LUSTY
Grid	MGA	Approved	G.HUZIJ

Filename:

Project: SIMTA INTERMODAL TERMINAL FACILITY (STAGE 1)

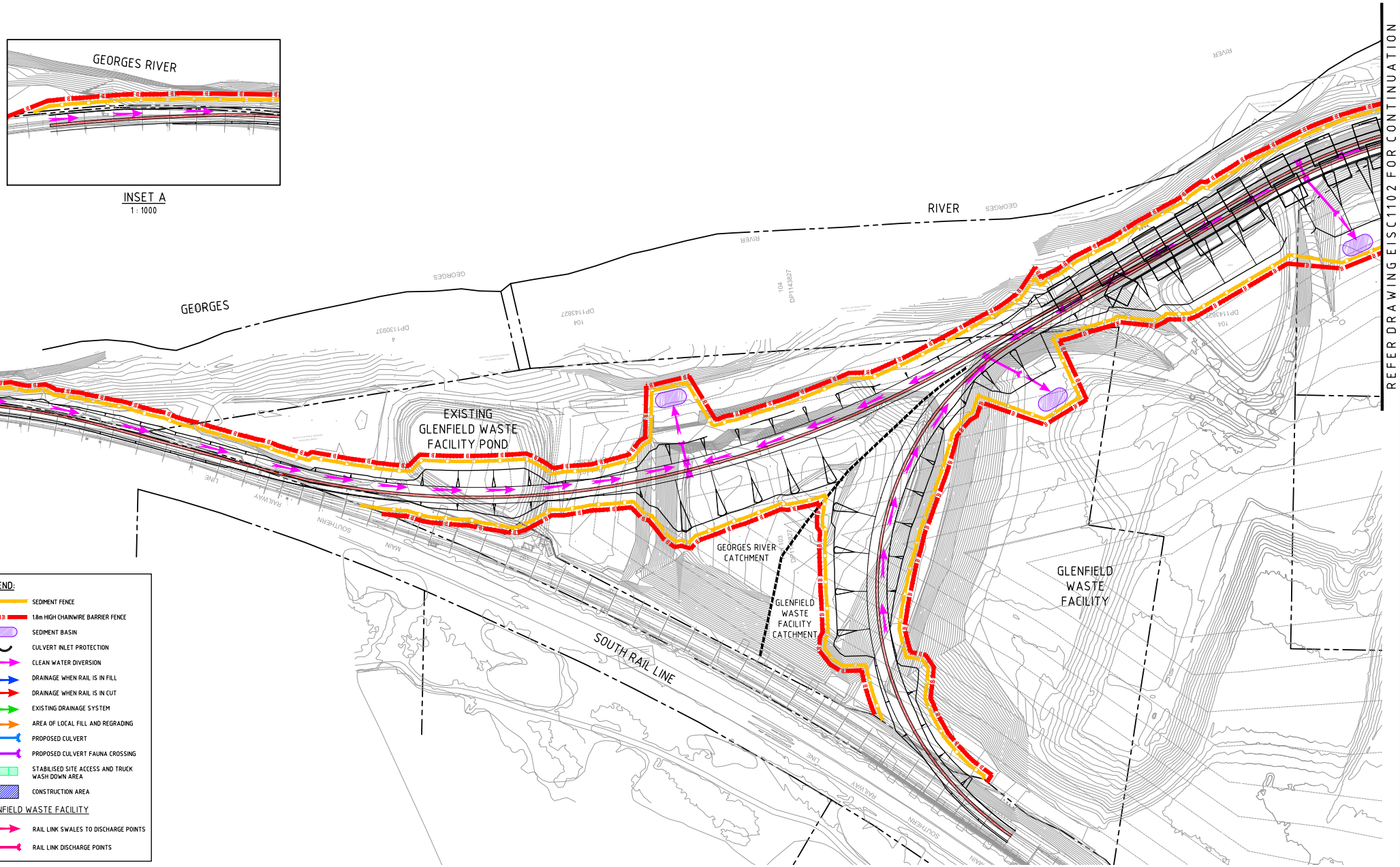
Title: RAIL EMBANKMENT SEDIMENTATION AND EROSION CONTROL PLAN SHEET 2

HYDER CONSULTING PTY LTD
ABN 76 104 485 289
Level 5, 141 Walker St
North Sydney NSW 2060
Australia
Tel: +61 (0)2 8907 9000
Fax: +61 (0)2 8907 9001
www.hyderconsulting.com

Drawing No.	Project No.	Issue
EISC1102	AA003760	01

100mm on Original

Date Plotted: 10 Apr 2015 - 06:39PM File Name: F:\AA003760\E-CAD\C-Civil\D-Final\B-Stage 1_EIS\EISC1102-AA003760-NSD-RailEmbankmentSedimentationAndErosionControlPlanSheet2.dwg V1



Issue	Description	Date
01	ISSUE FOR SSD APPLICATION	10.04.15

0 20 40 60 80 100m

1 : 1000

Client: SIMTA / TACTICAL GROUP

Status: **PRELIMINARY**
NOT TO BE USED FOR CONSTRUCTION

Scales	1:1000	Current Issue Signatures	
		Drawn	A.ZHAO
Original Size	A1	Designed	K.MCAREAVEY
Height Datum	AHD	Checked	B.LUSTY
Grid	MGA	Approved	G.HUZIJ
Filename:			

Project: SIMTA INTERMODAL TERMINAL FACILITY (STAGE 1)

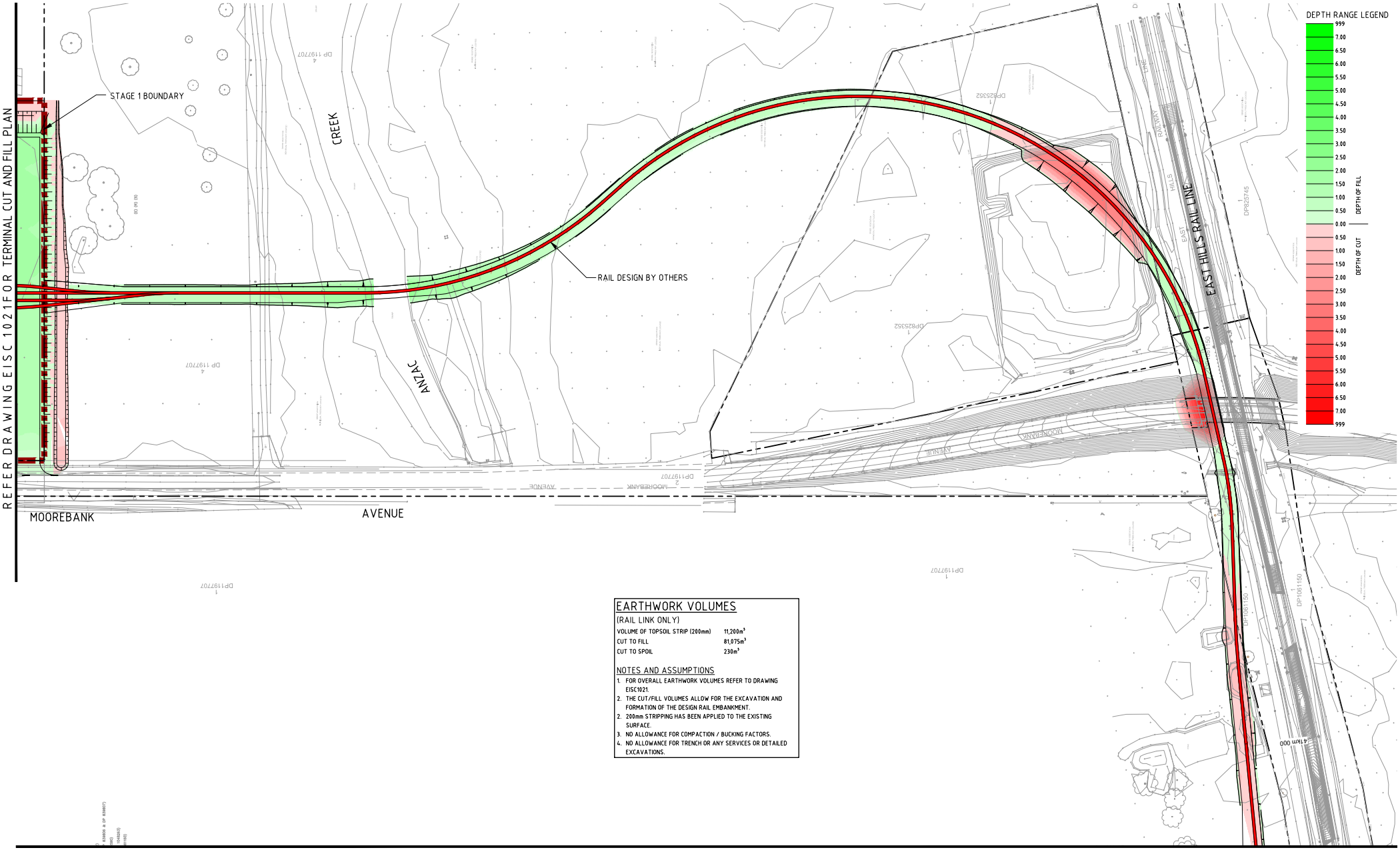
Title: RAIL EMBANKMENT SEDIMENTATION AND EROSION CONTROL PLAN SHEET 3

HYDER CONSULTING PTY LTD
ABN 76 104 485 289
Level 5, 141 Walker St
North Sydney NSW 2060
Australia
Tel: +61 (0)2 8907 9000
Fax: +61 (0)2 8907 9001
www.hyderconsulting.com

Drawing No.	Project No.	Issue
EISC1103	AA003760	01

100mm on Original

Date Plotted: 10 Apr 2015 - 06:40PM File Name: F:\AA003760\E-CAD\C-Civil\D-Final\B-Stage 1_EIS\EISC1103-AA003760-NSD-RailEmbankmentSedimentationAndErosionControlPlanSheet3.dwg V1



EARTHWORK VOLUMES

(RAIL LINK ONLY)

VOLUME OF TOPSOIL STRIP (200mm)	11,200m³
CUT TO FILL	81,075m³
CUT TO SPOIL	230m³

NOTES AND ASSUMPTIONS

1. FOR OVERALL EARTHWORK VOLUMES REFER TO DRAWING EISC1021.
2. THE CUT/FILL VOLUMES ALLOW FOR THE EXCAVATION AND FORMATION OF THE DESIGN RAIL EMBANKMENT.
2. 200mm STRIPPING HAS BEEN APPLIED TO THE EXISTING SURFACE.
3. NO ALLOWANCE FOR COMPACTION / BUCKING FACTORS.
4. NO ALLOWANCE FOR TRENCH OR ANY SERVICES OR DETAILED EXCAVATIONS.

REFER DRAWING EISC1107 FOR CONTINUATION

Issue	Description	Date
01	ISSUE FOR SSD APPLICATION	10.04.15

0 20 40 60 80 100m

1 : 1000

Client: SIMTA / TACTICAL GROUP

Status: **PRELIMINARY** NOT TO BE USED FOR CONSTRUCTION

		Current Issue Signatures	
Scales	1:1000	Drawn	A.ZHAO
Original Size	A1	Designed	K.MCAREAVEY
Height Datum	AHD	Checked	B.LUSTY
Grid	MGA	Approved	G.HUZIJ
Filename:			

Project: SIMTA INTERMODAL TERMINAL FACILITY (STAGE 1)

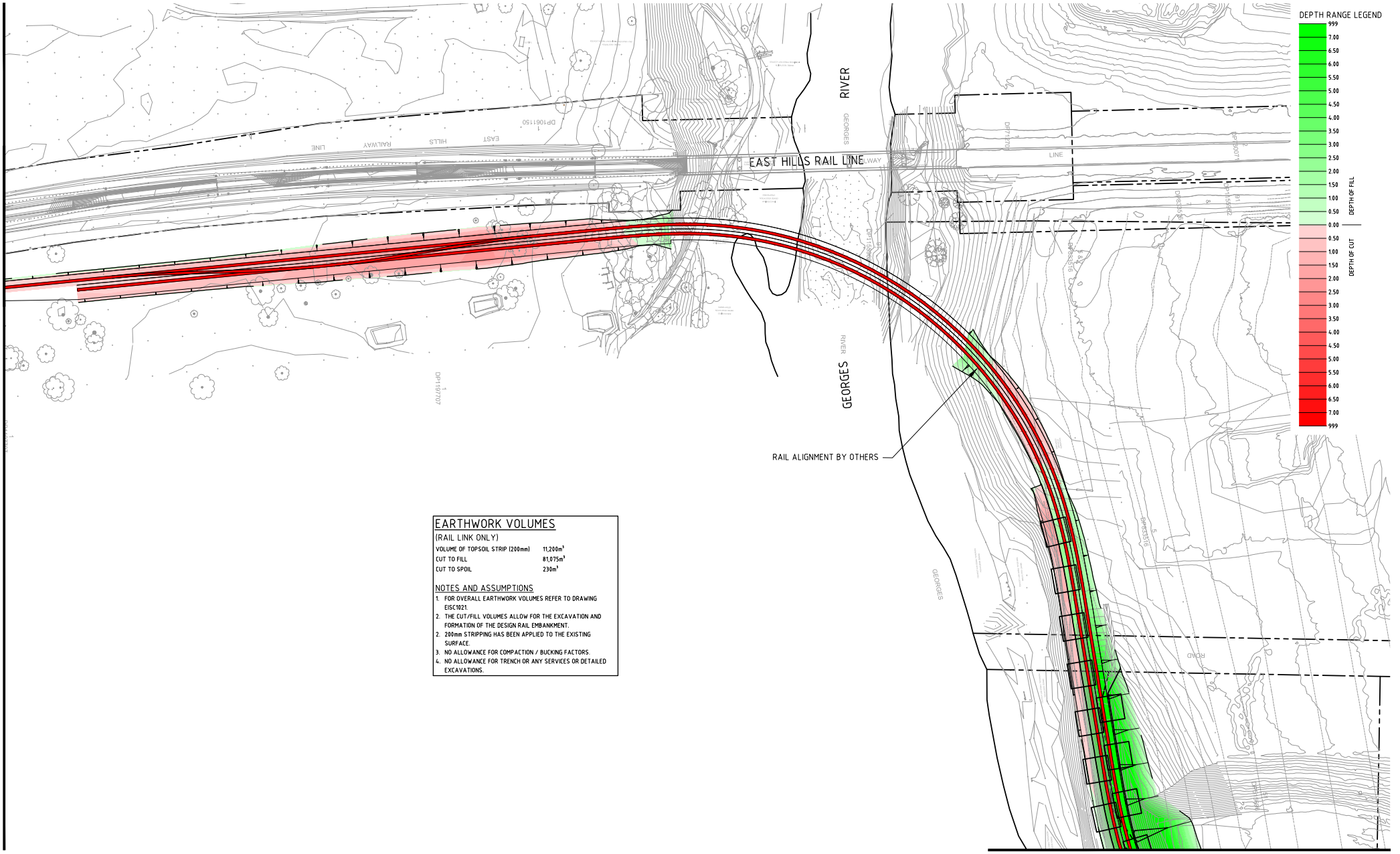
Title: RAIL EMBANKMENT CUT AND FILL PLAN SHEET 1

HYDER CONSULTING PTY LTD
ABN 76 104 485 289
Level 5, 141 Walker St
North Sydney NSW 2060
Australia
Tel: +61 (0)2 8907 9000
Fax: +61 (0)2 8907 9001
www.hyderconsulting.com

Drawing No.	Project No.	Issue
EISC1106	AA003760	01

100mm on Original

Date Plotted: 10 Apr 2015 - 06:13PM File Name: F:\AA003760\E-CAD\C-Civil\D-Final\B-Stage 1_EIS\EISC1106-AA003760-NSD-RailEmbankmentCutAndFillPlanSheet1.dwg V1



EARTHWORK VOLUMES

(RAIL LINK ONLY)

VOLUME OF TOPSOIL STRIP (200mm)	11,200m³
CUT TO FILL	81,075m³
CUT TO SPOIL	230m³

NOTES AND ASSUMPTIONS

1. FOR OVERALL EARTHWORK VOLUMES REFER TO DRAWING EISC1021.
2. THE CUT/FILL VOLUMES ALLOW FOR THE EXCAVATION AND FORMATION OF THE DESIGN RAIL EMBANKMENT.
2. 200mm STRIPPING HAS BEEN APPLIED TO THE EXISTING SURFACE.
3. NO ALLOWANCE FOR COMPACTION / BUCKING FACTORS.
4. NO ALLOWANCE FOR TRENCH OR ANY SERVICES OR DETAILED EXCAVATIONS.

Issue	Description	Date
01	ISSUE FOR SSD APPLICATION	10.04.15

0 20 40 60 80 100m

1 : 1000

Client: SIMTA / TACTICAL GROUP

Status: PRELIMINARY
NOT TO BE USED FOR CONSTRUCTION

		Current Issue Signatures	
Scales	1:1000	Drawn	A.ZHAO
Original Size	A1	Designed	K.MCAREAVEY
Height Datum	AHD	Checked	B.LUSTY
Grid	MGA	Approved	G.HUZIJ
Filename:			

Project: SIMTA INTERMODAL TERMINAL FACILITY (STAGE 1)

Title: RAIL EMBANKMENT CUT AND FILL PLAN SHEET 2

HYDER CONSULTING PTY LTD
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North Sydney NSW 2060
Australia
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Fax: +61 (0)2 8907 9001
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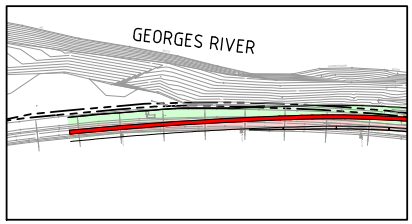
Drawing No.	Project No.	Issue
EISC1107	AA003760	01

100mm on Original

Date Plotted: 10 Apr 2015 - 06:14PM File Name: F:\AA003760\E-CAD\C-Civil\D-Final\B-Stage 1_EIS\EISC1107-AA003760-NSD-RailEmbankmentCutAndFillPlanSheet2.dwg V1



INSET A
1 : 1000

EARTHWORK VOLUMES

(RAIL LINK ONLY)

VOLUME OF TOPSOIL STRIP (200mm)	11,200m³
CUT TO FILL	81,075m³
CUT TO SPOIL	230m³

NOTES AND ASSUMPTIONS

1. FOR OVERALL EARTHWORK VOLUMES REFER TO DRAWING EISC1021.
2. THE CUT/FILL VOLUMES ALLOW FOR THE EXCAVATION AND FORMATION OF THE DESIGN RAIL EMBANKMENT.
2. 200mm STRIPPING HAS BEEN APPLIED TO THE EXISTING SURFACE.
3. NO ALLOWANCE FOR COMPACTION / BUCKING FACTORS.
4. NO ALLOWANCE FOR TRENCH OR ANY SERVICES OR DETAILED EXCAVATIONS.

REFER INSET A

REFER DRAWING EISC1107 FOR CONTINUATION

RIVER

GEORGES

SOUTH RAIL LINE

DEPTH RANGE LEGEND

DEPTH OF FILL: 999, 7.00, 6.50, 6.00, 5.50, 5.00, 4.50, 4.00, 3.50, 3.00, 2.50, 2.00, 1.50, 1.00, 0.50, 0.00

DEPTH OF CUT: 0.50, 1.00, 1.50, 2.00, 2.50, 3.00, 3.50, 4.00, 4.50, 5.00, 5.50, 6.00, 6.50, 7.00, 999

Issue	Description	Date
01	ISSUE FOR SSD APPLICATION	10.04.15

0 20 40 60 80 100m
1 : 1000

Client: SIMTA / TACTICAL GROUP

Status: PRELIMINARY
NOT TO BE USED FOR CONSTRUCTION

Scales	1:1000	Current Issue Signatures	
		Drawn	A.ZHAO
Original Size	A1	Designed	K.MCAREAVEY
Height Datum	AHD	Checked	B.LUSTY
Grid	MGA	Approved	G.HUZIJ

Filename:

Project: SIMTA INTERMODAL TERMINAL FACILITY (STAGE 1)

Title: RAIL EMBANKMENT CUT AND FILL PLAN SHEET 3

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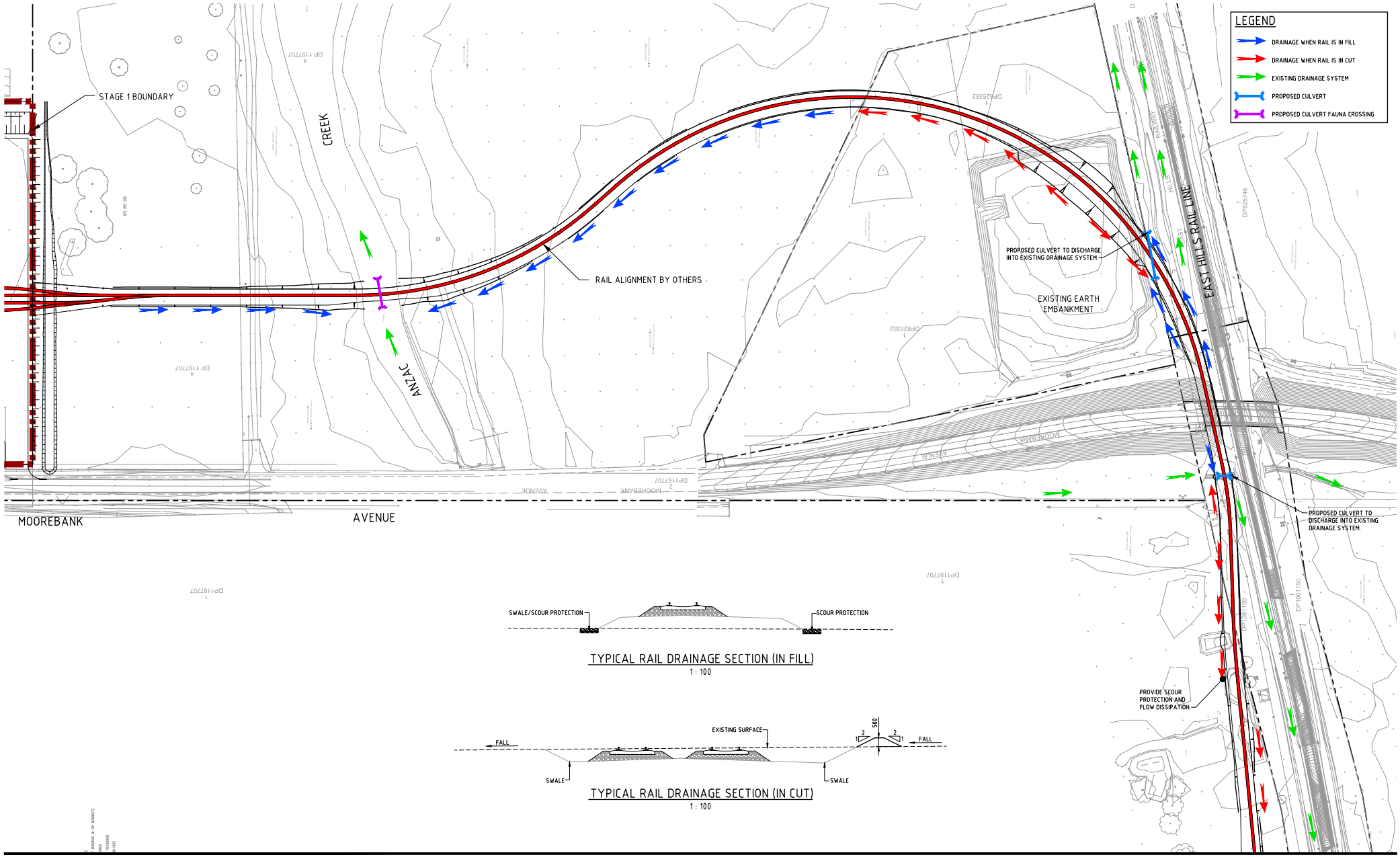
Drawing No.	Project No.	Issue
EISC1108	AA003760	01

100mm on Original

Date Plotted: 10 Apr 2015 - 06:14PM File Name: F:\AA003760\E-CAD\C-Civil\D-Final\B-Stage 1_EIS\EISC1108-AA003760-NSD-RailEmbankmentCutAndFillPlanSheet3.dwg V1



REFER DRAWING EISC1112 FOR CONTINUATION

Issue	Description	Date
01	ISSUE FOR SSD APPLICATION	10.04.15

0 20 40 60 80 100m
1 : 1000

0 2 4 6 8 10m
1 : 100

Client: SIMTA / TACTICAL GROUP

Status: PRELIMINARY
NOT TO BE USED FOR CONSTRUCTION

Scales	AS SHOWN	Current Issue Signatures	
		Drawn	A.ZHAO
Original Size	A1	Designed	K.MCAREAVEY
Height Datum	AHD	Checked	B.LUSTY
Grid	MGA	Approved	G.HUZIJ
Filename:			

Project: SIMTA INTERMODAL TERMINAL FACILITY (STAGE 1)

Title: RAIL EMBANKMENT DRAINAGE PLAN SHEET 1

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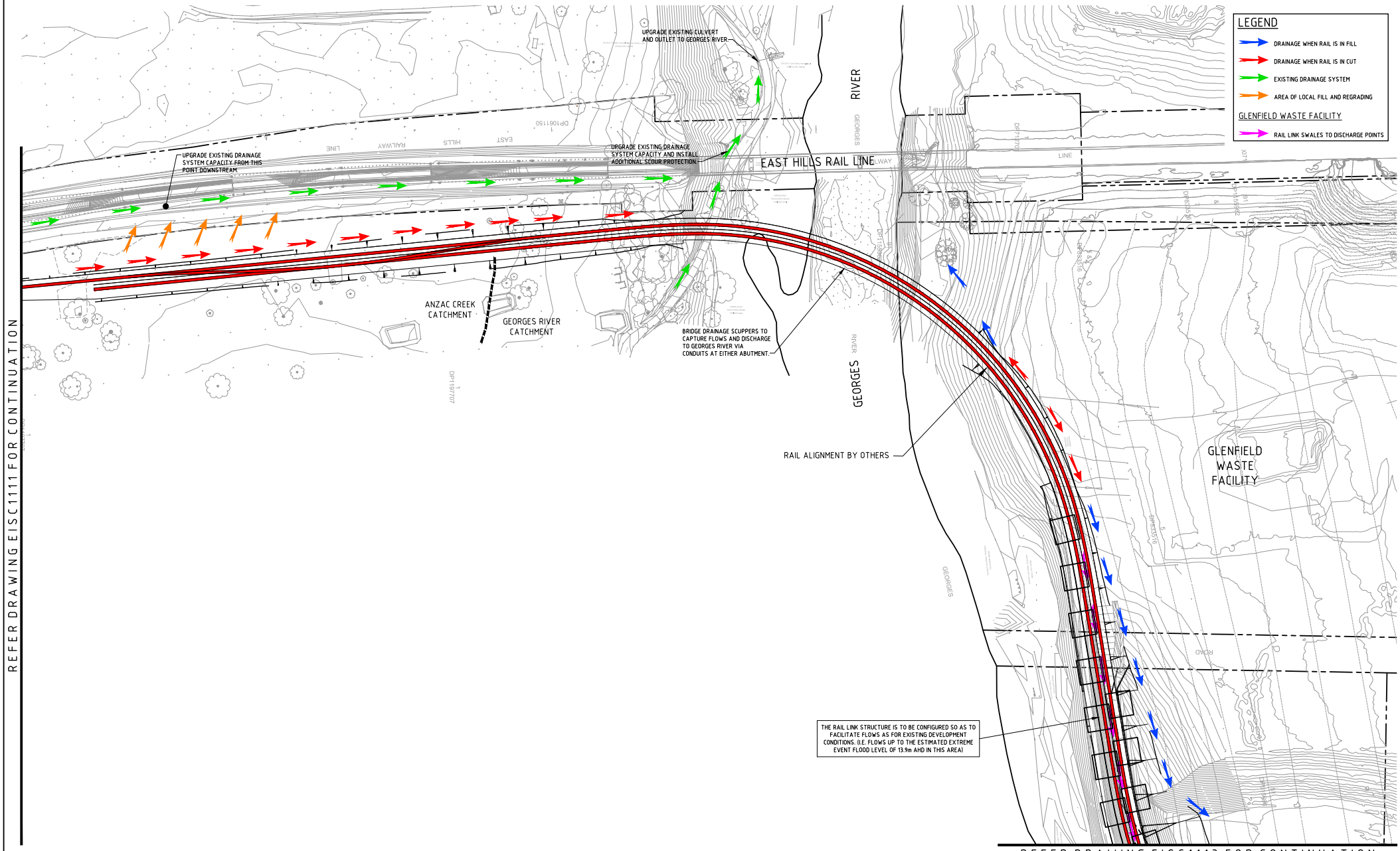
Drawing No.	Project No.	Issue
EISC1111	AA003760	01

100mm on Original

Date Plotted: 10 Apr 2015 - 06:15PM File Name: F:\AA003760\E-CAD\C-Civil\D-Final\B-Stage 1_EIS\EISC1111-AA003760-NSD-RailEmbankmentDrainagePlanSheet1.dwg V1



Issue	Description	Date
01	ISSUE FOR SSD APPLICATION	10.04.15

0 20 40 60 80 100m

1 : 1000

Client: SIMTA / TACTICAL GROUP

Status: **PRELIMINARY** NOT TO BE USED FOR CONSTRUCTION

Scales	1:1000	Current Issue Signatures	
		Drawn	A.ZHAO
Original Size	A1	Designed	K.MCAREAVEY
Height Datum	AHD	Checked	B.LUSTY
Grid	MGA	Approved	G.HUZIJ
Filename:			

Project: SIMTA INTERMODAL TERMINAL FACILITY (STAGE 1)

Title: RAIL EMBANKMENT DRAINAGE PLAN SHEET 2

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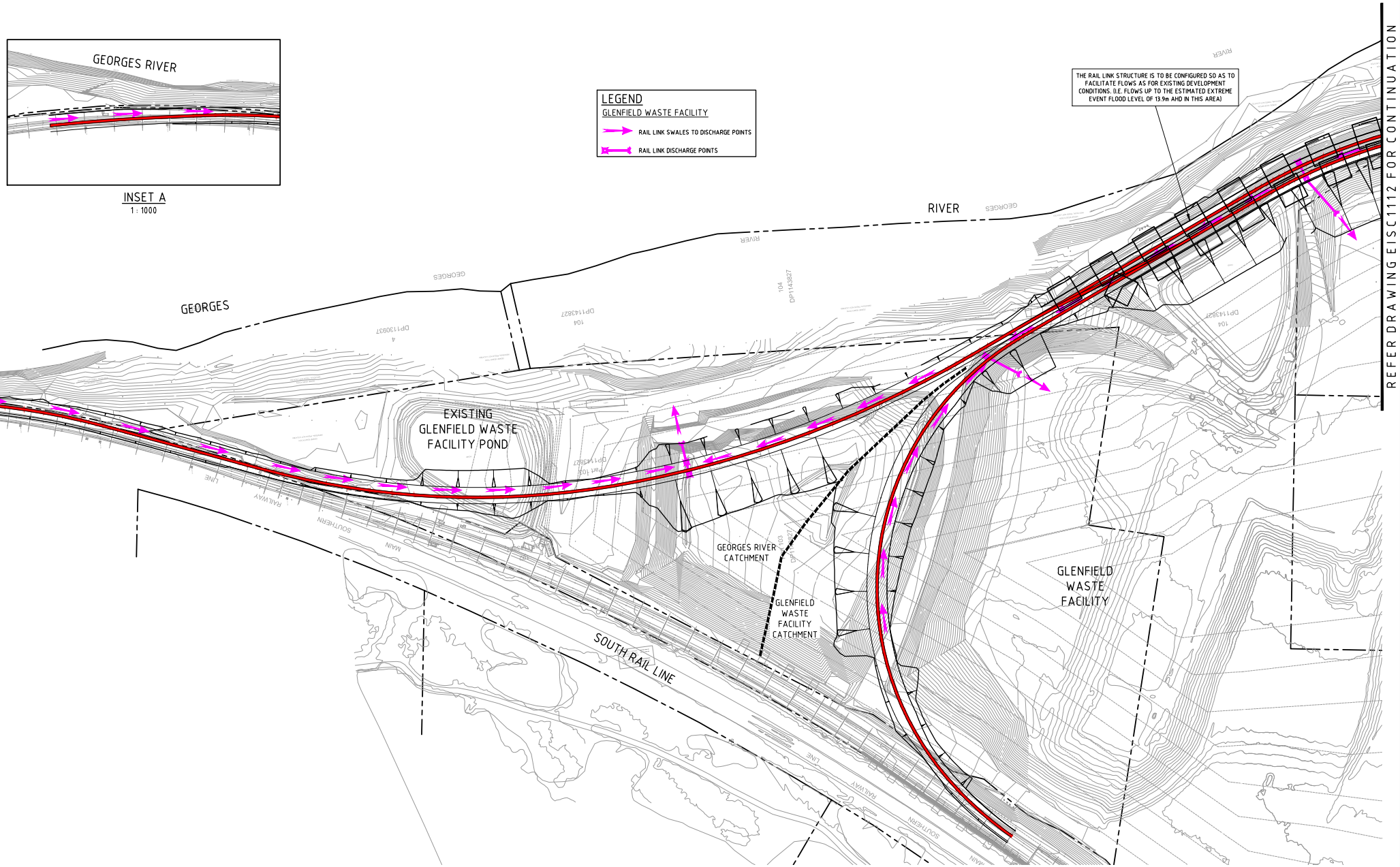
Drawing No.	Project No.	Issue
EISC1112	AA003760	01

100mm on Original

Date Plotted: 10 Apr 2015 - 06:16PM File Name: F:\AA003760\E-CAD\C-Civil\D-Final\B-Stage 1_EIS\EISC1112-AA003760-NSD-RailEmbankmentDrainagePlanSheet2.dwg V1



Issue	Description	Date
01	ISSUE FOR SSD APPLICATION	10.04.15

0 20 40 60 80 100m

1 : 1000

Client: SIMTA / TACTICAL GROUP

Status: **PRELIMINARY** NOT TO BE USED FOR CONSTRUCTION

Scales	1:1000	Current Issue Signatures	
		Drawn	A.ZHAO
Original Size	A1	Designed	K.MCAREAVEY
Height Datum	AHD	Checked	B.LUSTY
Grid	MGA	Approved	G.HUZIJ
Filename:			

Project: SIMTA INTERMODAL TERMINAL FACILITY (STAGE 1)

Title: RAIL EMBANKMENT DRAINAGE PLAN SHEET 3

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Drawing No.	Project No.	Issue
EISC1113	AA003760	01

100mm on Original

Date Plotted: 10 Apr 2015 - 06:17PM File Name: F:\AA003760\E-CAD\C-Civil\D-Final\B-Stage 1_EIS\EISC1113-AA003760-NSD-RailEmbankmentDrainagePlanSheet3.dwg V1