

Yamala Enterprise Area

Capricorn Highway, Emerald

Stormwater Management Master Plan

Revision No 4

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1 INTRODUCTION

1.1 Introduction

Central Highlands Regional Council (CHRC) engaged ACS Engineers to undertake stormwater drainage master planning for the Yamala Enterprise Area (YEA) and associated studies. The Yamala Enterprise Area, located approximately 20 km east of Emerald Queensland, is proposed to be the primary industrial development area and a regional transport hub.

This document is intended to provide high level guidance for the design and approval of stormwater management infrastructure for the site. The stormwater management masterplan is ultimately intended to preserve the existing drainage lines within the YEA during the construction and operation of the site and promote best practice stormwater management for the future development.

The stormwater masterplan has been produced according to the request for quotation # 2017Q056C.

1.2 Background

The YEA is proposed to be a regional transport and industrial hub to support the surrounding industries of mining, agriculture and tourism. The YEA comprises the Special Industry Zone and the future investigation zone. The special industry zone is currently farmland and the Louis Dreyfus Cotton Gin is located towards the centre of the area. Graincorp have purchased land and are commencing development with a rail siding and load out facility to be constructed. The sale of land to the immediate south of the cotton gin has commenced however the future landholders are not known at this stage.

The YEA is approximately 2,000 Ha and comprises a total of 15 land parcels (1 SP215026, 1 SP282150, 5 RP897556, 3 SP282150, 2 SP224248, 1 SP117848, 5 - 13 RP867798). A railway (Central Line, Blackwater System) passes between the YEA and the Capricorn Highway, the area to the south of the railway is classified as a stock route and a designated road reserve. The primary access from the highway to the YEA is Bonnie Doon Road. Further south along Bonnie Doon Road, a road has been designated for access to the Graincorp area, as shown on Drawing 02.

To facilitate the ongoing transformation of the area, CHRC are producing a drainage masterplan and detailed design upgrade of Bonnie Doon Road. The drainage masterplan will assist in the siting of industry, management of land uses, and the control of stormwater works. Early identification of waterway corridors and proposed stormwater management measures will improve the stormwater management outcomes and reduce the risks of out of sequence development.

1.3 Scope of Document

The document has been formatted to address the project objectives, as follows:

- Section 1 – Introduction and document controls
- Section 2 – Planning and Environment Considerations, including land tenure
- Section 3 – Site Overview
- Section 4 – Basis of Design
- Section 5 – Catchment Hydrology
- Section 6 to 8 – Design intent and features of key drainage infrastructure items, including the major culvert at CH1050 Bonnie Doon Road.
- Section 11 – Project Risk Register

The following sections are recommended to be included in the report for completeness. If these are not included within the document in future revisions, a reference to the most applicable guideline should be included.

- Section 9 – Sediment and Erosion Controls
- Section 10 – Stormwater Quality

Drawings and appendices are attached.

1.4 Document Controls

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1.4.1 CHRC Document Controls

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2 BASIS OF DESIGN

2.1 Functional Design Criteria

The functional design criteria are included as a standalone document in Appendix I. This design criteria should be used for ongoing stormwater design and can be issued to future landowners either as a separate design standard document or with the report.

2.2 Design Intent

The objectives and design intent of the stormwater masterplan, as outlined in the RFQ, are to:

- Develop Functional Design Criteria for the stormwater drainage network
- Develop a system of Stormwater Drainage Corridors to facilitate coordinated drainage of the overall Study Area
- Recommend suitable profiles for open channels within the corridor
- Recommend the most suitable Land Tenure for the drainage paths
- Consider the risks and management of sequencing of development and lawful points of discharge
- Identify high-level stormwater drainage risks in order that the Consultant and Council can address these.

The stormwater masterplan is to be used to guide the management of stormwater in the future development stages. The designs included within are not for construction or use, but to guide the development of the overall site drainage.

The owners of each parcel shall carry out detailed design of stormwater infrastructure on their land.

The council shall carry out or condition for the detailed design of any council owned or shared stormwater infrastructure.

2.2.1 Stormwater Master Planning Process

At the earliest stages of development planning it is important to allow adequate space for the installation of both the stormwater conveyance and treatment systems. Preliminary subdivision and development layouts should be drafted with appropriate consideration of the required space allocations for stormwater systems, including:

- location of overland flow paths;
- width requirements for both constructed drainage channels and the protection of existing waterway corridors;
- stormwater detention/retention and treatment systems; and,
- Future Best Management Practice (BMP) should be considered when allocating space for the management of stormwater.

Wherever practical, developed overland flow paths should follow the natural drainage paths of the catchment (i.e. the natural topography valleys and depressions) and be of a similar spacing and density. Diverting major overland flows away from their natural flow path may result in significant property damage during storms in excess of the design major storm, or when unexpected debris blockage occurs within the drainage system.

Water Sensitive Urban Design should be considered a priority in the planning and construction of new developments and should seek to:

- Preserve the existing topography and features of the natural drainage system including waterways and water bodies.
- Integrate public open space with stormwater drainage corridors to maximise public access, passive recreation activities and visual amenity, while preserving essential waterway habitats and wildlife movement corridors.
- Preserve the natural water cycle including minimising changes to the natural frequency, duration, volume, velocity, and peak discharge of urban stormwater runoff.
- Utilise surface water and groundwater as a valued resource.
- Protect surface water and groundwater quality.
- Minimise the capital and maintenance costs of stormwater infrastructure.

Waterways corridors provide significant opportunity for the development of multi-use, linear parkways. The master planning process allows for roads and corridors to be located alongside the waterways to provide for active access to the waterway. This can reduce the total waterway corridor width required.

2.3 Limitations of Assessment

This assessment has been undertaken using information available to ACS at the time of the study and is not intended to be a detailed design document.

2.4 AEP vs ARI

A major revision to the Australian Rainfall and Runoff (ARR) Guidelines was published in late 2016 and has superseded many other reference materials. The annual probability of exceedance (AEP) has been used for this project in preference to the average recurrence interval (ARI). AEP is now the accepted terminology for rainfall and flood probability, and the guideline recommends ARI is no longer used.

This recommendation stems from the following issues:

- Incorrect technical understanding of both terms by practitioners and the general public;
- The incorrect use of the terms, and frequent interchangeable use of the terms; and,
- General confusion by public, particularly by the term ‘annual recurrence interval’ which is often misunderstood to mean how often the event has occurred or the length of time before the next event of that magnitude occurs.

The term ARI is easily misinterpreted and can involve a larger risk of error. AEP is therefore preferable for simplicity and ease of understanding, as well as technical correctness. The definition of both terms is provided below.

AEP: The annual probability of exceedance, as defined by the Australian Rainfall and Runoff Guidelines (2016), is the probability of a rainfall event being equalled or exceeded within a given year. This approach is based on an annual maximum series where the highest event per year is used in the analysis.

ARI: The average recurrence interval is the average time between exceedances of a given rainfall event. This is a peak over threshold method where the analysis could include multiple events in one year and no events in other years.

To further increase understanding, ARR recommend using the terms Exceedances per Year (EY) for very frequent and frequent events; AEP expressed as a percentage for frequent to rare events; and, AEP expressed as 1 in x for rare and extremely rare events. Table 2-1 shows the relationship between each term,

and the appropriate uses for a range of AEP. For example, rare AEP such as the 0.1% is used for floodplain management whereas the 0.5 EY would be used for stormwater design.

Table 2-1 Australian Rainfall and Runoff Terminology (Bureau of Meteorology 2016)

Frequency Descriptor	EY	AEP (%)	AEP (1 in x)	ARI	Uses in Engineering Design
Very frequent	12				Water sensitive urban design
	6	99.75	1.002	0.17	
	4	98.17	1.02	0.25	
	3	95.02	1.05	0.33	
	2	86.47	1.16	0.50	
Frequent	1	63.2	1.58	1.00	Stormwater/pit and pipe design
	0.69	50.00	2	1.44	
	0.5	39.35	2.54	2.00	
	0.22	20.00	5	4.48	
	0.2	18.13	5.52	5.00	
Infrequent	0.11	10.00	10.00	9.49	Floodplain management and waterway design
	0.05	5.00	20	20.0	
	0.02	2.00	50	50.0	
	0.01	1.00	100	100	
Rare	0.005	0.50	200	200	Floodplain management and waterway design
	0.002	0.20	500	500	
	0.001	0.10	1000	1000	
Extremely Rare	0.0005	0.05	2000	2000	Design of high-consequence infrastructure (eg major dams)
	0.0002	0.02	5000	5000	
Extreme			PMP		

2.5 Climate Change Considerations

Climate change has not been addressed explicitly within this document. Climate change may result in broad impacts to the stormwater management system through more intense rainfall events, changes in annual and seasonal rainfall and increasing intensity or reach of cyclones. QUDM (Institute of Public Works Engineering Australasia, Qld Division 2016) recommends climate change is factored into the design of stormwater infrastructure and that local authorities should provide regionally specific guidance within engineering guidelines.

For the purposes of this study, and the functional design criteria, the Australian Rainfall and Runoff climate change guidance (Book 1, Chapter 6) should be referred to (Bryson Bates et al. 2016).

3 PLANNING AND ENVIRONMENT CONSIDERATIONS

3.1 Discussion on Waterway Corridors vs Easements vs Council Ownership

A waterway corridor is defined as the waterway channel and its associated riparian zones. Assigning a waterway corridor preserves areas of the riparian zone that protect or enhance native vegetation, river health and biodiversity. In some cases, the waterway corridor may also be able to support a level of passive recreational use or some stormwater treatment elements. The waterway corridor is the area of land that is required to support a resilient waterway system – both ecologically and socially – that can effectively absorb and/or recover from damaging processes without losing core functionality. In greenfield development sites waterway corridors are created through the modification of title boundaries during the subdivision process to preserve the waterway corridor for specified purposes.

Once a waterway corridor has been incorporated into the development plan, attention turns to the design and construction of civil and landscaping works that may be required and then to the ongoing maintenance responsibilities for the waterway, the riparian zones and any adjacent open space and associated infrastructure. Waterway corridors are nearly always vested as reserves in favour of the local Council.

Other options such as singular authority ownership with easements/maintenance agreements in the name of other concerned authorities may also be appropriate; so might involvement of private parties. Lastly, service/utility providers may also require an easement in their favour to be created within the waterway corridor reserve for assets such as power lines, gas mains, water mains, sewerage pipelines, and telephone/internet cables etc.

The following principles should be applied when developing arrangements for ownership and ongoing maintenance of various components of the waterway corridor:

Ownership of the waterway corridor

- Where there are public use benefits, Council would typically take ownership of the reserve.
- Where a reserve is to be managed for the singular purpose of waterway management, Council will typically take ownership of the reserve.
- Where there are private interests immediately adjacent a waterway and it is not possible to create a reserve for the waterway corridor, Council could require a drainage easement to be created over the waterway on the Plan of Subdivision.

Maintenance of the waterway corridor

- Council would typically assume responsibility for maintaining vegetation within the channel bed to the edge of ephemeral plantings on the banks, i.e. the regularly ‘wetted’ areas usually associated with the lower banks and ongoing maintenance of the physical integrity of the bed and banks
- Council would normally assume ongoing maintenance responsibility for any part of the waterway corridor where there is an intended recreational use. In most instances this would be part of, or the entire, vegetated buffer, but may include sections of the core riparian zone where recreational assets such as pedestrian bridges cross through this area. Such areas would be clearly marked on the plan that accompanies the schedule of maintenance activities that each party is responsible for.

Involvement of third parties

- Involvement of a party other than, or in addition to, Council on freehold land would require the creation of a Maintenance Agreement, and Schedule/Plan of activities that each party would be responsible for.
- In the case of multiple parties sharing management interests for land vested in the crown, a management agreement of some form (options would need to be explored as to the most appropriate for the particular situation) would need to be entered into to ensure effective delineation of maintenance responsibility.

It is recommended that Council work with key stakeholders to determine ongoing ownership and maintenance responsibilities of waterway corridor reserves as early in the planning process as possible.

The ‘value’ of waterway corridors as open space should not be diminished through the labelling of these areas as ‘drainage reserves’.

3.2 Environmental and Legislative Considerations

Appendix III illustrates all the overlays relevant to the site. From these maps it can be seen that Category B remnant vegetation and high value agricultural land are the only significant overlays that affect the site.

Category B remnant vegetation has been identified on the southern extent of the enterprise area on Lots 12 and 13 RP867798. It is unlikely that any future development in this location would require clearing of this area due to its proximity to the enterprise area boundary. However, should clearing to facilitate development be required then a vegetation clearing approval would need to be sought from DNRM and a clearing permit be issued.

The land suitability overlay identified over the site is with respect to vegetation clearing for high value and irrigated high value agricultural purposes. As the proposed Yamala Enterprise Area are anticipated to be for uses other than high value and irrigated high value agriculture, this overlay is not applicable.

3.3 Lawful point of discharge

The YEA will be required to meet the lawful point of discharge test for the development as a whole, and each individual parcel. Where the post-development stormwater discharges are shown to be similar to the pre-development discharges, the lawful point of discharge test is achieved.

This includes the following:

- Location – the location of the discharge is not altered
- Volume – the volume discharged doesn’t significantly change, in a manner that could damage third party property.
- Peak discharge – the peak discharge from the site is not increased or substantially changed.

The lawful point of discharge for the YEA has been classified as the locations where each waterway corridor leaves the development area. This is discussed further in Section 5.3, and each point is shown on Drawing 03.

4 SITE OVERVIEW

4.1 Hydrology

The subject site is located approximately 200 km west of Rockhampton and 30 km east of Emerald, within the Fitzroy River basin. The climate of the site is sub-tropical with moderately dry winters, according to the Koeppen classification system. The rainfall is seasonal, with most rain occurring between November and March, as shown in Figure 4-1. The average annual rainfall is 561.2 mm/year.

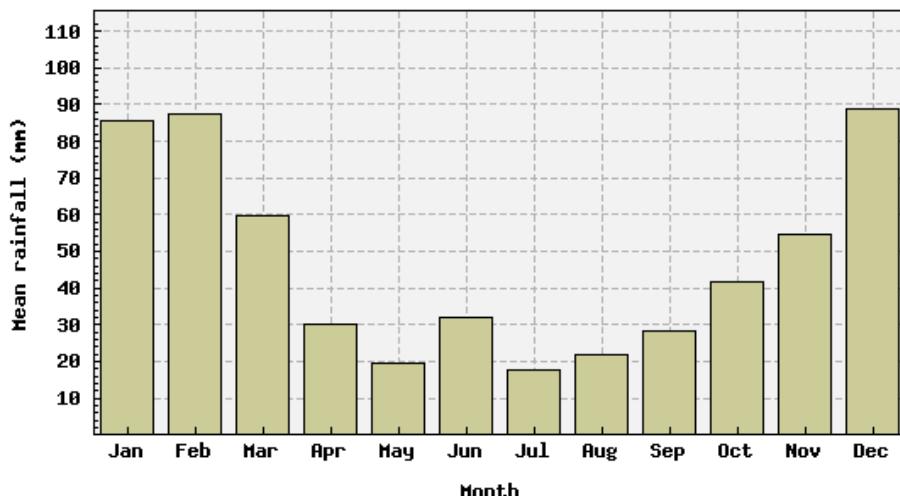


Figure 4-1 Mean Rainfall, Emerald Airport (Station 035264)

The average minimum temperature ranges from 10°C to 22°C, whilst the average maximum temperature ranges from 22°C to 35°C (Refer Figure 4-2).

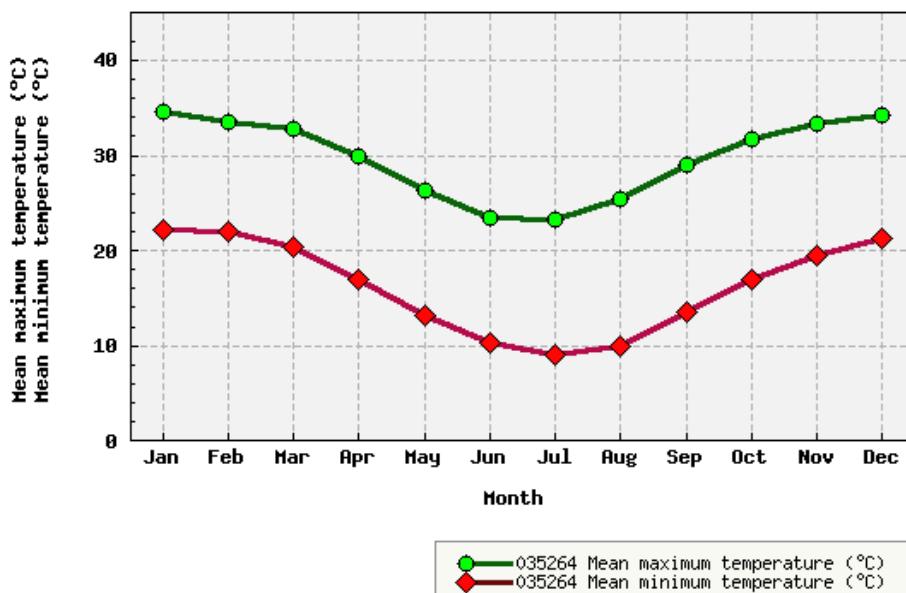


Figure 4-2 Mean Minimum and Maximum Temperature, Emerald Airport (Station 035264)

The intensity-frequency-duration (IFD) data was sourced from the Bureau of Meteorology (BOM) using the 2016 IFD data release (BOM 2016). The IFD is shown in Figure 4-3.

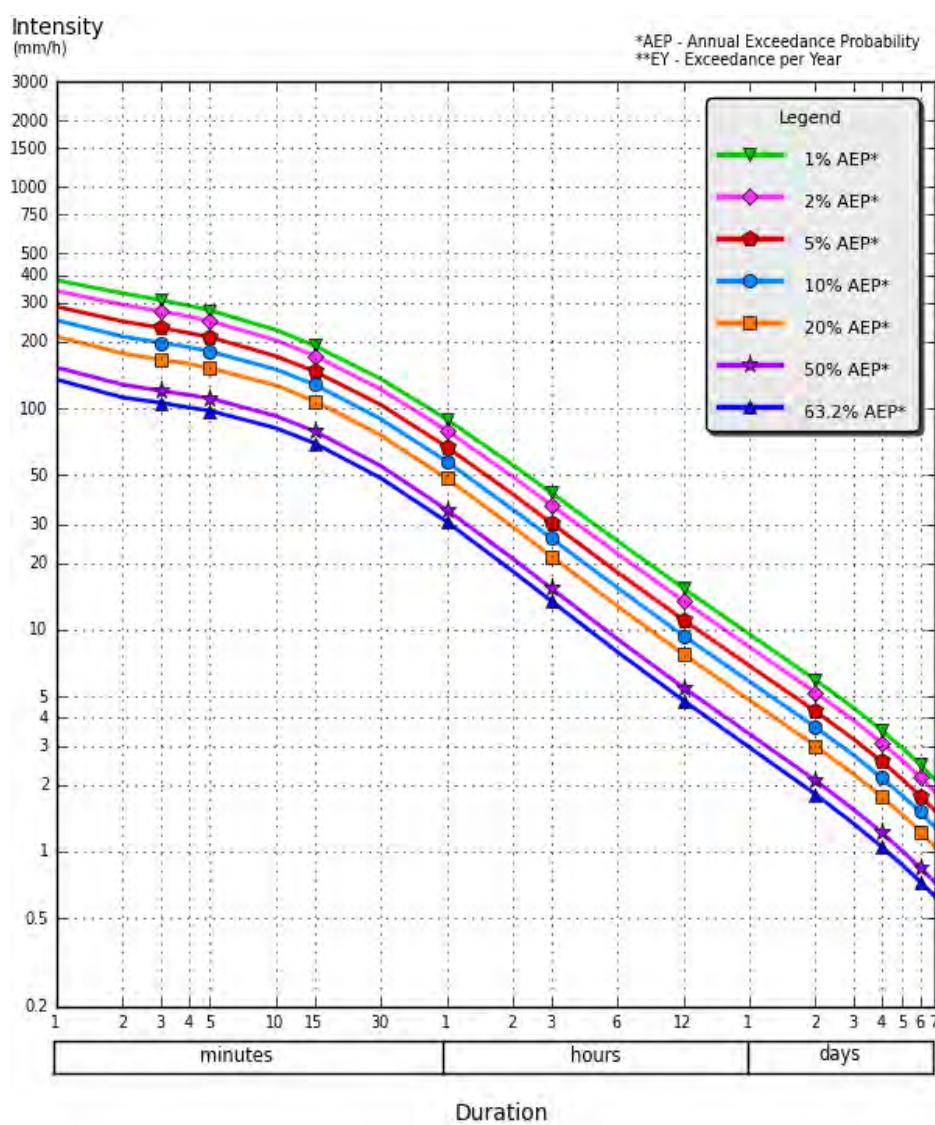


Figure 4-3 Intensity Frequency Duration at Yamala (BOM 2016)

4.1.1 Catchment characteristics

The YEA site is approximately 2000 Ha of open grazing land, with sparse grassland and ephemeral waterways draining to the north and south of the site. Farm dams are located across the catchment and several contour banks have been constructed to direct flows to the dams. The existing hydrology is greatly altered from natural, however no hard linings are present.

The site straddles a ridgeline forming a total of 7 catchments, all with distinct points of discharge from the site. All discharge locations ultimately contribute to the Fitzroy River. The upstream and downstream land uses are similar to the site, and each sub-catchment contributes to a permanent watercourse within 5 km of the site. There are no significant upstream inflows to the site, with the exception of the NW catchment where only a portion of the downstream reach passes through the site.

The Eastern catchment is the largest and contains approximately 2/3 of the site area. A portion of the Eastern catchment is located to the north of the highway, which passes through culverts underneath the highway.

The catchments are listed in Table 4-1 and shown on Drawing 03.

Table 4-1 Characteristics - catchments

Catchment Reference	Area (ha)	Features
1	912	YEA contributes approx. ¼ of total catchment area. Downstream reach of waterway passes through YEA. Large dam located to the west of the YEA.
2A	248	Includes the graincorp site, cotton gin and land to the north of the highway. Discharges through a culvert at Bonnie Doon Road.
2B	1287	Large catchment with ~15 farm dams, ephemeral waterways and significant portion of runoff captured. North and South of the Hwy, both sides of Bonnie Doon Rd
3	69	Small, bowl shaped, discharge to dam off site.
4	107	Small, bowl shaped, discharge to dam off site.
5	150	Discharges to a large dam, possibly spring fed (aerial images show dam consistently full)
6	31	Large catchment area. No formed channels, assumed sheet / overland flow. One sizable dam.
7	71	Development plans underway by owner.
Total	3,156	

4.1.2 Existing channel and dam characteristics

The site includes constructed channels and dams as well as natural drainage lines. The natural channels have wide shallow footprints and are ephemeral with no permanent watercourses on site. The channels appear to flow when the storage dams are overtopped or due to catchment runoff occurring between storage dams. From the aerial survey and related images, it appears the dam walls range from 1-4m, as such, an average depth of 1.5 m was assumed.

Within the Louis Dreyfus Cotton Gin, and at several locations throughout the catchment, drainage channels have been constructed. Constructed drainage lines are evident at the following locations:

- A contour drainage channel (Channel A) directing flow into Dam A
- Excavated channels within the cotton gin
- Culverts beneath the highway (north to south) with channels

The available survey was analysed to estimate the existing storage within the natural and constructed channels. The survey was not sufficiently dense to provide accurate channel sizing; however, the natural channels were found to be wide and shallow with no distinct storage zone.

The existing drainage features are included in Table 4-2 and Table 4-3, and the naming convention will be used throughout the document. A summary of the channel cross sections is provided in Appendix II.

Table 4-2 Characteristics - existing dams (State of Queensland 2017)

Catchment	Name	Approx. Surface Area (m ²)	Approx. Volume (ML)
North West Catchment	Dam C	3,536	5.30
East Catchment	Cotton Gin	12,542	18.81
	Dam A	21,786	32.68
	Dam D	8,691	13.04
	Dam E	1,868	2.80
	Dam H	5,553	8.33
	Dam I	27,125	40.69
	Dam J	3,520	5.28
	Dam K	3,524	5.29
	Dam L	16,618	24.93
	Dam M	9,863	14.79
	Dam N	2,261	3.39
	Dam O	2,697	4.05
	Dam P	9,349	14.02
	Dam Q	1,140	1.71
	Dam R	2,405	3.61
	Dam S	2,550	3.82
	Dam T	1,957	2.94
Total			~ 200
South catchment 1	-		
South catchment 2	Dam F	5,936	8.90
South catchment 3	Dam G	88,837	133.25
North Catchment	Dam B	13,400	20.10
Graincorp North	-		

Table 4-3 Characteristics - existing channels (supplied survey)

Catchment	Characteristics		Features
	Length (km)	Long. slope	
North West	1.5 km	<0.5%	Sinuous, vegetated, man-made dams along length. Evidence of historical slumping
Eastern – culvert	n/a	<0.5%	Constructed drainage channels throughout cotton gin land. Appears all catchments are contained on site and discharge through single outlet to the CH1050 culvert.
Eastern			
North-south channel	~3.8 km	<0.5%	Vegetated corridor broken by several large dams along the length. Channel is wide and shallow.
East-west channel	~2.5 km	<0.5%	Incised channel with some areas of ponding. No vegetation.
South 1			No formed channel
South 2			No formed channel
South 3	~ 0.5 km	~ 0.5%	Two grassed channels, natural, gentle slope
Northern		~ 0.5%	No distinct formed channel. Primarily sheet and overland flow, with grassed low flow zone.
Graincorp – North			No formed channel
Channel A	1.2 km	1%	Channel constructed to divert catchment to dam

4.1.3 Regional flooding impacts to the site.

The site would be impacted at the 1% AEP (estimated) flood level, according to basin level mapping available through the Queensland Government (State of Queensland 2017; Kellogg Brown & Root Pty Ltd 2015), as shown on Drawing 03.

This flood mapping was undertaken as part of the Queensland Flood Mapping Program in response to the Queensland Floods Commission of Inquiry. This was produced at the basin scale using the best available (at the time) terrain and rainfall on grid modelling to provide potential flood extents. The model was not produced with the intention of providing development approval level flood mapping and has not been undertaken at an appropriate scale for this use.

Prior to development approvals being issued, site specific flood hazard mapping should be produced.

4.2 Proposed development

4.2.1 Land Use and Proposed Tenants

The Yamala Enterprise Area is proposed to be a multi-use industrial area comprising freight orientated industry supporting the agricultural, mining and tourism industries whilst supplementing the existing industry in surrounding areas.

A masterplan has been produced outlining the potential land uses, as shown on Drawing 04, and the proposed stormwater management infrastructure (as shown on Drawing 06). The land use categories, potential tenants and characteristics of each use type are provided in Table 4-4.

4.2.2 Proposed Development Sequencing

The stormwater masterplan has been staged to facilitate the construction of practical stormwater infrastructure without limiting the ability of the site to manage stormwater prior to the completion of the development. Three stages are proposed, as shown on Drawings 07 to 09. The initial stage is proposed to be the Graincorp and special industry zones. Future zones are proposed to the east and west of Stage 1, with a focus on upstream development.

Upstream development (top to the bottom of each catchment) reduces the impacts and works required at each site to manage inflowing stormwater, reducing ongoing changes to the stormwater system over time as development progresses. Each landholder will be required to meet the 'no worsening' test to ensure that the stormwater discharges are not increased in terms of volume or peak discharge. As such, as the downstream properties are developed, the upstream stormwater should already be controlled.

Stage 1

The stage 1 development encompasses the Graincorp site, CQ inland port and a zone of agricultural industrial development. The agricultural industrial zone is proposed for the upper catchment, providing sufficient land area to establish several large-scale tenancies such as abattoirs, feedlots or similar. The industry types will be required to retain and treat all runoff on site.

Development approval has been conditionally granted for the inland port and Graincorp sites, including stormwater plans.

The developments are proposing the following stormwater management plans:

- Detention of approximately 12 ML of stormwater at the Graincorp site.
- Graincorp stormwater discharging into the Cotton Gin.
- A channel running alongside the cotton gin and discharging to the existing dam at CQ inland port
- A drainage easement to the south of the CQ inland port site, contributing to the existing dam.

The approved plans have been referenced in this study however natural channel treatments are recommended, as included in Section 6.

Note, the following inconsistencies were identified between the approved Graincorp plans and the current study:

- The pre and post development catchment assumes Channel A is maintained, reducing the catchment area. Channel A is within the proposed hardstand areas and would need to be decommissioned.
- Runoff is assumed to discharge through the southern boundary of the Cotton Gin through a constructed channel. Aerial imagery, including an analysis of historical images, does not reflect this and it is understood all runoff is directed through channels to the pond at CH1050 on Bonnie Doon Road. A separate channel appears to be located to the south of the cotton gin.

Stage 2

Stage 2 is proposed to encompass the eastern zones of the YEA. These areas are proposed for heavy industry and the supporting service industries, in addition to extending the light / freight focused industrial zones.

The eastern portion of the site is downstream of Stage 1, and is proposed to be developed from the northwest to the southeast. Waterway corridors can be used to collect and convey stormwater in most areas. The use of roads alongside the waterway corridors is proposed to reduce the width of corridor required.

The 1% flood inundation extents are shown to encompass a significant portion of this stage. Earthworks – and further flood modelling – will be required to maintain floor levels above the flood level. The heavy industry zone is assumed to include mostly open laydown areas and smaller building footprints. These landholdings should require less flood free access compared to the other land uses.

Stage 3

Stage 3 is proposed to be located to the west and far south of the site. The western portion of the site drains to the north through one major catchment and a smaller catchment to the west (north west catchment). The north west catchment drains through a vegetation reserve (off site) and will require careful management of upstream stormwater to avoid impacting the vegetation.

The northern catchment is proposed to be developed as light industry and supporting services, with some heavy industry in the upper catchment. The proximity to rail infrastructure and relatively flood free land promotes this land use.

Stage 3 includes several smaller catchments, all draining to the south. These catchments are best suited to higher intensity industries with potential water quality concerns such as agricultural industries or manufacturing. Each catchment could support 1 or 2 smaller landholders, with the ability to capture and treat all runoff on site.

4.2.3 Out of sequence development

The sequencing of the development has been proposed in three key stages, with a focus on upstream development prior to downstream development. On a lot by lot basis, the development of one lot may still impact the greater stormwater system. For this reason, development of the waterway corridors should be undertaken at the outset of each stage.

Until the lot plans have been developed, a method to effectively manage inter-lot drainage conflicts is difficult to formulate and implement. The masterplan has shown locations for the higher order waterways (Type 1 and 2) that the inter-lot drainage will contribute to, once site layouts are planned the inter-lot drainage can be further refined. These corridors should be established prior to the construction of each zone and, depending on lot size, less than 50 Ha or 6 lots should be contributing to the inter-lot drainage system prior to flowing to a waterway corridor.

Further discussion of the internal and inter lot drainage is included in Section 6.1.

4.2.4 Changes to catchment characteristics

The proposed development will alter the catchment hydrology through the changes in land use. The more significant changes will be due to an increase in impervious areas due to the construction of roads, buildings and other structures.

The existing fraction impervious is generally 0 across the site, with the exception of the Cotton Gin. The fraction impervious for the cotton gin catchment varies depending on the covered areas (buildings, silos, ponds etc). The fraction impervious of the developed site will vary between 0 and 0.8 dependant on land use, as discussed further in Section 5.

Numerous farm dams are located along the existing waterways. During development, each landholder will be required to meet the no worsening test, providing storage of increased flows on site. The need for overall site detention is not seen to warrant maintaining the existing storage available within the farm dams and many dams are proposed to be decommissioned. These dams are currently functioning to retain water and reduce flows. As the natural channels are being reinstated as waterway corridors, the improved flow regime (increased periods of flows and overall volume of water) may result in improved stream health.

The three southern catchments will alter significantly. No runoff will be released regularly from these sites as these are proposed to retain, treat and likely, reuse all water on site. Each catchment is dammed downstream of the YEA, and the contributing flows to these dams will be reduced. However, these catchments are relatively small and the reduced runoff from these are not anticipated to impact the downstream catchment health. Where reduced runoff is anticipated to impact the downstream landholders, a water reuse scheme between the agricultural industry zone and the impacted landholders should be investigated.

4.2.5 *Effluent Disposal Areas*

Effluent disposal areas should be determined on each lot based on the soil types, proposed effluent volume and the 1% AEP flood inundation extent. Due to the nature of the proposed land uses, the effluent disposal areas should be minimal and able to be suitably located on each property. As there are no detailed use or lot layout plans available, it is not appropriate to designate effluent disposal areas within the masterplan.

Table 4-4 Proposed Land Uses and Characteristics

Land Use Type	Types of Industry	Potential Tenants	Typical Characteristics	Proposed Locations
Light / Freight Focused Industry	<ul style="list-style-type: none"> ▪ Industry reliant on the rail siding for logistics. ▪ Warehouses and distribution centres ▪ Large scale food production ▪ Smaller scale food production ▪ Small industrial applications 	<ul style="list-style-type: none"> ▪ Major supermarket ▪ Smaller supermarket regional supplier (Metcash, IGA, Foodworks) ▪ Freight companies – Startrack, couriers etc. ▪ Mail sorting and postal distribution centre ▪ Small parts manufacturing – drills, machinery parts, farm supplies ▪ Bakery, meat processing / smallgoods, tinned foods etc. ▪ Caravan repairs and manufacturing 	<ul style="list-style-type: none"> ▪ Primarily sealed surfaces – roads, buildings and sealed laydown. ▪ Warehouses with large roof footprint. ▪ Smaller landholders with a few larger sites. ▪ Complexes of industrial buildings ▪ RORB Fraction impervious: 0.8 	<ul style="list-style-type: none"> ▪ Close to main access roads and rail sidings. ▪ Stage 1 – special industry zone. ▪ Stage 2 and 3 – nearby zones
Heavy Industry	<ul style="list-style-type: none"> ▪ Support services to the mining and freight industries ▪ Laydown yards for mining and construction equipment 	<ul style="list-style-type: none"> ▪ Mine and agricultural machinery suppliers ▪ Drilling, drill and blast contractors ▪ Auction yards, machinery and vehicles ▪ Hire services – truck, heavy industry ▪ Tourism laydown area – caravan and boat parking facilities ▪ Truck parking zones, long and short term 	<ul style="list-style-type: none"> ▪ Reliant on road transport ▪ Primarily unsealed surfaces ▪ Warehouses, sheds and machinery wash bays sealed. ▪ RORB Fraction impervious: 0.6 	<ul style="list-style-type: none"> ▪ Towards the rear of the landholdings ▪ Larger zones with lower traffic flows ▪
Agricultural High Intensity Industry	<ul style="list-style-type: none"> ▪ Agricultural related industry ▪ Abattoir, secondary / waste processing ▪ Feedlot ▪ Saleyards ▪ Grain processing / flour mill 	<ul style="list-style-type: none"> ▪ Major supermarket chains ▪ Meat industry ▪ Grainscorp related entities 	<ul style="list-style-type: none"> ▪ Unsealed surfaces (~80%) ▪ Industries with large effluent stream ▪ RORB Fraction impervious: 0.2 	<ul style="list-style-type: none"> ▪ Top of catchments ▪ Large landholders (50-100 Ha+) ▪ Detention basins and all runoff to be captured and treated prior to discharge

Land Use Type	Types of Industry	Potential Tenants	Typical Characteristics	Proposed Locations
Service Industries	<ul style="list-style-type: none"> ▪ Supporting office and small landholdings ▪ Service station, fuel depot ▪ Tourism support industries 	<ul style="list-style-type: none"> ▪ Fuel suppliers ▪ Short term accommodation, drug testing facilities and other transport worker services. ▪ Office support for nearby industries ▪ Government departments (TMR, DAF etc). 	<ul style="list-style-type: none"> ▪ Primarily sealed surfaces – roads, buildings and sealed laydown ▪ Smaller landholders with smaller scale buildings ▪ RORB Fraction impervious: 0.8 ▪ 	<ul style="list-style-type: none"> ▪ Near the highway and main access locations
Vegetation buffers	<ul style="list-style-type: none"> ▪ Vegetated zones ▪ Existing vegetation and proposed future vegetation ▪ Flood overflow zones 	<ul style="list-style-type: none"> ▪ n/a 	<ul style="list-style-type: none"> ▪ Open areas ▪ Primarily vegetated, vegetation varying across zones to provide suitable ecological corridors ▪ RORB Fraction impervious: 0 	<ul style="list-style-type: none"> ▪ Regulated vegetation zones ▪ Near waterways ▪ Ridgelines and steep slope zones ▪ A 10 m buffer between all changes in land use zones ▪ A 10 m buffer along the YEA boundary
Waterway corridors	<ul style="list-style-type: none"> ▪ Existing waterways ▪ Proposed waterway corridors 	<ul style="list-style-type: none"> ▪ n/a 	<ul style="list-style-type: none"> ▪ Open areas ▪ Vegetated and open channels ▪ Limited hard areas ▪ Includes detention basins and channels ▪ RORB Fraction impervious: 0 	<ul style="list-style-type: none"> ▪ Existing and proposed waterway locations ▪ Detention basins

5 CATCHMENT HYDROLOGY

5.1 Site Hydrology Model

A site hydrology model was produced to estimate the peak discharge at significant outlet points across the site, to understand the potential changes as a result of the development. The runoff calculations were carried out to estimate the stormwater for the pre and post development scenarios across the site, for the minor and major design events (a total of 4 models per catchment).

5.2 Runoff Model Methodology

RORB (Nathan 2017), is a catchment modelling software used to estimate the peak discharge and routing between sub-catchments. The program is widely used within Australia and it is appropriate to request potential landholders use RORB (or similar) for future studies.

The following assumptions were used for all catchments at the predevelopment stage:

- Dams assumed to be full, with no staged routing through the impoundment.
- Land use based on aerial imagery.

The following assumptions were used for all catchments at the post-development stage:

- No further development outside of the YEA, where catchments contribute to the area.
- Dams assumed to be full with no staged routing through the impoundment.
- Dams that are proposed to be removed during development were not included in the model (land use).

5.2.1 *Inputs*

RORB requires a series of climate input data and assumptions, provided in Table 5-1. The intensity-frequency-duration (IFD) data was sourced from the Bureau of Meteorology (BOM) using the 2016 IFD data release 1. RORB input files were sourced from Geoscience Australia (2016).

A total of 7 catchment models were developed, one model per catchment. These catchments correlate with a point of discharge offsite. Each catchment was broken into a series of sub catchments, with reaches conveying the flow between sub catchments. The catchments and sub catchments are shown in Figure 5-1. The catchment characteristics, shown in Appendix IV, were sourced from the survey provided to ACS by GBA supplemented with the 20 m spaced LiDAR.

5.2.2 *Runoff Model Results*

The RORB model produces a series of peak discharge estimates using an ensemble method. The rainfall event duration with the highest mean discharge was selected as the critical event, at each AEP (annual exceedance probability). The critical event duration differs between catchments, sub-catchments and AEP, reflecting the storage and attenuation differences throughout the catchment. The results include the following:

Peak discharge

The peak discharge is the maximum flow rate at the point of interest, shown as cubic metres per second.

Peak event duration

The peak event duration is the rainfall event which is predicted to result in the highest peak discharge. As a full ensemble of rainfall events were assessed for each catchment and sub-catchment, the peak discharge at each point may be experienced in different events. This method of selecting the peak event duration based on peak discharge at each site rather than at the outlet, reduces the risk of over or under designing infrastructure.

For example, towards the top of a catchment the peak discharge will occur sooner (shorter event duration) than at the outlet of the catchment (longer event duration).

Time to peak

The time to peak discharge is the length of time after the start of the rainfall event, that the peak discharge is experienced at the point of interest. This will vary based on the temporal pattern.

Table 5-2 includes the estimated peak discharges at key areas of each catchment. The outputs of the RORB model including the peak discharges for all ensembles at points of interest are included as Appendix IV.

Table 5-1 RORB input details

	Unit	
Kc Factor		From Eqn 3.23, ARR, Weeks: Kc=0.88 x A^0.53
m		0.80
Initial Loss	mm	60.0 (Constant with ARI)
Continuing loss	mm	0.9 (Constant with ARI)
Temporal pattern		ARR2016 point temporal patterns
Spatial pattern		Uniform
Areal Red. Fact		Based on ARR 2016 (Book 2 Chapter 4)
Fraction impervious		Pre-developed conditions, range from 0 to 0.6 Developed conditions, ranged from 0.2 to 1.0 (refer Appendix IV)
Channel type		Natural Excavated and lined as appropriate

5.3 Pre vs Post development conditions

The pre and post development condition models were compared to understand the potential increase in runoff volume and peak discharge. As shown in Table 5-2, a significant increase in peak discharge and reduced time to peak would be expected as a result of the increased impervious surfaces, should there be no mitigation measures in place.

The pre-developed conditions reflect the existing site land uses. The post-development results reflect the likely peak discharges, prior to attenuation. The routing of the post-development model was not altered significantly as the design intent of the stormwater masterplan is to maintain the natural drainage lines where possible. However, once a lot plan is proposed this model should be updated to reflect the changes in runoff routing which may result in longer or shorter reach lengths, and, increased excavated channel length.

To mitigate the increase in peak discharge, volume of runoff and shorter time to peak, detention will be required within each lot, and across the site. The proposed detention basins are discussed further in Section 7.

Figure 5-1 Catchment Layout – Complete

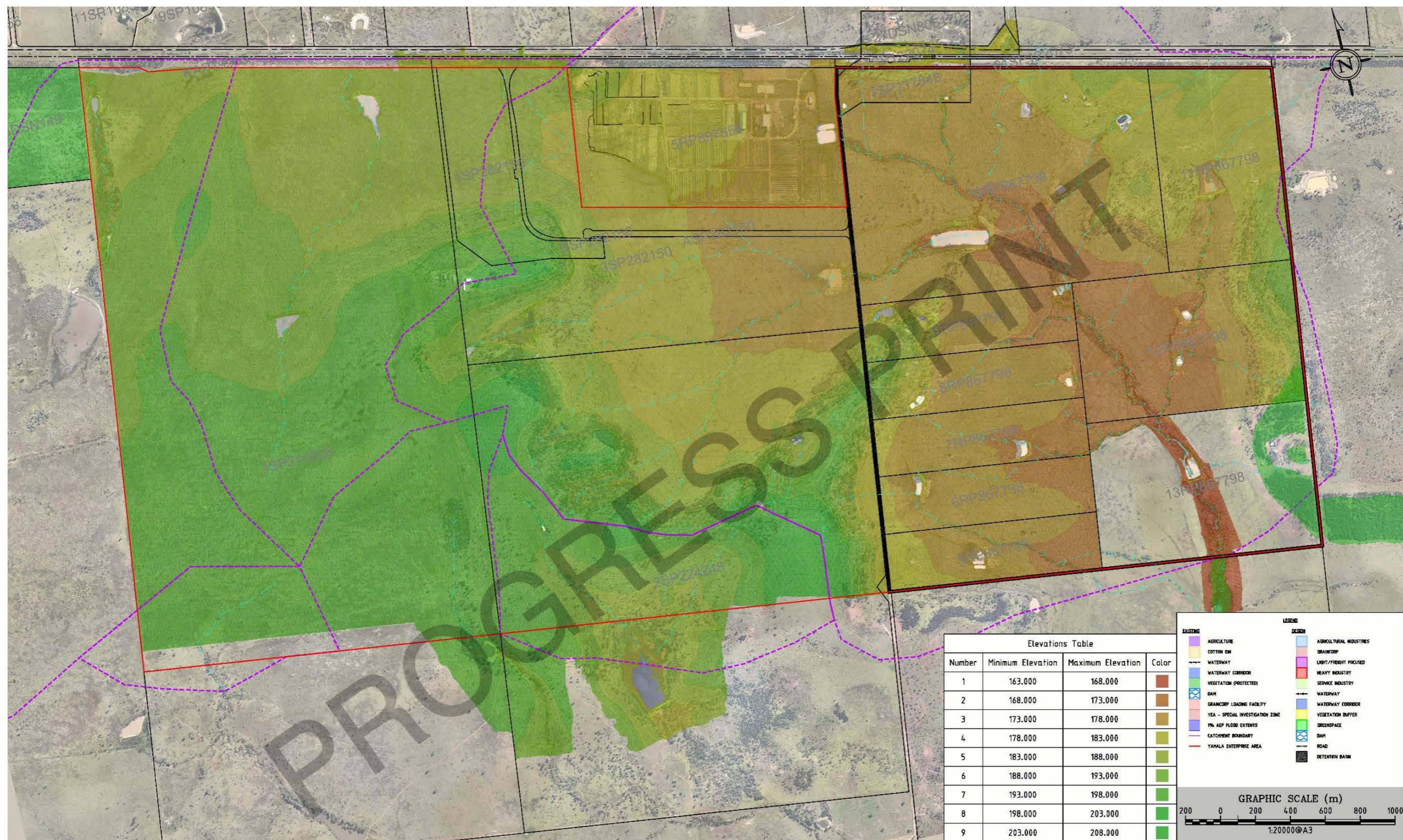


Table 5-2 Pre-developed and developed peak discharges – key locations

	Catchment	Location	Catchment Area (Ha)	Minor Event (10% AEP)				Major Event (1% AEP)			
				Pre-developed		Developed - no mitigation		Pre-developed		Developed - no mitigation	
				Peak Discharge (m3/s)	Peak Event Duration	Peak Discharge (m3/s)	Peak Event Duration	Peak Discharge (m3/s)	Peak Event Duration	Peak Discharge (m3/s)	Peak Event Duration
1	North West Catchment	Lawful point of discharge	912	26.5	24 Hour	31.2	12 Hour	66.57	6 Hour	65.3	6 Hour
2	East catchment	Graincorp exit (note 1)	-	4.3	2 Hour	4.3	2 Hour	8.1	1 Hour	7.4	2 Hour
		Cotton Gin Access Culverts (inlet)	-	5.6	2 Hour	5.6	2 Hour	10.5	2 Hour	10.5	2 Hour
		Ch 1050 culvert	248	14.5	2 Hour	14.9	3 Hour	30.1	2 Hour	30.2	2 Hour
		End Ag zone West	-	10.1	12 Hour	11.1	6 Hour	23.6	2 Hour	27.8	2 Hour
		CQ Inland port entrance	-	4.4	12 Hour	8.4	2 Hour	9.7	6 Hour	14.8	2 Hour
		Downstream of Dam D	-	17.6	12 Hour	22.3	3 Hour	38.5	6 Hour	48.3	2 Hour
		Bonnie Doon Road Crossing	-	18.0	12 Hour	23.3	3 Hour	39.1	6 Hour	50.1	2 Hour
		U/S B23	-	34.5	12 Hour	43.9	6 Hour	76	6 Hour	84.8	6 Hour
		Lawful point of discharge	1535	49.5	12 Hour	64	6 Hour	106.2	6 Hour	125.7	6 Hour
3	South catchment 1	Lawful point of discharge	69	3.2	6 Hour	4.6	2 Hour	10.0	2 Hour	11.0	2 Hour
4	South catchment 2	Lawful point of discharge	107	4.7	12 Hour	6.4	3 Hour	12.1	3 Hour	15.9	2 Hour
5	South catchment 3	Lawful point of discharge	150	6.2	12 Hour	8.4	3 Hour	18.3	2 Hour	20.8	2 Hour
6	North Catchment	Road crossing (heavy to light industry)	-	3.9	12 Hour	9.3	1 Hour	12.0	2 Hour	17.1	1 Hour
		U/s of Dam	-	9.8	12 Hour	22.3	1 Hour	25.8	2 Hour	39.9	1 Hour
		Lawful point of discharge	312	11.2	12 Hour	42.3	2 Hour	27.0	3 Hour	42.3	2 Hour
7	Graincorp North	Lawful point of discharge	71	3.3	2 Hour	9.9	30 Min	10.26	6 Hour	16.1	30 Min

Notes:

1. Developed peak discharge is shown as lower / the same as pre-developed results, however the runoff volume and timing is altered due to the changes in catchment conditions.

6 OPEN CHANNEL DESIGN

The use of waterway corridors is proposed for all open channels. Where possible, natural channel design principles are recommended. The use of natural channel design will also assist in attenuating peak discharges and will provide connected vegetated corridors.

The preliminary design of the open channels has been undertaken, based on the outputs of the catchment hydrology model. The catchment hydrology model estimated the peak discharge at key locations for the developed and post-developed scenarios. As the development will be conditioned to achieve nil-additional discharge, the pre-developed peak discharge was used to estimate the likely channel configuration, based on Manning's equation.

Three types of channels are proposed:

1. Inter-lot drainage – conveying runoff from a small number of lots towards the type 1 or 2 channels.
2. Type 1 channels – constructed channels, using natural channel design principles.
3. Type 2 channels – existing natural channels.

Typical details for the proposed channel designs, are included as Drawing 10.

6.1 Inter-lot drainage

Where internal lot drainage cannot directly contribute to a type 1 or 2 waterway corridor, an inter-lot drainage channel will be required. These channels are proposed to be located in a designated waterway corridor at the rear of the lots, providing maximum use of the single channel. The channel should be established prior to the development of lots where possible.

Where channels are constructed using cut to fill methods, with raised embankments, direct inflows to the channel will be limited. This may result in the need to pump stormwater from each tenement to the channel, introducing a risk to the development at times of power outage. The development should be conditioned by the council to provide suitable back up generation to prevent flooding as a result of power outages.

The typical inter-lot drainage channel configuration is provided in Table 6-1 and Appendix I.

Table 6-1 Inter-lot drainage channel details

Characteristic	Criteria
Minimum width	4 m
Longitudinal slope	0.5 - 1%
Side slopes – maximum	1V:6H
Channel crest width	One channel crest shall provide access for a light vehicle Minimum width 4 m
Minimum channel depth	1.5 m (sizing to be undertaken by developer)
AEP	10 % AEP

6.1.1 Locations and developer designs

The locations and length of the inter-lot drainage channels have not been determined, as the lot layout is not available at this time.

As the inter-lot drainage and the development layout have not been designed, the impacts of inter-lot drainage on the stormwater system is not able to be quantified.

The hydrology modelling has been undertaken on the assumption that the conveyance distance between sub-catchments does not change due to inter-lot drainage.

Where the developer opts to construct channels with 90 deg bends, the design criteria as shown in Appendix I (Section 5) should be referred to.

It is preferable to reduce the reliance on hard lining of channels, in favour of erosion matting and / or seeding. The reliance on hard surfaces increases the velocity of the flow and will require increased energy dissipation measures at the outlets of the channel. The performance of the downstream (Type 1 and 2) channels will be reliant on the upstream measures, with increased velocities resulting in changes to the peak discharges at the outlet of the system.

6.2 Type 1 Channel

Type 1 channels will be constructed channels, located outside of the natural channel extents. Type 1 channels will use natural channel design principles and be unlined. The channels will be classified as a waterway corridor and include a flow zone, riparian area and access corridor. The width of the Type 1 channels will typically be less than the Type 2 channels and may not follow the natural drainage lines of the site.

The typical Type 1 channel configuration is provided in Table 6-2.

Table 6-2 Type 1 channel details

Location	10% AEP Flow m ³ /s	1% AEP Flow m ³ /s	Hydraulic zone width	Core Riparian Zone width	Total Corridor
CQ inland port – north	4.4	9.7	15	25	30
CQ inland port – South	10.1	23.6	16	26	40
Stage 3 – South	3.9	12.0	15	25	30

Note: Sizing is approximate only and should not be used for design or construction.

6.3 Type 2 Channel

Type 2 channels are the natural waterways on site. These are not intended to be altered as part of the design, however stream rehabilitation works are proposed; The Type 2 channels will be classified as waterway corridors (as discussed in Section 3), and comprise the channel zone, a riparian area, a vegetated buffer and an access zone. The width of the corridors will be dependent on the existing hydraulic width of the channel, as shown in Table 6-3.

Where possible, the access zone is proposed to be addressed by using the adjacent road corridor. It is typically desirable to contain the 1% AEP flood inundation line within the waterway corridor however this is not viable based on the existing flood modelling. Further flood modelling is recommended.

Table 6-3 Type 2 channel characteristics

Location	10% AEP Flow m ³ /s	1% AEP Flow m ³ /s	Hydraulic zone width	Core Riparian Zone width	Approximate Corridor width
East Outlet	49.5	106.2	26	51	70
East Bonnie Doon Road	18	39.1	22	47	70
East at Dam M	34.5	76	25	50	70
East Downstream of Ch1050	14.5	30.1	25	50	70
Stage 3	11.2	27.0	21	46	70

Note: Sizing is approximate only and should not be used for design or construction

6.3.1 Existing channel capacity and modifications

The existing channels (classified as Type 2) have a low capacity due to the natural shape of the waterways in the area (refer to Appendix II and Table 4-3). The waterways are ephemeral and often contain dispersive soils. The channels are estimated to contain the 1EY peak discharge (would be overtapped at least yearly) or less, with larger flows being conveyed within the wider flood plan.

To increase the channel capacity – reducing the waterway corridor width – the channels would need to either be excavated or berms constructed to increase the depth of the channel, or the slope increased to promote faster drainage from the site. None of these options are recommended as this would increase erosion of the dispersive soils if not constructed and maintained correctly. This would be a costly effort, with a high failure rate.

Instead, it is recommended to create wider waterway corridors that can contain regular flows, without altering the current channel. Roads (collector or access) are proposed alongside the waterway corridors, increasing the available flow width for rare or very rare rainfall events. Heavy industry and agricultural zones have been designated in areas more prone to flooding (limited buildings or habitable area), and detention basins are proposed to reduce the peak discharges.

Works should be carried out within the channel to stabilise the banks and provide an environment conducive to vegetation establishment. This may include placement of topsoil, gypsum, and jute netting prior to planting. Planting should occur at the end of the wet season to provide optimum soil moisture to encourage growth, however regular watering will be needed until vegetation is established. Vegetation should be endemic and include fast growing grass (runner forming) and tussocks, as well as deep rooted shrubs and trees.

7 DETENTION BASIN DESIGN

Detention basins will be required on the site both internally, to manage individual lot drainage, and within the development to manage the additional runoff through the construction of roads and alteration of the catchment hydrology. The internal lot detention basins will be designed by the individual lot owners, and it is anticipated that the developer will provide the development scale detention basins.

The detention basin sizes and locations have been estimated based on the results of the RORB model (Table 5-2) and the proposed land use zones.

7.1 Internal detention basins

The internal detention basins should be sized based on the needs of the individual site and designed with reference to Appendix I.

The location of internal detention basins will be dependent on the lot layout and drainage features.

7.2 Catchment detention basins

The catchment detention basins are proposed to be located as to reduce changes to the peak discharge and runoff volume at key locations such as road and rail crossings. The overall increase in discharge at each point was estimated, assuming no lot scale detention. As such, detention basins have been proposed to address the increase in runoff volume reporting to each lawful point of discharge.

Where existing dams are proposed to be retained as a detention facility, works may be required to provide a passive low-level outlet (or a pump) to maintain sufficient storage between rainfall events. Several proposed detention basins may be the responsibility of the landholder, where the industries require storage and treatment of runoff. For example, the detention basins proposed in the three southern catchments.

The proposed detention basins, along with estimated volumes and features are shown in Table 7-1.

Table 7-1 Detention Basin locations and proposed size

Stage	Name	Location	Estimated Volume	Notes
1	Dam 1A	Discharge of agricultural zone	10 ML	Dams may be constructed by landholder, at outlet of agricultural businesses (if a single lot configuration is adopted). A full collection and reuse system for the proposed land use will likely require 50 – 150 ML of water storage on site.
	Dam 1B	Discharge of agricultural zone	10 ML	
	Dam 1C	Existing Dam D: Bonnie Doon Road	15 ML	
	Dam 1-D	Graincorp Internal pond	5 ML	
	Graincorp	Graincorp north	12 ML	
2	Dam 2A	Existing Dam I	40 ML	
	Dam 2B	Outlet of light industry, NE	20 ML	A new detention pond, with low level outlet discharging to the stream. Can be installed as an off-stream storage where space permits. This would result in all low flows bypassing the pond, and high flows being diverted into the detention basin.
	Dam 2C	Existing Dam N Heavy industry zone	5 ML	
	Dam 2D	Existing Dam R	5 ML	
3	Dam 3A	Existing Dam B	20 ML	
	Dam 3B	Downstream of heavy industry zone	5 ML	
	Dam 3C			Dams to be constructed by landholder, at outlet of agricultural businesses (if a single lot configuration is adopted). A full collection and reuse system for the proposed land use will likely require 50 – 150 ML of water storage on site.
	Dam 3D			
	Dam 3E			
	Dam 3F			

8 ROAD AND RAIL CROSSINGS

8.1 Rail Crossing

The proposed stormwater master plan does not include any locations where the railway will cross the waterway corridors. The existing railway and culvert system is assumed to be satisfactorily operating and as no changes to the hydrology at these points is proposed, no further crossings or afflux assessments are required.

During the construction of Stage 3, the extension of Rundle Road along the designated road and stock route reserve is proposed. At this time, the Graincorp rail siding crossing will need to be crossed by the road which may change the hydrology of this area.

Where other rail sidings or extensions to the rail siding are proposed, culverts will be required. It is recommended that the railway should remain operational at the 2 % AEP flood event with no flows over the track.

8.2 Road Crossings

The proposed masterplan will require several major waterway crossings. These will require culverts and / or bridges to be constructed to provide access to an acceptable flood immunity, as outlined in Appendix I. Where possible, it is proposed to align roads with the waterway corridors to provide access to the channels for maintenance and to reduce the waterway corridor width required.

The road crossings will need to be designed to ensure no afflux is experienced at upstream properties. This can be achieved through the appropriate sizing of infrastructure and ensuring each development meets the nil additional discharge criteria, as shown in Table 5-2. The masterplan proposes development proceeds from the upper to downstream zones, allowing development to occur prior to commencing major infrastructure works.

The design criteria for major culverts and road crossing immunity is provided in Appendix I.

The major road crossings are shown on Drawings 5 – 8, and outlined below:

Stage 1

- Ch 1050 culvert
- Bonnie Doon Culvert or bridge, downstream of dam
- GrainCorp access road culvert
- Agricultural area access culvert

Stage 2

- Two bridges or major culverts

Stage 3

- Two bridges or major culverts

8.2.1 Chainage 1050 Culvert

The design of the CH1050 culvert is included within Appendix V.

9 SEDIMENT AND EROSION CONTROL

Sediment and erosion control is outside of the scope of this study. Sediment and erosion control should be included within future stormwater scopes of work.

10 STORMWATER QUALITY

Stormwater quality is outside of the scope of this study. Stormwater quality objectives and design requirements should be included within future stormwater scopes of work.

11 RISK REGISTER AND SAFETY IN DESIGN

A risk register has been maintained for the duration of this study. The risk register should be maintained by the council and addressed as development proceeds. The identified risks include financial, environmental and operational risks which may occur through the development and operation period. Actions have been allocated and the mitigated risk determined where possible.

The risk register is included in Appendix VI.

Safety in design identifies and addresses the potential safety risks related to the proposed works, during design, operation and decommission. A safety in design review was undertaken by the design team. Items from the risk register were included on the safety in design register where appropriate.

The safety in design register is included in Appendix VII.

12 RECOMMENDATIONS AND CONCLUSION

12.1 Recommendations

The following recommendations are made for the development, design and construction of stormwater infrastructure within the Yamala Enterprise Area. These recommendations are documented throughout the report and summarised within Table 12-1, below.

Table 12-1 Summary of Recommendations

Item No.	Recommendation	Responsible Party
1	Site specific flood hazard mapping should be carried out.	CHRC. Prior to development approvals being issued.
2	Ownership structure for waterway corridors to be determined.	CHRC – prior to planning approvals
3	Maintenance structure for waterway corridors to be determined.	CHRC – prior to planning approvals
4	Natural channel design principles should be used for all new channels and channel upgrades.	CHRC – include as conditions of development.
5	The stormwater masterplan will need to be updated as the project progresses, and the land uses are confirmed / project planning documents are produced. A scheduled revision period should be documented.	CHRC
6	The functional design criteria should be revised at least every 6 months, and referenced documents checked to ensure the most relevant documentation is being referred to.	CHRC
7	The functional design criteria should override the local and regional engineering standards, where the measures in the functional design criteria is more recent or of a higher standard of design requirement.	CHRC
8	Site soil surveys should be carried out to identify sodic, dispersive, landslide risk etc.	CHRC
9	<p>Where existing dams are retained post development: an appropriately qualified RPEQ should be engaged to inspect the integrity of the dams.</p> <ul style="list-style-type: none"> • Dams to be inspected by qualified geotechnical engineer prior to downstream land use for redevelopment • Regular dam audits during operations. • Consider the removal of dams. • Undertake a dam break assessment if warranted. <p>Construction records are unlikely to be available and some may not meet current stability and hydraulic criteria such as spillway designs and freeboard.</p>	CHRC

12.2 Conclusion

The Yamala Enterprise Area is proposed to be the regional transport and industry hub for Central Highlands, comprising 2,000 Ha of mixed use industrial land. The current land use is farming with no established stormwater controls, other than farm dams. The proposed changes in land use will require investment in the construction and maintenance of stormwater infrastructure. The stormwater masterplan documents the preferred development sequencing and stormwater management approach, improving the ability of CHRC to manage the development of the area.

Channel and detention basin configurations have been included, to provide initial guidance on the likely infrastructure requirements. Waterway corridors have been proposed as the primary runoff conveyance, with the intention of managing and improving the natural watercourses through the site. The masterplan includes the preferred locations of waterway corridors which should be secured prior to construction or development approvals.

The functional design criteria document is provided as a guideline for developers to follow in order to meet the preferred standard of stormwater management. This is intended to supersede the relevant CMDG standards (CMDG 2017).

Further studies are recommended to be carried out prior to ongoing development of the site, based on the identified risks included within the risk register.

Through landholders meeting the ‘nil additional discharge’ criteria, and effective management of the development scale infrastructure, the YEA should have no detrimental impact on the downstream waterways.

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APPENDICES

Appendix I – Functional Design Criteria

Yamala Enterprise Area

Capricorn Highway, Emerald

Functional Design Criteria

Stormwater

Revision No 3

Prepared For

Central Highlands Regional Council

07/03/2018

Job: (170087)

Document Control:-

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4						

Notes:

Revision 3 Issued for Use

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1 INTRODUCTION

Central Highlands Regional Council (CHRC) engaged ACS Engineers to undertake the stormwater drainage master planning for the Yamala Enterprise Area (YEA), and associated studies. The Yamala Enterprise Area, located approximately 20 km east of Emerald Queensland, is proposed to be the primary industrial development area and a regional transport hub.

The functional design criteria document is intended to inform the minimum standard of design for stormwater infrastructure within the Yamala Enterprise Area.

This functional design criteria should be read in conjunction with the Yamala Enterprise Area Stormwater Masterplan.

The document is owned and controlled by Central Highlands Regional Council.

1.1 Background

The YEA is proposed to be a regional transport and industrial hub to support the surrounding industries of mining, agriculture and tourism. The YEA is separated into the Special Industry Zone, and the future investigation zone. The special industry zone is currently farmland and the Louis Dreyfus Cotton Gin is located towards the centre of the area. Graincorp have purchased land and are commencing development with a rail siding and load out facility to be constructed. The sale of land to the immediate south of the cotton gin has commenced however the future landholders are not known at this stage.

The YEA is approximately 2,000 Ha and comprises a total of 15 land parcels:

- 1 SP215026
- 1 SP282150
- 5 RP897556
- SP282150
- SP224248
- 1 SP117848
- 5 - 13 RP867798

2 DESIGN STANDARDS

2.1 References

The following guidelines and references should be used in the design of stormwater infrastructure as a minimum. The reference list should be regularly updated to capture changes to legislation or acceptable design standards, and alternative resources added as required.

Designs carried out in accordance with the resources listed below should be generally accepted as meeting the stormwater design intent.

- Queensland Urban Drainage Manual 2017
- Australian Rainfall and Runoff (ARR) 2016
- Capricorn municipal development guidelines, Stormwater D5 (Jan 2017)
- Queensland Environmental Protection (Water) Policy 2009
- Queensland State Planning Policy 2017
- Water by Design: Concept Guidelines for WSUD 2009
- Water by Design: WSUD Technical Design Guidelines in SEQ 2006
- Water by Design: Framework for the Integration of Flooding and Stormwater Management into Open Space 2016
- Brisbane City Council Natural Channel Design Guideline 2003
- ANCOLD guidelines

2.2 Design rainfall requirements

The design rainfall used for the design should be sourced from the Bureau of Meteorology (BOM) online design rainfall generator, based on the coordinates of the study. The BOM design rainfall is generated based on a 5 km grid. Due to the size of the site, the project specific coordinates should be used rather than a central location.

The design rainfall data used for this study is included in Section 4.

3 DESIGN BASIS

Table 3-1 Basis of Design

Item	Design Aspect	Criteria	Reference
1.0 General			
1.1	General	Metric units GDA94 Zone 55	
1.2	No worsening and lawful point of discharge	<p>Each lot is required to meet the following:</p> <p><u>Lawful point of discharge</u> The point of discharge from the development site is considered lawful where discharge is to existing (or, as documented within the stormwater masterplan) waterways, drainage channels, or drainage features at the site boundary</p> <p><u>No worsening</u></p> <ul style="list-style-type: none"> ▪ No increase in peak discharge at the lot boundary for a range of flood events. ▪ No increase in flood levels external to the development boundary for a range of flood events. ▪ No increase in frequency and duration of discharge for the minor storm. <p>Each lot must ensure no worsening of flows through detention on site. The overall development must achieve no worsening of flows.</p>	QUDM Section 3.10
1.3	Climate Change	Australian Rainfall and Runoff should be consulted (Book 1, Chapter 6)	(Bryson Bates et al. 2016)
1.4	Stormwater quality and erosion control	Must be included and addressed within each design.	
1.5	Terminology	ARR terminology is to be referred to – Exceedances per year (EY) and Annual exceedance probability (AEP). Refer to the report for further details.	
2.0 Design Event			
2.1	Rail and Road	<p>0.5 EY – no water over road</p> <p>1% AEP – within the causeway and allowing safe passage for vehicles.</p> <p>Depth Velocity products in accordance with QUDM.</p> <p>Maximum depth over roads of 300mm in 1% AEP event.</p>	QUDM

2.2	Essential Services	Service infrastructure likely to fail when inundated - 1% AEP flood level.	
2.3	Habitable buildings	1% AEP – floor levels to be above the 1% AEP	
2.4	Industrial Areas- buildings	5% AEP – floor levels of warehouses, at a minimum. A risk assessment approach is recommended for all industrial areas based on impact to business (non-habitable buildings and property)	
2.5	Industrial Areas- other than buildings	20% AEP Minimum A risk assessment approach is recommended for all industrial areas based on impact to business	
2.6	Hazardous zones	2% AEP (or as required within the Environmental Authority issued by the Qld Government (DEHP))	

3.0 Hydrological and Hydraulic modelling

3.1	General	<p>Hydrological and hydraulic modelling should follow ARR 2016 recommendations (or most current and relevant), including:</p> <ul style="list-style-type: none"> ▪ ensemble or monte carlo assessments, including duration, temporal patterns and infiltration assumptions ▪ rational method should not be used where alternatives exist ▪ inputs to models should be sourced from the ARR data hub, to ensure most applicable and correct inputs are available unless the alternatives are proven. ▪ Calibration and verification should occur, where possible. 	(Ball et al. 2016)
3.2	Infiltration / losses	<p>Inputs to be sourced from the ARR datahub.</p> <p>Typical site data are:</p> <ul style="list-style-type: none"> ▪ Initial loss: 60 mm ▪ Continuing loss: 10 mm ▪ KC – Use most relevant for site, Weeks ARR Eq 3.23 is recommended. <p>Runoff coefficients to be sourced according to QUDM.</p> <p>Fraction impervious (zone scale – to be refined for smaller catchment assessment):</p> <ul style="list-style-type: none"> ▪ Light / freight focused – 0.8 ▪ Heavy industry – 0.6 ▪ Agricultural high intensity – 0.2 ▪ Service industries – 0.8 	(Ball et al. 2016)

		<ul style="list-style-type: none"> ▪ Vegetation buffers – 0 ▪ Waterway corridors – 0 	
3.3	Sensitivity	Key inputs - 10% increase or decrease in key inputs should be tested. Climate change sensitivity assessment is recommended.	
3.4	Design Events	Assessed against design events listed above, as appropriate.	
3.5	Other	QUDM blockages to be adopted for hydraulic structures.	QUDM
4.0 Detention Basin Design			
4.1	Design intent	<p>Detention basins will be required to manage stormwater discharge by limiting post development peak flows to the pre development flow rates for all design storm events.</p> <p>Detention basins are permanent structures and are not intended to replace appropriate erosion controls.</p> <p>Detention may be achieved using road embankments or inline storage within Type 1 or 2 channels.</p> <p>Detention basins should be designed by an appropriately qualified engineer.</p> <p>Internal single lot detention basins and larger, development scale basins are required. These guidelines are to be applied to both.</p>	
4.2	Basin sizing	To be determined based on nil additional discharge criteria, at each lot.	
4.3	Basin freeboard	<p>Freeboard is defined as the height between the emergency spillway level and embankment crest.</p> <p>Basin formed by road embankment, maximum depth/level: bottom of pavement box; and/or, 0.3m below edge of shoulder.</p> <p>Basin formed by railway embankment, maximum depth/level is underside of ballast.</p> <p>Other, 10% of design capacity or 0.3 m</p> <p>Storage – routing modelling should be undertaken to determine spillway sizing and freeboard for all large basins.</p>	Table 5.7 QUDM
4.4	Low level outlets / drainage considerations	Detention systems are to be free draining. Low level outlets or pumps (not preferred) should be installed to dewater ponds between rainfall events.	Section 5.8 QUDM

		Dewatering time – maximum 3 days from rainfall event commencing. Basin floor drainage design: <ul style="list-style-type: none">▪ Minimum cross gradient of 1 in 80 for grassed basins to allow efficient surface drainage.	
4.5	Embankment design	<p>Detention basins should be designed by an appropriately qualified geotechnical engineer. ANCOLD guidelines should be referred to (<i>note – ANCOLD guideline for the design of retarding basins and other small structures is scheduled to be available in early 2018.</i>)</p> <p>Slopes:</p> <ul style="list-style-type: none">▪ Downstream slopes no steeper than 1 in 4 (where grassed) or, as specified by geotechnical engineer.▪ Upstream / internal slopes to provide egress measures (steps / ladder) and allow for inspection.▪ Embankment slopes to be kept clear of large vegetation to allow for inspection. <p>Crest width:</p> <ul style="list-style-type: none">▪ Trafficable for maintenance▪ Recommended 4 m▪ Minimum 3 m <p>Erosion protection</p> <ul style="list-style-type: none">▪ Downstream where slope is > 1V:3H▪ Upstream face <p>Materials</p> <ul style="list-style-type: none">▪ Non-dispersive soil must be used for all construction purposes.▪ The internal footprint and foundations must be inspected to confirm the area is not dispersive prior to construction.▪ Foundation treatments may be required where soil is dispersive.	QUDM Section 5.11
4.6	Spillway design	1% AEP plus 0.3 m freeboard above the spillway invert.	

		Spillway to be designed with appropriate erosion protection for the design event; such as riprap or reno mattresses, with geofabric (or filter compatible sand and gravel).	
5.0 Open Channel Design			
5.1	Design Intent	<p>Natural channel design principles to be followed, minimising the use of straight, lined channels and providing a riparian corridor. The constructed waterway corridors should reflect the existing channel shapes and alignments.</p> <ul style="list-style-type: none"> ▪ Inter lot drainage - convey runoff a group of lots to the Type 1 or 2 channels. ▪ Type 1 – constructed channel within YEA ▪ Type 2 – existing waterways <p>Typical channel cross section zone classifications, from Melbourne Water (2013) :</p> <p>(Witheridge and Brisbane City Council 2000)</p>	

5.2	Capacity and layout	<ul style="list-style-type: none"> ▪ Inter lot drainage – 10% AEP within the channel, including any low flow pipes installed. ▪ Type 1 – 10% AEP within the hydraulic and riparian zones, 5% AEP within the designated waterway corridor. ▪ Type 2 – 10% AEP within the hydraulic and riparian zones, 2% AEP within the designated waterway corridor. <p>Layout as proposed on Drawing ACS-DWG-170087-MASTERPLAN-10</p>	
5.3	Channel Width	<p>Inter-lot drainage channel – minimum width of 4 m</p> <p>Type 1 – minimum width of 4 m</p> <p>Type 2 – natural channel width, typically 20 m</p>	(CMDG 2017)
5.4	Freeboard	<p>Maximum of</p> <ul style="list-style-type: none"> ▪ 300 mm ▪ 20% of channel depth ▪ Flow velocity head 	QUDM Table 9.3.1
5.5	Longitudinal Slope	<ul style="list-style-type: none"> ▪ Minimum longitudinal grade of 0.5% ▪ Maximum longitudinal grade of 1.0% (localised steeper grades may be appropriate where this reflects the natural channel configuration) 	(CMDG 2017)
5.6	Batter slopes	<ul style="list-style-type: none"> ▪ Maximum slope - 1V:3H slopes (natural slopes) ▪ Maximum slope – grassed / vegetated, 1V:6H ▪ Channel invert shall generally have minimum cross slopes of 1 in 20. 	(CMDG 2017)
5.7	Access roads and top of bank controls	<p>Overall easement/reserve width for an open channel should allow for an access/maintenance pathway of at least 4.5m width on at least one side of the main channel.</p> <p>Access is proposed either within the waterway corridors or through adjacent road and verge.</p>	QUDM Section 9.2.7
5.8	Scour protection and energy dissipation measures	<p>Discharge of hard lined channels:</p> <ul style="list-style-type: none"> ▪ Rock lined apron. ▪ Length of the apron and rock size to be determined based on velocity of discharge. <p>Outlet of culverts or pipes:</p> <ul style="list-style-type: none"> ▪ Rock lined apron. ▪ Length of the apron to be determined by the pipe size. 	QUDM Section 9.4.6 (Witheridge 2012)

		<ul style="list-style-type: none"> Rock size to be determined by the discharge velocity. 	
5.9	Channel Lining methods	<p>Channels to be lined to resist erosion for velocities at the relevant minor design event.</p> <p>Preferred solution for open channel treatments are natural treatments including the use of rock lining, vegetation treatments and soft engineering solutions.</p> <ul style="list-style-type: none"> Velocities below 1.5 m/s – vegetation / grass lined Velocities between 1.5 and 2.5 m/s – jute netting, vegetation and rock riffles Velocities above 2.5 m/s – rock rip rap with vegetation <p>Areas of headcut erosion and gullying may be due to dispersive soil. The following measures should be incorporated into the channel design (Type 1) or rehabilitation (Type 2):</p> <ul style="list-style-type: none"> Rock riffles at regular intervals, and at locations of headcut erosion. Planting of native tussock grasses. Construction and planting should occur towards the end of a wet season. Combined use of rock, jute netting and vegetation along with topsoil placement where possible. Low flow pipeline (inter-lot drainage). 	<p>(Witheridge and Brisbane City Council 2000)</p> <p>(Carey and Stone 2015)</p>

		To be used for channel size calculations:	
5.10	Mannings roughness coefficients	Concrete Pipes or Box Sections Concrete (trowel finish) 0.013 Concrete (formed without finishing) 0.014 Bricks or pavers 0.018 Pitchers or dressed stone on mortar 0.015 Rubble Masonry or Random stone in mortar 0.016 Rock lining 0.028 Riprap 0.028 Corrugated Metal 0.027 Earth (clear) 0.022 Earth (with weeds and gravel) 0.028 Rock Cut 0.038 Short Grass 0.033 Long Grass 0.043	(CMDG 2017)
5.11	Natural channel design conceptual design principles	Discontinuities within the corridor should be avoided. Discontinuities can be formed by roads or buildings, or by the removal of essential riparian vegetation. Fish and terrestrial passage to be considered for Type 2 channels.	Natural Channel Design (BCC) Section 2 QUDM Section 9.7.3
5.12	Safety	D.V Factor < 0.4 Where the product of the average velocity and the average flow depth for the design flow rate is greater than 0.4m/s (D.V factor) the design will be required to specifically provide for the safety of persons who may enter the channel (ladders, safety rope etc). Note, the D.V hazard profile is being revised within ARR and this guideline should be reviewed regularly.	Natural Channel Design (BCC) (Smith and Cox 2015)
6.0 Road Drainage Design			
6.1	Design Event	All cross-road drainage shall be designed for the ARI storm event appropriate for the class of road in accordance with the QUDM Table 7.02.1 (and shown above).	QUDM Table 7.02.1

		All road drainage must not result in afflux at upstream properties at the 1% design event.	
6.2	Classification	Minor roads shall be defined as Access Place and Access Streets with major Road defined as Collector Street or greater.	

4 INTENSITY-FREQUENCY-DURATION DATA

Intensity-frequency-duration (IFD) data is to be sourced for each location within the site, from the Bureau of Meteorology (BOM).

The IFD (design rainfall depth in mm) data used for the stormwater masterplan is provided in Table 4-1.

Table 4-1 IFD Design Rainfall Depth (mm) - Stormwater Masterplan

Issued:	14-Nov-17							
Location								
Requested coordinate:	Latitude	-23.5871	Longitude	148.3609				
Nearest grid cell:	Latitude	23.5875(S)	Longitude	148.3625(E)				
		Annual Exceedance Probability (AEP)						
Duration	Duration in min	63.20%	50%#	20%*	10%	5%	2%	1%
1 min	1	2.25	2.56	3.51	4.16	4.8	5.65	6.31
2 min	2	3.74	4.25	5.89	7.05	8.22	9.79	11
3 min	3	5.29	6.01	8.31	9.92	11.5	13.7	15.4
4 min	4	6.76	7.68	10.6	12.6	14.6	17.3	19.4
5 min	5	8.13	9.23	12.7	15.1	17.5	20.6	23.1
10 min	10	13.6	15.4	21.1	25	28.7	33.8	37.6
15 min	15	17.4	19.7	27	31.9	36.8	43.1	48
30 min	30	24.3	27.5	37.8	44.8	51.8	61	68.1
1 hour	60	30.8	34.9	48.3	57.6	67	79.6	89.4
2 hour	120	36.8	41.9	58.4	70.1	82	98.3	111
3 hour	180	40.5	46.1	64.5	77.7	91.2	110	125
6 hour	360	47.8	54.5	76.7	92.8	109	132	151
12 hour	720	57.6	65.9	93.2	113	133	162	185
24 hour	1440	70.7	81.3	116	140	165	201	230
48 hour	2880	86.7	100	144	175	206	250	286
72 hour	4320	95.7	111	160	195	230	280	319
96 hour	5760	101	117	169	207	245	298	339
120 hour	7200	104	120	175	214	253	308	350
144 hour	8640	105	122	177	217	257	312	356
168 hour	10080	105	122	177	217	258	313	356

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Appendix II – Existing Channel Cross Sections

C1	Chainage 937.740	Datum: 165.000
EXISTING LEVELS		172.595
OFFSETS	-44.333	-31.929 172.414

C2	Chainage 47.543	Datum: 165.000
EXISTING LEVELS		174.111
OFFSETS	-30.000	-13.277 174.019

C4	Chainage 499.222	Datum: 170.000
EXISTING LEVELS		176.973
OFFSETS	-30.000	10.127 173.868
		20.236 173.646

C3	Chainage 336.337	Datum: 170.000
EXISTING LEVELS		177.875
OFFSETS	-30.000	11.006 177.611
		22.785 177.882

C1	Chainage 776.123	Datum: 165.000
EXISTING LEVELS		173.107
OFFSETS	-30.000	-19.668 173.000
		0.000 172.252

C1	Chainage 1487.044	Datum: 165.000
EXISTING LEVELS		170.990
OFFSETS	-30.000	-15.140 170.774
		0.000 170.600

C4	Chainage 200.516	Datum: 170.000
EXISTING LEVELS		176.965
OFFSETS	-30.000	12.617 176.699
		22.869 177.418

C4	Chainage 1318.023	Datum: 175.000
EXISTING LEVELS		177.875
OFFSETS	-30.000	0.000 180.756
		15.699 180.608

C1	Chainage 136.790	Datum: 165.000
EXISTING LEVELS		174.507
OFFSETS	-30.000	-25.609 174.500
		-10.476 174.366

C1	Chainage 1314.489	Datum: 165.000
EXISTING LEVELS		171.515
OFFSETS	-30.000	-28.675 171.500
		-17.378 171.272

C5	Chainage 492.741	Datum: 170.000
EXISTING LEVELS		176.444
OFFSETS	-30.000	12.121 176.730
		30.000 176.880

				SURVEY DATA		GEORGE BOURNE & ASSOCIATES		APPENDIX 2				PO Box 554 Beaudesert QLD 4285 (07) 5541 3500 www.acsengineers.com.au		
				DATUM GDA94		67 ELM ST, BARCALDINE, QLD, 4725								ENGINEERING CERTIFICATION (RPEC)
				MAP GRID MGA-55		YAMALA ENTERPRISE AREA STORMWATER MANAGEMENT MASTER PLAN		#	FIELD	NAME	SIGNATURE	DATE		
A	EXISTING SURFACE SECTIONS			JDM	3/18	JDM	12/17	15088	CIVIL	K. BRAND		08/03/18	DRAWING NUMBER ACS-DWG-170087-SECT	01 A OF 01
REVISION/DETAILS				DWN	DATE	DES	DATE							
G:\Synergy\Projects\17\170087 Bonnie Doon SWMP\Design Files\ACS-DWG-170087-SECT.dwg, 08/03/2018 10:31:09														

Appendix III – Site Overlays



Figure A III- 1 High Value Agriculture

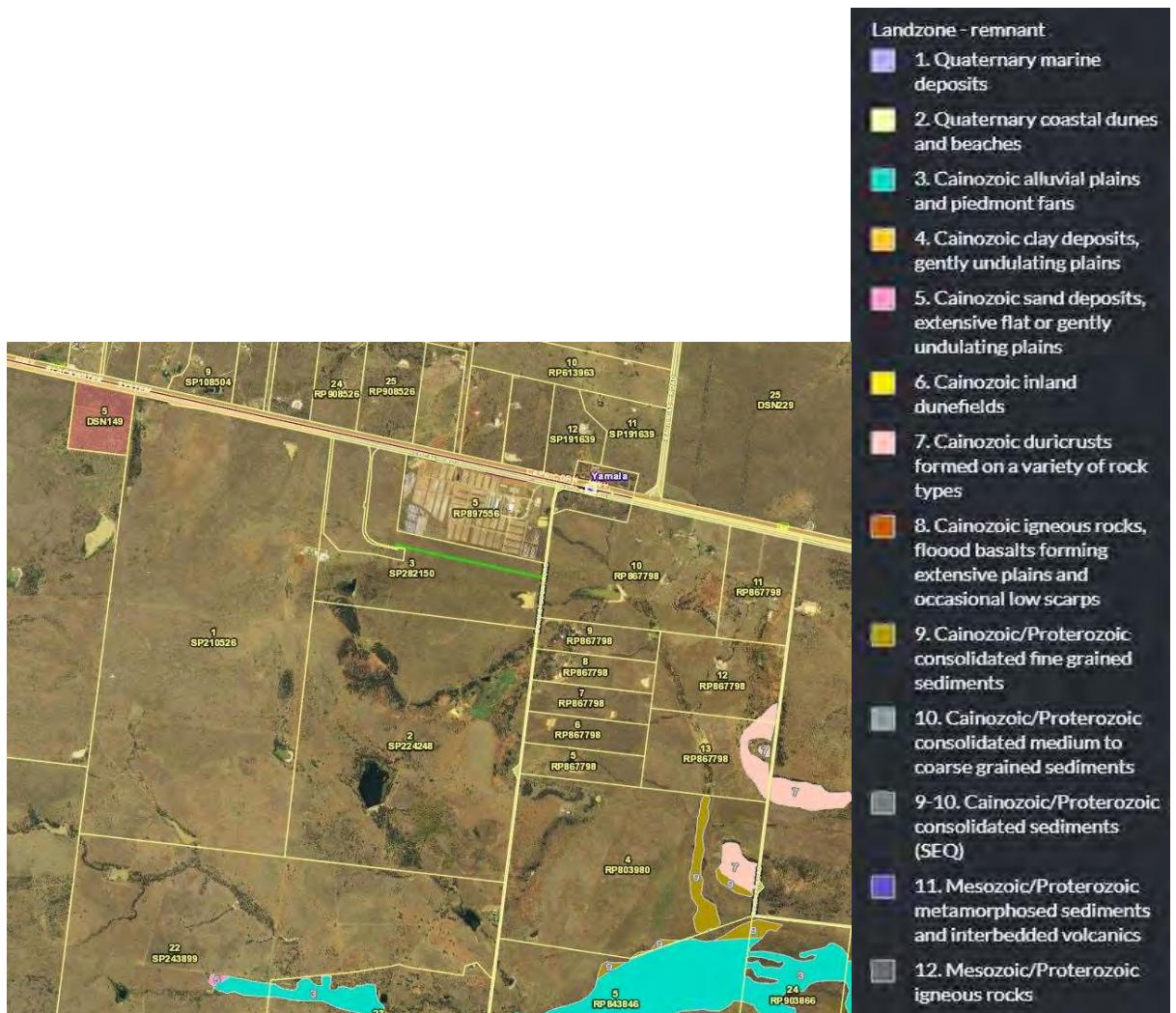


Figure A III- 2 Landzone – Remnant

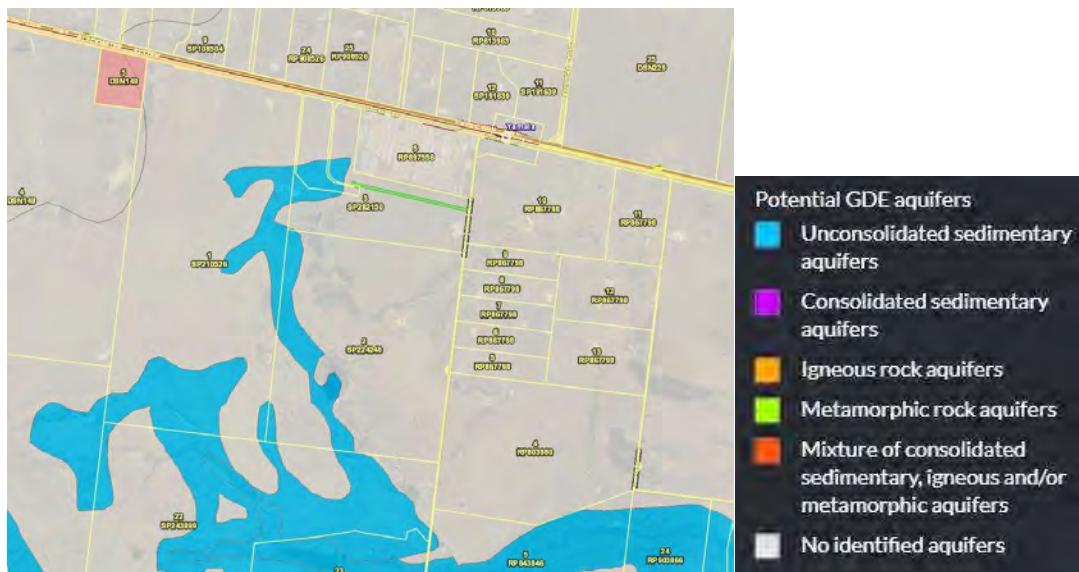


Figure A III- 3 Potential GDE Aquifers

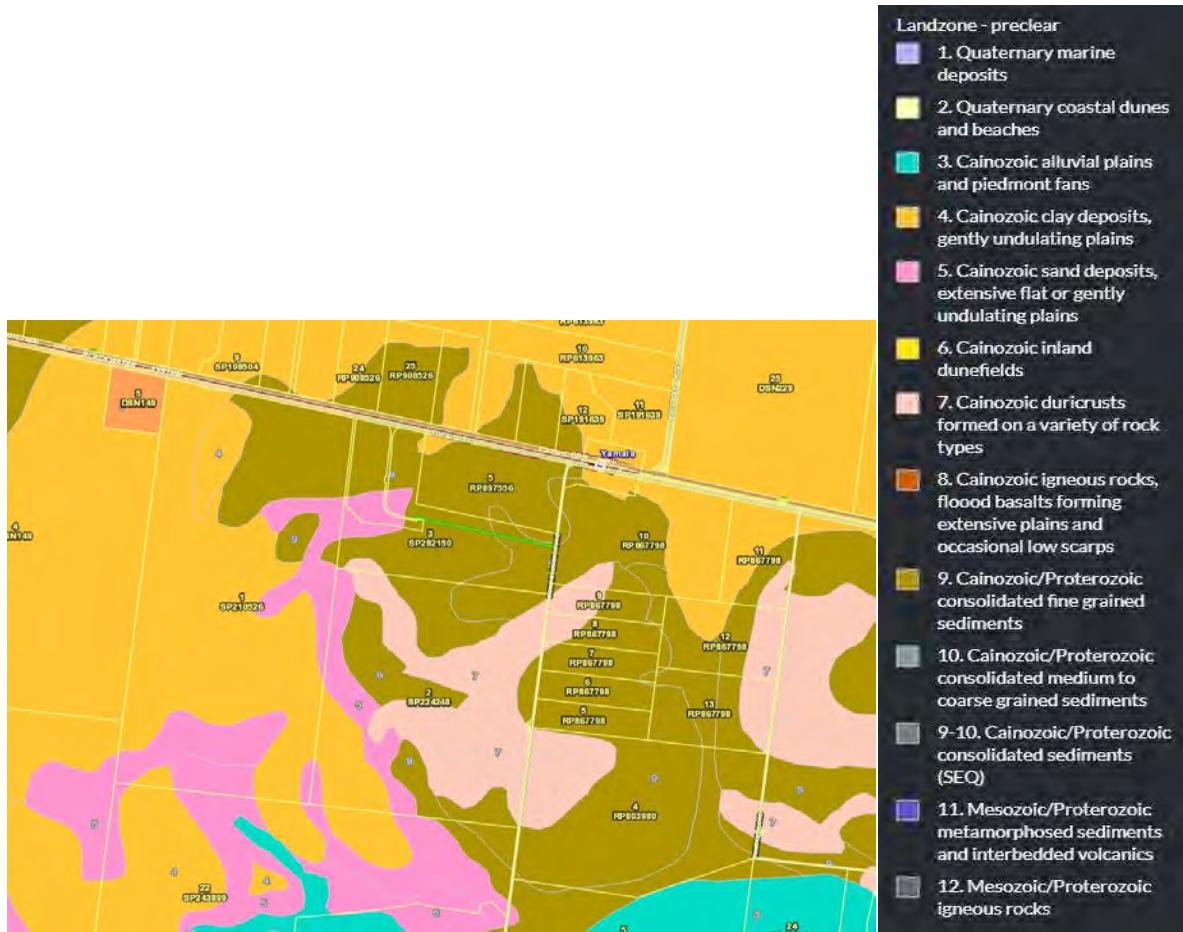


Figure A III- 4 Landzone - Preclear



Figure A III- 5 Vegetation Management Regional Eco and Remnant

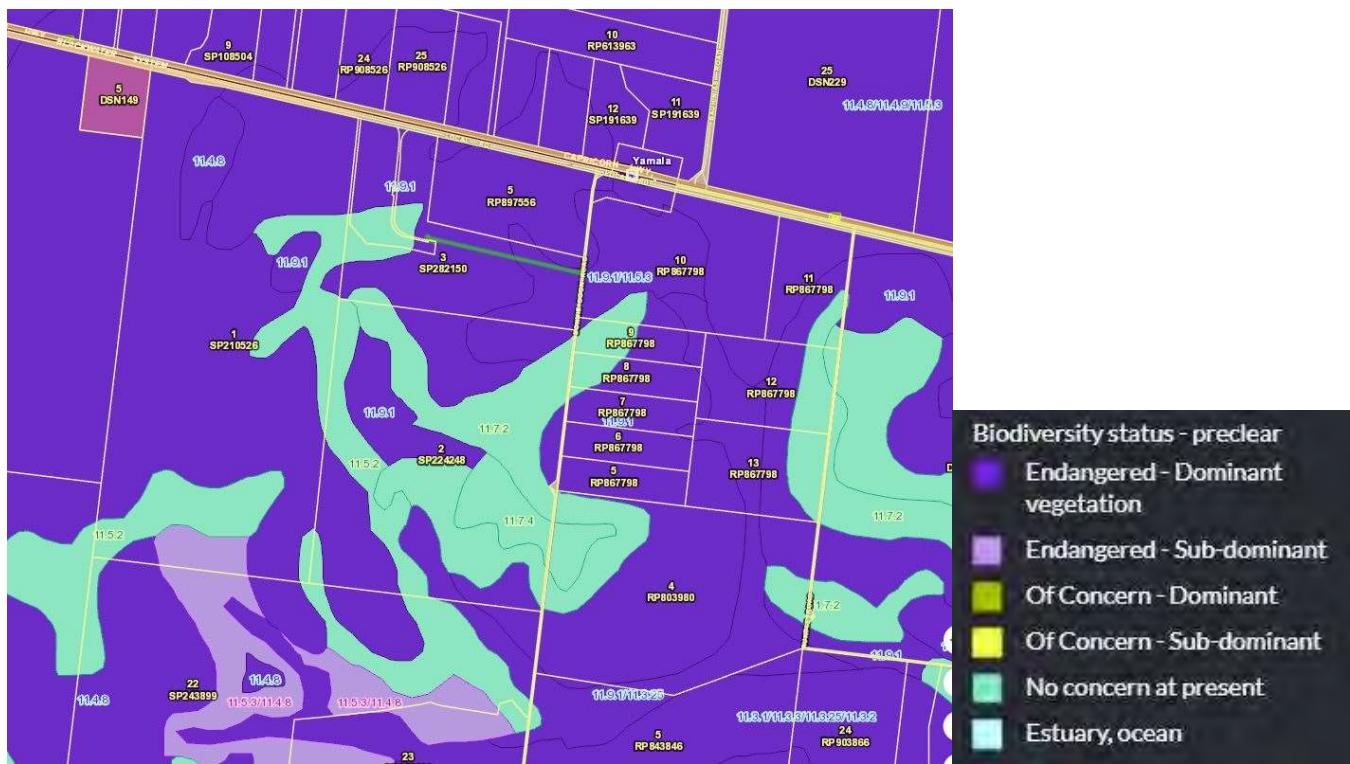


Figure A III- 6 Biodiversity Status - Preclear



Figure A III- 7 Biodiversity Status - Remnant

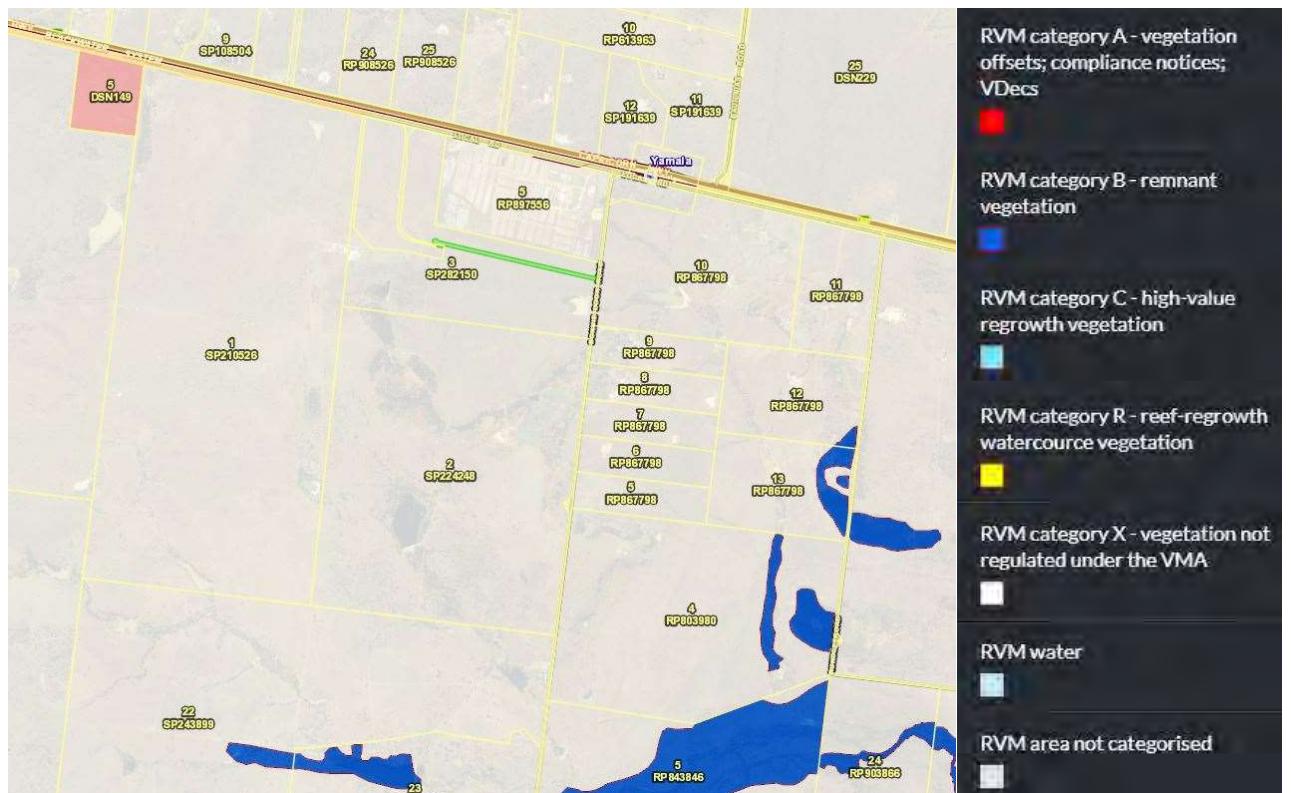


Figure A III- 8 Regulated Vegetated Management



Figure A III- 9 Watercourse Drainage



Figure A III- 10 Basin Modelling 1% AEP

Appendix IV – RORB modelling

2A_East complete_1_batch

RORBWin Batch Run Summary

Program version 6.32 (last updated 3rd September 2017)
 Copyright Monash University and Hydrology and Risk Consulting

Date run: 11 Jan 2018 15:27

Catchment file : G:\Synergy\Projects\17\170087 Bonnie Doon SWMP\Calculations\RORB\2B_East DS\2A_East complete_1.catg

Rainfall location: User defined

Temporal pattern : ARR2016 point temporal patterns

Spatial pattern : Uniform

Areal Red. Fact. : Based on ARR 2016 (Book 2 Chapter 4)

Loss factors : Constant with ARI

Parameters: kc = 4.15 m = 0.80

Loss parameters	Initial loss (mm)	Cont. loss (mm/h)
	60.00	0.90

Peak Description

- 01 Calculated hydrograph, End Ag zone West
- 02 Calculated hydrograph, CQ Inland port entrance
- 03 Calculated hydrograph, DAM D
- 04 Calculated hydrograph, Bonnie Doon Road Crossing
- 05 Calculated hydrograph, u/S DAM
- 06 Calculated hydrograph, Graincorp exit
- 07 Calculated hydrograph, Cotton Gin Access Culverts
- 08 Calculated hydrograph,
- 09 Calculated hydrograph, U/S B23
- 10 Calculated hydrograph, Outlet of model

Run	Duration	AEP	TPat	Rain(mm)	ARF	Peak0001	Peak0002	Peak0003	Peak0004	Peak0005	Peak0006	Peak0007	Peak0008	
Peak0009	Peak0010													
1	15 min	10%	11	31.90	0.81	0.0000	0.0000	0.0000	0.0000	2.7359	2.6418	5.4809	3.9092	2.2153
1	15 min	10%	12	31.90	0.81	0.0000	0.0000	0.0000	0.0000	2.6932	2.6456	5.4764	3.9091	2.2151
1	15 min	10%	13	31.90	0.81	0.0000	0.0000	0.0000	0.0000	2.9470	2.6240	5.5081	3.9082	2.2172
1	15 min	10%	14	31.90	0.81	0.0000	0.0000	0.0000	0.0000	2.9105	2.6491	5.5179	3.9133	2.2187
1	15 min	10%	15	31.90	0.81	0.0000	0.0000	0.0000	0.0000	2.9642	2.6356	5.5247	3.9131	2.2191
1	15 min	10%	16	31.90	0.81	0.0000	0.0000	0.0000	0.0000	2.8931	2.6359	5.5124	3.9109	2.2174
1	15 min	10%	17	31.90	0.81	0.0000	0.0000	0.0000	0.0000	2.7364	2.6526	5.4964	3.9137	2.2171
1	15 min	10%	18	31.90	0.81	0.0000	0.0000	0.0000	0.0000	2.8474	2.6496	5.5094	3.9127	2.2178
1	15 min	10%	19	31.90	0.81	0.0000	0.0000	0.0000	0.0000	3.0748	2.6641	5.5831	3.9349	2.2310
1	15 min	10%	20	31.90	0.81	0.0000	0.0000	0.0000	0.0000	3.0748	2.6609	5.5751	3.9340	2.2309
2	30 min	10%	11	44.80	0.86	0.0000	0.0000	0.0000	0.0000	3.7292	4.1296	8.8322	6.3734	3.6297
2	30 min	10%	12	44.80	0.86	0.0000	0.0000	0.0000	0.0000	3.4286	3.9619	8.6586	6.3352	3.6178
2	30 min	10%	13	44.80	0.86	0.0000	0.0000	0.0000	0.0000	4.3562	4.2441	9.0055	6.4213	3.6499
2	30 min	10%	14	44.80	0.86	0.0000	0.0000	0.0000	0.0000	3.9598	4.1951	8.8889	6.3815	3.6327
2	30 min	10%	15	44.80	0.86	0.0000	0.0000	0.0000	0.0000	3.8054	4.1189	8.8423	6.3833	3.6322
2	30 min	10%	16	44.80	0.86	0.0000	0.0000	0.0000	0.0000	3.6328	4.1108	8.8315	6.3847	3.6338
2	30 min	10%	17	44.80	0.86	0.0000	0.0000	0.0000	0.0000	4.1138	4.2819	9.0217	6.4264	3.6506
2	30 min	10%	18	44.80	0.86	0.0000	0.0000	0.0000	0.0000	3.7935	4.1896	8.9093	6.3962	3.6365
2	30 min	10%	19	44.80	0.86	0.0000	0.0000	0.0000	0.0000	4.1669	4.3011	9.0142	6.4155	3.6471
2	30 min	10%	20	44.80	0.86	0.0000	0.0000	0.0000	0.0000	4.3411	4.3110	9.0230	6.4157	3.6475
3	1 hour	10%	11	57.60	0.89	0.0000	0.0000	0.0000	0.0000	5.5245	5.8170	12.5443	9.0738	5.1968
3	1 hour	10%	12	57.60	0.89	0.0000	0.0000	0.0000	0.0000	3.5293	4.7267	11.3270	8.7296	5.1112
3	1 hour	10%	13	57.60	0.89	0.0000	0.0000	0.0000	0.0000	3.0831	4.4405	11.1615	8.7030	5.1097
3	1 hour	10%	14	57.60	0.89	0.0000	0.0000	0.0000	0.0000	3.4867	4.5473	11.0791	8.5761	5.0720
3	1 hour	10%	15	57.60	0.89	0.0000	0.0000	0.0000	0.0000	3.9185	5.0338	11.7097	8.8633	5.1415
3	1 hour	10%	16	57.60	0.89	0.0000	0.0000	0.0000	0.0000	4.7285	5.5075	12.3057	9.0089	5.1787
3	1 hour	10%	17	57.60	0.89	0.0000	0.0000	0.0000	0.0000	3.7924	4.9812	11.8507	8.9050	5.1548
3	1 hour	10%	18	57.60	0.89	0.0000	0.0000	0.0000	0.0000	4.4932	5.2082	11.8419	8.8466	5.1289
3	1 hour	10%	19	57.60	0.89	0.0000	0.0000	0.0000	0.0000	3.4652	4.7950	11.5164	8.8070	5.1336

2A_East complete_1_batch																	
3	1 hour	10%	20	57.60	0.89	0.0000	0.0000	0.0000	0.0000	5.3679	5.8766	12.7072	9.1534	5.2234			
4	2 hour	10%	11	70.10	0.91	1.7491	0.7219	2.1155	2.1022	1.9924	5.3310	6.7596	16.3492	14.3071	10.7673		
4	2 hour	10%	12	70.10	0.91	1.7492	0.7228	2.1153	2.1020	1.9922	4.3735	5.9660	15.3501	14.0061	10.7276		
4	2 hour	10%	13	70.10	0.91	1.7493	0.7241	2.1152	2.1019	1.9922	4.7662	5.9225	14.8734	13.4215	10.5130		
4	2 hour	10%	14	70.10	0.91	1.6514	0.6537	2.0074	1.9960	1.8919	3.3061	4.4487	12.3021	12.1881	10.1110		
4	2 hour	10%	15	70.10	0.91	1.5756	0.5696	1.9480	1.9368	1.8386	4.1110	4.6337	12.1002	12.7999	10.2500		
4	2 hour	10%	16	70.10	0.91	1.7066	0.7089	2.0629	2.0513	1.9437	2.9333	4.4204	12.6345	13.0278	10.4590		
4	2 hour	10%	17	70.10	0.91	1.6931	0.6846	2.0615	2.0492	1.9416	5.2694	6.4502	15.7982	13.9592	10.6142		
4	2 hour	10%	18	70.10	0.91	1.7502	0.7361	2.1173	2.3179	1.9946	4.3530	6.1068	15.6077	14.0557	10.7231		
4	2 hour	10%	19	70.10	0.91	1.7507	0.7402	2.1192	2.5798	1.9964	3.4561	5.0751	13.8977	13.4333	10.6282		
4	2 hour	10%	20	70.10	0.91	1.7492	0.7289	2.1142	2.1022	1.9917	4.8015	6.2316	15.6079	13.9719	10.6974		
5	3 hour	10%	11	77.70	0.92	4.4489	1.5414	6.5935	6.5595	6.4460	4.1474	5.1112	14.1658	18.3239	19.0199		
5	3 hour	10%	12	77.70	0.92	5.0079	1.8742	7.0921	7.0576	6.8345	2.7570	3.7388	11.7767	17.6870	19.5669		
5	3 hour	10%	13	77.70	0.92	4.7635	1.6735	6.8660	6.8510	6.6921	2.5837	4.1744	12.3747	17.8869	19.5117		
5	3 hour	10%	14	77.70	0.92	5.4160	1.8773	7.2444	7.1218	6.8539	3.3805	4.6315	14.4019	19.7329	20.1130		
5	3 hour	10%	15	77.70	0.92	5.9538	2.3809	7.8398	7.8382	7.4634	3.0406	4.6718	14.2227	19.5630	20.4373		
5	3 hour	10%	16	77.70	0.92	5.7108	2.0004	7.5080	7.4088	7.0820	3.4680	5.2438	15.3048	20.5087	20.5138		
5	3 hour	10%	17	77.70	0.92	5.4928	2.0075	7.3355	7.4183	7.0960	4.1245	5.9404	16.3390	21.2052	20.5882		
5	3 hour	10%	18	77.70	0.92	4.6999	1.6647	6.8595	6.8679	6.6335	3.7056	5.6404	15.3998	20.3307	20.0433		
5	3 hour	10%	19	77.70	0.92	5.5454	1.9542	7.4373	7.3788	7.0619	4.3161	6.1090	16.5653	21.2985	20.6149		
5	3 hour	10%	20	77.70	0.92	6.0309	2.1348	7.7439	7.6096	7.2766	4.3092	6.4308	17.3101	21.7427	21.0122		
6	6 hour	10%	11	92.80	0.95	5.3795	2.4814	9.9588	10.2021	10.7469	4.1064	5.8518	15.1224	22.3872	33.0893		
6	6 hour	10%	12	92.80	0.95	8.8326	3.6196	13.3412	13.5259	13.1595	3.0320	4.2970	12.1363	23.3746	35.0957		
6	6 hour	10%	13	92.80	0.95	6.4946	2.6390	10.9928	11.1831	11.4512	2.3571	3.8517	11.6950	23.6743	33.7863		
6	6 hour	10%	14	92.80	0.95	12.4417	4.7174	19.9254	19.5568	19.5685	2.6679	4.3388	13.2834	34.8930	41.7465		
6	6 hour	10%	15	92.80	0.95	11.0717	4.1085	17.5032	17.7690	17.7391	3.4477	5.4104	16.5137	35.4515	42.9874		
6	6 hour	10%	16	92.80	0.95	8.0682	3.5638	14.2372	14.4249	14.8556	1.9435	3.2266	10.3727	29.0112	39.3092		
6	6 hour	10%	17	92.80	0.95	8.6586	3.7873	14.8597	14.9958	15.5884	2.4470	3.8271	11.4876	30.2763	40.2949		
6	6 hour	10%	18	92.80	0.95	8.3453	2.9841	12.5124	12.8790	13.2633	3.2114	5.0891	15.4137	28.1815	39.8241		
6	6 hour	10%	19	92.80	0.95	12.0841	4.3073	18.3031	18.8539	18.7626	3.6867	5.7185	17.0129	36.9586	44.0468		
6	6 hour	10%	20	92.80	0.95	9.8635	4.1019	16.8742	17.1570	17.5910	3.0966	4.7227	13.9900	34.7883	42.9165		
7	12 hour	10%	11	113.00	0.97	10.8206	5.1054	19.6789	20.3593	20.9293	1.9967	3.2999	10.5444	38.8568	56.6411		
7	12 hour	10%	12	113.00	0.97	13.1919	4.9883	20.4308	20.1353	20.8464	3.7146	6.1513	18.4269	41.0591	50.4712		
7	12 hour	10%	13	113.00	0.97	9.9890	4.4592	17.1366	17.3092	17.6613	2.1917	3.2630	9.1832	30.8042	43.2465		
7	12 hour	10%	14	113.00	0.97	5.7301	2.7617	10.9666	11.3536	11.8938	1.7795	2.5511	8.0029	22.5363	34.3872		
7	12 hour	10%	15	113.00	0.97	7.3257	2.8102	11.2086	11.5603	12.0214	2.0959	3.2478	9.5194	23.2007	34.9064		
7	12 hour	10%	16	113.00	0.97	5.4950	2.5764	10.2615	10.5873	11.3479	1.5379	2.5238	7.7771	22.3165	35.8421		
7	12 hour	10%	17	113.00	0.97	9.0520	4.2029	17.1549	17.7924	18.7595	1.8717	2.9880	9.7507	35.4442	52.7373		
7	12 hour	10%	18	113.00	0.97	13.6878	5.8666	24.8786	25.4774	25.6725	2.9595	4.4520	13.6002	45.2283	61.5008		
7	12 hour	10%	19	113.00	0.97	14.1083	5.8383	24.9433	25.3962	25.8368	3.0341	4.6208	13.7602	46.2143	63.7226		
7	12 hour	10%	20	113.00	0.97	11.1525	5.2676	19.6119	19.9776	20.4817	2.4111	4.0281	12.6911	39.2744	61.5906		
8	24 hour	10%	11	140.00	0.98	12.2185	4.9920	19.9713	19.9003	19.2700	3.5238	5.2828	15.5950	41.1729	54.7104		
8	24 hour	10%	12	140.00	0.98	13.2015	5.9905	24.9222	25.4890	26.3819	2.4157	3.9039	13.1598	47.7522	74.5043		
8	24 hour	10%	13	140.00	0.98	7.6332	3.5399	12.9569	13.2699	14.4031	1.7216	2.6690	7.9250	26.6673	39.3850		
8	24 hour	10%	14	140.00	0.98	6.6431	3.2330	12.7103	13.1126	13.6237	1.2136	2.0134	6.7440	25.7681	40.4074		
8	24 hour	10%	15	140.00	0.98	5.0924	2.5786	9.0991	9.4080	10.0276	1.1019	1.6171	5.2119	18.5311	30.7124		
8	24 hour	10%	16	140.00	0.98	7.2580	3.6681	14.3001	14.6224	15.3900	1.4297	2.1786	7.3841	28.2214	45.1528		
8	24 hour	10%	17	140.00	0.98	7.3504	3.3894	13.4483	14.2100	15.2161	1.4168	2.2537	7.4904	29.0399	47.0188		
8	24 hour	10%	18	140.00	0.98	7.9754	3.7993	14.5585	14.9943	15.2930	1.4148	2.4401	7.8557	28.9720	44.8200		
8	24 hour	10%	19	140.00	0.98	8.9522	3.9348	14.8927	15.0182	15.4480	1.6726	2.8324	8.4726	28.6139	46.2230		
8	24 hour	10%	20	140.00	0.98	7.7829	3.9577	15.4073	15.8396	16.7855	1.4614	2.3392	7.8825	31.2348	49.1619		
9	48 hour	10%	11	175.00	0.98	4.5212	2.0698	8.1738	8.4679	9.2727	1.3467	2.2561	7.0741	18.2876	31.1000		
9	48 hour	10%	12	175.00	0.98	7.1575	3.5631	14.2980	14.5459	15.4338	1.3567	2.1577	7.4433	28.6124	45.7215		
9	48 hour	10%	13	175.00	0.98	6.9209	3.5811	13.7421	14.1387	14.9944	1.1951	2.0769	7.0321	28.0882	45.2635		
9	48 hour	10%	14	175.00	0.98	5.9082	2.8380	11.0498	11.3370	11.6722	1.0082	1.8172	5.9729	21.1768	30.1324		
9	48 hour	10%	15	175.00	0.98	5.5041	2.7682	10.4024	10.7670	11.2599	1.0093	1.6990	5.5479	21.2860	33.2538		
9	48 hour	10%	16	175.00	0.98	11.1724	5.4849	23.1288	23.6508	25.4010	2.2814	3.2456	11.8325	46.8901	64.3196		
9	48 hour	10%	17	175.00	0.98	5.2919	2.5760	10.5761	10.8329	11.7044	1.1820	1.7120	5.4015	21.7776	33.8819		
9	48 hour	10%	18	175.00	0.98	8.4612	4.1005	17.1951	17.5992	18.7587	1.7021	2.5107	9.0315	34.4896	46.8864		
9	48 hour	10%	19	175.00	0.98	5.2288	2.7563	10.4076	10.8561	11.5073	0.9156	1.5838	5.3303	21.7788	34.9016		
9	48 hour	10%	20	175.00	0.98	13.9685	6.3381	24.2794	24.9784	25.0828	2.6352	4.3173	13.3628	47.0410	80.1193		
10	72 hour	10%	11	195.00	0.99	3.0348	1.5911	5.9932	6.1963	6.5180	0.6085	1.0112	3.2137	12.3725	20.2419		
10																	

2A_East complete_1_batch

10	72 hour	10%	14	195.00	0.99	3.9887	1.9799	7.7495	7.9670	8.7527	0.9389	1.3872	4.0015	16.8671	25.6497
10	72 hour	10%	15	195.00	0.99	8.9188	4.1172	15.4235	15.9556	17.0544	1.7667	2.8038	8.5843	33.0454	57.3860
10	72 hour	10%	16	195.00	0.99	8.3036	4.0385	15.7298	16.2131	16.8968	1.4321	2.5265	8.3384	31.2969	46.3983
10	72 hour	10%	17	195.00	0.99	3.4432	1.6253	6.0038	6.2082	6.2486	0.6884	1.1346	3.5523	11.8617	20.3399
10	72 hour	10%	18	195.00	0.99	6.3456	3.2872	12.1841	12.6023	13.2084	1.1359	1.9402	6.6485	24.7413	39.5206
10	72 hour	10%	19	195.00	0.99	3.4151	1.8534	7.0026	7.2943	7.8824	0.7478	1.1317	3.6050	15.3082	25.2710
10	72 hour	10%	20	195.00	0.99	7.6809	3.8973	15.6119	16.1454	17.2246	1.2212	2.2834	8.0445	32.1150	46.8415
11	96 hour	10%	11	207.00	0.99	6.6832	3.5464	13.9564	14.4425	15.5827	1.2493	1.9617	6.9684	29.4589	47.2177
11	96 hour	10%	12	207.00	0.99	5.5913	2.7741	11.0580	11.4565	12.5728	1.1485	1.8077	5.5552	24.1303	39.6229
11	96 hour	10%	13	207.00	0.99	2.4402	1.1312	4.3038	4.4573	4.9725	0.5640	1.0981	3.8716	9.7304	15.0219
11	96 hour	10%	14	207.00	0.99	4.7511	2.2928	9.0326	9.2961	9.6933	1.0914	1.8838	5.8904	19.5699	28.3238
11	96 hour	10%	15	207.00	0.99	3.6476	1.7991	6.9542	7.2165	7.8803	0.7368	1.1772	3.6459	15.1657	24.6467
11	96 hour	10%	16	207.00	0.99	3.3388	1.7585	6.6997	6.9719	7.4674	0.7176	1.0962	3.5212	14.4166	22.8066
11	96 hour	10%	17	207.00	0.99	5.6218	2.7477	10.8343	11.1561	11.6957	0.9423	1.7255	5.8000	21.7968	30.0906
11	96 hour	10%	18	207.00	0.99	6.1354	3.0146	12.1770	12.5941	13.8576	1.4940	2.5181	8.0474	26.4613	44.8188
11	96 hour	10%	19	207.00	0.99	3.3076	1.6938	7.1047	7.3219	7.9348	0.7407	1.0454	3.7414	14.9491	20.8981
11	96 hour	10%	20	207.00	0.99	3.4340	1.8237	6.7353	6.9303	7.5339	0.7226	1.1088	3.5287	14.4610	23.4323
12	120 hour	10%	11	214.00	0.99	5.0140	2.6039	10.3559	10.7119	11.4791	0.9169	1.4955	5.3122	21.5939	32.7484
12	120 hour	10%	12	214.00	0.99	4.0541	1.9564	7.6106	7.8478	8.1520	1.1120	1.7979	5.3304	15.2750	25.6980
12	120 hour	10%	13	214.00	0.99	5.7697	2.7483	10.5169	10.8806	12.0458	1.2253	1.8455	5.4407	23.0135	37.5277
12	120 hour	10%	14	214.00	0.99	6.7484	3.2213	11.8194	12.2539	13.2365	1.3667	2.1178	6.4765	25.3732	43.7506
12	120 hour	10%	15	214.00	0.99	3.3756	1.6820	6.4585	6.7030	7.0259	0.6133	1.0666	3.5480	13.4525	23.8844
12	120 hour	10%	16	214.00	0.99	3.3324	1.6884	6.5499	6.7554	7.1249	0.5612	1.0406	3.5567	13.5845	21.3357
12	120 hour	10%	17	214.00	0.99	8.6514	3.9192	15.0755	15.5989	17.4340	1.7953	2.7597	8.2301	33.6108	56.8553
12	120 hour	10%	18	214.00	0.99	4.4857	2.0646	8.7194	8.9586	9.9025	1.0207	1.4484	4.2555	18.7766	29.5064
12	120 hour	10%	19	214.00	0.99	4.8633	2.3470	9.1786	9.4570	9.8390	0.7765	1.3758	4.6687	18.6744	33.1687
12	120 hour	10%	20	214.00	0.99	4.3635	2.2728	8.7664	9.0728	9.7023	0.8365	1.3361	4.5733	18.3505	26.5719
13	144 hour	10%	11	217.00	0.99	4.8434	2.4794	9.8281	10.2057	11.1280	0.9864	1.5604	4.8960	21.2442	34.0972
13	144 hour	10%	12	217.00	0.99	9.1170	4.4240	17.7525	18.3752	20.2795	1.8712	2.8830	8.6393	38.7896	64.3990
13	144 hour	10%	13	217.00	0.99	4.6406	2.0921	8.6659	8.9547	9.9511	1.0163	1.5397	4.5067	19.1944	30.4984
13	144 hour	10%	14	217.00	0.99	8.6206	4.1563	16.0873	16.5831	17.1834	1.5233	2.6338	8.5791	31.7348	44.6394
13	144 hour	10%	15	217.00	0.99	4.5914	2.3625	9.6419	9.9155	10.7141	0.9035	1.3874	5.0046	20.2127	30.2502
13	144 hour	10%	16	217.00	0.99	3.7875	1.9623	7.5832	7.8462	8.3743	0.7295	1.1710	4.0029	15.8446	22.6705
13	144 hour	10%	17	217.00	0.99	2.5739	1.2417	5.3285	5.4605	6.0049	1.1189	1.6371	4.8985	11.4097	16.9844
13	144 hour	10%	18	217.00	0.99	4.1144	2.1395	8.7507	9.0447	9.7966	0.8561	1.2719	4.4798	18.5415	27.5852
13	144 hour	10%	19	217.00	0.99	3.5295	1.6965	6.5023	6.7272	6.9372	0.7001	1.1367	3.5185	12.6903	19.1894
13	144 hour	10%	20	217.00	0.99	4.6732	2.2773	9.2311	9.5377	10.4317	1.0127	1.5179	4.6394	19.7778	31.4925
14	168 hour	10%	11	217.00	0.99	4.4463	2.1466	7.9679	8.2555	8.3690	0.8752	1.4154	4.4096	15.6906	27.1689
14	168 hour	10%	12	217.00	0.99	2.5013	1.2380	4.7850	4.9351	5.1309	0.4491	0.8145	2.7016	10.0823	17.1587
14	168 hour	10%	13	217.00	0.99	3.8753	1.9049	7.6650	7.8960	8.3315	0.6334	1.2110	4.1524	15.5316	21.1443
14	168 hour	10%	14	217.00	0.99	2.7850	1.3421	5.6868	5.8513	6.4091	0.6789	0.9886	2.9858	12.3059	18.4998
14	168 hour	10%	15	217.00	0.99	6.0003	3.0757	12.2530	12.6502	13.5579	1.0647	1.8164	6.0797	25.1702	38.5722
14	168 hour	10%	16	217.00	0.99	4.5848	2.0686	8.5720	8.8571	9.8413	1.0059	1.5233	4.4548	18.9833	30.1722
14	168 hour	10%	17	217.00	0.99	4.1543	2.1293	8.7099	8.9538	9.6700	0.8210	1.2653	4.5584	18.2511	27.1173
14	168 hour	10%	18	217.00	0.99	2.3260	1.0329	3.8982	3.9924	4.3954	0.9952	1.6003	4.8946	9.6380	13.9151
14	168 hour	10%	19	217.00	0.99	3.8501	1.9556	7.8695	8.1531	8.7052	0.7261	1.1621	4.1345	16.3913	23.6733
14	168 hour	10%	20	217.00	0.99	2.7829	1.3605	5.1510	5.3520	5.5412	0.5972	1.0244	3.3856	10.5634	16.0665
15	15 min	5%	11	36.80	0.80	0.0000	0.0000	0.0000	0.0000	0.0000	3.2086	3.1377	6.5032	4.6355	2.6326
15	15 min	5%	12	36.80	0.80	0.0000	0.0000	0.0000	0.0000	0.0000	3.1570	3.1405	6.5135	4.6372	2.6322
15	15 min	5%	13	36.80	0.80	0.0000	0.0000	0.0000	0.0000	0.0000	3.4638	3.1245	6.5195	4.6355	2.6318
15	15 min	5%	14	36.80	0.80	0.0000	0.0000	0.0000	0.0000	0.0000	3.4197	3.1529	6.5311	4.6414	2.6337
15	15 min	5%	15	36.80	0.80	0.0000	0.0000	0.0000	0.0000	0.0000	3.4845	3.1389	6.5405	4.6420	2.6335
15	15 min	5%	16	36.80	0.80	0.0000	0.0000	0.0000	0.0000	0.0000	3.3986	3.1366	6.5231	4.6379	2.6326
15	15 min	5%	17	36.80	0.80	0.0000	0.0000	0.0000	0.0000	0.0000	3.2092	3.1505	6.5247	4.6407	2.6344
15	15 min	5%	18	36.80	0.80	0.0000	0.0000	0.0000	0.0000	0.0000	3.3434	3.1512	6.5177	4.6393	2.6336
15	15 min	5%	19	36.80	0.80	0.0000	0.0000	0.0000	0.0000	0.0000	3.6160	3.1675	6.6142	4.6717	2.6465
15	15 min	5%	20	36.80	0.80	0.0000	0.0000	0.0000	0.0000	0.0000	3.6160	3.1623	6.6046	4.6700	2.6465
16	30 min	5%	11	51.80	0.85	0.0000	0.0000	0.0000	0.0000	0.0000	4.3607	4.8771	10.4665	7.5715	4.3192
16	30 min	5%	12	51.80	0.85	0.0000	0.0000	0.0000	0.0000	0.0000	4.0258	4.6688	10.3034	7.5346	4.3059
16	30 min	5%	13	51.80	0.85	0.0000	0.0000	0.0000	0.0000	0.0000	5.1355	5.0166	10.6724	7.6306	4.3411
16	30 min	5%	14	51.80	0.85	0.0000	0.0000	0.0000	0.0000	0.0000	4.6372	4.9661	10.5500	7.5947	4.3227
16	30 min	5%	15	51.80	0.85	0.0000	0.0000	0.0000	0.0000	0.0000	4.4766	4.8605	10.4676	7.5775	4.3212
16	30 min	5%	16	51.80	0.85	0.0000	0.0000	0.0000	0.0000	0.0000	4.2432	4.8543	10.4578	7.5806	4.3222
16	30 min	5%	17	51.80	0.85	0.0000	0.0000	0.0000	0.0000	0.0000	4.8557	5.0675	10.7024	7.6471	4.3428

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16	30 min	5%	18	51.80	0.85	0.0000	0.0000	0.0000	0.0000	0.0000	4.4378	4.9535	10.5630	7.6054	4.3276		
16	30 min	5%	19	51.80	0.85	0.0000	0.0000	0.0000	0.0000	0.0000	4.8834	5.0983	10.7080	7.6453	4.3399		
16	30 min	5%	20	51.80	0.85	0.0000	0.0000	0.0000	0.0000	0.0000	5.0940	5.1177	10.7334	7.6489	4.3415		
17	1 hour	5%	11	67.00	0.89	0.0000	0.0000	0.0000	0.0000	0.0000	6.5076	6.9253	14.9578	10.8898	6.2204		
17	1 hour	5%	12	67.00	0.89	0.0000	0.0000	0.0000	0.0000	0.0000	4.1315	5.5803	13.4477	10.4133	6.1173		
17	1 hour	5%	13	67.00	0.89	0.0000	0.0000	0.0000	0.0000	0.0000	3.5917	5.2337	13.2393	10.3716	6.1169		
17	1 hour	5%	14	67.00	0.89	0.0000	0.0000	0.0000	0.0000	0.0000	4.0717	5.3765	13.1554	10.2148	6.0705		
17	1 hour	5%	15	67.00	0.89	0.0000	0.0000	0.0000	0.0000	0.0000	4.5867	5.9449	13.9805	10.5739	6.1544		
17	1 hour	5%	16	67.00	0.89	0.0000	0.0000	0.0000	0.0000	0.0000	5.5619	6.5495	14.6720	10.7955	6.1960		
17	1 hour	5%	17	67.00	0.89	0.0000	0.0000	0.0000	0.0000	0.0000	4.4483	5.8793	14.1181	10.6633	6.1689		
17	1 hour	5%	18	67.00	0.89	0.0000	0.0000	0.0000	0.0000	0.0000	5.2823	6.1798	14.0958	10.5806	6.1437		
17	1 hour	5%	19	67.00	0.89	0.0000	0.0000	0.0000	0.0000	0.0000	4.0470	5.6509	13.7208	10.5286	6.1421		
17	1 hour	5%	20	67.00	0.89	0.0000	0.0000	0.0000	0.0000	0.0000	6.3224	7.0024	15.1646	10.9570	6.2498		
18	2 hour	5%	11	82.00	0.90	8.3224	3.1306	10.2289	10.1525	9.6450	6.7684	8.7736	22.2580	26.5226	25.2522		
18	2 hour	5%	12	82.00	0.90	8.2608	3.0880	10.1957	10.1400	9.6377	5.4564	7.6382	20.7855	25.8974	25.2285		
18	2 hour	5%	13	82.00	0.90	8.3587	3.1558	10.2468	10.1740	9.6486	5.7023	7.3891	19.2599	24.6536	24.7820		
18	2 hour	5%	14	82.00	0.90	7.7900	2.7934	9.9402	9.8895	9.4211	3.9538	5.4660	15.6603	22.5415	24.2465		
18	2 hour	5%	15	82.00	0.90	6.9723	2.5297	9.3572	9.3035	8.9163	5.6155	6.6634	16.2254	23.6222	24.2058		
18	2 hour	5%	16	82.00	0.90	7.5556	2.8421	9.7877	9.7273	9.2774	4.0758	5.7756	16.6866	24.0206	24.6522		
18	2 hour	5%	17	82.00	0.90	8.1142	2.9276	10.1175	10.0553	9.5494	6.4962	8.1721	20.7668	25.6408	24.9205		
18	2 hour	5%	18	82.00	0.90	8.3057	3.2071	10.2292	10.1670	9.6420	5.3079	7.8037	20.9216	25.9686	25.1946		
18	2 hour	5%	19	82.00	0.90	8.1139	3.1529	10.0547	9.9939	9.4866	4.4012	6.3466	18.3797	24.6843	24.9234		
18	2 hour	5%	20	82.00	0.90	8.4405	3.2411	10.3327	10.2700	9.7344	5.9496	8.0047	21.0302	26.0103	25.3120		
19	3 hour	5%	11	91.20	0.91	10.9239	3.9335	15.2882	15.7877	15.4441	4.9029	6.0883	17.5517	31.9765	36.3086		
19	3 hour	5%	12	91.20	0.91	10.5476	3.8564	15.4645	15.6802	15.2932	3.8157	5.0566	14.4740	30.3209	36.4179		
19	3 hour	5%	13	91.20	0.91	10.2929	3.8755	15.2250	15.5628	15.2201	3.2115	4.9916	15.4218	30.6468	36.3022		
19	3 hour	5%	14	91.20	0.91	11.3960	4.1579	16.3431	16.0896	15.9010	4.4460	6.2265	18.2843	33.6265	37.5964		
19	3 hour	5%	15	91.20	0.91	12.9565	4.7815	17.7170	17.7022	16.9761	3.5698	5.5388	17.4287	33.1433	38.0082		
19	3 hour	5%	16	91.20	0.91	11.5915	4.2581	16.9046	16.5643	16.3245	4.2309	6.5038	19.4193	34.9412	38.3703		
19	3 hour	5%	17	91.20	0.91	11.4600	4.1205	16.7000	16.8305	16.2343	3.5826	7.6499	21.3712	36.1149	38.4722		
19	3 hour	5%	18	91.20	0.91	11.0203	3.8518	15.7140	15.9372	15.8582	4.5331	7.0069	19.7515	34.6531	37.9006		
19	3 hour	5%	19	91.20	0.91	11.8744	4.2475	17.0867	16.6811	16.4766	5.4823	7.7265	21.5501	36.2685	38.6451		
19	3 hour	5%	20	91.20	0.91	12.9648	4.6906	17.7384	17.9184	17.0611	5.2670	7.9395	22.8668	36.8219	38.9381		
20	6 hour	5%	11	109.00	0.95	8.9065	3.6888	15.6116	16.0392	16.6015	5.4172	7.6117	20.1018	36.0180	51.9304		
20	6 hour	5%	12	109.00	0.95	12.3470	4.8380	17.4243	17.6175	17.2411	3.5748	5.1350	14.5653	30.9599	51.5109		
20	6 hour	5%	13	109.00	0.95	11.1115	4.1465	18.0138	18.7405	19.4589	2.7830	4.5973	14.2067	37.9750	51.1749		
20	6 hour	5%	14	109.00	0.95	16.2268	6.6651	27.5930	27.5368	28.2162	3.1528	5.1162	15.7746	49.7564	62.3052		
20	6 hour	5%	15	109.00	0.95	17.1537	6.4859	27.7407	28.3178	28.7546	4.0685	6.4356	19.7837	53.6375	66.6551		
20	6 hour	5%	16	109.00	0.95	9.9632	4.8223	18.8533	19.2284	20.5013	3.2576	3.9144	12.7508	39.9659	59.2111		
20	6 hour	5%	17	109.00	0.95	11.9648	5.2049	20.1551	20.6679	21.9917	4.0575	5.3677	13.8650	43.2063	61.0639		
20	6 hour	5%	18	109.00	0.95	14.2864	5.2740	22.1380	22.1192	22.6167	3.8353	6.1927	19.2519	44.2760	60.5919		
20	6 hour	5%	19	109.00	0.95	18.0028	6.7417	28.6963	29.3402	29.5846	4.3356	6.8167	20.3655	55.2784	67.9347		
20	6 hour	5%	20	109.00	0.95	13.9945	5.8460	24.5240	25.3168	26.7221	3.6544	5.7449	17.3401	51.2731	66.4986		
21	12 hour	5%	11	133.00	0.97	12.9010	6.2072	23.7131	24.5419	25.3210	2.3577	3.9043	12.5102	46.6252	69.8320		
21	12 hour	5%	12	133.00	0.97	18.1876	7.3089	32.3462	32.5547	31.7864	4.3747	7.3399	22.8438	60.4664	77.0374		
21	12 hour	5%	13	133.00	0.97	12.0463	5.4217	20.6159	20.8656	21.4230	2.5953	3.8973	10.8953	37.3511	52.8139		
21	12 hour	5%	14	133.00	0.97	6.9223	3.4384	13.3869	13.8687	14.5342	2.1558	3.5846	10.5988	27.2889	42.3115		
21	12 hour	5%	15	133.00	0.97	11.3444	4.4276	19.4931	19.9077	19.7069	2.4796	3.8758	11.2873	35.9412	50.3834		
21	12 hour	5%	16	133.00	0.97	8.7414	3.6282	15.4366	15.8063	16.8850	2.0047	3.1675	9.2473	31.6606	49.2732		
21	12 hour	5%	17	133.00	0.97	11.4821	5.4442	21.5708	22.3798	23.9618	2.2149	3.5303	11.5819	45.8281	70.1492		
21	12 hour	5%	18	133.00	0.97	16.5536	7.2948	30.2476	31.0313	31.5181	3.4998	5.3064	16.1335	55.6058	78.2106		
21	12 hour	5%	19	133.00	0.97	17.2101	7.5420	30.6839	31.3594	32.2768	3.5866	5.5005	16.2907	57.4696	82.5890		
21	12 hour	5%	20	133.00	0.97	14.1918	6.6177	24.1436	24.6203	25.3662	2.8432	4.7691	15.0991	48.1928	80.0521		
22	24 hour	5%	11	165.00	0.98	16.3415	7.0339	29.5936	29.8665	30.2053	4.4703	6.8715	19.4934	60.1712	79.7763		
22	24 hour	5%	12	165.00	0.98	15.4953	7.5578	30.2707	31.1148	33.0401	2.8717	4.6208	15.6206	61.2611	94.9782		
22	24 hour	5%	13	165.00	0.98	9.2198	4.2977	15.6736	16.1276	17.3056	2.0554	3.1915	9.5364	32.1036	48.0201		
22	24 hour	5%	14	165.00	0.98	7.9695	3.9332	15.3940	15.8910	16.5794	1.4469	2.3914	8.0490	30.9256	48.9312		
22	24 hour	5%	15	165.00	0.98	6.1738	3.1261	11.0606	11.4353	12.1404	1.3178	1.9372	6.2460	22.4077	37.0896		
22	24 hour	5%	16	165.00	0.98	8.6834	4.4284	17.2223	17.6437	18.5867	1.7059	2.5833	8.7987	34.0986	54.2342		
22	24 hour	5%	17	165.00	0.98	8.8434	4.1352	16.5926	17.0864	18.3782	1.6927	3.0853	9.0293	35.1219	57.1413		
22	24 hour	5%	18	165.00	0.98	9.5761	4.6101	17.6382	18.1798	18.5607	1.7034	3.0653	9.6014	34.7813	54.4921		
22	24 hour	5%	19	165.00	0.98	10.8456	4.9291	18.4386	18.6258	18.7262	1.9822	3.3829	10.1910	34.7611			

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23	48 hour	5%	12	206.00	0.98	8.5550	4.2748	17.1638	17.4747	18.5504	1.6602	2.8860	9.2457	34.3361	54.6311
23	48 hour	5%	13	206.00	0.98	8.2698	4.2978	16.4833	16.9672	18.0082	1.4250	2.4617	8.3560	33.6575	54.5253
23	48 hour	5%	14	206.00	0.98	7.1007	3.4334	13.3932	13.7564	14.2210	1.1953	2.1603	7.1438	25.8214	36.2807
23	48 hour	5%	15	206.00	0.98	6.7058	3.3776	12.7492	13.2040	13.7119	1.2094	2.0140	6.5877	25.5498	39.7914
23	48 hour	5%	16	206.00	0.98	13.2372	6.5578	27.6009	28.2520	30.4230	2.7173	3.8161	13.9928	56.3006	78.3829
23	48 hour	5%	17	206.00	0.98	6.4024	3.1447	12.7180	13.0376	14.0900	1.4126	2.0581	6.4074	26.2286	41.2559
23	48 hour	5%	18	206.00	0.98	10.0940	4.9672	20.6672	21.1743	22.5636	2.0388	2.9502	10.7091	41.4871	58.3201
23	48 hour	5%	19	206.00	0.98	6.2761	3.3257	12.5206	13.0620	13.8609	1.0897	1.8834	6.3385	26.2156	41.8448
23	48 hour	5%	20	206.00	0.98	16.7164	7.6318	29.2743	30.1308	30.3620	3.1206	5.1337	15.9735	55.6003	96.2059
24	72 hour	5%	11	230.00	0.99	3.7774	1.9443	7.3931	7.6558	8.0362	0.7351	1.2181	3.8675	15.2113	24.5889
24	72 hour	5%	12	230.00	0.99	6.7964	3.2720	12.3710	12.7326	13.0515	1.2555	2.1066	6.6713	24.0193	38.2397
24	72 hour	5%	13	230.00	0.99	5.5738	2.8121	11.3480	11.6855	12.4974	1.0511	1.6603	5.4890	23.3484	35.2673
24	72 hour	5%	14	230.00	0.99	5.0054	2.4265	9.3283	9.6356	10.6881	1.1265	1.6781	4.8056	20.5692	32.5126
24	72 hour	5%	15	230.00	0.99	10.7592	4.9954	18.7464	19.3961	20.2666	2.1038	3.3521	10.3123	39.2679	69.0276
24	72 hour	5%	16	230.00	0.99	9.9637	4.8770	18.9788	19.5705	20.4439	1.6988	3.0057	9.9532	37.8709	55.3232
24	72 hour	5%	17	230.00	0.99	4.2435	2.0145	7.5765	7.8520	7.9538	0.8198	1.3668	4.3158	14.5556	24.9559
24	72 hour	5%	18	230.00	0.99	7.6323	3.9641	14.6926	15.2016	15.9350	1.3983	2.3125	7.6542	29.7793	47.7550
24	72 hour	5%	19	230.00	0.99	4.1728	2.2575	8.4655	8.8140	9.5273	0.8973	1.3694	4.2940	18.4517	31.1094
24	72 hour	5%	20	230.00	0.99	9.1744	4.6897	18.7352	19.3841	20.7352	1.4598	2.7054	9.5610	38.7174	57.0966
25	96 hour	5%	11	245.00	0.99	8.0013	4.2765	16.7561	17.3450	18.7372	1.4963	2.3303	8.2866	35.4167	57.3991
25	96 hour	5%	12	245.00	0.99	6.8326	3.3514	13.2925	13.7790	15.1440	1.3779	2.1790	6.6327	29.0473	48.4125
25	96 hour	5%	13	245.00	0.99	3.0565	1.4957	5.7764	5.9898	6.2983	0.8950	1.4973	5.3643	12.0916	20.4266
25	96 hour	5%	14	245.00	0.99	7.1039	3.5642	14.2149	14.6491	15.5751	1.3903	2.4612	7.9355	28.9260	45.7273
25	96 hour	5%	15	245.00	0.99	4.4748	2.2179	8.4468	8.7691	9.5815	0.8868	1.4201	4.4199	18.4120	30.2750
25	96 hour	5%	16	245.00	0.99	4.0576	2.1583	8.1603	8.4884	9.1022	0.8659	1.3288	4.2143	17.5483	28.2498
25	96 hour	5%	17	245.00	0.99	6.8066	3.3503	13.1915	13.5937	14.2803	1.1208	2.0531	6.9499	26.6260	37.3116
25	96 hour	5%	18	245.00	0.99	8.9944	4.2272	16.0678	16.6195	16.9084	1.7850	3.0015	9.6312	32.0164	57.3949
25	96 hour	5%	19	245.00	0.99	4.0117	2.0790	8.7380	9.0214	9.8287	0.9025	1.2722	4.4800	18.4324	26.1123
25	96 hour	5%	20	245.00	0.99	4.1959	2.2325	8.3725	8.6366	9.4349	0.8782	1.3406	4.2536	17.8017	28.5142
26	120 hour	5%	11	253.00	0.99	6.0284	3.1562	12.5185	12.9583	13.9221	1.1029	1.7779	6.3347	26.1664	40.1272
26	120 hour	5%	12	253.00	0.99	4.9227	2.4058	9.3388	9.6400	10.0579	1.4263	2.3768	7.3448	18.8053	31.2195
26	120 hour	5%	13	253.00	0.99	7.0000	3.3599	12.6354	13.0859	14.4723	1.4696	2.2196	6.5767	27.6098	45.7368
26	120 hour	5%	14	253.00	0.99	8.1711	3.9257	14.4198	14.9498	15.8495	1.6337	2.5394	7.7876	30.3470	52.8225
26	120 hour	5%	15	253.00	0.99	4.1191	2.0726	7.9426	8.2477	8.6767	0.7353	1.2795	4.2673	16.5020	29.1345
26	120 hour	5%	16	253.00	0.99	4.0929	2.0787	8.2366	8.5128	9.0375	0.6724	1.2456	4.2731	16.8471	25.9514
26	120 hour	5%	17	253.00	0.99	10.4940	4.7769	17.9452	18.5772	20.7907	2.1457	3.3148	9.9412	40.1069	68.8077
26	120 hour	5%	18	253.00	0.99	5.4505	2.4832	10.4129	10.7067	11.8602	1.2240	1.7448	5.0267	22.4698	35.8154
26	120 hour	5%	19	253.00	0.99	5.4496	2.8646	10.9332	11.3632	12.1256	0.9305	1.6444	5.5781	23.0027	38.8287
26	120 hour	5%	20	253.00	0.99	5.2740	2.7650	10.6378	11.0135	11.8019	1.0861	1.7155	5.4680	22.3267	32.8545
27	144 hour	5%	11	257.00	0.99	5.9250	3.0058	11.8549	12.3143	13.4491	1.1838	1.8814	5.8313	25.6763	41.7352
27	144 hour	5%	12	257.00	0.99	11.0690	5.3039	21.1774	21.9324	24.2430	2.2354	3.4624	10.4395	46.3733	78.0117
27	144 hour	5%	13	257.00	0.99	5.7140	2.5683	10.4610	10.8148	12.0413	1.2186	1.8645	5.5105	23.2298	37.7179
27	144 hour	5%	14	257.00	0.99	10.3965	5.0453	19.5172	20.1279	20.9068	1.8172	3.1491	10.2957	38.6188	53.6839
27	144 hour	5%	15	257.00	0.99	5.5540	2.8779	11.7017	12.0418	13.0255	1.0864	1.6548	5.9887	24.5568	37.2404
27	144 hour	5%	16	257.00	0.99	4.6025	2.4019	9.2584	9.5828	10.2531	0.8819	1.4043	4.8091	19.3943	28.2113
27	144 hour	5%	17	257.00	0.99	3.2853	1.6667	7.0511	7.2409	7.9369	1.4901	2.1916	6.2749	18.3807	25.8595
27	144 hour	5%	18	257.00	0.99	4.9523	2.6090	10.6216	10.9884	11.9328	1.0322	1.5458	5.3433	22.6056	34.1954
27	144 hour	5%	19	257.00	0.99	4.2933	2.1261	7.8586	8.1082	8.3290	0.8363	1.3797	4.2956	15.3975	23.2333
27	144 hour	5%	20	257.00	0.99	5.7242	2.7982	11.1600	11.5406	12.6404	1.2194	1.8359	5.5287	23.9681	38.4996
28	168 hour	5%	11	258.00	0.99	5.4535	2.6487	9.8514	10.2090	10.3961	1.0559	1.7097	5.3581	19.0635	33.4354
28	168 hour	5%	12	258.00	0.99	3.1093	1.5519	5.9983	6.1845	6.4648	0.5446	0.9877	3.2951	12.4011	21.3971
28	168 hour	5%	13	258.00	0.99	4.7458	2.3525	9.4510	9.7440	10.3237	0.7634	1.4591	5.0218	19.2271	26.4761
28	168 hour	5%	14	258.00	0.99	3.5244	1.6645	7.0200	7.2358	7.9566	0.8279	1.2165	3.5865	15.2511	23.3701
28	168 hour	5%	15	258.00	0.99	7.1892	3.7322	14.4997	15.0254	16.2260	1.2773	2.1854	7.2737	30.4552	49.2557
28	168 hour	5%	16	258.00	0.99	5.6737	2.5499	10.3946	10.7460	11.9627	1.2112	1.8525	5.4732	23.0811	37.4524
28	168 hour	5%	17	258.00	0.99	5.0600	2.6130	10.6433	10.9488	11.8372	1.0063	1.5173	5.4828	22.3228	33.6410
28	168 hour	5%	18	258.00	0.99	3.6839	1.7268	7.3769	7.5757	8.3609	1.2905	2.1487	6.8016	16.7827	27.5479
28	168 hour	5%	19	258.00	0.99	4.6772	2.4074	9.6409	9.9937	10.7217	0.8826	1.3917	4.9645	20.2058	29.6587
28	168 hour	5%	20	258.00	0.99	3.4465	1.7054	6.4460	6.7006	6.9729	0.7082	1.2071	3.9899	13.2446	22.1993
29	15 min	2%	21	43.10	0.80	0.0000	0.0000	0.0000	0.0000	0.0000	3.8157	3.8160	7.8980	5.6119	3.1791
29	15 min	2%	22	43.10	0.80	0.0000	0.0000	0.0000	0.0000	0.0000	4.0004	3.8156	7.8713	5.6095	3.1790
29	15 min	2%	23	43.10	0.80	0.0000	0.0000	0.0000	0.0000	0.0000	3.7663	3.7841	7.8717	5.6017	3.1747
29	15 min	2%	24	43.10	0.80	0.0000	0.0000	0.0000	0.0000	0.0000	3.9044	3.7883	7.8669	5.6047	3.1768
29	15 min	2%	25	43.10	0.80	0.0000	0.0000	0.0000	0.0000	0.0000	4.2275	3.8046	7.8744	5.6095	3.1813

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29	15 min	2%	26	43.10	0.80	0.0000	0.0000	0.0000	0.0000	0.0000	4.1603	3.7997	7.8582	5.6075	3.1795
29	15 min	2%	27	43.10	0.80	0.0000	0.0000	0.0000	0.0000	0.0000	3.9696	3.7934	7.8694	5.6059	3.1768
29	15 min	2%	28	43.10	0.80	0.0000	0.0000	0.0000	0.0000	0.0000	4.3171	3.8417	7.9571	5.6360	3.1950
29	15 min	2%	29	43.10	0.80	0.0000	0.0000	0.0000	0.0000	0.0000	4.2793	3.7898	7.8839	5.6091	3.1822
29	15 min	2%	30	43.10	0.80	0.0000	0.0000	0.0000	0.0000	0.0000	3.9390	3.7939	7.8730	5.6064	3.1772
30	30 min	2%	21	61.00	0.84	0.0000	0.0000	0.0000	0.0000	0.0000	6.0991	6.0679	12.7985	9.1823	5.2426
30	30 min	2%	22	61.00	0.84	0.0000	0.0000	0.0000	0.0000	0.0000	5.4021	5.8702	12.7526	9.2308	5.2521
30	30 min	2%	23	61.00	0.84	0.0000	0.0000	0.0000	0.0000	0.0000	6.4154	6.2373	13.0452	9.2819	5.2717
30	30 min	2%	24	61.00	0.84	0.0000	0.0000	0.0000	0.0000	0.0000	5.5559	5.9829	12.7472	9.2015	5.2437
30	30 min	2%	25	61.00	0.84	0.0000	0.0000	0.0000	0.0000	0.0000	5.1548	5.7771	12.6032	9.1768	5.2320
30	30 min	2%	26	61.00	0.84	0.0000	0.0000	0.0000	0.0000	0.0000	5.1470	5.7655	12.5328	9.1572	5.2287
30	30 min	2%	27	61.00	0.84	0.0000	0.0000	0.0000	0.0000	0.0000	5.8253	6.1000	12.8773	9.2141	5.2501
30	30 min	2%	28	61.00	0.84	0.0000	0.0000	0.0000	0.0000	0.0000	5.7026	5.8872	12.8058	9.2378	5.2530
30	30 min	2%	29	61.00	0.84	0.0000	0.0000	0.0000	0.0000	0.0000	6.0768	6.1483	12.9235	9.2330	5.2547
30	30 min	2%	30	61.00	0.84	0.0000	0.0000	0.0000	0.0000	0.0000	5.0948	5.8610	12.6911	9.2159	5.2466
31	1 hour	2%	21	79.60	0.88	5.3313	2.2030	6.4738	6.4288	6.0995	9.4336	10.1014	22.2960	21.8657	18.8341
31	1 hour	2%	22	79.60	0.88	5.3292	2.2282	6.4861	6.4432	6.1100	8.8585	9.8901	22.1540	21.8201	18.8632
31	1 hour	2%	23	79.60	0.88	5.1678	1.9993	6.3229	6.2797	5.9614	6.1536	8.1719	20.3778	21.1200	18.6140
31	1 hour	2%	24	79.60	0.88	5.1104	2.0093	6.3026	6.2612	5.9466	6.2593	7.7714	19.6465	20.8376	18.5394
31	1 hour	2%	25	79.60	0.88	5.2570	2.0888	6.3986	6.3616	6.0284	5.9004	8.1123	20.1870	21.1130	18.6889
31	1 hour	2%	26	79.60	0.88	5.2620	2.0876	6.4009	6.3637	6.0302	5.9423	8.2072	20.3039	21.1701	18.7095
31	1 hour	2%	27	79.60	0.88	5.3388	2.1775	6.4670	6.4352	6.0947	7.1732	8.8112	20.5996	21.2404	18.7345
31	1 hour	2%	28	79.60	0.88	5.2597	2.0947	6.3978	6.3614	6.0276	5.8179	7.9725	20.0079	21.0128	18.6612
31	1 hour	2%	29	79.60	0.88	5.2801	2.1327	6.4003	6.3678	6.0287	5.9308	8.0255	19.9548	20.9448	18.6659
31	1 hour	2%	30	79.60	0.88	5.2772	2.1597	6.4003	6.3646	6.0324	6.1257	8.3714	20.4326	21.1367	18.6852
32	2 hour	2%	21	98.30	0.89	18.8345	6.7518	23.6490	23.5196	22.3688	7.5894	10.3901	27.7507	45.1220	47.6810
32	2 hour	2%	22	98.30	0.89	17.9385	6.4604	23.1475	23.0662	21.9826	6.2988	9.1371	25.7415	44.0204	47.1874
32	2 hour	2%	23	98.30	0.89	13.5449	5.1636	20.6853	20.5730	20.1514	5.2664	7.8241	21.8083	41.7567	46.3672
32	2 hour	2%	24	98.30	0.89	17.0427	5.9752	22.8511	22.7154	21.7673	6.4428	9.0036	24.9444	43.6196	47.0702
32	2 hour	2%	25	98.30	0.89	13.7437	5.1015	20.8174	20.7214	20.2862	4.9862	7.1134	20.9046	41.2101	46.1781
32	2 hour	2%	26	98.30	0.89	18.6769	6.7744	23.5223	23.3704	22.2605	7.3777	10.0975	27.1181	44.6670	47.3933
32	2 hour	2%	27	98.30	0.89	16.3959	5.8878	22.2468	22.1366	21.2835	5.3916	7.7701	23.4234	42.8498	46.7705
32	2 hour	2%	28	98.30	0.89	17.6724	6.3273	22.9850	22.8414	21.8591	5.6658	8.6780	25.2386	43.9318	47.3177
32	2 hour	2%	29	98.30	0.89	18.6584	6.7974	23.5593	23.4659	22.3034	7.3266	10.6547	28.9859	46.1613	47.9548
32	2 hour	2%	30	98.30	0.89	18.3235	6.6897	23.3658	23.2507	22.1507	7.2882	10.4079	28.7503	46.0153	47.8513
33	3 hour	2%	21	110.00	0.90	22.0665	8.3508	32.6438	31.9663	31.6138	5.8589	9.3023	26.9524	58.1359	65.6261
33	3 hour	2%	22	110.00	0.90	20.3486	7.5680	30.4450	30.1651	29.7093	5.2171	7.2697	21.0098	51.3581	61.4577
33	3 hour	2%	23	110.00	0.90	20.7934	7.6866	31.1503	30.9207	30.4599	5.2895	7.9837	24.3393	56.0540	65.2250
33	3 hour	2%	24	110.00	0.90	16.0927	6.6462	26.2141	26.2848	26.1972	4.4810	6.4046	17.8368	50.1533	62.0444
33	3 hour	2%	25	110.00	0.90	16.2720	6.5923	26.7968	26.6944	26.6181	3.9500	5.5974	17.7029	50.2661	62.0133
33	3 hour	2%	26	110.00	0.90	15.6835	6.4034	27.2627	27.1078	27.7934	4.1933	6.5646	19.2431	52.5793	63.0340
33	3 hour	2%	27	110.00	0.90	17.1316	6.7263	28.2994	28.1180	27.9574	3.6618	5.9465	19.6134	52.6998	63.1433
33	3 hour	2%	28	110.00	0.90	22.5682	8.5656	31.7764	32.0889	30.5333	5.2747	8.2072	23.2476	54.0750	63.7385
33	3 hour	2%	29	110.00	0.90	15.7517	6.4122	26.5199	26.4845	26.9594	4.1836	6.2796	18.5894	52.0205	62.9400
33	3 hour	2%	30	110.00	0.90	15.8350	6.5537	27.4096	27.0964	27.4867	7.0323	9.3562	25.7607	56.8377	64.4788
34	6 hour	2%	21	132.00	0.94	16.9244	6.2913	25.8296	25.6591	25.1844	6.2894	9.5413	26.4871	51.6562	57.2701
34	6 hour	2%	22	132.00	0.94	17.1289	8.2137	31.3790	31.4730	33.5882	3.2563	5.2678	16.5682	64.0763	92.6929
34	6 hour	2%	23	132.00	0.94	18.3216	7.4968	30.3168	31.7361	33.5174	3.9219	6.1662	18.7311	63.9083	93.7621
34	6 hour	2%	24	132.00	0.94	14.8689	6.8454	25.7175	25.8835	26.8315	3.2110	4.7733	14.1267	50.0166	76.2430
34	6 hour	2%	25	132.00	0.94	14.7644	6.8509	27.7670	28.7068	30.3588	3.3486	5.2503	15.7500	57.6937	88.0083
34	6 hour	2%	26	132.00	0.94	19.8373	8.8887	33.9175	33.3218	34.3192	4.3483	6.2433	18.8675	64.4082	92.8226
34	6 hour	2%	27	132.00	0.94	25.9053	10.7472	45.0687	46.4158	47.1568	5.2728	8.6079	27.2928	87.2233	108.308
34	6 hour	2%	28	132.00	0.94	14.9968	5.4446	21.7532	21.9654	21.0926	5.7853	8.7289	24.8029	44.6300	52.4309
34	6 hour	2%	29	132.00	0.94	17.2746	7.8094	30.7917	31.3282	31.8507	4.3894	5.8805	16.8144	57.6371	81.8822
34	6 hour	2%	30	132.00	0.94	22.0009	9.1919	38.7212	40.1723	41.1292	4.2826	6.9296	22.2697	76.7334	99.9833
35	12 hour	2%	21	162.00	0.96	13.1629	6.9155	26.0424	27.0237	28.5968	2.4075	3.9513	13.1182	54.4552	90.3844
35	12 hour	2%	22	162.00	0.96	14.8356	7.4445	28.3468	29.0119	30.8358	2.6890	4.4724	14.5377	58.4784	94.0309
35	12 hour	2%	23	162.00	0.96	12.8324	6.0256	24.0697	24.7692	25.8496	2.5064	3.9992	12.5081	48.4754	78.8204
35	12 hour	2%	24	162.00	0.96	13.0730	6.1311	22.4194	22.7082	24.1266	2.5752	4.1473	12.2214	46.8674	71.5638
35	12 hour	2%	25	162.00	0.96	21.8064	9.1304	38.3892	39.4023	40.0816	5.4485	9.3696	24.7659	73.3857	93.3126
35	12 hour	2%	26	162.00	0.96	9.8843	5.0243	18.9439	19.6490	20.7991	1.8441	2.9772	9.7535	39.2707	62.2414
35	12 hour	2%	27	162.00	0.96	13.0830	5.5186	22.9864	23.3922	24.4122	2.7892	4.1265	12.2793	43.1195	60.4348
35	12 hour	2%	28	162.00	0.96	17.7785	6.9973	26.7518	27.5380	27.7527	6.1227	9.7526	24.3134	50.7226	71.5068
35	12 hour	2%	29	162.00	0.96	11.0352	5.2044	20.9020	21.3075	22.2394	2.4362	3.7068	12.0120	40.3092	59.3618

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35	12 hour	2%	30	162.00	0.96	22.6793	10.7035	43.0311	44.0881	46.7421	4.2694	6.8623	21.9679	86.6775	126.683
36	24 hour	2%	21	201.00	0.98	9.8412	5.0910	19.4345	20.1773	21.2479	2.3637	3.7887	10.7743	39.2370	63.0701
36	24 hour	2%	22	201.00	0.98	7.3929	3.7261	14.3447	14.7927	15.9844	2.1081	3.0868	9.8750	30.0969	48.0797
36	24 hour	2%	23	201.00	0.98	12.5305	5.8627	24.1672	25.1450	26.7754	2.3126	3.9227	12.5141	49.6212	73.6454
36	24 hour	2%	24	201.00	0.98	17.6036	7.9596	32.8701	33.7786	34.6696	3.2538	5.1616	17.7728	63.5772	92.7519
36	24 hour	2%	25	201.00	0.98	12.0712	5.3333	20.9407	21.4833	23.3072	2.1577	3.6939	11.9127	44.0290	64.2884
36	24 hour	2%	26	201.00	0.98	10.2570	4.9108	18.7300	19.2558	20.8182	1.9825	3.1698	9.7814	38.9688	57.4570
36	24 hour	2%	27	201.00	0.98	7.7400	3.8427	15.2890	15.7945	16.6070	1.5869	2.4456	7.8220	30.3548	47.1163
36	24 hour	2%	28	201.00	0.98	13.8745	6.1887	25.0594	25.8059	27.9498	2.4830	4.2178	14.1652	52.8029	82.2519
36	24 hour	2%	29	201.00	0.98	9.4755	4.7593	18.3032	18.8110	20.0460	1.9030	2.9448	9.2305	36.9552	56.5601
36	24 hour	2%	30	201.00	0.98	15.3887	6.7373	26.8920	27.3655	27.2802	2.6280	4.7060	14.9512	47.7033	69.5242
37	48 hour	2%	21	250.00	0.98	9.0603	4.5343	18.2910	18.8170	20.0802	1.5687	2.6818	9.2084	37.0928	55.0724
37	48 hour	2%	22	250.00	0.98	7.8392	3.8385	15.4372	15.9112	16.8153	1.3013	2.2607	7.6677	30.9929	49.9866
37	48 hour	2%	23	250.00	0.98	15.8494	7.7524	28.9822	29.5599	30.3417	2.7826	4.8016	15.1367	55.2327	84.6387
37	48 hour	2%	24	250.00	0.98	6.6143	3.5083	13.1703	13.6138	14.5056	1.1237	1.9942	6.6807	27.4421	43.7329
37	48 hour	2%	25	250.00	0.98	16.0368	7.8048	32.0387	32.8514	34.8403	2.7206	4.6812	16.4631	64.1253	88.0702
37	48 hour	2%	26	250.00	0.98	11.3662	5.6015	20.9603	21.6361	22.2071	2.0606	3.4348	10.9475	42.1875	71.1594
37	48 hour	2%	27	250.00	0.98	9.0497	4.1309	16.2227	16.6542	16.9249	1.4435	2.5169	8.4418	31.5104	53.1947
37	48 hour	2%	28	250.00	0.98	6.1231	3.0773	12.0791	12.4417	13.5312	1.2098	1.8876	6.0838	25.5853	40.9631
37	48 hour	2%	29	250.00	0.98	9.8226	5.1646	20.3585	21.1369	22.8157	1.8533	2.9651	10.1076	43.1600	65.7302
37	48 hour	2%	30	250.00	0.98	12.6992	6.1294	22.8751	23.5259	25.8379	2.7829	4.0175	11.4279	49.0125	78.1233
38	72 hour	2%	21	280.00	0.99	6.2841	3.1744	12.5587	12.9639	13.7898	1.0943	1.8461	6.0370	25.5201	40.0097
38	72 hour	2%	22	280.00	0.99	4.8840	2.5476	9.3401	9.7296	10.1453	1.0051	1.6692	5.1404	19.1376	31.0250
38	72 hour	2%	23	280.00	0.99	4.2209	2.3236	8.5423	8.9720	9.5251	0.8176	1.3357	4.6876	18.0006	30.5781
38	72 hour	2%	24	280.00	0.99	7.9525	3.9384	15.5285	16.0071	16.8708	1.6099	2.5822	9.1725	33.4029	48.4347
38	72 hour	2%	25	280.00	0.99	3.7868	1.9752	7.4674	7.7042	8.1541	0.6507	1.1870	3.9624	15.3371	24.1611
38	72 hour	2%	26	280.00	0.99	6.6610	3.2622	12.8424	13.2311	13.8760	1.1502	1.9402	6.3043	25.8673	40.5770
38	72 hour	2%	27	280.00	0.99	5.7019	2.9661	10.8901	11.2966	12.2642	1.0598	1.7528	5.6375	23.4273	39.7066
38	72 hour	2%	28	280.00	0.99	5.9737	2.9218	11.5158	11.8658	12.4292	1.0017	1.8265	6.1421	23.1289	36.9036
38	72 hour	2%	29	280.00	0.99	8.3499	4.4749	16.1963	16.9214	17.8631	1.5137	2.3798	7.8833	33.3692	56.9959
38	72 hour	2%	30	280.00	0.99	7.4326	3.8711	14.9329	15.4431	16.3992	1.1955	2.2124	7.5680	30.5637	47.3906
39	96 hour	2%	21	298.00	0.99	5.7304	2.9304	11.0572	11.4910	12.0494	1.0546	1.7501	5.7461	22.7556	34.5941
39	96 hour	2%	22	298.00	0.99	8.9462	4.4477	16.9865	17.4916	18.2451	1.5189	2.7139	8.9389	33.7726	48.9692
39	96 hour	2%	23	298.00	0.99	4.8667	2.5340	9.7735	10.0945	10.9585	0.9088	1.5982	5.5937	20.5590	34.3879
39	96 hour	2%	24	298.00	0.99	3.5777	1.7947	6.7727	6.9757	7.2295	0.6544	1.1350	3.6452	13.3422	20.7473
39	96 hour	2%	25	298.00	0.99	4.0449	2.1880	8.3665	8.6997	9.3270	0.7554	1.2439	4.2685	17.7017	29.4015
39	96 hour	2%	26	298.00	0.99	5.6202	2.7006	10.5445	10.8593	11.2656	0.9908	1.7462	5.7293	20.8597	33.9254
39	96 hour	2%	27	298.00	0.99	4.4370	2.2722	9.3902	9.6816	10.4699	0.9935	1.4286	4.8300	19.6537	28.2636
39	96 hour	2%	28	298.00	0.99	12.5429	5.8357	21.8854	22.6423	23.6372	2.4437	3.8887	11.9654	45.7274	80.7920
39	96 hour	2%	29	298.00	0.99	6.9148	3.5462	13.3097	13.7240	14.3307	1.1817	2.0978	6.9115	26.5212	43.8758
39	96 hour	2%	30	298.00	0.99	5.4904	2.9166	11.4224	11.7634	12.6799	1.0582	1.6399	5.7776	23.8876	38.3002
40	120 hour	2%	21	308.00	0.99	5.9803	3.1850	11.9895	12.4328	13.2664	1.0180	1.8037	6.0633	25.1412	41.1038
40	120 hour	2%	22	308.00	0.99	5.0752	2.6238	9.7937	10.1473	10.6452	0.9099	1.5638	5.1310	20.0540	30.8898
40	120 hour	2%	23	308.00	0.99	7.0433	3.6459	14.5458	15.0556	16.4885	1.6172	2.7270	8.8430	31.0277	52.8953
40	120 hour	2%	24	308.00	0.99	10.1690	4.7020	16.2377	16.8947	19.2563	2.2456	3.2515	9.2431	37.0412	59.5481
40	120 hour	2%	25	308.00	0.99	5.9434	3.0151	10.9266	11.3544	11.7095	1.1703	1.8500	5.7884	21.9222	34.7212
40	120 hour	2%	26	308.00	0.99	3.9127	1.9954	7.4290	7.7229	8.3305	0.7568	1.2475	3.9497	16.0334	27.2900
40	120 hour	2%	27	308.00	0.99	3.1798	1.5660	5.7654	5.9116	6.0484	0.6134	1.0320	3.2571	11.3466	18.3014
40	120 hour	2%	28	308.00	0.99	5.1433	2.5570	10.2112	10.5100	11.1385	0.8212	1.5711	5.4167	20.8131	33.8682
40	120 hour	2%	29	308.00	0.99	12.6046	6.0483	23.1355	23.9048	24.5926	2.2815	3.8345	12.2838	45.1636	72.5368
40	120 hour	2%	30	308.00	0.99	6.0062	3.1004	11.3885	11.7091	12.1884	1.0522	1.8363	6.0002	22.7682	38.4725
41	144 hour	2%	21	312.00	0.99	5.5598	2.9567	11.1385	11.5640	12.3312	0.9553	1.6833	5.6570	23.4305	38.0642
41	144 hour	2%	22	312.00	0.99	3.6319	1.7665	7.0753	7.2741	7.6516	0.5890	1.1141	3.8138	14.3065	22.0836
41	144 hour	2%	23	312.00	0.99	5.7468	3.0767	11.7285	12.2297	13.2424	1.0681	1.7810	5.8466	25.4436	41.8251
41	144 hour	2%	24	312.00	0.99	7.3137	3.4844	13.1248	13.5807	13.8801	1.3937	2.2645	7.1337	26.8257	47.2861
41	144 hour	2%	25	312.00	0.99	5.0876	2.3860	9.5212	9.8416	10.8281	1.0401	1.6248	4.9772	20.7421	34.7397
41	144 hour	2%	26	312.00	0.99	9.9992	4.5881	16.1007	16.4288	16.8981	2.1226	3.2268	9.1728	32.9062	54.1394
41	144 hour	2%	27	312.00	0.99	5.8954	2.8778	10.2298	10.5873	11.6820	1.2599	1.8794	5.5937	22.1704	37.3772
41	144 hour	2%	28	312.00	0.99	3.0638	1.4828	5.4938	5.6411	5.7222	0.5964	1.0084	3.1354	10.5001	17.5101
41	144 hour	2%	29	312.00	0.99	4.5860	2.2908	8.7492	9.0070	9.3335	0.7879	1.4122	4.6782	17.2763	26.2195
41	144 hour	2%	30	312.00	0.99	12.0754	5.7864	22.1347	22.8686	23.5136	2.1905	3.6795	11.7769	43.1788	69.5891
42	168 hour	2%	21	313.00	0.99	4.4492	2.4200	9.0886	9.4198	10.1086	0.7941	1.3510	4.6016	19.2941	32.7202
42	168 hour	2%	22	313.00	0.99	3.3621	1.6345	6.5659	6.7482	7.1039	0.5498	1.0440	3.5675	13.2746	20.8951
42	168 hour	2%	23	313.00	0.99	6.4602	3.3393	12.6257	13.0645	14.1597	1.1830	1.9647	6.4734	26.8836	43.7921

2A_East complete_1_batch

42	168 hour	2%	24	313.00	0.99	7.3187	3.4865	13.1328	13.5888	13.8933	1.3947	2.2661	7.1382	26.8504	47.3258
42	168 hour	2%	25	313.00	0.99	3.5824	1.9560	7.0166	7.2575	7.8575	0.9762	1.5712	4.8440	15.2197	26.0677
42	168 hour	2%	26	313.00	0.99	3.5824	1.9560	7.0166	7.2575	7.8575	0.9762	1.5712	4.8440	15.2197	26.0677
42	168 hour	2%	27	313.00	0.99	4.3522	2.0475	7.9059	8.1403	8.3280	0.8017	1.3683	4.4164	15.4727	23.8854
42	168 hour	2%	28	313.00	0.99	6.6342	3.4915	14.2984	14.7297	16.0594	1.3908	2.0169	7.1231	30.4544	46.7070
42	168 hour	2%	29	313.00	0.99	4.3996	2.2174	8.4331	8.7240	9.0524	0.7709	1.3540	4.4846	16.8558	25.8126
42	168 hour	2%	30	313.00	0.99	5.9233	2.9661	11.6603	12.0822	13.2653	1.2098	1.9070	5.7874	25.4538	41.9797
43	15 min	1%	21	48.00	0.79	0.0000	0.0000	0.0000	0.0000	0.0000	4.2917	4.3300	8.9815	6.3657	3.6111
43	15 min	1%	22	48.00	0.79	0.0000	0.0000	0.0000	0.0000	0.0000	4.5041	4.3345	8.9592	6.3669	3.6102
43	15 min	1%	23	48.00	0.79	0.0000	0.0000	0.0000	0.0000	0.0000	4.2349	4.2921	8.9444	6.3505	3.6058
43	15 min	1%	24	48.00	0.79	0.0000	0.0000	0.0000	0.0000	0.0000	4.3935	4.3014	8.9488	6.3577	3.6079
43	15 min	1%	25	48.00	0.79	0.0000	0.0000	0.0000	0.0000	0.0000	4.7654	4.3282	8.9343	6.3742	3.6136
43	15 min	1%	26	48.00	0.79	0.0000	0.0000	0.0000	0.0000	0.0000	4.6880	4.3208	8.9391	6.3701	3.6112
43	15 min	1%	27	48.00	0.79	0.0000	0.0000	0.0000	0.0000	0.0000	4.4693	4.3090	8.9550	6.3617	3.6086
43	15 min	1%	28	48.00	0.79	0.0000	0.0000	0.0000	0.0000	0.0000	4.8667	4.3709	9.0050	6.4047	3.6276
43	15 min	1%	29	48.00	0.79	0.0000	0.0000	0.0000	0.0000	0.0000	4.8250	4.3128	8.9251	6.3736	3.6139
43	15 min	1%	30	48.00	0.79	0.0000	0.0000	0.0000	0.0000	0.0000	4.4334	4.3086	8.9587	6.3619	3.6093
44	30 min	1%	21	68.10	0.84	0.0000	0.0000	0.0000	0.0000	0.0000	6.8679	6.8887	14.5389	10.4561	5.9675
44	30 min	1%	22	68.10	0.84	0.0000	0.0000	0.0000	0.0000	0.0000	6.0914	6.6316	14.5252	10.4983	5.9755
44	30 min	1%	23	68.10	0.84	0.0000	0.0000	0.0000	0.0000	0.0000	7.2302	7.0880	14.8290	10.5369	5.9987
44	30 min	1%	24	68.10	0.84	0.0000	0.0000	0.0000	0.0000	0.0000	6.2446	6.7769	14.4539	10.4879	5.9693
44	30 min	1%	25	68.10	0.84	0.0000	0.0000	0.0000	0.0000	0.0000	5.8134	6.5255	14.3535	10.4348	5.9532
44	30 min	1%	26	68.10	0.84	0.0000	0.0000	0.0000	0.0000	0.0000	5.8056	6.5147	14.2742	10.4120	5.9487
44	30 min	1%	27	68.10	0.84	0.0000	0.0000	0.0000	0.0000	0.0000	6.5527	6.9178	14.6158	10.5108	5.9772
44	30 min	1%	28	68.10	0.84	0.0000	0.0000	0.0000	0.0000	0.0000	6.4351	6.6920	14.5897	10.5059	5.9770
44	30 min	1%	29	68.10	0.84	0.0000	0.0000	0.0000	0.0000	0.0000	6.8421	6.9792	14.6789	10.5110	5.9808
44	30 min	1%	30	68.10	0.84	0.0000	0.0000	0.0000	0.0000	0.0000	5.7432	6.6241	14.4557	10.4844	5.9694
45	1 hour	1%	21	89.40	0.87	11.2991	4.5200	13.7752	13.7106	12.9833	11.4233	12.6344	28.0422	33.3005	31.3243
45	1 hour	1%	22	89.40	0.87	11.3318	4.5611	13.7706	13.7155	12.9949	10.8067	12.4161	27.9000	33.2362	31.3582
45	1 hour	1%	23	89.40	0.87	10.7485	3.9486	13.4297	13.3394	12.6658	7.6305	10.0432	25.4781	32.0991	30.9811
45	1 hour	1%	24	89.40	0.87	10.5567	3.9365	13.3531	13.2669	12.6140	7.5419	9.4768	24.4065	31.6664	30.9014
45	1 hour	1%	25	89.40	0.87	10.9854	4.1490	13.5077	13.4610	12.7839	6.9916	9.9028	25.1916	32.0564	31.0875
45	1 hour	1%	26	89.40	0.87	11.0134	4.1517	13.5183	13.4711	12.7911	7.0554	10.0454	25.3906	32.1640	31.1291
45	1 hour	1%	27	89.40	0.87	11.1531	4.4119	13.6914	13.6096	12.8802	8.3225	10.5685	25.7062	32.1349	31.1465
45	1 hour	1%	28	89.40	0.87	11.0082	4.1697	13.5226	13.4627	12.7887	6.8329	9.6755	24.8019	31.8749	31.0750
45	1 hour	1%	29	89.40	0.87	11.1413	4.2965	13.6587	13.5529	12.8780	6.9017	9.6308	24.8158	31.8340	31.1767
45	1 hour	1%	30	89.40	0.87	11.0963	4.3401	13.6557	13.5598	12.8634	7.1866	10.0875	25.5229	32.1627	31.1922
46	2 hour	1%	21	111.00	0.88	26.8353	9.6097	34.5011	34.4247	32.8257	8.5869	11.9525	32.6948	61.0484	66.2308
46	2 hour	1%	22	111.00	0.88	25.0394	9.0547	33.8350	33.6445	32.2618	7.1104	10.4753	29.9514	59.8222	65.7503
46	2 hour	1%	23	111.00	0.88	17.5725	6.9762	28.9726	29.0550	28.7914	6.2820	9.2562	26.3732	57.3820	64.5238
46	2 hour	1%	24	111.00	0.88	23.6925	8.4122	33.1459	32.8995	31.7412	7.2847	10.3468	29.3486	59.2963	65.4993
46	2 hour	1%	25	111.00	0.88	17.9565	6.8978	28.9342	29.2423	28.8887	6.4951	8.3491	25.0413	56.4645	64.1592
46	2 hour	1%	26	111.00	0.88	26.3881	9.5867	34.4223	34.2714	32.7534	8.3294	11.5575	31.6883	60.5804	65.9928
46	2 hour	1%	27	111.00	0.88	21.6650	8.0648	31.6631	31.5306	30.6426	6.2691	8.8757	27.3536	58.3254	65.0756
46	2 hour	1%	28	111.00	0.88	23.9638	8.7839	33.1174	32.8652	31.6691	6.3857	9.9281	29.5231	59.6969	65.7623
46	2 hour	1%	29	111.00	0.88	26.4865	9.4462	34.3018	34.2385	32.7000	8.3086	12.3298	34.4761	62.6993	66.6426
46	2 hour	1%	30	111.00	0.88	26.0036	9.3194	34.1313	34.0485	32.5865	8.3214	12.0456	34.1784	62.7051	66.6693
47	3 hour	1%	21	125.00	0.89	29.0943	11.0543	44.0645	43.8814	42.6946	6.6037	10.5843	31.1968	76.5818	87.8398
47	3 hour	1%	22	125.00	0.89	23.8306	9.5441	38.2059	37.4149	37.4163	5.9012	8.2921	23.9291	64.3236	80.9796
47	3 hour	1%	23	125.00	0.89	25.1835	9.9701	41.2587	40.5925	40.4330	6.2557	9.1454	28.0071	73.9886	87.2402
47	3 hour	1%	24	125.00	0.89	19.2170	8.3819	32.4094	32.7332	33.8048	5.4692	7.7510	21.8611	64.5380	83.2350
47	3 hour	1%	25	125.00	0.89	19.4714	8.3402	33.2147	33.3592	34.5336	4.8253	6.7272	20.1573	65.0376	83.0267
47	3 hour	1%	26	125.00	0.89	19.0920	8.0568	33.9990	34.8886	36.3249	5.3352	7.5299	22.3137	68.4529	83.7950
47	3 hour	1%	27	125.00	0.89	20.8859	8.6341	35.7844	35.9098	37.3404	4.1324	6.8011	22.3545	69.2491	84.0245
47	3 hour	1%	28	125.00	0.89	27.3340	10.7846	39.9832	40.7340	39.1574	5.9849	9.3214	26.6133	69.0426	84.6319
47	3 hour	1%	29	125.00	0.89	18.9785	8.1613	33.0616	33.8488	35.1502	4.8680	7.3955	22.2199	67.2782	84.0373
47	3 hour	1%	30	125.00	0.89	19.8677	8.4326	35.5979	36.0037	37.6894	8.0790	11.2284	31.0786	75.0618	87.1933
48	6 hour	1%	21	151.00	0.93	23.3898	8.8767	36.7565	37.1631	37.2546	8.2670	12.0891	33.0789	72.7596	80.6975
48	6 hour	1%	22	151.00	0.93	19.7704	9.7515	36.7502	37.1177	39.5342	3.7266	6.0258	18.9487	75.3174	114.485
48	6 hour	1%	23	151.00	0.93	21.9312	9.4640	37.3584	38.3850	40.4196	4.5021	7.0715	21.5248	76.6093	116.893
48	6 hour	1%	24	151.00	0.93	17.3170	8.2752	30.3343	30.5954	31.9412	4.0831	6.0049	17.6741	60.2047	92.7139
48	6 hour	1%	25	151.00	0.93	17.2837	8.3325	33.2035	34.2029	36.3341	3.9667	6.3146	19.2919	69.0038	108.992
48	6 hour	1%	26	151.00	0.93	22.9598	10.5564	39.9166	39.3094	40.6463	4.9933	7.1517	21.6791	75.9901	115.158
48	6 hour	1%	27	151.00	0.93	31.0751	13.2169	55.3466	57.2209	57.8056	6.0170	9.8582	31.3980	107.386	139.100

2A_East complete_1_batch

48	6 hour	1%	28	151.00	0.93	21.2792	7.7738	32.7757	32.2993	32.4841	7.0618	10.5646	30.3789	63.4460	69.5320
48	6 hour	1%	29	151.00	0.93	19.9015	9.1858	35.9257	36.5895	37.1134	5.4394	7.2541	20.4280	67.2614	98.3978
48	6 hour	1%	30	151.00	0.93	25.7690	11.2836	46.2699	48.1025	50.0651	4.8874	7.9368	25.5306	91.9661	126.422
49	12 hour	1%	21	185.00	0.96	15.1506	8.0407	29.9693	31.1421	32.9824	2.7586	4.5236	15.0282	62.6959	104.884
49	12 hour	1%	22	185.00	0.96	17.0540	8.6903	32.7886	33.5652	35.7043	3.0802	5.1156	16.6431	67.6183	109.792
49	12 hour	1%	23	185.00	0.96	14.8431	7.0823	27.8949	28.7260	29.9172	2.8689	4.5953	14.3346	55.9784	90.9623
49	12 hour	1%	24	185.00	0.96	15.1002	7.0890	26.0407	26.6716	28.3337	2.9728	4.7758	14.1316	54.3237	85.3000
49	12 hour	1%	25	185.00	0.96	25.0349	10.5959	44.6448	45.8868	46.1995	6.8059	11.7487	31.6289	85.2544	109.679
49	12 hour	1%	26	185.00	0.96	11.3788	5.8513	21.9159	22.7330	24.0105	2.1150	3.4092	11.1745	45.2638	72.1373
49	12 hour	1%	27	185.00	0.96	15.2136	6.5755	26.8675	27.3651	28.7895	3.4160	5.1479	14.3059	51.0356	69.4806
49	12 hour	1%	28	185.00	0.96	20.6625	8.1442	32.6597	33.1576	32.4823	7.6066	12.2392	31.3024	68.7503	94.6875
49	12 hour	1%	29	185.00	0.96	12.8090	6.1926	24.5184	25.0217	26.2714	3.0260	4.7386	14.7621	47.5983	71.5068
49	12 hour	1%	30	185.00	0.96	26.1056	12.5378	49.6273	50.8796	54.0478	4.8795	7.8574	25.0937	100.222	148.417
50	24 hour	1%	21	230.00	0.98	11.3630	5.8987	22.5096	23.3736	24.6581	3.0124	4.9383	14.3709	45.5633	73.1949
50	24 hour	1%	22	230.00	0.98	8.5855	4.3368	16.6385	17.1726	18.5715	2.4028	3.7335	11.3724	35.0172	55.9689
50	24 hour	1%	23	230.00	0.98	14.9922	7.0307	28.0676	29.2483	31.5474	2.6580	4.5086	14.4243	59.4577	88.3927
50	24 hour	1%	24	230.00	0.98	20.3713	9.6596	39.8228	41.1791	43.2411	3.7414	5.9207	20.4146	79.0103	114.130
50	24 hour	1%	25	230.00	0.98	14.0660	6.5453	25.9363	26.8051	27.6262	2.4806	4.2348	13.7385	51.8587	81.1156
50	24 hour	1%	26	230.00	0.98	11.9116	5.7226	21.6577	22.2759	24.1315	2.2833	3.6610	11.3427	45.2356	67.3929
50	24 hour	1%	27	230.00	0.98	9.0285	4.4837	17.7641	18.3641	19.3540	1.8319	2.8337	9.0145	35.3722	54.9215
50	24 hour	1%	28	230.00	0.98	16.4187	7.7150	31.8447	33.0846	34.4751	2.8737	4.8077	16.3917	63.2411	103.357
50	24 hour	1%	29	230.00	0.98	11.0176	5.5304	21.1935	21.7951	23.2702	2.1945	3.4066	10.6149	42.9210	65.9272
50	24 hour	1%	30	230.00	0.98	17.8182	7.8597	31.4442	31.9781	32.0547	3.0110	5.4182	17.3263	56.2754	82.0037
51	48 hour	1%	21	286.00	0.98	10.4377	5.3142	20.8495	21.4350	22.7888	1.8123	3.0785	10.5982	42.5735	65.6609
51	48 hour	1%	22	286.00	0.98	8.7563	4.5684	18.2252	18.8954	20.4178	1.5389	2.6062	8.9185	37.8209	58.9237
51	48 hour	1%	23	286.00	0.98	18.3218	8.9779	33.6240	34.3099	35.2499	3.1922	5.5286	17.4855	64.1011	98.1940
51	48 hour	1%	24	286.00	0.98	7.6678	4.0754	15.2884	15.8009	16.8458	1.2942	2.2941	7.6975	31.8202	51.0930
51	48 hour	1%	25	286.00	0.98	18.4398	9.0378	37.0495	38.0163	40.4109	3.1410	5.3574	18.9114	74.5039	103.513
51	48 hour	1%	26	286.00	0.98	13.1312	6.5080	24.3556	25.1394	25.9170	2.3690	3.9595	12.6469	48.4957	82.6724
51	48 hour	1%	27	286.00	0.98	10.1541	4.9767	19.5125	20.1708	21.1608	1.6976	2.9110	9.6189	39.0956	62.0322
51	48 hour	1%	28	286.00	0.98	7.0860	3.5749	14.0273	14.4681	15.6490	1.3974	2.1886	6.9900	29.5997	47.6473
51	48 hour	1%	29	286.00	0.98	11.3057	5.9809	23.4966	24.3965	26.3693	2.1336	3.4239	11.5853	49.9366	77.0681
51	48 hour	1%	30	286.00	0.98	14.7649	7.1840	26.6030	27.3893	30.1512	3.1868	4.6585	13.3875	56.7365	90.1453
52	72 hour	1%	21	319.00	0.99	6.8085	3.6531	14.1645	14.6864	15.8749	1.2126	2.0506	6.7734	29.6143	49.2074
52	72 hour	1%	22	319.00	0.99	5.6569	2.9606	11.0136	11.4959	12.0634	1.2243	2.0818	6.6091	22.4864	36.0919
52	72 hour	1%	23	319.00	0.99	4.8930	2.6993	9.9276	10.4302	11.0900	0.9447	1.5438	5.3323	20.8971	35.4902
52	72 hour	1%	24	319.00	0.99	10.1462	5.1363	20.3442	20.9877	22.3397	1.9173	3.0629	10.2567	42.5232	64.9653
52	72 hour	1%	25	319.00	0.99	4.3841	2.3080	8.6048	8.8625	9.4070	0.7527	1.3625	4.5551	17.8962	28.5515
52	72 hour	1%	26	319.00	0.99	7.5338	3.8447	14.9963	15.5072	16.4812	1.2660	2.1539	7.1001	30.5917	48.4159
52	72 hour	1%	27	319.00	0.99	6.6054	3.4415	12.5767	13.0449	14.1640	1.2179	2.0172	6.4975	27.0012	46.0049
52	72 hour	1%	28	319.00	0.99	6.9224	3.4040	13.4015	13.8058	14.5021	1.1453	2.0912	7.0611	26.9903	42.6435
52	72 hour	1%	29	319.00	0.99	9.2552	5.1181	18.2427	19.0984	20.2959	1.7708	2.8345	8.8485	38.0682	67.1922
52	72 hour	1%	30	319.00	0.99	8.5575	4.4729	17.2352	17.8326	18.9669	1.3685	2.5295	8.6761	35.3603	54.5328
53	96 hour	1%	21	339.00	0.99	6.6197	3.4027	12.8159	13.3177	13.9914	1.2112	2.0065	6.5953	26.3749	40.5300
53	96 hour	1%	22	339.00	0.99	10.3052	5.1385	19.6342	20.2284	21.0996	1.7390	3.1012	10.2409	39.0821	57.1034
53	96 hour	1%	23	339.00	0.99	5.6404	2.9409	11.1586	11.5061	12.4979	1.0976	1.7476	6.2079	23.6663	40.0650
53	96 hour	1%	24	339.00	0.99	4.1484	2.1021	7.8607	8.0919	8.4285	0.7481	1.3113	4.2331	15.6685	24.2304
53	96 hour	1%	25	339.00	0.99	4.6824	2.5411	9.7048	10.0911	10.8330	0.8702	1.4319	4.8999	20.5116	34.0191
53	96 hour	1%	26	339.00	0.99	6.6557	3.2920	13.0098	13.4096	14.1381	1.1345	2.0042	6.5967	26.0376	40.1868
53	96 hour	1%	27	339.00	0.99	5.1164	2.6408	10.9068	11.2378	12.1955	1.1178	1.6174	5.5346	22.9470	32.9559
53	96 hour	1%	28	339.00	0.99	14.4752	6.7637	25.3891	26.2679	26.9588	2.7967	4.4636	13.7834	52.1580	92.9394
53	96 hour	1%	29	339.00	0.99	7.9735	4.0974	15.4211	15.9072	16.6392	1.3515	2.4032	7.9394	30.7495	50.6280
53	96 hour	1%	30	339.00	0.99	6.2961	3.3716	13.1510	13.5503	14.6512	1.2214	1.8776	6.6176	27.6559	44.4611
54	120 hour	1%	21	350.00	0.99	6.8866	3.6792	13.8199	14.3328	15.2941	1.1666	2.0633	6.9365	28.9353	47.6028
54	120 hour	1%	22	350.00	0.99	5.8682	3.0430	11.3556	11.7669	12.3555	1.0430	1.7934	5.8934	23.2419	36.0533
54	120 hour	1%	23	350.00	0.99	9.2960	4.3447	16.4376	17.0022	18.6610	1.7981	3.0459	9.9434	35.4041	62.8961
54	120 hour	1%	24	350.00	0.99	11.7920	5.4534	18.8734	19.3377	21.9065	2.5767	3.7489	10.7153	42.2721	69.0059
54	120 hour	1%	25	350.00	0.99	6.8750	3.4981	12.6641	13.1621	13.5959	1.3422	2.1245	6.6572	25.4183	39.8333
54	120 hour	1%	26	350.00	0.99	4.5592	2.3176	8.6103	8.9507	9.6554	0.8700	1.4368	4.5621	18.5465	31.6842
54	120 hour	1%	27	350.00	0.99	3.7458	1.8442	6.8938	7.0907	7.2619	0.7007	1.1954	3.7920	13.3873	21.4945
54	120 hour	1%	28	350.00	0.99	5.9464	2.9658	11.8544	12.2063	12.9599	0.9384	1.7978	6.2143	24.1965	41.1003
54	120 hour	1%	29	350.00	0.99	14.4900	6.9841	26.7116	27.6075	28.4535	2.6045	4.3861	14.0911	52.2713	82.9487
54	120 hour	1%	30	350.00	0.99	6.9308	3.5814	13.3201	13.7462	14.3468	1.2036	2.1040	6.8918	26.5664	44.5861
55	144 hour	1%	21	356.00	0.99	6.4373	3.4358	12.9075	13.3970	14.2924	1.0994	1.9350	6.5023	27.1170	44.3985

2A_East complete_1_batch																			
55	144 hour	1%	22	356.00	0.99	4.1752	2.0884	8.2416	8.5029	8.9951	0.6785	1.2834	4.4067	16.9202	25.8850				
55	144 hour	1%	23	356.00	0.99	6.6750	3.5677	13.5597	14.1423	15.3257	1.2296	2.0521	6.6975	29.4245	48.5828				
55	144 hour	1%	24	356.00	0.99	8.4830	4.0675	15.3224	15.8593	16.2126	1.6012	2.6073	8.2423	30.8165	54.7444				
55	144 hour	1%	25	356.00	0.99	5.9427	2.8057	11.0127	11.3849	12.5330	1.1989	1.8783	5.7731	23.9834	40.5651				
55	144 hour	1%	26	356.00	0.99	11.6551	5.3435	18.8779	19.2701	19.2704	2.4431	3.7360	10.6784	37.6542	62.9531				
55	144 hour	1%	27	356.00	0.99	6.8780	3.3679	11.9343	12.4041	13.4099	1.4535	2.1749	6.4888	25.4739	43.3106				
55	144 hour	1%	28	356.00	0.99	3.5915	1.7568	6.4830	6.6559	6.8028	0.6933	1.1643	3.6432	12.5692	20.8203				
55	144 hour	1%	29	356.00	0.99	5.3580	2.6784	10.2729	10.5887	10.9645	0.9075	1.6233	5.4070	20.2057	30.7030				
55	144 hour	1%	30	356.00	0.99	13.9485	6.7152	25.6844	26.5441	27.3443	2.5117	4.2277	13.5726	50.2286	79.9603				
56	168 hour	1%	21	356.00	0.99	5.1463	2.8061	10.5149	10.8989	11.7062	0.9122	1.5483	5.2731	22.2714	37.9323				
56	168 hour	1%	22	356.00	0.99	3.8786	1.9300	7.6291	7.8607	8.3017	0.6315	1.1996	4.1130	15.6174	24.4469				
56	168 hour	1%	23	356.00	0.99	7.4512	3.8688	14.5268	15.0532	16.3104	1.3576	2.2519	7.4211	30.9554	50.7807				
56	168 hour	1%	24	356.00	0.99	8.4589	4.0550	15.2755	15.8105	16.1612	1.5971	2.6003	8.2193	30.7435	54.6004				
56	168 hour	1%	25	356.00	0.99	4.6755	2.3351	9.4285	9.7025	10.3394	1.1149	1.8029	5.6027	20.2298	30.3593				
56	168 hour	1%	26	356.00	0.99	4.6755	2.3351	9.4285	9.7025	10.3394	1.1149	1.8029	5.6027	20.2298	30.3593				
56	168 hour	1%	27	356.00	0.99	5.0586	2.4034	9.2816	9.5684	9.8312	0.9196	1.5728	5.0975	18.2535	27.7918				
56	168 hour	1%	28	356.00	0.99	7.6042	4.0301	16.4527	16.9579	18.5202	1.5999	2.3339	8.1132	35.1275	54.4819				
56	168 hour	1%	29	356.00	0.99	5.1078	2.5849	9.8421	10.1842	10.5928	0.8858	1.5530	5.1629	19.6653	30.1381				
56	168 hour	1%	30	356.00	0.99	6.8994	3.4250	13.4135	13.9043	15.2833	1.3900	2.1988	6.6956	29.3132	48.8897				

Elapsed Run Time (hh:mm:ss) = 00:00:20

South3_batch

RORBWin Batch Run Summary

Program version 6.32 (last updated 3rd September 2017)
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Date run: 11 Jan 2018 13:04

Catchment file : G:\Synergy\Projects\17\170087 Bonnie Doon
SWMP\Calculations\RORB\5_South 3\South3.catg
Rainfall location: User defined
Temporal pattern : ARR2016 point temporal patterns
Spatial pattern : Uniform
Areal Red. Fact. : Based on ARR 2016 (Book 2 Chapter 4)
Loss factors : Constant with ARI

Parameters: kc = 1.09 m = 0.80

Loss parameters	Initial loss (mm)	Cont. loss (mm/h)
	60.00	0.90

Peak Description

01 Calculated hydrograph,

Run	Duration	AEP	TPat	Rain(mm)	ARF	Peak0001
1	30 min	10%	11	44.80	0.99	0.0000
1	30 min	10%	12	44.80	0.99	0.0000
1	30 min	10%	13	44.80	0.99	0.0000
1	30 min	10%	14	44.80	0.99	0.0000
1	30 min	10%	15	44.80	0.99	0.0000
1	30 min	10%	16	44.80	0.99	0.0000
1	30 min	10%	17	44.80	0.99	0.0000
1	30 min	10%	18	44.80	0.99	0.0000
1	30 min	10%	19	44.80	0.99	0.0000
1	30 min	10%	20	44.80	0.99	0.0000
2	1 hour	10%	11	57.60	0.99	0.0000
2	1 hour	10%	12	57.60	0.99	0.0000
2	1 hour	10%	13	57.60	0.99	0.0000
2	1 hour	10%	14	57.60	0.99	0.0000
2	1 hour	10%	15	57.60	0.99	0.0000
2	1 hour	10%	16	57.60	0.99	0.0000
2	1 hour	10%	17	57.60	0.99	0.0000
2	1 hour	10%	18	57.60	0.99	0.0000
2	1 hour	10%	19	57.60	0.99	0.0000
2	1 hour	10%	20	57.60	0.99	0.0000
3	2 hour	10%	11	70.10	0.99	3.8042
3	2 hour	10%	12	70.10	0.99	3.7022
3	2 hour	10%	13	70.10	0.99	3.8048
3	2 hour	10%	14	70.10	0.99	3.2532
3	2 hour	10%	15	70.10	0.99	3.0345
3	2 hour	10%	16	70.10	0.99	3.4549

South3_batch						
3	2 hour	10%	17	70.10	0.99	3.4400
3	2 hour	10%	18	70.10	0.99	3.9705
3	2 hour	10%	19	70.10	0.99	4.0038
3	2 hour	10%	20	70.10	0.99	3.9136
4	3 hour	10%	11	77.70	0.99	4.6293
4	3 hour	10%	12	77.70	0.99	4.7639
4	3 hour	10%	13	77.70	0.99	4.9517
4	3 hour	10%	14	77.70	0.99	5.2264
4	3 hour	10%	15	77.70	0.99	6.1330
4	3 hour	10%	16	77.70	0.99	5.3399
4	3 hour	10%	17	77.70	0.99	4.8449
4	3 hour	10%	18	77.70	0.99	4.5020
4	3 hour	10%	19	77.70	0.99	5.1546
4	3 hour	10%	20	77.70	0.99	6.0659
5	6 hour	10%	11	92.80	1.00	3.7643
5	6 hour	10%	12	92.80	1.00	5.8139
5	6 hour	10%	13	92.80	1.00	4.3193
5	6 hour	10%	14	92.80	1.00	8.0953
5	6 hour	10%	15	92.80	1.00	7.5622
5	6 hour	10%	16	92.80	1.00	5.0862
5	6 hour	10%	17	92.80	1.00	5.6260
5	6 hour	10%	18	92.80	1.00	5.9353
5	6 hour	10%	19	92.80	1.00	8.3615
5	6 hour	10%	20	92.80	1.00	6.3895
6	12 hour	10%	11	113.00	1.00	6.6383
6	12 hour	10%	12	113.00	1.00	7.9540
6	12 hour	10%	13	113.00	1.00	6.3374
6	12 hour	10%	14	113.00	1.00	3.5182
6	12 hour	10%	15	113.00	1.00	4.7232
6	12 hour	10%	16	113.00	1.00	3.5715
6	12 hour	10%	17	113.00	1.00	5.5054
6	12 hour	10%	18	113.00	1.00	8.6885
6	12 hour	10%	19	113.00	1.00	8.9563
6	12 hour	10%	20	113.00	1.00	6.8345
7	24 hour	10%	11	140.00	1.00	7.3522
7	24 hour	10%	12	140.00	1.00	7.5918
7	24 hour	10%	13	140.00	1.00	4.7207
7	24 hour	10%	14	140.00	1.00	3.8868
7	24 hour	10%	15	140.00	1.00	3.1074
7	24 hour	10%	16	140.00	1.00	4.3050
7	24 hour	10%	17	140.00	1.00	4.2335
7	24 hour	10%	18	140.00	1.00	4.7321
7	24 hour	10%	19	140.00	1.00	5.3369
7	24 hour	10%	20	140.00	1.00	4.6401
8	48 hour	10%	11	175.00	1.00	2.7326
8	48 hour	10%	12	175.00	1.00	3.9986
8	48 hour	10%	13	175.00	1.00	3.9967
8	48 hour	10%	14	175.00	1.00	3.4464
8	48 hour	10%	15	175.00	1.00	3.3143
8	48 hour	10%	16	175.00	1.00	6.1583
8	48 hour	10%	17	175.00	1.00	3.3538
8	48 hour	10%	18	175.00	1.00	4.7114

South3_batch						
8	48 hour	10%	19	175.00	1.00	3.1100
8	48 hour	10%	20	175.00	1.00	8.4280
9	72 hour	10%	11	195.00	1.00	1.8279
9	72 hour	10%	12	195.00	1.00	3.3616
9	72 hour	10%	13	195.00	1.00	2.1947
9	72 hour	10%	14	195.00	1.00	2.4359
9	72 hour	10%	15	195.00	1.00	5.4420
9	72 hour	10%	16	195.00	1.00	4.8897
9	72 hour	10%	17	195.00	1.00	2.1075
9	72 hour	10%	18	195.00	1.00	3.7809
9	72 hour	10%	19	195.00	1.00	2.1098
9	72 hour	10%	20	195.00	1.00	4.3800
10	96 hour	10%	11	207.00	1.00	3.8027
10	96 hour	10%	12	207.00	1.00	3.4244
10	96 hour	10%	13	207.00	1.00	1.4897
10	96 hour	10%	14	207.00	1.00	2.8252
10	96 hour	10%	15	207.00	1.00	2.2185
10	96 hour	10%	16	207.00	1.00	2.0471
10	96 hour	10%	17	207.00	1.00	3.2756
10	96 hour	10%	18	207.00	1.00	3.8474
10	96 hour	10%	19	207.00	1.00	1.9862
10	96 hour	10%	20	207.00	1.00	2.0687
11	120 hour	10%	11	214.00	1.00	2.8461
11	120 hour	10%	12	214.00	1.00	2.3930
11	120 hour	10%	13	214.00	1.00	3.5579
11	120 hour	10%	14	214.00	1.00	4.1433
11	120 hour	10%	15	214.00	1.00	2.0088
11	120 hour	10%	16	214.00	1.00	1.9374
11	120 hour	10%	17	214.00	1.00	5.3325
11	120 hour	10%	18	214.00	1.00	2.8385
11	120 hour	10%	19	214.00	1.00	2.8375
11	120 hour	10%	20	214.00	1.00	2.5589
12	144 hour	10%	11	217.00	1.00	2.9511
12	144 hour	10%	12	217.00	1.00	5.6100
12	144 hour	10%	13	217.00	1.00	2.8777
12	144 hour	10%	14	217.00	1.00	5.0922
12	144 hour	10%	15	217.00	1.00	2.5581
12	144 hour	10%	16	217.00	1.00	2.2214
12	144 hour	10%	17	217.00	1.00	1.6454
12	144 hour	10%	18	217.00	1.00	2.3816
12	144 hour	10%	19	217.00	1.00	2.0946
12	144 hour	10%	20	217.00	1.00	2.9025
13	168 hour	10%	11	217.00	1.00	2.6788
13	168 hour	10%	12	217.00	1.00	1.4565
13	168 hour	10%	13	217.00	1.00	2.2209
13	168 hour	10%	14	217.00	1.00	1.7658
13	168 hour	10%	15	217.00	1.00	3.5159
13	168 hour	10%	16	217.00	1.00	2.8419
13	168 hour	10%	17	217.00	1.00	2.3125
13	168 hour	10%	18	217.00	1.00	1.4386
13	168 hour	10%	19	217.00	1.00	2.1844
13	168 hour	10%	20	217.00	1.00	1.6721

South3_batch						
14	30 min	5%	11	51.80	0.99	0.0000
14	30 min	5%	12	51.80	0.99	0.0000
14	30 min	5%	13	51.80	0.99	0.0000
14	30 min	5%	14	51.80	0.99	0.0000
14	30 min	5%	15	51.80	0.99	0.0000
14	30 min	5%	16	51.80	0.99	0.0000
14	30 min	5%	17	51.80	0.99	0.0000
14	30 min	5%	18	51.80	0.99	0.0000
14	30 min	5%	19	51.80	0.99	0.0000
14	30 min	5%	20	51.80	0.99	0.0000
15	1 hour	5%	11	67.00	0.99	2.4020
15	1 hour	5%	12	67.00	0.99	2.5784
15	1 hour	5%	13	67.00	0.99	2.4098
15	1 hour	5%	14	67.00	0.99	2.6575
15	1 hour	5%	15	67.00	0.99	2.5003
15	1 hour	5%	16	67.00	0.99	2.5876
15	1 hour	5%	17	67.00	0.99	2.4342
15	1 hour	5%	18	67.00	0.99	2.5157
15	1 hour	5%	19	67.00	0.99	2.5448
15	1 hour	5%	20	67.00	0.99	2.4978
16	2 hour	5%	11	82.00	0.99	9.1679
16	2 hour	5%	12	82.00	0.99	8.6303
16	2 hour	5%	13	82.00	0.99	9.1514
16	2 hour	5%	14	82.00	0.99	7.3975
16	2 hour	5%	15	82.00	0.99	6.4639
16	2 hour	5%	16	82.00	0.99	6.9989
16	2 hour	5%	17	82.00	0.99	8.5132
16	2 hour	5%	18	82.00	0.99	8.9890
16	2 hour	5%	19	82.00	0.99	8.4838
16	2 hour	5%	20	82.00	0.99	9.3490
17	3 hour	5%	11	91.20	0.99	9.2034
17	3 hour	5%	12	91.20	0.99	7.7239
17	3 hour	5%	13	91.20	0.99	8.3351
17	3 hour	5%	14	91.20	0.99	8.5006
17	3 hour	5%	15	91.20	0.99	9.5411
17	3 hour	5%	16	91.20	0.99	8.9647
17	3 hour	5%	17	91.20	0.99	9.0493
17	3 hour	5%	18	91.20	0.99	9.1802
17	3 hour	5%	19	91.20	0.99	9.1994
17	3 hour	5%	20	91.20	0.99	11.0843
18	6 hour	5%	11	109.00	1.00	6.6573
18	6 hour	5%	12	109.00	1.00	9.0338
18	6 hour	5%	13	109.00	1.00	7.5405
18	6 hour	5%	14	109.00	1.00	10.1846
18	6 hour	5%	15	109.00	1.00	11.0374
18	6 hour	5%	16	109.00	1.00	6.3755
18	6 hour	5%	17	109.00	1.00	8.1016
18	6 hour	5%	18	109.00	1.00	9.2495
18	6 hour	5%	19	109.00	1.00	12.1866
18	6 hour	5%	20	109.00	1.00	8.8867
19	12 hour	5%	11	133.00	1.00	7.9193
19	12 hour	5%	12	133.00	1.00	12.1752

South3_batch						
19	12 hour	5%	13	133.00	1.00	7.6214
19	12 hour	5%	14	133.00	1.00	4.2402
19	12 hour	5%	15	133.00	1.00	7.2371
19	12 hour	5%	16	133.00	1.00	5.4679
19	12 hour	5%	17	133.00	1.00	6.8813
19	12 hour	5%	18	133.00	1.00	10.4558
19	12 hour	5%	19	133.00	1.00	10.8639
19	12 hour	5%	20	133.00	1.00	8.8700
20	24 hour	5%	11	165.00	1.00	9.2627
20	24 hour	5%	12	165.00	1.00	9.0558
20	24 hour	5%	13	165.00	1.00	5.6860
20	24 hour	5%	14	165.00	1.00	4.6594
20	24 hour	5%	15	165.00	1.00	3.7534
20	24 hour	5%	16	165.00	1.00	5.1761
20	24 hour	5%	17	165.00	1.00	5.0717
20	24 hour	5%	18	165.00	1.00	5.6723
20	24 hour	5%	19	165.00	1.00	6.4179
20	24 hour	5%	20	165.00	1.00	5.5659
21	48 hour	5%	11	206.00	1.00	3.8531
21	48 hour	5%	12	206.00	1.00	4.7733
21	48 hour	5%	13	206.00	1.00	4.7710
21	48 hour	5%	14	206.00	1.00	4.1387
21	48 hour	5%	15	206.00	1.00	3.9799
21	48 hour	5%	16	206.00	1.00	7.3663
21	48 hour	5%	17	206.00	1.00	4.0577
21	48 hour	5%	18	206.00	1.00	5.5950
21	48 hour	5%	19	206.00	1.00	3.7305
21	48 hour	5%	20	206.00	1.00	10.0691
22	72 hour	5%	11	230.00	1.00	2.2718
22	72 hour	5%	12	230.00	1.00	4.0564
22	72 hour	5%	13	230.00	1.00	3.1706
22	72 hour	5%	14	230.00	1.00	3.1365
22	72 hour	5%	15	230.00	1.00	6.5510
22	72 hour	5%	16	230.00	1.00	5.8614
22	72 hour	5%	17	230.00	1.00	2.5703
22	72 hour	5%	18	230.00	1.00	4.5399
22	72 hour	5%	19	230.00	1.00	2.5888
22	72 hour	5%	20	230.00	1.00	5.2346
23	96 hour	5%	11	245.00	1.00	4.5538
23	96 hour	5%	12	245.00	1.00	4.1729
23	96 hour	5%	13	245.00	1.00	1.8585
23	96 hour	5%	14	245.00	1.00	4.0981
23	96 hour	5%	15	245.00	1.00	2.7155
23	96 hour	5%	16	245.00	1.00	2.5208
23	96 hour	5%	17	245.00	1.00	3.9633
23	96 hour	5%	18	245.00	1.00	5.4623
23	96 hour	5%	19	245.00	1.00	2.4246
23	96 hour	5%	20	245.00	1.00	2.5770
24	120 hour	5%	11	253.00	1.00	3.4227
24	120 hour	5%	12	253.00	1.00	2.9039
24	120 hour	5%	13	253.00	1.00	4.3198
24	120 hour	5%	14	253.00	1.00	5.0059

South3_batch						
24	120 hour	5%	15	253.00	1.00	2.4475
24	120 hour	5%	16	253.00	1.00	2.3490
24	120 hour	5%	17	253.00	1.00	6.4514
24	120 hour	5%	18	253.00	1.00	3.4412
24	120 hour	5%	19	253.00	1.00	3.2038
24	120 hour	5%	20	253.00	1.00	3.0945
25	144 hour	5%	11	257.00	1.00	3.5985
25	144 hour	5%	12	257.00	1.00	6.7910
25	144 hour	5%	13	257.00	1.00	3.5342
25	144 hour	5%	14	257.00	1.00	6.1343
25	144 hour	5%	15	257.00	1.00	3.0954
25	144 hour	5%	16	257.00	1.00	2.6975
25	144 hour	5%	17	257.00	1.00	2.1496
25	144 hour	5%	18	257.00	1.00	2.8919
25	144 hour	5%	19	257.00	1.00	2.5768
25	144 hour	5%	20	257.00	1.00	3.5455
26	168 hour	5%	11	258.00	1.00	3.2823
26	168 hour	5%	12	258.00	1.00	1.8082
26	168 hour	5%	13	258.00	1.00	2.7215
26	168 hour	5%	14	258.00	1.00	2.2200
26	168 hour	5%	15	258.00	1.00	4.2648
26	168 hour	5%	16	258.00	1.00	3.5077
26	168 hour	5%	17	258.00	1.00	2.8179
26	168 hour	5%	18	258.00	1.00	2.3950
26	168 hour	5%	19	258.00	1.00	2.6597
26	168 hour	5%	20	258.00	1.00	2.0676
27	30 min	2%	21	61.00	0.99	0.0060
27	30 min	2%	22	61.00	0.99	0.0060
27	30 min	2%	23	61.00	0.99	0.0060
27	30 min	2%	24	61.00	0.99	0.0060
27	30 min	2%	25	61.00	0.99	0.0060
27	30 min	2%	26	61.00	0.99	0.0060
27	30 min	2%	27	61.00	0.99	0.0060
27	30 min	2%	28	61.00	0.99	0.0060
27	30 min	2%	29	61.00	0.99	0.0060
27	30 min	2%	30	61.00	0.99	0.0060
28	1 hour	2%	21	79.60	0.99	9.3193
28	1 hour	2%	22	79.60	0.99	9.4644
28	1 hour	2%	23	79.60	0.99	7.8528
28	1 hour	2%	24	79.60	0.99	7.4331
28	1 hour	2%	25	79.60	0.99	8.0932
28	1 hour	2%	26	79.60	0.99	8.0997
28	1 hour	2%	27	79.60	0.99	8.9527
28	1 hour	2%	28	79.60	0.99	8.1613
28	1 hour	2%	29	79.60	0.99	8.5702
28	1 hour	2%	30	79.60	0.99	8.6609
29	2 hour	2%	21	98.30	0.99	16.7483
29	2 hour	2%	22	98.30	0.99	15.0172
29	2 hour	2%	23	98.30	0.99	10.1051
29	2 hour	2%	24	98.30	0.99	14.3621
29	2 hour	2%	25	98.30	0.99	10.2469
29	2 hour	2%	26	98.30	0.99	16.5426

South3_batch						
29	2 hour	2%	27	98.30	0.99	12.7449
29	2 hour	2%	28	98.30	0.99	14.5489
29	2 hour	2%	29	98.30	0.99	16.4014
29	2 hour	2%	30	98.30	0.99	15.5778
30	3 hour	2%	21	110.00	0.99	17.1669
30	3 hour	2%	22	110.00	0.99	14.7229
30	3 hour	2%	23	110.00	0.99	15.2702
30	3 hour	2%	24	110.00	0.99	11.4079
30	3 hour	2%	25	110.00	0.99	11.4165
30	3 hour	2%	26	110.00	0.99	11.4909
30	3 hour	2%	27	110.00	0.99	11.9725
30	3 hour	2%	28	110.00	0.99	15.9777
30	3 hour	2%	29	110.00	0.99	10.9538
30	3 hour	2%	30	110.00	0.99	11.4898
31	6 hour	2%	21	132.00	0.99	11.3460
31	6 hour	2%	22	132.00	0.99	10.7816
31	6 hour	2%	23	132.00	0.99	11.8640
31	6 hour	2%	24	132.00	0.99	9.7326
31	6 hour	2%	25	132.00	0.99	9.3398
31	6 hour	2%	26	132.00	0.99	12.6091
31	6 hour	2%	27	132.00	0.99	16.9468
31	6 hour	2%	28	132.00	0.99	10.6094
31	6 hour	2%	29	132.00	0.99	11.0118
31	6 hour	2%	30	132.00	0.99	13.8106
32	12 hour	2%	21	162.00	1.00	8.1983
32	12 hour	2%	22	162.00	1.00	9.0008
32	12 hour	2%	23	162.00	1.00	7.9950
32	12 hour	2%	24	162.00	1.00	7.8529
32	12 hour	2%	25	162.00	1.00	12.9224
32	12 hour	2%	26	162.00	1.00	6.0777
32	12 hour	2%	27	162.00	1.00	8.0360
32	12 hour	2%	28	162.00	1.00	11.0520
32	12 hour	2%	29	162.00	1.00	6.8358
32	12 hour	2%	30	162.00	1.00	14.1345
33	24 hour	2%	21	201.00	1.00	5.7984
33	24 hour	2%	22	201.00	1.00	4.3889
33	24 hour	2%	23	201.00	1.00	7.5738
33	24 hour	2%	24	201.00	1.00	10.2175
33	24 hour	2%	25	201.00	1.00	7.2267
33	24 hour	2%	26	201.00	1.00	6.2590
33	24 hour	2%	27	201.00	1.00	4.7950
33	24 hour	2%	28	201.00	1.00	8.2179
33	24 hour	2%	29	201.00	1.00	5.8449
33	24 hour	2%	30	201.00	1.00	9.0062
34	48 hour	2%	21	250.00	1.00	5.1725
34	48 hour	2%	22	250.00	1.00	4.5114
34	48 hour	2%	23	250.00	1.00	9.3366
34	48 hour	2%	24	250.00	1.00	3.8964
34	48 hour	2%	25	250.00	1.00	9.0751
34	48 hour	2%	26	250.00	1.00	6.7821
34	48 hour	2%	27	250.00	1.00	5.3404
34	48 hour	2%	28	250.00	1.00	3.7191

South3_batch						
34	48 hour	2%	29	250.00	1.00	5.7743
34	48 hour	2%	30	250.00	1.00	7.9486
35	72 hour	2%	21	280.00	1.00	3.6082
35	72 hour	2%	22	280.00	1.00	2.9356
35	72 hour	2%	23	280.00	1.00	2.5211
35	72 hour	2%	24	280.00	1.00	4.6736
35	72 hour	2%	25	280.00	1.00	2.2132
35	72 hour	2%	26	280.00	1.00	3.9392
35	72 hour	2%	27	280.00	1.00	3.4172
35	72 hour	2%	28	280.00	1.00	3.4854
35	72 hour	2%	29	280.00	1.00	5.0565
35	72 hour	2%	30	280.00	1.00	4.3000
36	96 hour	2%	21	298.00	1.00	3.4282
36	96 hour	2%	22	298.00	1.00	5.2570
36	96 hour	2%	23	298.00	1.00	2.9630
36	96 hour	2%	24	298.00	1.00	2.0973
36	96 hour	2%	25	298.00	1.00	2.3515
36	96 hour	2%	26	298.00	1.00	3.3086
36	96 hour	2%	27	298.00	1.00	2.4817
36	96 hour	2%	28	298.00	1.00	7.6263
36	96 hour	2%	29	298.00	1.00	4.0422
36	96 hour	2%	30	298.00	1.00	3.1324
37	120 hour	2%	21	308.00	1.00	3.5091
37	120 hour	2%	22	308.00	1.00	3.0106
37	120 hour	2%	23	308.00	1.00	4.3829
37	120 hour	2%	24	308.00	1.00	6.3457
37	120 hour	2%	25	308.00	1.00	3.6288
37	120 hour	2%	26	308.00	1.00	2.3505
37	120 hour	2%	27	308.00	1.00	1.8982
37	120 hour	2%	28	308.00	1.00	2.9498
37	120 hour	2%	29	308.00	1.00	7.5159
37	120 hour	2%	30	308.00	1.00	3.5382
38	144 hour	2%	21	312.00	1.00	3.2682
38	144 hour	2%	22	312.00	1.00	2.0877
38	144 hour	2%	23	312.00	1.00	3.4394
38	144 hour	2%	24	312.00	1.00	4.4140
38	144 hour	2%	25	312.00	1.00	3.1197
38	144 hour	2%	26	312.00	1.00	6.1252
38	144 hour	2%	27	312.00	1.00	3.6736
38	144 hour	2%	28	312.00	1.00	1.8206
38	144 hour	2%	29	312.00	1.00	2.6594
38	144 hour	2%	30	312.00	1.00	7.1971
39	168 hour	2%	21	313.00	1.00	2.5871
39	168 hour	2%	22	313.00	1.00	1.9304
39	168 hour	2%	23	313.00	1.00	3.8736
39	168 hour	2%	24	313.00	1.00	4.4145
39	168 hour	2%	25	313.00	1.00	2.1235
39	168 hour	2%	26	313.00	1.00	2.1235
39	168 hour	2%	27	313.00	1.00	2.5860
39	168 hour	2%	28	313.00	1.00	3.8831
39	168 hour	2%	29	313.00	1.00	2.5690
39	168 hour	2%	30	313.00	1.00	3.6158

South3_batch						
40	30 min	1%	21	68.10	0.99	3.0708
40	30 min	1%	22	68.10	0.99	3.0708
40	30 min	1%	23	68.10	0.99	3.0708
40	30 min	1%	24	68.10	0.99	3.0708
40	30 min	1%	25	68.10	0.99	3.0708
40	30 min	1%	26	68.10	0.99	3.0708
40	30 min	1%	27	68.10	0.99	3.0708
40	30 min	1%	28	68.10	0.99	2.9967
40	30 min	1%	29	68.10	0.99	3.0708
40	30 min	1%	30	68.10	0.99	3.0708
41	1 hour	1%	21	89.40	0.99	14.9894
41	1 hour	1%	22	89.40	0.99	15.0716
41	1 hour	1%	23	89.40	0.99	12.2125
41	1 hour	1%	24	89.40	0.99	11.2385
41	1 hour	1%	25	89.40	0.99	12.4892
41	1 hour	1%	26	89.40	0.99	12.7155
41	1 hour	1%	27	89.40	0.99	13.8531
41	1 hour	1%	28	89.40	0.99	12.4976
41	1 hour	1%	29	89.40	0.99	12.8371
41	1 hour	1%	30	89.40	0.99	13.2840
42	2 hour	1%	21	111.00	0.99	21.4206
42	2 hour	1%	22	111.00	0.99	19.3407
42	2 hour	1%	23	111.00	0.99	13.6604
42	2 hour	1%	24	111.00	0.99	18.4937
42	2 hour	1%	25	111.00	0.99	13.3885
42	2 hour	1%	26	111.00	0.99	21.2127
42	2 hour	1%	27	111.00	0.99	16.1679
42	2 hour	1%	28	111.00	0.99	18.3406
42	2 hour	1%	29	111.00	0.99	21.3324
42	2 hour	1%	30	111.00	0.99	20.4138
43	3 hour	1%	21	125.00	0.99	21.1191
43	3 hour	1%	22	125.00	0.99	17.4404
43	3 hour	1%	23	125.00	0.99	18.5751
43	3 hour	1%	24	125.00	0.99	13.4634
43	3 hour	1%	25	125.00	0.99	13.4776
43	3 hour	1%	26	125.00	0.99	14.3423
43	3 hour	1%	27	125.00	0.99	14.2448
43	3 hour	1%	28	125.00	0.99	18.9248
43	3 hour	1%	29	125.00	0.99	13.0218
43	3 hour	1%	30	125.00	0.99	16.0005
44	6 hour	1%	21	151.00	0.99	15.3279
44	6 hour	1%	22	151.00	0.99	12.4399
44	6 hour	1%	23	151.00	0.99	14.0824
44	6 hour	1%	24	151.00	0.99	11.3172
44	6 hour	1%	25	151.00	0.99	10.9400
44	6 hour	1%	26	151.00	0.99	14.6755
44	6 hour	1%	27	151.00	0.99	20.1565
44	6 hour	1%	28	151.00	0.99	14.5716
44	6 hour	1%	29	151.00	0.99	12.7598
44	6 hour	1%	30	151.00	0.99	16.3485
45	12 hour	1%	21	185.00	1.00	9.4286
45	12 hour	1%	22	185.00	1.00	10.3499

South3_batch						
45	12 hour	1%	23	185.00	1.00	9.2416
45	12 hour	1%	24	185.00	1.00	9.0743
45	12 hour	1%	25	185.00	1.00	15.0041
45	12 hour	1%	26	185.00	1.00	7.0078
45	12 hour	1%	27	185.00	1.00	9.3253
45	12 hour	1%	28	185.00	1.00	13.2334
45	12 hour	1%	29	185.00	1.00	7.9400
45	12 hour	1%	30	185.00	1.00	16.2771
46	24 hour	1%	21	230.00	1.00	6.6961
46	24 hour	1%	22	230.00	1.00	5.2102
46	24 hour	1%	23	230.00	1.00	8.9149
46	24 hour	1%	24	230.00	1.00	11.8142
46	24 hour	1%	25	230.00	1.00	8.4281
46	24 hour	1%	26	230.00	1.00	7.2612
46	24 hour	1%	27	230.00	1.00	5.5782
46	24 hour	1%	28	230.00	1.00	9.5862
46	24 hour	1%	29	230.00	1.00	6.7853
46	24 hour	1%	30	230.00	1.00	10.4154
47	48 hour	1%	21	286.00	1.00	5.9864
47	48 hour	1%	22	286.00	1.00	5.2255
47	48 hour	1%	23	286.00	1.00	10.7769
47	48 hour	1%	24	286.00	1.00	4.5138
47	48 hour	1%	25	286.00	1.00	10.4319
47	48 hour	1%	26	286.00	1.00	7.8435
47	48 hour	1%	27	286.00	1.00	5.9662
47	48 hour	1%	28	286.00	1.00	4.3399
47	48 hour	1%	29	286.00	1.00	6.7073
47	48 hour	1%	30	286.00	1.00	9.2529
48	72 hour	1%	21	319.00	1.00	3.9169
48	72 hour	1%	22	319.00	1.00	3.3859
48	72 hour	1%	23	319.00	1.00	2.9260
48	72 hour	1%	24	319.00	1.00	5.8944
48	72 hour	1%	25	319.00	1.00	2.5806
48	72 hour	1%	26	319.00	1.00	4.3721
48	72 hour	1%	27	319.00	1.00	3.9580
48	72 hour	1%	28	319.00	1.00	4.0363
48	72 hour	1%	29	319.00	1.00	5.6178
48	72 hour	1%	30	319.00	1.00	4.9502
49	96 hour	1%	21	339.00	1.00	3.9570
49	96 hour	1%	22	339.00	1.00	6.0466
49	96 hour	1%	23	339.00	1.00	3.4153
49	96 hour	1%	24	339.00	1.00	2.4478
49	96 hour	1%	25	339.00	1.00	2.7376
49	96 hour	1%	26	339.00	1.00	3.8357
49	96 hour	1%	27	339.00	1.00	2.8605
49	96 hour	1%	28	339.00	1.00	8.7888
49	96 hour	1%	29	339.00	1.00	4.6582
49	96 hour	1%	30	339.00	1.00	3.6363
50	120 hour	1%	21	350.00	1.00	4.0400
50	120 hour	1%	22	350.00	1.00	3.4792
50	120 hour	1%	23	350.00	1.00	5.6579
50	120 hour	1%	24	350.00	1.00	7.3509

South3_batch						
50	120	hour	1%	25	350.00	1.00
50	120	hour	1%	26	350.00	1.00
50	120	hour	1%	27	350.00	1.00
50	120	hour	1%	28	350.00	1.00
50	120	hour	1%	29	350.00	1.00
50	120	hour	1%	30	350.00	1.00
51	144	hour	1%	21	356.00	1.00
51	144	hour	1%	22	356.00	1.00
51	144	hour	1%	23	356.00	1.00
51	144	hour	1%	24	356.00	1.00
51	144	hour	1%	25	356.00	1.00
51	144	hour	1%	26	356.00	1.00
51	144	hour	1%	27	356.00	1.00
51	144	hour	1%	28	356.00	1.00
51	144	hour	1%	29	356.00	1.00
51	144	hour	1%	30	356.00	1.00
52	168	hour	1%	21	356.00	1.00
52	168	hour	1%	22	356.00	1.00
52	168	hour	1%	23	356.00	1.00
52	168	hour	1%	24	356.00	1.00
52	168	hour	1%	25	356.00	1.00
52	168	hour	1%	26	356.00	1.00
52	168	hour	1%	27	356.00	1.00
52	168	hour	1%	28	356.00	1.00
52	168	hour	1%	29	356.00	1.00
52	168	hour	1%	30	356.00	1.00

Elapsed Run Time (hh:mm:ss) = 00:00:30

South2_batch

RORBWin Batch Run Summary

Program version 6.32 (last updated 3rd September 2017)
Copyright Monash University and Hydrology and Risk Consulting

Date run: 11 Jan 2018 09:56

Catchment file : G:\Synergy\Projects\17\170087 Bonnie Doon
SWMP\Calculations\RORB\4_South 2\South2.catg
Rainfall location: User defined
Temporal pattern : ARR2016 point temporal patterns
Spatial pattern : Uniform
Areal Red. Fact. : Based on ARR 2016 (Book 2 Chapter 4)
Loss factors : Constant with ARI

Parameters: kc = 0.91 m = 0.80

Loss parameters	Initial loss (mm)	Cont. loss (mm/h)
	60.00	0.90

Peak Description

01 Calculated hydrograph,

Run	Duration	AEP	TPat	Rain(mm)	ARF	Peak0001
1	10 min	10%	11	25.00	1.00	0.0000
1	10 min	10%	12	25.00	1.00	0.0000
1	10 min	10%	13	25.00	1.00	0.0000
1	10 min	10%	14	25.00	1.00	0.0000
1	10 min	10%	15	25.00	1.00	0.0000
1	10 min	10%	16	25.00	1.00	0.0000
1	10 min	10%	17	25.00	1.00	0.0000
1	10 min	10%	18	25.00	1.00	0.0000
1	10 min	10%	19	25.00	1.00	0.0000
1	10 min	10%	20	25.00	1.00	0.0000
2	15 min	10%	11	31.90	1.00	0.0000
2	15 min	10%	12	31.90	1.00	0.0000
2	15 min	10%	13	31.90	1.00	0.0000
2	15 min	10%	14	31.90	1.00	0.0000
2	15 min	10%	15	31.90	1.00	0.0000
2	15 min	10%	16	31.90	1.00	0.0000
2	15 min	10%	17	31.90	1.00	0.0000
2	15 min	10%	18	31.90	1.00	0.0000
2	15 min	10%	19	31.90	1.00	0.0000
2	15 min	10%	20	31.90	1.00	0.0000
3	30 min	10%	11	44.80	1.00	0.0000
3	30 min	10%	12	44.80	1.00	0.0000
3	30 min	10%	13	44.80	1.00	0.0000
3	30 min	10%	14	44.80	1.00	0.0000
3	30 min	10%	15	44.80	1.00	0.0000
3	30 min	10%	16	44.80	1.00	0.0000

South2_batch						
3	30 min	10%	17	44.80	1.00	0.0000
3	30 min	10%	18	44.80	1.00	0.0000
3	30 min	10%	19	44.80	1.00	0.0000
3	30 min	10%	20	44.80	1.00	0.0000
4	1 hour	10%	11	57.60	1.00	0.0000
4	1 hour	10%	12	57.60	1.00	0.0000
4	1 hour	10%	13	57.60	1.00	0.0000
4	1 hour	10%	14	57.60	1.00	0.0000
4	1 hour	10%	15	57.60	1.00	0.0000
4	1 hour	10%	16	57.60	1.00	0.0000
4	1 hour	10%	17	57.60	1.00	0.0000
4	1 hour	10%	18	57.60	1.00	0.0000
4	1 hour	10%	19	57.60	1.00	0.0000
4	1 hour	10%	20	57.60	1.00	0.0000
5	2 hour	10%	11	70.10	1.00	3.1688
5	2 hour	10%	12	70.10	1.00	3.0671
5	2 hour	10%	13	70.10	1.00	3.1694
5	2 hour	10%	14	70.10	1.00	2.6750
5	2 hour	10%	15	70.10	1.00	2.5283
5	2 hour	10%	16	70.10	1.00	2.8310
5	2 hour	10%	17	70.10	1.00	2.8774
5	2 hour	10%	18	70.10	1.00	3.3243
5	2 hour	10%	19	70.10	1.00	3.3262
5	2 hour	10%	20	70.10	1.00	3.2708
6	3 hour	10%	11	77.70	1.00	3.6873
6	3 hour	10%	12	77.70	1.00	3.6942
6	3 hour	10%	13	77.70	1.00	3.9840
6	3 hour	10%	14	77.70	1.00	4.1375
6	3 hour	10%	15	77.70	1.00	4.8156
6	3 hour	10%	16	77.70	1.00	4.2306
6	3 hour	10%	17	77.70	1.00	3.8732
6	3 hour	10%	18	77.70	1.00	3.5463
6	3 hour	10%	19	77.70	1.00	4.0619
6	3 hour	10%	20	77.70	1.00	4.9312
7	6 hour	10%	11	92.80	1.00	2.8202
7	6 hour	10%	12	92.80	1.00	4.4024
7	6 hour	10%	13	92.80	1.00	3.3357
7	6 hour	10%	14	92.80	1.00	6.0638
7	6 hour	10%	15	92.80	1.00	5.7534
7	6 hour	10%	16	92.80	1.00	3.7282
7	6 hour	10%	17	92.80	1.00	4.1376
7	6 hour	10%	18	92.80	1.00	4.5730
7	6 hour	10%	19	92.80	1.00	6.5051
7	6 hour	10%	20	92.80	1.00	4.8082
8	12 hour	10%	11	113.00	1.00	4.8171
8	12 hour	10%	12	113.00	1.00	6.1654
8	12 hour	10%	13	113.00	1.00	4.7143
8	12 hour	10%	14	113.00	1.00	2.5581
8	12 hour	10%	15	113.00	1.00	3.6730
8	12 hour	10%	16	113.00	1.00	2.6831
8	12 hour	10%	17	113.00	1.00	3.9917
8	12 hour	10%	18	113.00	1.00	6.4641

South2_batch						
8	12 hour	10%	19	113.00	1.00	6.6683
8	12 hour	10%	20	113.00	1.00	4.9697
9	24 hour	10%	11	140.00	1.00	5.3951
9	24 hour	10%	12	140.00	1.00	5.4452
9	24 hour	10%	13	140.00	1.00	3.4694
9	24 hour	10%	14	140.00	1.00	2.7921
9	24 hour	10%	15	140.00	1.00	2.2617
9	24 hour	10%	16	140.00	1.00	3.1396
9	24 hour	10%	17	140.00	1.00	3.0461
9	24 hour	10%	18	140.00	1.00	3.4271
9	24 hour	10%	19	140.00	1.00	3.9100
9	24 hour	10%	20	140.00	1.00	3.3676
10	48 hour	10%	11	175.00	1.00	1.9777
10	48 hour	10%	12	175.00	1.00	2.8382
10	48 hour	10%	13	175.00	1.00	2.8493
10	48 hour	10%	14	175.00	1.00	2.4857
10	48 hour	10%	15	175.00	1.00	2.3910
10	48 hour	10%	16	175.00	1.00	4.5949
10	48 hour	10%	17	175.00	1.00	2.4702
10	48 hour	10%	18	175.00	1.00	3.3428
10	48 hour	10%	19	175.00	1.00	2.2238
10	48 hour	10%	20	175.00	1.00	6.1522
11	72 hour	10%	11	195.00	1.00	1.3309
11	72 hour	10%	12	195.00	1.00	2.4406
11	72 hour	10%	13	195.00	1.00	1.5689
11	72 hour	10%	14	195.00	1.00	1.8033
11	72 hour	10%	15	195.00	1.00	3.9808
11	72 hour	10%	16	195.00	1.00	3.5166
11	72 hour	10%	17	195.00	1.00	1.5402
11	72 hour	10%	18	195.00	1.00	2.7200
11	72 hour	10%	19	195.00	1.00	1.5553
11	72 hour	10%	20	195.00	1.00	3.0991
12	96 hour	10%	11	207.00	1.00	2.7285
12	96 hour	10%	12	207.00	1.00	2.5122
12	96 hour	10%	13	207.00	1.00	1.0983
12	96 hour	10%	14	207.00	1.00	2.0295
12	96 hour	10%	15	207.00	1.00	1.6162
12	96 hour	10%	16	207.00	1.00	1.5044
12	96 hour	10%	17	207.00	1.00	2.3472
12	96 hour	10%	18	207.00	1.00	2.8320
12	96 hour	10%	19	207.00	1.00	1.4297
12	96 hour	10%	20	207.00	1.00	1.5162
13	120 hour	10%	11	214.00	1.00	2.0123
13	120 hour	10%	12	214.00	1.00	1.7239
13	120 hour	10%	13	214.00	1.00	2.6130
13	120 hour	10%	14	214.00	1.00	3.0277
13	120 hour	10%	15	214.00	1.00	1.4444
13	120 hour	10%	16	214.00	1.00	1.3838
13	120 hour	10%	17	214.00	1.00	3.9227
13	120 hour	10%	18	214.00	1.00	2.1068
13	120 hour	10%	19	214.00	1.00	2.0383
13	120 hour	10%	20	214.00	1.00	1.8262

South2_batch						
14	144 hour	10%	11	217.00	1.00	2.1607
14	144 hour	10%	12	217.00	1.00	4.1247
14	144 hour	10%	13	217.00	1.00	2.1268
14	144 hour	10%	14	217.00	1.00	3.6723
14	144 hour	10%	15	217.00	1.00	1.8537
14	144 hour	10%	16	217.00	1.00	1.5838
14	144 hour	10%	17	217.00	1.00	1.2291
14	144 hour	10%	18	217.00	1.00	1.7501
14	144 hour	10%	19	217.00	1.00	1.5129
14	144 hour	10%	20	217.00	1.00	2.1319
15	168 hour	10%	11	217.00	1.00	1.9518
15	168 hour	10%	12	217.00	1.00	1.0469
15	168 hour	10%	13	217.00	1.00	1.5827
15	168 hour	10%	14	217.00	1.00	1.3136
15	168 hour	10%	15	217.00	1.00	2.5247
15	168 hour	10%	16	217.00	1.00	2.1005
15	168 hour	10%	17	217.00	1.00	1.6730
15	168 hour	10%	18	217.00	1.00	1.0615
15	168 hour	10%	19	217.00	1.00	1.5889
15	168 hour	10%	20	217.00	1.00	1.2093
16	10 min	5%	11	28.70	1.00	0.0000
16	10 min	5%	12	28.70	1.00	0.0000
16	10 min	5%	13	28.70	1.00	0.0000
16	10 min	5%	14	28.70	1.00	0.0000
16	10 min	5%	15	28.70	1.00	0.0000
16	10 min	5%	16	28.70	1.00	0.0000
16	10 min	5%	17	28.70	1.00	0.0000
16	10 min	5%	18	28.70	1.00	0.0000
16	10 min	5%	19	28.70	1.00	0.0000
16	10 min	5%	20	28.70	1.00	0.0000
17	15 min	5%	11	36.80	1.00	0.0000
17	15 min	5%	12	36.80	1.00	0.0000
17	15 min	5%	13	36.80	1.00	0.0000
17	15 min	5%	14	36.80	1.00	0.0000
17	15 min	5%	15	36.80	1.00	0.0000
17	15 min	5%	16	36.80	1.00	0.0000
17	15 min	5%	17	36.80	1.00	0.0000
17	15 min	5%	18	36.80	1.00	0.0000
17	15 min	5%	19	36.80	1.00	0.0000
17	15 min	5%	20	36.80	1.00	0.0000
18	30 min	5%	11	51.80	1.00	0.0000
18	30 min	5%	12	51.80	1.00	0.0000
18	30 min	5%	13	51.80	1.00	0.0000
18	30 min	5%	14	51.80	1.00	0.0000
18	30 min	5%	15	51.80	1.00	0.0000
18	30 min	5%	16	51.80	1.00	0.0000
18	30 min	5%	17	51.80	1.00	0.0000
18	30 min	5%	18	51.80	1.00	0.0000
18	30 min	5%	19	51.80	1.00	0.0000
18	30 min	5%	20	51.80	1.00	0.0000
19	1 hour	5%	11	67.00	1.00	2.1292
19	1 hour	5%	12	67.00	1.00	2.3030

South2_batch						
19	1 hour	5%	13	67.00	1.00	2.1290
19	1 hour	5%	14	67.00	1.00	2.3592
19	1 hour	5%	15	67.00	1.00	2.2266
19	1 hour	5%	16	67.00	1.00	2.3123
19	1 hour	5%	17	67.00	1.00	2.1533
19	1 hour	5%	18	67.00	1.00	2.2415
19	1 hour	5%	19	67.00	1.00	2.2698
19	1 hour	5%	20	67.00	1.00	2.2241
20	2 hour	5%	11	82.00	1.00	7.4197
20	2 hour	5%	12	82.00	1.00	6.9274
20	2 hour	5%	13	82.00	1.00	7.4122
20	2 hour	5%	14	82.00	1.00	5.8620
20	2 hour	5%	15	82.00	1.00	5.0253
20	2 hour	5%	16	82.00	1.00	5.4096
20	2 hour	5%	17	82.00	1.00	6.9115
20	2 hour	5%	18	82.00	1.00	7.1627
20	2 hour	5%	19	82.00	1.00	6.7123
20	2 hour	5%	20	82.00	1.00	7.6068
21	3 hour	5%	11	91.20	1.00	7.4372
21	3 hour	5%	12	91.20	1.00	5.9275
21	3 hour	5%	13	91.20	1.00	6.4010
21	3 hour	5%	14	91.20	1.00	6.4494
21	3 hour	5%	15	91.20	1.00	7.2394
21	3 hour	5%	16	91.20	1.00	6.8326
21	3 hour	5%	17	91.20	1.00	6.9787
21	3 hour	5%	18	91.20	1.00	7.2559
21	3 hour	5%	19	91.20	1.00	7.2614
21	3 hour	5%	20	91.20	1.00	8.6858
22	6 hour	5%	11	109.00	1.00	5.3229
22	6 hour	5%	12	109.00	1.00	6.9807
22	6 hour	5%	13	109.00	1.00	5.7621
22	6 hour	5%	14	109.00	1.00	7.5142
22	6 hour	5%	15	109.00	1.00	8.3989
22	6 hour	5%	16	109.00	1.00	4.7196
22	6 hour	5%	17	109.00	1.00	6.1409
22	6 hour	5%	18	109.00	1.00	7.1043
22	6 hour	5%	19	109.00	1.00	9.2480
22	6 hour	5%	20	109.00	1.00	6.6041
23	12 hour	5%	11	133.00	1.00	5.7416
23	12 hour	5%	12	133.00	1.00	9.2208
23	12 hour	5%	13	133.00	1.00	5.6642
23	12 hour	5%	14	133.00	1.00	3.0773
23	12 hour	5%	15	133.00	1.00	5.4246
23	12 hour	5%	16	133.00	1.00	4.0847
23	12 hour	5%	17	133.00	1.00	4.9943
23	12 hour	5%	18	133.00	1.00	7.7567
23	12 hour	5%	19	133.00	1.00	8.0396
23	12 hour	5%	20	133.00	1.00	6.5875
24	24 hour	5%	11	165.00	1.00	6.6504
24	24 hour	5%	12	165.00	1.00	6.5245
24	24 hour	5%	13	165.00	1.00	4.1729
24	24 hour	5%	14	165.00	1.00	3.3431

South2_batch						
24	24 hour	5%	15	165.00	1.00	2.7304
24	24 hour	5%	16	165.00	1.00	3.7741
24	24 hour	5%	17	165.00	1.00	3.6460
24	24 hour	5%	18	165.00	1.00	4.1032
24	24 hour	5%	19	165.00	1.00	4.6916
24	24 hour	5%	20	165.00	1.00	4.0370
25	48 hour	5%	11	206.00	1.00	2.7381
25	48 hour	5%	12	206.00	1.00	3.3977
25	48 hour	5%	13	206.00	1.00	3.3991
25	48 hour	5%	14	206.00	1.00	2.9806
25	48 hour	5%	15	206.00	1.00	2.8660
25	48 hour	5%	16	206.00	1.00	5.5167
25	48 hour	5%	17	206.00	1.00	2.9861
25	48 hour	5%	18	206.00	1.00	4.0481
25	48 hour	5%	19	206.00	1.00	2.6665
25	48 hour	5%	20	206.00	1.00	7.3412
26	72 hour	5%	11	230.00	1.00	1.6589
26	72 hour	5%	12	230.00	1.00	2.9415
26	72 hour	5%	13	230.00	1.00	2.2384
26	72 hour	5%	14	230.00	1.00	2.3223
26	72 hour	5%	15	230.00	1.00	4.7861
26	72 hour	5%	16	230.00	1.00	4.2115
26	72 hour	5%	17	230.00	1.00	1.8732
26	72 hour	5%	18	230.00	1.00	3.2645
26	72 hour	5%	19	230.00	1.00	1.9047
26	72 hour	5%	20	230.00	1.00	3.7013
27	96 hour	5%	11	245.00	1.00	3.3064
27	96 hour	5%	12	245.00	1.00	3.0566
27	96 hour	5%	13	245.00	1.00	1.3661
27	96 hour	5%	14	245.00	1.00	2.9118
27	96 hour	5%	15	245.00	1.00	1.9760
27	96 hour	5%	16	245.00	1.00	1.8492
27	96 hour	5%	17	245.00	1.00	2.8367
27	96 hour	5%	18	245.00	1.00	3.9722
27	96 hour	5%	19	245.00	1.00	1.7553
27	96 hour	5%	20	245.00	1.00	1.8946
28	120 hour	5%	11	253.00	1.00	2.4179
28	120 hour	5%	12	253.00	1.00	2.0885
28	120 hour	5%	13	253.00	1.00	3.1697
28	120 hour	5%	14	253.00	1.00	3.6544
28	120 hour	5%	15	253.00	1.00	1.7572
28	120 hour	5%	16	253.00	1.00	1.6685
28	120 hour	5%	17	253.00	1.00	4.7366
28	120 hour	5%	18	253.00	1.00	2.5510
28	120 hour	5%	19	253.00	1.00	2.2842
28	120 hour	5%	20	253.00	1.00	2.2067
29	144 hour	5%	11	257.00	1.00	2.6308
29	144 hour	5%	12	257.00	1.00	4.9828
29	144 hour	5%	13	257.00	1.00	2.6073
29	144 hour	5%	14	257.00	1.00	4.4195
29	144 hour	5%	15	257.00	1.00	2.2531
29	144 hour	5%	16	257.00	1.00	1.9245

South2_batch						
29	144 hour	5%	17	257.00	1.00	1.6062
29	144 hour	5%	18	257.00	1.00	2.1415
29	144 hour	5%	19	257.00	1.00	1.8694
29	144 hour	5%	20	257.00	1.00	2.6019
30	168 hour	5%	11	258.00	1.00	2.3882
30	168 hour	5%	12	258.00	1.00	1.2975
30	168 hour	5%	13	258.00	1.00	1.9375
30	168 hour	5%	14	258.00	1.00	1.6482
30	168 hour	5%	15	258.00	1.00	3.0615
30	168 hour	5%	16	258.00	1.00	2.5878
30	168 hour	5%	17	258.00	1.00	2.0461
30	168 hour	5%	18	258.00	1.00	1.7877
30	168 hour	5%	19	258.00	1.00	1.8812
30	168 hour	5%	20	258.00	1.00	1.4930
31	10 min	2%	21	33.80	1.00	0.0000
31	10 min	2%	22	33.80	1.00	0.0000
31	10 min	2%	23	33.80	1.00	0.0000
31	10 min	2%	24	33.80	1.00	0.0000
31	10 min	2%	25	33.80	1.00	0.0000
31	10 min	2%	26	33.80	1.00	0.0000
31	10 min	2%	27	33.80	1.00	0.0000
31	10 min	2%	28	33.80	1.00	0.0000
31	10 min	2%	29	33.80	1.00	0.0000
31	10 min	2%	30	33.80	1.00	0.0000
32	15 min	2%	21	43.10	1.00	0.0000
32	15 min	2%	22	43.10	1.00	0.0000
32	15 min	2%	23	43.10	1.00	0.0000
32	15 min	2%	24	43.10	1.00	0.0000
32	15 min	2%	25	43.10	1.00	0.0000
32	15 min	2%	26	43.10	1.00	0.0000
32	15 min	2%	27	43.10	1.00	0.0000
32	15 min	2%	28	43.10	1.00	0.0000
32	15 min	2%	29	43.10	1.00	0.0000
32	15 min	2%	30	43.10	1.00	0.0000
33	30 min	2%	21	61.00	1.00	0.1717
33	30 min	2%	22	61.00	1.00	0.1717
33	30 min	2%	23	61.00	1.00	0.1717
33	30 min	2%	24	61.00	1.00	0.1717
33	30 min	2%	25	61.00	1.00	0.1717
33	30 min	2%	26	61.00	1.00	0.1717
33	30 min	2%	27	61.00	1.00	0.1717
33	30 min	2%	28	61.00	1.00	0.1717
33	30 min	2%	29	61.00	1.00	0.1717
33	30 min	2%	30	61.00	1.00	0.1717
34	1 hour	2%	21	79.60	1.00	7.7585
34	1 hour	2%	22	79.60	1.00	7.8938
34	1 hour	2%	23	79.60	1.00	6.4339
34	1 hour	2%	24	79.60	1.00	5.9780
34	1 hour	2%	25	79.60	1.00	6.5852
34	1 hour	2%	26	79.60	1.00	6.7204
34	1 hour	2%	27	79.60	1.00	7.3946
34	1 hour	2%	28	79.60	1.00	6.6489

South2_batch						
34	1 hour	2%	29	79.60	1.00	7.0007
34	1 hour	2%	30	79.60	1.00	7.1108
35	2 hour	2%	21	98.30	1.00	13.2219
35	2 hour	2%	22	98.30	1.00	11.8223
35	2 hour	2%	23	98.30	1.00	7.7415
35	2 hour	2%	24	98.30	1.00	11.2924
35	2 hour	2%	25	98.30	1.00	7.8590
35	2 hour	2%	26	98.30	1.00	13.0250
35	2 hour	2%	27	98.30	1.00	9.7603
35	2 hour	2%	28	98.30	1.00	11.3044
35	2 hour	2%	29	98.30	1.00	12.9587
35	2 hour	2%	30	98.30	1.00	12.2637
36	3 hour	2%	21	110.00	1.00	13.1601
36	3 hour	2%	22	110.00	1.00	11.2715
36	3 hour	2%	23	110.00	1.00	11.6765
36	3 hour	2%	24	110.00	1.00	8.4863
36	3 hour	2%	25	110.00	1.00	8.4946
36	3 hour	2%	26	110.00	1.00	8.8716
36	3 hour	2%	27	110.00	1.00	8.9014
36	3 hour	2%	28	110.00	1.00	12.0717
36	3 hour	2%	29	110.00	1.00	8.0920
36	3 hour	2%	30	110.00	1.00	8.5317
37	6 hour	2%	21	132.00	1.00	8.5204
37	6 hour	2%	22	132.00	1.00	7.8081
37	6 hour	2%	23	132.00	1.00	8.7894
37	6 hour	2%	24	132.00	1.00	7.1510
37	6 hour	2%	25	132.00	1.00	6.7758
37	6 hour	2%	26	132.00	1.00	9.3681
37	6 hour	2%	27	132.00	1.00	12.5766
37	6 hour	2%	28	132.00	1.00	8.2075
37	6 hour	2%	29	132.00	1.00	8.1265
37	6 hour	2%	30	132.00	1.00	10.2497
38	12 hour	2%	21	162.00	1.00	5.8961
38	12 hour	2%	22	162.00	1.00	6.4724
38	12 hour	2%	23	162.00	1.00	5.8553
38	12 hour	2%	24	162.00	1.00	5.7479
38	12 hour	2%	25	162.00	1.00	9.7614
38	12 hour	2%	26	162.00	1.00	4.3809
38	12 hour	2%	27	162.00	1.00	5.9350
38	12 hour	2%	28	162.00	1.00	8.3045
38	12 hour	2%	29	162.00	1.00	5.0068
38	12 hour	2%	30	162.00	1.00	10.2896
39	24 hour	2%	21	201.00	1.00	4.1509
39	24 hour	2%	22	201.00	1.00	3.1707
39	24 hour	2%	23	201.00	1.00	5.5541
39	24 hour	2%	24	201.00	1.00	7.3402
39	24 hour	2%	25	201.00	1.00	5.2579
39	24 hour	2%	26	201.00	1.00	4.5716
39	24 hour	2%	27	201.00	1.00	3.5098
39	24 hour	2%	28	201.00	1.00	5.9366
39	24 hour	2%	29	201.00	1.00	4.2732
39	24 hour	2%	30	201.00	1.00	6.5508

South2_batch						
40	48 hour	2%	21	250.00	1.00	3.6710
40	48 hour	2%	22	250.00	1.00	3.2131
40	48 hour	2%	23	250.00	1.00	6.7588
40	48 hour	2%	24	250.00	1.00	2.7841
40	48 hour	2%	25	250.00	1.00	6.4252
40	48 hour	2%	26	250.00	1.00	4.9104
40	48 hour	2%	27	250.00	1.00	3.8666
40	48 hour	2%	28	250.00	1.00	2.7122
40	48 hour	2%	29	250.00	1.00	4.2297
40	48 hour	2%	30	250.00	1.00	5.8351
41	72 hour	2%	21	280.00	1.00	2.5597
41	72 hour	2%	22	280.00	1.00	2.1167
41	72 hour	2%	23	280.00	1.00	1.8025
41	72 hour	2%	24	280.00	1.00	3.3406
41	72 hour	2%	25	280.00	1.00	1.5834
41	72 hour	2%	26	280.00	1.00	2.8217
41	72 hour	2%	27	280.00	1.00	2.4663
41	72 hour	2%	28	280.00	1.00	2.4972
41	72 hour	2%	29	280.00	1.00	3.6371
41	72 hour	2%	30	280.00	1.00	3.0639
42	96 hour	2%	21	298.00	1.00	2.4598
42	96 hour	2%	22	298.00	1.00	3.7840
42	96 hour	2%	23	298.00	1.00	2.1506
42	96 hour	2%	24	298.00	1.00	1.5109
42	96 hour	2%	25	298.00	1.00	1.7019
42	96 hour	2%	26	298.00	1.00	2.3830
42	96 hour	2%	27	298.00	1.00	1.7451
42	96 hour	2%	28	298.00	1.00	5.5701
42	96 hour	2%	29	298.00	1.00	2.9028
42	96 hour	2%	30	298.00	1.00	2.2908
43	120 hour	2%	21	308.00	1.00	2.5028
43	120 hour	2%	22	308.00	1.00	2.1633
43	120 hour	2%	23	308.00	1.00	3.2199
43	120 hour	2%	24	308.00	1.00	4.6961
43	120 hour	2%	25	308.00	1.00	2.6338
43	120 hour	2%	26	308.00	1.00	1.7059
43	120 hour	2%	27	308.00	1.00	1.3788
43	120 hour	2%	28	308.00	1.00	2.0992
43	120 hour	2%	29	308.00	1.00	5.4397
43	120 hour	2%	30	308.00	1.00	2.5481
44	144 hour	2%	21	312.00	1.00	2.3314
44	144 hour	2%	22	312.00	1.00	1.4890
44	144 hour	2%	23	312.00	1.00	2.4895
44	144 hour	2%	24	312.00	1.00	3.2091
44	144 hour	2%	25	312.00	1.00	2.2829
44	144 hour	2%	26	312.00	1.00	4.5321
44	144 hour	2%	27	312.00	1.00	2.6944
44	144 hour	2%	28	312.00	1.00	1.3238
44	144 hour	2%	29	312.00	1.00	1.9111
44	144 hour	2%	30	312.00	1.00	5.2097
45	168 hour	2%	21	313.00	1.00	1.8582
45	168 hour	2%	22	313.00	1.00	1.3773

South2_batch						
45	168 hour	2%	23	313.00	1.00	2.7824
45	168 hour	2%	24	313.00	1.00	3.2094
45	168 hour	2%	25	313.00	1.00	1.5231
45	168 hour	2%	26	313.00	1.00	1.5231
45	168 hour	2%	27	313.00	1.00	1.8734
45	168 hour	2%	28	313.00	1.00	2.8834
45	168 hour	2%	29	313.00	1.00	1.8454
45	168 hour	2%	30	313.00	1.00	2.6509
46	10 min	1%	21	37.60	1.00	0.0000
46	10 min	1%	22	37.60	1.00	0.0000
46	10 min	1%	23	37.60	1.00	0.0000
46	10 min	1%	24	37.60	1.00	0.0000
46	10 min	1%	25	37.60	1.00	0.0000
46	10 min	1%	26	37.60	1.00	0.0000
46	10 min	1%	27	37.60	1.00	0.0000
46	10 min	1%	28	37.60	1.00	0.0000
46	10 min	1%	29	37.60	1.00	0.0000
46	10 min	1%	30	37.60	1.00	0.0000
47	15 min	1%	21	48.00	1.00	0.0000
47	15 min	1%	22	48.00	1.00	0.0000
47	15 min	1%	23	48.00	1.00	0.0000
47	15 min	1%	24	48.00	1.00	0.0000
47	15 min	1%	25	48.00	1.00	0.0000
47	15 min	1%	26	48.00	1.00	0.0000
47	15 min	1%	27	48.00	1.00	0.0000
47	15 min	1%	28	48.00	1.00	0.0000
47	15 min	1%	29	48.00	1.00	0.0000
47	15 min	1%	30	48.00	1.00	0.0000
48	30 min	1%	21	68.10	1.00	2.8578
48	30 min	1%	22	68.10	1.00	2.8164
48	30 min	1%	23	68.10	1.00	2.8578
48	30 min	1%	24	68.10	1.00	2.8578
48	30 min	1%	25	68.10	1.00	2.8578
48	30 min	1%	26	68.10	1.00	2.8578
48	30 min	1%	27	68.10	1.00	2.8578
48	30 min	1%	28	68.10	1.00	2.7579
48	30 min	1%	29	68.10	1.00	2.8578
48	30 min	1%	30	68.10	1.00	2.8578
49	1 hour	1%	21	89.40	1.00	12.2586
49	1 hour	1%	22	89.40	1.00	12.3343
49	1 hour	1%	23	89.40	1.00	9.7774
49	1 hour	1%	24	89.40	1.00	8.9623
49	1 hour	1%	25	89.40	1.00	10.1131
49	1 hour	1%	26	89.40	1.00	10.2994
49	1 hour	1%	27	89.40	1.00	11.1964
49	1 hour	1%	28	89.40	1.00	10.1293
49	1 hour	1%	29	89.40	1.00	10.2572
49	1 hour	1%	30	89.40	1.00	10.6716
50	2 hour	1%	21	111.00	1.00	16.6481
50	2 hour	1%	22	111.00	1.00	14.9942
50	2 hour	1%	23	111.00	1.00	10.6251
50	2 hour	1%	24	111.00	1.00	14.4994

South2_batch						
50	2 hour	1%	25	111.00	1.00	10.4489
50	2 hour	1%	26	111.00	1.00	16.4481
50	2 hour	1%	27	111.00	1.00	12.4698
50	2 hour	1%	28	111.00	1.00	14.0304
50	2 hour	1%	29	111.00	1.00	16.6177
50	2 hour	1%	30	111.00	1.00	15.8393
51	3 hour	1%	21	125.00	1.00	15.9846
51	3 hour	1%	22	125.00	1.00	13.2543
51	3 hour	1%	23	125.00	1.00	14.0286
51	3 hour	1%	24	125.00	1.00	9.9342
51	3 hour	1%	25	125.00	1.00	9.9434
51	3 hour	1%	26	125.00	1.00	10.8968
51	3 hour	1%	27	125.00	1.00	10.4833
51	3 hour	1%	28	125.00	1.00	14.1848
51	3 hour	1%	29	125.00	1.00	9.5319
51	3 hour	1%	30	125.00	1.00	12.8467
52	6 hour	1%	21	151.00	1.00	11.6473
52	6 hour	1%	22	151.00	1.00	9.0029
52	6 hour	1%	23	151.00	1.00	10.3431
52	6 hour	1%	24	151.00	1.00	8.2951
52	6 hour	1%	25	151.00	1.00	7.9872
52	6 hour	1%	26	151.00	1.00	10.8854
52	6 hour	1%	27	151.00	1.00	14.8376
52	6 hour	1%	28	151.00	1.00	11.0506
52	6 hour	1%	29	151.00	1.00	9.4071
52	6 hour	1%	30	151.00	1.00	12.0430
53	12 hour	1%	21	185.00	1.00	6.7819
53	12 hour	1%	22	185.00	1.00	7.4403
53	12 hour	1%	23	185.00	1.00	6.7644
53	12 hour	1%	24	185.00	1.00	6.6380
53	12 hour	1%	25	185.00	1.00	11.3250
53	12 hour	1%	26	185.00	1.00	5.0503
53	12 hour	1%	27	185.00	1.00	6.8728
53	12 hour	1%	28	185.00	1.00	10.1387
53	12 hour	1%	29	185.00	1.00	5.8013
53	12 hour	1%	30	185.00	1.00	11.8408
54	24 hour	1%	21	230.00	1.00	4.7908
54	24 hour	1%	22	230.00	1.00	3.8610
54	24 hour	1%	23	230.00	1.00	6.4649
54	24 hour	1%	24	230.00	1.00	8.5306
54	24 hour	1%	25	230.00	1.00	6.0862
54	24 hour	1%	26	230.00	1.00	5.2988
54	24 hour	1%	27	230.00	1.00	4.0812
54	24 hour	1%	28	230.00	1.00	6.8583
54	24 hour	1%	29	230.00	1.00	4.9581
54	24 hour	1%	30	230.00	1.00	7.5643
55	48 hour	1%	21	286.00	1.00	4.2578
55	48 hour	1%	22	286.00	1.00	3.8324
55	48 hour	1%	23	286.00	1.00	7.7969
55	48 hour	1%	24	286.00	1.00	3.2243
55	48 hour	1%	25	286.00	1.00	7.3803
55	48 hour	1%	26	286.00	1.00	5.6756

South2_batch						
55	48 hour	1%	27	286.00	1.00	4.2756
55	48 hour	1%	28	286.00	1.00	3.1585
55	48 hour	1%	29	286.00	1.00	4.9072
55	48 hour	1%	30	286.00	1.00	6.8046
56	72 hour	1%	21	319.00	1.00	2.7995
56	72 hour	1%	22	319.00	1.00	2.4342
56	72 hour	1%	23	319.00	1.00	2.0917
56	72 hour	1%	24	319.00	1.00	4.1907
56	72 hour	1%	25	319.00	1.00	1.8480
56	72 hour	1%	26	319.00	1.00	3.1136
56	72 hour	1%	27	319.00	1.00	2.8558
56	72 hour	1%	28	319.00	1.00	2.8899
56	72 hour	1%	29	319.00	1.00	4.0366
56	72 hour	1%	30	319.00	1.00	3.5254
57	96 hour	1%	21	339.00	1.00	2.8380
57	96 hour	1%	22	339.00	1.00	4.3492
57	96 hour	1%	23	339.00	1.00	2.4711
57	96 hour	1%	24	339.00	1.00	1.7640
57	96 hour	1%	25	339.00	1.00	1.9805
57	96 hour	1%	26	339.00	1.00	2.7583
57	96 hour	1%	27	339.00	1.00	2.0514
57	96 hour	1%	28	339.00	1.00	6.4139
57	96 hour	1%	29	339.00	1.00	3.3434
57	96 hour	1%	30	339.00	1.00	2.6571
58	120 hour	1%	21	350.00	1.00	2.8811
58	120 hour	1%	22	350.00	1.00	2.4953
58	120 hour	1%	23	350.00	1.00	4.1218
58	120 hour	1%	24	350.00	1.00	5.4354
58	120 hour	1%	25	350.00	1.00	3.0427
58	120 hour	1%	26	350.00	1.00	1.9834
58	120 hour	1%	27	350.00	1.00	1.6013
58	120 hour	1%	28	350.00	1.00	2.5217
58	120 hour	1%	29	350.00	1.00	6.2433
58	120 hour	1%	30	350.00	1.00	2.9230
59	144 hour	1%	21	356.00	1.00	2.6987
59	144 hour	1%	22	356.00	1.00	1.7150
59	144 hour	1%	23	356.00	1.00	2.8857
59	144 hour	1%	24	356.00	1.00	3.7136
59	144 hour	1%	25	356.00	1.00	2.6582
59	144 hour	1%	26	356.00	1.00	5.2653
59	144 hour	1%	27	356.00	1.00	3.1348
59	144 hour	1%	28	356.00	1.00	1.5586
59	144 hour	1%	29	356.00	1.00	2.2209
59	144 hour	1%	30	356.00	1.00	6.0078
60	168 hour	1%	21	356.00	1.00	2.1528
60	168 hour	1%	22	356.00	1.00	1.5906
60	168 hour	1%	23	356.00	1.00	3.2015
60	168 hour	1%	24	356.00	1.00	3.7010
60	168 hour	1%	25	356.00	1.00	1.9066
60	168 hour	1%	26	356.00	1.00	1.9066
60	168 hour	1%	27	356.00	1.00	2.1709
60	168 hour	1%	28	356.00	1.00	3.3369

South2_batch

60	168 hour	1%	29	356.00	1.00	2.1385
60	168 hour	1%	30	356.00	1.00	3.0779

Elapsed Run Time (hh:mm:ss) = 00:00:15

South1_batch

RORBWin Batch Run Summary

Program version 6.32 (last updated 3rd September 2017)
Copyright Monash University and Hydrology and Risk Consulting

Date run: 11 Jan 2018 09:48

Catchment file : G:\Synergy\Projects\17\170087 Bonnie Doon
SWMP\Calculations\RORB\3_South 1\South1.catg
Rainfall location: User defined
Temporal pattern : ARR2016 point temporal patterns
Spatial pattern : Uniform
Areal Red. Fact. : Based on ARR 2016 (Book 2 Chapter 4)
Loss factors : Constant with ARI

Parameters: kc = 0.72 m = 0.80

Loss parameters	Initial loss (mm)	Cont. loss (mm/h)
	60.00	0.90

Peak Description

01 Calculated hydrograph,

Run	Duration	AEP	TPat	Rain(mm)	ARF	Peak0001
1	10 min	10%	11	25.00	1.00	0.0000
1	10 min	10%	12	25.00	1.00	0.0000
1	10 min	10%	13	25.00	1.00	0.0000
1	10 min	10%	14	25.00	1.00	0.0000
1	10 min	10%	15	25.00	1.00	0.0000
1	10 min	10%	16	25.00	1.00	0.0000
1	10 min	10%	17	25.00	1.00	0.0000
1	10 min	10%	18	25.00	1.00	0.0000
1	10 min	10%	19	25.00	1.00	0.0000
1	10 min	10%	20	25.00	1.00	0.0000
2	15 min	10%	11	31.90	1.00	0.0000
2	15 min	10%	12	31.90	1.00	0.0000
2	15 min	10%	13	31.90	1.00	0.0000
2	15 min	10%	14	31.90	1.00	0.0000
2	15 min	10%	15	31.90	1.00	0.0000
2	15 min	10%	16	31.90	1.00	0.0000
2	15 min	10%	17	31.90	1.00	0.0000
2	15 min	10%	18	31.90	1.00	0.0000
2	15 min	10%	19	31.90	1.00	0.0000
2	15 min	10%	20	31.90	1.00	0.0000
3	30 min	10%	11	44.80	1.00	0.0000
3	30 min	10%	12	44.80	1.00	0.0000
3	30 min	10%	13	44.80	1.00	0.0000
3	30 min	10%	14	44.80	1.00	0.0000
3	30 min	10%	15	44.80	1.00	0.0000
3	30 min	10%	16	44.80	1.00	0.0000

				South1_batch		
3	30 min	10%	17	44.80	1.00	0.0000
3	30 min	10%	18	44.80	1.00	0.0000
3	30 min	10%	19	44.80	1.00	0.0000
3	30 min	10%	20	44.80	1.00	0.0000
4	1 hour	10%	11	57.60	1.00	0.0000
4	1 hour	10%	12	57.60	1.00	0.0000
4	1 hour	10%	13	57.60	1.00	0.0000
4	1 hour	10%	14	57.60	1.00	0.0000
4	1 hour	10%	15	57.60	1.00	0.0000
4	1 hour	10%	16	57.60	1.00	0.0000
4	1 hour	10%	17	57.60	1.00	0.0000
4	1 hour	10%	18	57.60	1.00	0.0000
4	1 hour	10%	19	57.60	1.00	0.0000
4	1 hour	10%	20	57.60	1.00	0.0000
5	2 hour	10%	11	70.10	1.00	2.3342
5	2 hour	10%	12	70.10	1.00	2.2495
5	2 hour	10%	13	70.10	1.00	2.3350
5	2 hour	10%	14	70.10	1.00	1.9408
5	2 hour	10%	15	70.10	1.00	1.8621
5	2 hour	10%	16	70.10	1.00	2.0572
5	2 hour	10%	17	70.10	1.00	2.1237
5	2 hour	10%	18	70.10	1.00	2.4701
5	2 hour	10%	19	70.10	1.00	2.4754
5	2 hour	10%	20	70.10	1.00	2.4229
6	3 hour	10%	11	77.70	1.00	2.6195
6	3 hour	10%	12	77.70	1.00	2.6326
6	3 hour	10%	13	77.70	1.00	2.8735
6	3 hour	10%	14	77.70	1.00	2.9243
6	3 hour	10%	15	77.70	1.00	3.3979
6	3 hour	10%	16	77.70	1.00	2.9952
6	3 hour	10%	17	77.70	1.00	2.7772
6	3 hour	10%	18	77.70	1.00	2.5246
6	3 hour	10%	19	77.70	1.00	2.8534
6	3 hour	10%	20	77.70	1.00	3.5964
7	6 hour	10%	11	92.80	1.00	1.8914
7	6 hour	10%	12	92.80	1.00	3.0447
7	6 hour	10%	13	92.80	1.00	2.3118
7	6 hour	10%	14	92.80	1.00	4.0901
7	6 hour	10%	15	92.80	1.00	3.9351
7	6 hour	10%	16	92.80	1.00	2.4597
7	6 hour	10%	17	92.80	1.00	2.9497
7	6 hour	10%	18	92.80	1.00	3.1748
7	6 hour	10%	19	92.80	1.00	4.6072
7	6 hour	10%	20	92.80	1.00	3.2517
8	12 hour	10%	11	113.00	1.00	3.1533
8	12 hour	10%	12	113.00	1.00	4.3451
8	12 hour	10%	13	113.00	1.00	3.1860
8	12 hour	10%	14	113.00	1.00	1.6785
8	12 hour	10%	15	113.00	1.00	2.5873
8	12 hour	10%	16	113.00	1.00	1.8081
8	12 hour	10%	17	113.00	1.00	2.6461
8	12 hour	10%	18	113.00	1.00	4.3608

South1_batch						
8	12 hour	10%	19	113.00	1.00	4.4968
8	12 hour	10%	20	113.00	1.00	3.2812
9	24 hour	10%	11	140.00	1.00	3.5549
9	24 hour	10%	12	140.00	1.00	3.6077
9	24 hour	10%	13	140.00	1.00	2.3102
9	24 hour	10%	14	140.00	1.00	1.8036
9	24 hour	10%	15	140.00	1.00	1.4941
9	24 hour	10%	16	140.00	1.00	2.0792
9	24 hour	10%	17	140.00	1.00	1.9717
9	24 hour	10%	18	140.00	1.00	2.2362
9	24 hour	10%	19	140.00	1.00	2.5883
9	24 hour	10%	20	140.00	1.00	2.2117
10	48 hour	10%	11	175.00	1.00	1.2839
10	48 hour	10%	12	175.00	1.00	1.8988
10	48 hour	10%	13	175.00	1.00	1.8272
10	48 hour	10%	14	175.00	1.00	1.6137
10	48 hour	10%	15	175.00	1.00	1.5585
10	48 hour	10%	16	175.00	1.00	3.1407
10	48 hour	10%	17	175.00	1.00	1.6543
10	48 hour	10%	18	175.00	1.00	2.2778
10	48 hour	10%	19	175.00	1.00	1.4335
10	48 hour	10%	20	175.00	1.00	4.0575
11	72 hour	10%	11	195.00	1.00	0.8765
11	72 hour	10%	12	195.00	1.00	1.6010
11	72 hour	10%	13	195.00	1.00	1.0054
11	72 hour	10%	14	195.00	1.00	1.2181
11	72 hour	10%	15	195.00	1.00	2.6354
11	72 hour	10%	16	195.00	1.00	2.2783
11	72 hour	10%	17	195.00	1.00	1.0194
11	72 hour	10%	18	195.00	1.00	1.7646
11	72 hour	10%	19	195.00	1.00	1.0405
11	72 hour	10%	20	195.00	1.00	1.9705
12	96 hour	10%	11	207.00	1.00	1.8147
12	96 hour	10%	12	207.00	1.00	1.6690
12	96 hour	10%	13	207.00	1.00	0.7339
12	96 hour	10%	14	207.00	1.00	1.3104
12	96 hour	10%	15	207.00	1.00	1.0665
12	96 hour	10%	16	207.00	1.00	1.0028
12	96 hour	10%	17	207.00	1.00	1.5127
12	96 hour	10%	18	207.00	1.00	1.8880
12	96 hour	10%	19	207.00	1.00	0.9553
12	96 hour	10%	20	207.00	1.00	1.0076
13	120 hour	10%	11	214.00	1.00	1.2802
13	120 hour	10%	12	214.00	1.00	1.1193
13	120 hour	10%	13	214.00	1.00	1.7413
13	120 hour	10%	14	214.00	1.00	2.0056
13	120 hour	10%	15	214.00	1.00	0.9364
13	120 hour	10%	16	214.00	1.00	0.8882
13	120 hour	10%	17	214.00	1.00	2.6139
13	120 hour	10%	18	214.00	1.00	1.4219
13	120 hour	10%	19	214.00	1.00	1.3194
13	120 hour	10%	20	214.00	1.00	1.1726

South1_batch						
14	144 hour	10%	11	217.00	1.00	1.4336
14	144 hour	10%	12	217.00	1.00	2.7470
14	144 hour	10%	13	217.00	1.00	1.4264
14	144 hour	10%	14	217.00	1.00	2.3884
14	144 hour	10%	15	217.00	1.00	1.2517
14	144 hour	10%	16	217.00	1.00	1.0176
14	144 hour	10%	17	217.00	1.00	0.8355
14	144 hour	10%	18	217.00	1.00	1.1703
14	144 hour	10%	19	217.00	1.00	0.9869
14	144 hour	10%	20	217.00	1.00	1.4227
15	168 hour	10%	11	217.00	1.00	1.2867
15	168 hour	10%	12	217.00	1.00	0.6777
15	168 hour	10%	13	217.00	1.00	1.0125
15	168 hour	10%	14	217.00	1.00	0.8889
15	168 hour	10%	15	217.00	1.00	1.6408
15	168 hour	10%	16	217.00	1.00	1.4090
15	168 hour	10%	17	217.00	1.00	1.1306
15	168 hour	10%	18	217.00	1.00	0.7098
15	168 hour	10%	19	217.00	1.00	1.0512
15	168 hour	10%	20	217.00	1.00	0.7903
16	10 min	5%	11	28.70	1.00	0.0000
16	10 min	5%	12	28.70	1.00	0.0000
16	10 min	5%	13	28.70	1.00	0.0000
16	10 min	5%	14	28.70	1.00	0.0000
16	10 min	5%	15	28.70	1.00	0.0000
16	10 min	5%	16	28.70	1.00	0.0000
16	10 min	5%	17	28.70	1.00	0.0000
16	10 min	5%	18	28.70	1.00	0.0000
16	10 min	5%	19	28.70	1.00	0.0000
16	10 min	5%	20	28.70	1.00	0.0000
17	15 min	5%	11	36.80	1.00	0.0000
17	15 min	5%	12	36.80	1.00	0.0000
17	15 min	5%	13	36.80	1.00	0.0000
17	15 min	5%	14	36.80	1.00	0.0000
17	15 min	5%	15	36.80	1.00	0.0000
17	15 min	5%	16	36.80	1.00	0.0000
17	15 min	5%	17	36.80	1.00	0.0000
17	15 min	5%	18	36.80	1.00	0.0000
17	15 min	5%	19	36.80	1.00	0.0000
17	15 min	5%	20	36.80	1.00	0.0000
18	30 min	5%	11	51.80	1.00	0.0000
18	30 min	5%	12	51.80	1.00	0.0000
18	30 min	5%	13	51.80	1.00	0.0000
18	30 min	5%	14	51.80	1.00	0.0000
18	30 min	5%	15	51.80	1.00	0.0000
18	30 min	5%	16	51.80	1.00	0.0000
18	30 min	5%	17	51.80	1.00	0.0000
18	30 min	5%	18	51.80	1.00	0.0000
18	30 min	5%	19	51.80	1.00	0.0000
18	30 min	5%	20	51.80	1.00	0.0000
19	1 hour	5%	11	67.00	1.00	1.6143
19	1 hour	5%	12	67.00	1.00	1.7593

South1_batch						
19	1 hour	5%	13	67.00	1.00	1.6055
19	1 hour	5%	14	67.00	1.00	1.8103
19	1 hour	5%	15	67.00	1.00	1.6906
19	1 hour	5%	16	67.00	1.00	1.7677
19	1 hour	5%	17	67.00	1.00	1.6273
19	1 hour	5%	18	67.00	1.00	1.7040
19	1 hour	5%	19	67.00	1.00	1.7220
19	1 hour	5%	20	67.00	1.00	1.6874
20	2 hour	5%	11	82.00	1.00	5.4000
20	2 hour	5%	12	82.00	1.00	4.9929
20	2 hour	5%	13	82.00	1.00	5.4024
20	2 hour	5%	14	82.00	1.00	4.2729
20	2 hour	5%	15	82.00	1.00	3.5275
20	2 hour	5%	16	82.00	1.00	3.7580
20	2 hour	5%	17	82.00	1.00	5.0310
20	2 hour	5%	18	82.00	1.00	5.1640
20	2 hour	5%	19	82.00	1.00	4.7665
20	2 hour	5%	20	82.00	1.00	5.5887
21	3 hour	5%	11	91.20	1.00	5.4075
21	3 hour	5%	12	91.20	1.00	4.0855
21	3 hour	5%	13	91.20	1.00	4.4158
21	3 hour	5%	14	91.20	1.00	4.4680
21	3 hour	5%	15	91.20	1.00	4.9142
21	3 hour	5%	16	91.20	1.00	4.7111
21	3 hour	5%	17	91.20	1.00	4.8168
21	3 hour	5%	18	91.20	1.00	5.1592
21	3 hour	5%	19	91.20	1.00	5.1537
21	3 hour	5%	20	91.20	1.00	6.1167
22	6 hour	5%	11	109.00	1.00	3.8653
22	6 hour	5%	12	109.00	1.00	4.8810
22	6 hour	5%	13	109.00	1.00	3.9715
22	6 hour	5%	14	109.00	1.00	4.9869
22	6 hour	5%	15	109.00	1.00	5.7590
22	6 hour	5%	16	109.00	1.00	3.1652
22	6 hour	5%	17	109.00	1.00	4.2083
22	6 hour	5%	18	109.00	1.00	4.9242
22	6 hour	5%	19	109.00	1.00	6.3502
22	6 hour	5%	20	109.00	1.00	4.4318
23	12 hour	5%	11	133.00	1.00	3.7550
23	12 hour	5%	12	133.00	1.00	6.3282
23	12 hour	5%	13	133.00	1.00	3.8219
23	12 hour	5%	14	133.00	1.00	2.0147
23	12 hour	5%	15	133.00	1.00	3.6782
23	12 hour	5%	16	133.00	1.00	2.7569
23	12 hour	5%	17	133.00	1.00	3.3419
23	12 hour	5%	18	133.00	1.00	5.2185
23	12 hour	5%	19	133.00	1.00	5.3912
23	12 hour	5%	20	133.00	1.00	4.4099
24	24 hour	5%	11	165.00	1.00	4.3016
24	24 hour	5%	12	165.00	1.00	4.3206
24	24 hour	5%	13	165.00	1.00	2.7746
24	24 hour	5%	14	165.00	1.00	2.1568

South1_batch						
24	24 hour	5%	15	165.00	1.00	1.8026
24	24 hour	5%	16	165.00	1.00	2.4989
24	24 hour	5%	17	165.00	1.00	2.3862
24	24 hour	5%	18	165.00	1.00	2.6740
24	24 hour	5%	19	165.00	1.00	3.0991
24	24 hour	5%	20	165.00	1.00	2.6500
25	48 hour	5%	11	206.00	1.00	1.7482
25	48 hour	5%	12	206.00	1.00	2.2726
25	48 hour	5%	13	206.00	1.00	2.1786
25	48 hour	5%	14	206.00	1.00	1.9317
25	48 hour	5%	15	206.00	1.00	1.8596
25	48 hour	5%	16	206.00	1.00	3.7654
25	48 hour	5%	17	206.00	1.00	1.9980
25	48 hour	5%	18	206.00	1.00	2.7536
25	48 hour	5%	19	206.00	1.00	1.7185
25	48 hour	5%	20	206.00	1.00	4.8352
26	72 hour	5%	11	230.00	1.00	1.0967
26	72 hour	5%	12	230.00	1.00	1.9271
26	72 hour	5%	13	230.00	1.00	1.4195
26	72 hour	5%	14	230.00	1.00	1.5616
26	72 hour	5%	15	230.00	1.00	3.1642
26	72 hour	5%	16	230.00	1.00	2.7258
26	72 hour	5%	17	230.00	1.00	1.2344
26	72 hour	5%	18	230.00	1.00	2.1168
26	72 hour	5%	19	230.00	1.00	1.2714
26	72 hour	5%	20	230.00	1.00	2.3513
27	96 hour	5%	11	245.00	1.00	2.1952
27	96 hour	5%	12	245.00	1.00	2.0272
27	96 hour	5%	13	245.00	1.00	0.9100
27	96 hour	5%	14	245.00	1.00	1.8540
27	96 hour	5%	15	245.00	1.00	1.3020
27	96 hour	5%	16	245.00	1.00	1.2302
27	96 hour	5%	17	245.00	1.00	1.8263
27	96 hour	5%	18	245.00	1.00	2.6090
27	96 hour	5%	19	245.00	1.00	1.1900
27	96 hour	5%	20	245.00	1.00	1.2654
28	120 hour	5%	11	253.00	1.00	1.5617
28	120 hour	5%	12	253.00	1.00	1.3538
28	120 hour	5%	13	253.00	1.00	2.1107
28	120 hour	5%	14	253.00	1.00	2.4173
28	120 hour	5%	15	253.00	1.00	1.1375
28	120 hour	5%	16	253.00	1.00	1.0656
28	120 hour	5%	17	253.00	1.00	3.1528
28	120 hour	5%	18	253.00	1.00	1.7194
28	120 hour	5%	19	253.00	1.00	1.4672
28	120 hour	5%	20	253.00	1.00	1.4208
29	144 hour	5%	11	257.00	1.00	1.7424
29	144 hour	5%	12	257.00	1.00	3.3145
29	144 hour	5%	13	257.00	1.00	1.7448
29	144 hour	5%	14	257.00	1.00	2.8711
29	144 hour	5%	15	257.00	1.00	1.5190
29	144 hour	5%	16	257.00	1.00	1.2355

					South1_batch	
29	144 hour	5%	17	257.00	1.00	1.0898
29	144 hour	5%	18	257.00	1.00	1.4408
29	144 hour	5%	19	257.00	1.00	1.2266
29	144 hour	5%	20	257.00	1.00	1.7343
30	168 hour	5%	11	258.00	1.00	1.5719
30	168 hour	5%	12	258.00	1.00	0.8384
30	168 hour	5%	13	258.00	1.00	1.2382
30	168 hour	5%	14	258.00	1.00	1.1125
30	168 hour	5%	15	258.00	1.00	1.9887
30	168 hour	5%	16	258.00	1.00	1.7319
30	168 hour	5%	17	258.00	1.00	1.3805
30	168 hour	5%	18	258.00	1.00	1.2120
30	168 hour	5%	19	258.00	1.00	1.1922
30	168 hour	5%	20	258.00	1.00	0.9853
31	10 min	2%	21	33.80	1.00	0.0000
31	10 min	2%	22	33.80	1.00	0.0000
31	10 min	2%	23	33.80	1.00	0.0000
31	10 min	2%	24	33.80	1.00	0.0000
31	10 min	2%	25	33.80	1.00	0.0000
31	10 min	2%	26	33.80	1.00	0.0000
31	10 min	2%	27	33.80	1.00	0.0000
31	10 min	2%	28	33.80	1.00	0.0000
31	10 min	2%	29	33.80	1.00	0.0000
31	10 min	2%	30	33.80	1.00	0.0000
32	15 min	2%	21	43.10	1.00	0.0000
32	15 min	2%	22	43.10	1.00	0.0000
32	15 min	2%	23	43.10	1.00	0.0000
32	15 min	2%	24	43.10	1.00	0.0000
32	15 min	2%	25	43.10	1.00	0.0000
32	15 min	2%	26	43.10	1.00	0.0000
32	15 min	2%	27	43.10	1.00	0.0000
32	15 min	2%	28	43.10	1.00	0.0000
32	15 min	2%	29	43.10	1.00	0.0000
32	15 min	2%	30	43.10	1.00	0.0000
33	30 min	2%	21	61.00	1.00	0.1573
33	30 min	2%	22	61.00	1.00	0.1573
33	30 min	2%	23	61.00	1.00	0.1573
33	30 min	2%	24	61.00	1.00	0.1573
33	30 min	2%	25	61.00	1.00	0.1573
33	30 min	2%	26	61.00	1.00	0.1573
33	30 min	2%	27	61.00	1.00	0.1573
33	30 min	2%	28	61.00	1.00	0.1573
33	30 min	2%	29	61.00	1.00	0.1573
33	30 min	2%	30	61.00	1.00	0.1573
34	1 hour	2%	21	79.60	1.00	5.7619
34	1 hour	2%	22	79.60	1.00	5.8804
34	1 hour	2%	23	79.60	1.00	4.6887
34	1 hour	2%	24	79.60	1.00	4.2555
34	1 hour	2%	25	79.60	1.00	4.8512
34	1 hour	2%	26	79.60	1.00	4.9748
34	1 hour	2%	27	79.60	1.00	5.4492
34	1 hour	2%	28	79.60	1.00	4.8653

South1_batch						
34	1 hour	2%	29	79.60	1.00	5.1096
34	1 hour	2%	30	79.60	1.00	5.2066
35	2 hour	2%	21	98.30	1.00	9.3952
35	2 hour	2%	22	98.30	1.00	8.3786
35	2 hour	2%	23	98.30	1.00	5.4971
35	2 hour	2%	24	98.30	1.00	8.0762
35	2 hour	2%	25	98.30	1.00	5.5466
35	2 hour	2%	26	98.30	1.00	9.2296
35	2 hour	2%	27	98.30	1.00	6.8336
35	2 hour	2%	28	98.30	1.00	7.8713
35	2 hour	2%	29	98.30	1.00	9.2208
35	2 hour	2%	30	98.30	1.00	8.6792
36	3 hour	2%	21	110.00	1.00	9.0562
36	3 hour	2%	22	110.00	1.00	7.8056
36	3 hour	2%	23	110.00	1.00	8.0358
36	3 hour	2%	24	110.00	1.00	5.6648
36	3 hour	2%	25	110.00	1.00	5.6652
36	3 hour	2%	26	110.00	1.00	6.1611
36	3 hour	2%	27	110.00	1.00	5.9120
36	3 hour	2%	28	110.00	1.00	8.2026
36	3 hour	2%	29	110.00	1.00	5.3439
36	3 hour	2%	30	110.00	1.00	5.8965
37	6 hour	2%	21	132.00	1.00	5.8944
37	6 hour	2%	22	132.00	1.00	5.0960
37	6 hour	2%	23	132.00	1.00	5.8570
37	6 hour	2%	24	132.00	1.00	4.7482
37	6 hour	2%	25	132.00	1.00	4.4573
37	6 hour	2%	26	132.00	1.00	6.3246
37	6 hour	2%	27	132.00	1.00	8.3970
37	6 hour	2%	28	132.00	1.00	5.7153
37	6 hour	2%	29	132.00	1.00	5.4228
37	6 hour	2%	30	132.00	1.00	6.8477
38	12 hour	2%	21	162.00	1.00	3.8276
38	12 hour	2%	22	162.00	1.00	4.1930
38	12 hour	2%	23	162.00	1.00	3.8793
38	12 hour	2%	24	162.00	1.00	3.8142
38	12 hour	2%	25	162.00	1.00	6.6961
38	12 hour	2%	26	162.00	1.00	2.8464
38	12 hour	2%	27	162.00	1.00	3.9574
38	12 hour	2%	28	162.00	1.00	5.6530
38	12 hour	2%	29	162.00	1.00	3.3138
38	12 hour	2%	30	162.00	1.00	6.7627
39	24 hour	2%	21	201.00	1.00	2.6750
39	24 hour	2%	22	201.00	1.00	2.0665
39	24 hour	2%	23	201.00	1.00	3.6724
39	24 hour	2%	24	201.00	1.00	4.7284
39	24 hour	2%	25	201.00	1.00	3.4434
39	24 hour	2%	26	201.00	1.00	3.0201
39	24 hour	2%	27	201.00	1.00	2.3318
39	24 hour	2%	28	201.00	1.00	3.8586
39	24 hour	2%	29	201.00	1.00	2.8328
39	24 hour	2%	30	201.00	1.00	4.2874

South1_batch						
40	48 hour	2%	21	250.00	1.00	2.3534
40	48 hour	2%	22	250.00	1.00	2.0541
40	48 hour	2%	23	250.00	1.00	4.4186
40	48 hour	2%	24	250.00	1.00	1.7928
40	48 hour	2%	25	250.00	1.00	4.0832
40	48 hour	2%	26	250.00	1.00	3.2116
40	48 hour	2%	27	250.00	1.00	2.5235
40	48 hour	2%	28	250.00	1.00	1.7881
40	48 hour	2%	29	250.00	1.00	2.8027
40	48 hour	2%	30	250.00	1.00	3.8896
41	72 hour	2%	21	280.00	1.00	1.6350
41	72 hour	2%	22	280.00	1.00	1.3794
41	72 hour	2%	23	280.00	1.00	1.1631
41	72 hour	2%	24	280.00	1.00	2.1453
41	72 hour	2%	25	280.00	1.00	1.0208
41	72 hour	2%	26	280.00	1.00	1.8170
41	72 hour	2%	27	280.00	1.00	1.6092
41	72 hour	2%	28	280.00	1.00	1.6094
41	72 hour	2%	29	280.00	1.00	2.3705
41	72 hour	2%	30	280.00	1.00	1.9631
42	96 hour	2%	21	298.00	1.00	1.5963
42	96 hour	2%	22	298.00	1.00	2.4563
42	96 hour	2%	23	298.00	1.00	1.4148
42	96 hour	2%	24	298.00	1.00	0.9817
42	96 hour	2%	25	298.00	1.00	1.1149
42	96 hour	2%	26	298.00	1.00	1.5463
42	96 hour	2%	27	298.00	1.00	1.1802
42	96 hour	2%	28	298.00	1.00	3.6819
42	96 hour	2%	29	298.00	1.00	1.8796
42	96 hour	2%	30	298.00	1.00	1.5176
43	120 hour	2%	21	308.00	1.00	1.6089
43	120 hour	2%	22	308.00	1.00	1.4012
43	120 hour	2%	23	308.00	1.00	2.1425
43	120 hour	2%	24	308.00	1.00	3.1613
43	120 hour	2%	25	308.00	1.00	1.7317
43	120 hour	2%	26	308.00	1.00	1.1195
43	120 hour	2%	27	308.00	1.00	0.9060
43	120 hour	2%	28	308.00	1.00	1.3405
43	120 hour	2%	29	308.00	1.00	3.5548
43	120 hour	2%	30	308.00	1.00	1.6579
44	144 hour	2%	21	312.00	1.00	1.4994
44	144 hour	2%	22	312.00	1.00	0.9543
44	144 hour	2%	23	312.00	1.00	1.6277
44	144 hour	2%	24	312.00	1.00	2.1099
44	144 hour	2%	25	312.00	1.00	1.5135
44	144 hour	2%	26	312.00	1.00	3.0451
44	144 hour	2%	27	312.00	1.00	1.7948
44	144 hour	2%	28	312.00	1.00	0.8704
44	144 hour	2%	29	312.00	1.00	1.2376
44	144 hour	2%	30	312.00	1.00	3.4053
45	168 hour	2%	21	313.00	1.00	1.2078
45	168 hour	2%	22	313.00	1.00	0.8824

South1_batch						
45	168 hour	2%	23	313.00	1.00	1.8020
45	168 hour	2%	24	313.00	1.00	2.1102
45	168 hour	2%	25	313.00	1.00	0.9883
45	168 hour	2%	26	313.00	1.00	0.9883
45	168 hour	2%	27	313.00	1.00	1.2249
45	168 hour	2%	28	313.00	1.00	1.9466
45	168 hour	2%	29	313.00	1.00	1.1953
45	168 hour	2%	30	313.00	1.00	1.7602
46	10 min	1%	21	37.60	1.00	0.0000
46	10 min	1%	22	37.60	1.00	0.0000
46	10 min	1%	23	37.60	1.00	0.0000
46	10 min	1%	24	37.60	1.00	0.0000
46	10 min	1%	25	37.60	1.00	0.0000
46	10 min	1%	26	37.60	1.00	0.0000
46	10 min	1%	27	37.60	1.00	0.0000
46	10 min	1%	28	37.60	1.00	0.0000
46	10 min	1%	29	37.60	1.00	0.0000
46	10 min	1%	30	37.60	1.00	0.0000
47	15 min	1%	21	48.00	1.00	0.0000
47	15 min	1%	22	48.00	1.00	0.0000
47	15 min	1%	23	48.00	1.00	0.0000
47	15 min	1%	24	48.00	1.00	0.0000
47	15 min	1%	25	48.00	1.00	0.0000
47	15 min	1%	26	48.00	1.00	0.0000
47	15 min	1%	27	48.00	1.00	0.0000
47	15 min	1%	28	48.00	1.00	0.0000
47	15 min	1%	29	48.00	1.00	0.0000
47	15 min	1%	30	48.00	1.00	0.0000
48	30 min	1%	21	68.10	1.00	2.2027
48	30 min	1%	22	68.10	1.00	2.1657
48	30 min	1%	23	68.10	1.00	2.2027
48	30 min	1%	24	68.10	1.00	2.2027
48	30 min	1%	25	68.10	1.00	2.2027
48	30 min	1%	26	68.10	1.00	2.2027
48	30 min	1%	27	68.10	1.00	2.2027
48	30 min	1%	28	68.10	1.00	2.1125
48	30 min	1%	29	68.10	1.00	2.2027
48	30 min	1%	30	68.10	1.00	2.2027
49	1 hour	1%	21	89.40	1.00	8.9980
49	1 hour	1%	22	89.40	1.00	9.0664
49	1 hour	1%	23	89.40	1.00	6.9801
49	1 hour	1%	24	89.40	1.00	6.3583
49	1 hour	1%	25	89.40	1.00	7.3179
49	1 hour	1%	26	89.40	1.00	7.4644
49	1 hour	1%	27	89.40	1.00	8.1004
49	1 hour	1%	28	89.40	1.00	7.3242
49	1 hour	1%	29	89.40	1.00	7.4941
49	1 hour	1%	30	89.40	1.00	7.6517
50	2 hour	1%	21	111.00	1.00	11.7881
50	2 hour	1%	22	111.00	1.00	10.4519
50	2 hour	1%	23	111.00	1.00	7.4746
50	2 hour	1%	24	111.00	1.00	10.2602

South1_batch						
50	2 hour	1%	25	111.00	1.00	7.3191
50	2 hour	1%	26	111.00	1.00	11.6521
50	2 hour	1%	27	111.00	1.00	8.6291
50	2 hour	1%	28	111.00	1.00	9.6177
50	2 hour	1%	29	111.00	1.00	11.6315
50	2 hour	1%	30	111.00	1.00	11.1166
51	3 hour	1%	21	125.00	1.00	10.8457
51	3 hour	1%	22	125.00	1.00	9.1016
51	3 hour	1%	23	125.00	1.00	9.5332
51	3 hour	1%	24	125.00	1.00	6.5761
51	3 hour	1%	25	125.00	1.00	6.5745
51	3 hour	1%	26	125.00	1.00	7.4365
51	3 hour	1%	27	125.00	1.00	6.8891
51	3 hour	1%	28	125.00	1.00	9.5467
51	3 hour	1%	29	125.00	1.00	6.2298
51	3 hour	1%	30	125.00	1.00	9.2765
52	6 hour	1%	21	151.00	1.00	7.9983
52	6 hour	1%	22	151.00	1.00	5.8713
52	6 hour	1%	23	151.00	1.00	6.8383
52	6 hour	1%	24	151.00	1.00	5.4952
52	6 hour	1%	25	151.00	1.00	5.2376
52	6 hour	1%	26	151.00	1.00	7.3349
52	6 hour	1%	27	151.00	1.00	9.8200
52	6 hour	1%	28	151.00	1.00	7.5283
52	6 hour	1%	29	151.00	1.00	6.2698
52	6 hour	1%	30	151.00	1.00	7.9793
53	12 hour	1%	21	185.00	1.00	4.4074
53	12 hour	1%	22	185.00	1.00	4.8180
53	12 hour	1%	23	185.00	1.00	4.4775
53	12 hour	1%	24	185.00	1.00	4.4232
53	12 hour	1%	25	185.00	1.00	7.7531
53	12 hour	1%	26	185.00	1.00	3.2804
53	12 hour	1%	27	185.00	1.00	4.5717
53	12 hour	1%	28	185.00	1.00	7.0327
53	12 hour	1%	29	185.00	1.00	3.8306
53	12 hour	1%	30	185.00	1.00	7.7755
54	24 hour	1%	21	230.00	1.00	3.0856
54	24 hour	1%	22	230.00	1.00	2.5753
54	24 hour	1%	23	230.00	1.00	4.2227
54	24 hour	1%	24	230.00	1.00	5.7163
54	24 hour	1%	25	230.00	1.00	3.9643
54	24 hour	1%	26	230.00	1.00	3.4968
54	24 hour	1%	27	230.00	1.00	2.7097
54	24 hour	1%	28	230.00	1.00	4.5435
54	24 hour	1%	29	230.00	1.00	3.2846
54	24 hour	1%	30	230.00	1.00	4.9419
55	48 hour	1%	21	286.00	1.00	2.7196
55	48 hour	1%	22	286.00	1.00	2.5431
55	48 hour	1%	23	286.00	1.00	5.0905
55	48 hour	1%	24	286.00	1.00	2.0757
55	48 hour	1%	25	286.00	1.00	4.6850
55	48 hour	1%	26	286.00	1.00	3.7101

South1_batch						
55	48 hour	1%	27	286.00	1.00	2.7559
55	48 hour	1%	28	286.00	1.00	2.0818
55	48 hour	1%	29	286.00	1.00	3.2469
55	48 hour	1%	30	286.00	1.00	4.5473
56	72 hour	1%	21	319.00	1.00	1.8486
56	72 hour	1%	22	319.00	1.00	1.5798
56	72 hour	1%	23	319.00	1.00	1.3494
56	72 hour	1%	24	319.00	1.00	2.6694
56	72 hour	1%	25	319.00	1.00	1.1936
56	72 hour	1%	26	319.00	1.00	1.9931
56	72 hour	1%	27	319.00	1.00	1.8625
56	72 hour	1%	28	319.00	1.00	1.8608
56	72 hour	1%	29	319.00	1.00	2.6250
56	72 hour	1%	30	319.00	1.00	2.2572
57	96 hour	1%	21	339.00	1.00	1.8407
57	96 hour	1%	22	339.00	1.00	2.8203
57	96 hour	1%	23	339.00	1.00	1.6183
57	96 hour	1%	24	339.00	1.00	1.1476
57	96 hour	1%	25	339.00	1.00	1.2966
57	96 hour	1%	26	339.00	1.00	1.7882
57	96 hour	1%	27	339.00	1.00	1.3891
57	96 hour	1%	28	339.00	1.00	4.2355
57	96 hour	1%	29	339.00	1.00	2.1632
57	96 hour	1%	30	339.00	1.00	1.7575
58	120 hour	1%	21	350.00	1.00	1.8521
58	120 hour	1%	22	350.00	1.00	1.6178
58	120 hour	1%	23	350.00	1.00	2.7137
58	120 hour	1%	24	350.00	1.00	3.6554
58	120 hour	1%	25	350.00	1.00	1.9995
58	120 hour	1%	26	350.00	1.00	1.3002
58	120 hour	1%	27	350.00	1.00	1.0468
58	120 hour	1%	28	350.00	1.00	1.6445
58	120 hour	1%	29	350.00	1.00	4.0767
58	120 hour	1%	30	350.00	1.00	1.8962
59	144 hour	1%	21	356.00	1.00	1.7357
59	144 hour	1%	22	356.00	1.00	1.0966
59	144 hour	1%	23	356.00	1.00	1.8846
59	144 hour	1%	24	356.00	1.00	2.4390
59	144 hour	1%	25	356.00	1.00	1.7598
59	144 hour	1%	26	356.00	1.00	3.5333
59	144 hour	1%	27	356.00	1.00	2.0862
59	144 hour	1%	28	356.00	1.00	1.0247
59	144 hour	1%	29	356.00	1.00	1.4363
59	144 hour	1%	30	356.00	1.00	3.9238
60	168 hour	1%	21	356.00	1.00	1.3961
60	168 hour	1%	22	356.00	1.00	1.0193
60	168 hour	1%	23	356.00	1.00	2.0767
60	168 hour	1%	24	356.00	1.00	2.4307
60	168 hour	1%	25	356.00	1.00	1.2115
60	168 hour	1%	26	356.00	1.00	1.2115
60	168 hour	1%	27	356.00	1.00	1.4170
60	168 hour	1%	28	356.00	1.00	2.2499

South1_batch

60	168 hour	1%	29	356.00	1.00	1.3817
60	168 hour	1%	30	356.00	1.00	2.0410

Elapsed Run Time (hh:mm:ss) = 00:00:16

NorthWest_batch

RORBWin Batch Run Summary

Program version 6.32 (last updated 3rd September 2017)
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Date run: 11 Jan 2018 11:45

Catchment file : G:\Synergy\Projects\17\170087 Bonnie Doon
SWMP\Calculations\RORB\1_North West\NorthWest.catg
Rainfall location: User defined
Temporal pattern : ARR2016 point temporal patterns
Spatial pattern : Uniform
Areal Red. Fact. : Based on ARR 2016 (Book 2 Chapter 4)
Loss factors : Constant with ARI

Parameters: kc = 2.84 m = 0.80

Loss parameters	Initial loss (mm)	Cont. loss (mm/h)
	60.00	0.90

Peak Description
01 Calculated hydrograph,

Run	Duration	AEP	TPat	Rain(mm)	ARF	Peak0001
1	10 min	10%	11	25.00	0.83	0.1914
1	10 min	10%	12	25.00	0.83	0.1914
1	10 min	10%	13	25.00	0.83	0.1915
1	10 min	10%	14	25.00	0.83	0.1914
1	10 min	10%	15	25.00	0.83	0.1914
1	10 min	10%	16	25.00	0.83	0.1914
1	10 min	10%	17	25.00	0.83	0.1914
1	10 min	10%	18	25.00	0.83	0.1914
1	10 min	10%	19	25.00	0.83	0.1914
1	10 min	10%	20	25.00	0.83	0.1913
2	15 min	10%	11	31.90	0.86	0.2703
2	15 min	10%	12	31.90	0.86	0.2703
2	15 min	10%	13	31.90	0.86	0.2704
2	15 min	10%	14	31.90	0.86	0.2707
2	15 min	10%	15	31.90	0.86	0.2706
2	15 min	10%	16	31.90	0.86	0.2705
2	15 min	10%	17	31.90	0.86	0.2704
2	15 min	10%	18	31.90	0.86	0.2706
2	15 min	10%	19	31.90	0.86	0.2708
2	15 min	10%	20	31.90	0.86	0.2708
3	30 min	10%	11	44.80	0.89	0.4318
3	30 min	10%	12	44.80	0.89	0.4324
3	30 min	10%	13	44.80	0.89	0.4318
3	30 min	10%	14	44.80	0.89	0.4324
3	30 min	10%	15	44.80	0.89	0.4330
3	30 min	10%	16	44.80	0.89	0.4332

NorthWest_batch						
3	30 min	10%	17	44.80	0.89	0.4337
3	30 min	10%	18	44.80	0.89	0.4335
3	30 min	10%	19	44.80	0.89	0.4338
3	30 min	10%	20	44.80	0.89	0.4338
4	1 hour	10%	11	57.60	0.92	0.5965
4	1 hour	10%	12	57.60	0.92	0.5802
4	1 hour	10%	13	57.60	0.92	0.5841
4	1 hour	10%	14	57.60	0.92	0.5656
4	1 hour	10%	15	57.60	0.92	0.5873
4	1 hour	10%	16	57.60	0.92	0.5897
4	1 hour	10%	17	57.60	0.92	0.5954
4	1 hour	10%	18	57.60	0.92	0.5837
4	1 hour	10%	19	57.60	0.92	0.5865
4	1 hour	10%	20	57.60	0.92	0.6034
5	2 hour	10%	11	70.10	0.94	5.1755
5	2 hour	10%	12	70.10	0.94	5.1579
5	2 hour	10%	13	70.10	0.94	5.1081
5	2 hour	10%	14	70.10	0.94	4.8922
5	2 hour	10%	15	70.10	0.94	4.8953
5	2 hour	10%	16	70.10	0.94	4.9971
5	2 hour	10%	17	70.10	0.94	5.0409
5	2 hour	10%	18	70.10	0.94	5.2406
5	2 hour	10%	19	70.10	0.94	5.2067
5	2 hour	10%	20	70.10	0.94	5.2410
6	3 hour	10%	11	77.70	0.94	12.2329
6	3 hour	10%	12	77.70	0.94	13.0401
6	3 hour	10%	13	77.70	0.94	12.7690
6	3 hour	10%	14	77.70	0.94	13.2288
6	3 hour	10%	15	77.70	0.94	14.1366
6	3 hour	10%	16	77.70	0.94	13.6238
6	3 hour	10%	17	77.70	0.94	13.1964
6	3 hour	10%	18	77.70	0.94	12.7098
6	3 hour	10%	19	77.70	0.94	13.5763
6	3 hour	10%	20	77.70	0.94	14.0647
7	6 hour	10%	11	92.80	0.97	18.1172
7	6 hour	10%	12	92.80	0.97	21.6181
7	6 hour	10%	13	92.80	0.97	19.6599
7	6 hour	10%	14	92.80	0.97	32.6533
7	6 hour	10%	15	92.80	0.97	29.9827
7	6 hour	10%	16	92.80	0.97	24.6028
7	6 hour	10%	17	92.80	0.97	25.7174
7	6 hour	10%	18	92.80	0.97	22.7183
7	6 hour	10%	19	92.80	0.97	31.9780
7	6 hour	10%	20	92.80	0.97	29.1589
8	12 hour	10%	11	113.00	0.98	34.2954
8	12 hour	10%	12	113.00	0.98	34.7413
8	12 hour	10%	13	113.00	0.98	27.1721
8	12 hour	10%	14	113.00	0.98	19.6187
8	12 hour	10%	15	113.00	0.98	20.5476
8	12 hour	10%	16	113.00	0.98	19.1846
8	12 hour	10%	17	113.00	0.98	30.9798
8	12 hour	10%	18	113.00	0.98	41.5669

NorthWest_batch						
8	12 hour	10%	19	113.00	0.98	42.7624
8	12 hour	10%	20	113.00	0.98	33.2392
9	24 hour	10%	11	140.00	0.99	33.5810
9	24 hour	10%	12	140.00	0.99	42.0910
9	24 hour	10%	13	140.00	0.99	23.5289
9	24 hour	10%	14	140.00	0.99	22.3585
9	24 hour	10%	15	140.00	0.99	15.9807
9	24 hour	10%	16	140.00	0.99	23.8449
9	24 hour	10%	17	140.00	0.99	25.4847
9	24 hour	10%	18	140.00	0.99	25.4676
9	24 hour	10%	19	140.00	0.99	26.0854
9	24 hour	10%	20	140.00	0.99	26.6285
10	48 hour	10%	11	175.00	0.99	15.7420
10	48 hour	10%	12	175.00	0.99	24.4013
10	48 hour	10%	13	175.00	0.99	23.7274
10	48 hour	10%	14	175.00	0.99	17.6517
10	48 hour	10%	15	175.00	0.99	17.7367
10	48 hour	10%	16	175.00	0.99	41.0513
10	48 hour	10%	17	175.00	0.99	18.8536
10	48 hour	10%	18	175.00	0.99	30.1807
10	48 hour	10%	19	175.00	0.99	18.4008
10	48 hour	10%	20	175.00	0.99	41.8469
11	72 hour	10%	11	195.00	0.99	10.5244
11	72 hour	10%	12	195.00	0.99	16.2723
11	72 hour	10%	13	195.00	0.99	12.5551
11	72 hour	10%	14	195.00	0.99	14.6251
11	72 hour	10%	15	195.00	0.99	28.8862
11	72 hour	10%	16	195.00	0.99	26.4756
11	72 hour	10%	17	195.00	0.99	10.3136
11	72 hour	10%	18	195.00	0.99	20.5984
11	72 hour	10%	19	195.00	0.99	12.9649
11	72 hour	10%	20	195.00	0.99	27.6841
12	96 hour	10%	11	207.00	0.99	25.3636
12	96 hour	10%	12	207.00	0.99	20.9269
12	96 hour	10%	13	207.00	0.99	8.4288
12	96 hour	10%	14	207.00	0.99	15.3230
12	96 hour	10%	15	207.00	0.99	12.9310
12	96 hour	10%	16	207.00	0.99	12.1876
12	96 hour	10%	17	207.00	0.99	18.4524
12	96 hour	10%	18	207.00	0.99	23.1351
12	96 hour	10%	19	207.00	0.99	12.8666
12	96 hour	10%	20	207.00	0.99	12.2770
13	120 hour	10%	11	214.00	0.99	18.5198
13	120 hour	10%	12	214.00	0.99	12.7481
13	120 hour	10%	13	214.00	0.99	20.0442
13	120 hour	10%	14	214.00	0.99	22.0158
13	120 hour	10%	15	214.00	0.99	11.3415
13	120 hour	10%	16	214.00	0.99	11.3359
13	120 hour	10%	17	214.00	0.99	29.4790
13	120 hour	10%	18	214.00	0.99	16.5518
13	120 hour	10%	19	214.00	0.99	16.1090
13	120 hour	10%	20	214.00	0.99	15.5697

NorthWest_batch						
14	144 hour	10%	11	217.00	0.99	18.2941
14	144 hour	10%	12	217.00	0.99	33.8933
14	144 hour	10%	13	217.00	0.99	16.8137
14	144 hour	10%	14	217.00	0.99	26.7417
14	144 hour	10%	15	217.00	0.99	17.4520
14	144 hour	10%	16	217.00	0.99	13.3942
14	144 hour	10%	17	217.00	0.99	9.9765
14	144 hour	10%	18	217.00	0.99	16.0274
14	144 hour	10%	19	217.00	0.99	10.7954
14	144 hour	10%	20	217.00	0.99	17.0489
15	168 hour	10%	11	217.00	0.99	13.5858
15	168 hour	10%	12	217.00	0.99	8.4578
15	168 hour	10%	13	217.00	0.99	13.1568
15	168 hour	10%	14	217.00	0.99	10.6433
15	168 hour	10%	15	217.00	0.99	21.9457
15	168 hour	10%	16	217.00	0.99	16.6228
15	168 hour	10%	17	217.00	0.99	15.7431
15	168 hour	10%	18	217.00	0.99	7.5172
15	168 hour	10%	19	217.00	0.99	14.0138
15	168 hour	10%	20	217.00	0.99	8.6904
16	10 min	5%	11	28.70	0.82	0.2259
16	10 min	5%	12	28.70	0.82	0.2260
16	10 min	5%	13	28.70	0.82	0.2260
16	10 min	5%	14	28.70	0.82	0.2260
16	10 min	5%	15	28.70	0.82	0.2260
16	10 min	5%	16	28.70	0.82	0.2260
16	10 min	5%	17	28.70	0.82	0.2260
16	10 min	5%	18	28.70	0.82	0.2260
16	10 min	5%	19	28.70	0.82	0.2260
16	10 min	5%	20	28.70	0.82	0.2260
17	15 min	5%	11	36.80	0.85	0.3217
17	15 min	5%	12	36.80	0.85	0.3219
17	15 min	5%	13	36.80	0.85	0.3215
17	15 min	5%	14	36.80	0.85	0.3215
17	15 min	5%	15	36.80	0.85	0.3215
17	15 min	5%	16	36.80	0.85	0.3216
17	15 min	5%	17	36.80	0.85	0.3217
17	15 min	5%	18	36.80	0.85	0.3216
17	15 min	5%	19	36.80	0.85	0.3215
17	15 min	5%	20	36.80	0.85	0.3215
18	30 min	5%	11	51.80	0.89	0.5135
18	30 min	5%	12	51.80	0.89	0.5138
18	30 min	5%	13	51.80	0.89	0.5142
18	30 min	5%	14	51.80	0.89	0.5151
18	30 min	5%	15	51.80	0.89	0.5151
18	30 min	5%	16	51.80	0.89	0.5155
18	30 min	5%	17	51.80	0.89	0.5166
18	30 min	5%	18	51.80	0.89	0.5166
18	30 min	5%	19	51.80	0.89	0.5162
18	30 min	5%	20	51.80	0.89	0.5158
19	1 hour	5%	11	67.00	0.92	1.1964
19	1 hour	5%	12	67.00	0.92	1.1467

NorthWest_batch						
19	1 hour	5%	13	67.00	0.92	1.1265
19	1 hour	5%	14	67.00	0.92	1.1304
19	1 hour	5%	15	67.00	0.92	1.1581
19	1 hour	5%	16	67.00	0.92	1.1911
19	1 hour	5%	17	67.00	0.92	1.1653
19	1 hour	5%	18	67.00	0.92	1.1664
19	1 hour	5%	19	67.00	0.92	1.1517
19	1 hour	5%	20	67.00	0.92	1.2239
20	2 hour	5%	11	82.00	0.93	18.4352
20	2 hour	5%	12	82.00	0.93	18.2642
20	2 hour	5%	13	82.00	0.93	18.3451
20	2 hour	5%	14	82.00	0.93	17.7940
20	2 hour	5%	15	82.00	0.93	16.9927
20	2 hour	5%	16	82.00	0.93	17.5697
20	2 hour	5%	17	82.00	0.93	18.2290
20	2 hour	5%	18	82.00	0.93	18.2932
20	2 hour	5%	19	82.00	0.93	18.0542
20	2 hour	5%	20	82.00	0.93	18.4428
21	3 hour	5%	11	91.20	0.94	27.6938
21	3 hour	5%	12	91.20	0.94	26.5518
21	3 hour	5%	13	91.20	0.94	26.4581
21	3 hour	5%	14	91.20	0.94	28.1930
21	3 hour	5%	15	91.20	0.94	29.6604
21	3 hour	5%	16	91.20	0.94	29.1791
21	3 hour	5%	17	91.20	0.94	28.7696
21	3 hour	5%	18	91.20	0.94	28.0388
21	3 hour	5%	19	91.20	0.94	29.4119
21	3 hour	5%	20	91.20	0.94	30.1198
22	6 hour	5%	11	109.00	0.96	28.6262
22	6 hour	5%	12	109.00	0.96	28.5591
22	6 hour	5%	13	109.00	0.96	32.9383
22	6 hour	5%	14	109.00	0.96	45.7720
22	6 hour	5%	15	109.00	0.96	47.7564
22	6 hour	5%	16	109.00	0.96	34.2125
22	6 hour	5%	17	109.00	0.96	36.8044
22	6 hour	5%	18	109.00	0.96	38.8663
22	6 hour	5%	19	109.00	0.96	49.6637
22	6 hour	5%	20	109.00	0.96	44.1297
23	12 hour	5%	11	133.00	0.98	41.0017
23	12 hour	5%	12	133.00	0.98	54.2679
23	12 hour	5%	13	133.00	0.98	32.5148
23	12 hour	5%	14	133.00	0.98	23.6413
23	12 hour	5%	15	133.00	0.98	33.3836
23	12 hour	5%	16	133.00	0.98	28.0370
23	12 hour	5%	17	133.00	0.98	40.0067
23	12 hour	5%	18	133.00	0.98	49.8910
23	12 hour	5%	19	133.00	0.98	51.7933
23	12 hour	5%	20	133.00	0.98	41.4857
24	24 hour	5%	11	165.00	0.99	45.5996
24	24 hour	5%	12	165.00	0.99	53.3714
24	24 hour	5%	13	165.00	0.99	28.3567
24	24 hour	5%	14	165.00	0.99	26.7941

NorthWest_batch						
24	24 hour	5%	15	165.00	0.99	19.3999
24	24 hour	5%	16	165.00	0.99	28.8092
24	24 hour	5%	17	165.00	0.99	30.6331
24	24 hour	5%	18	165.00	0.99	30.5589
24	24 hour	5%	19	165.00	0.99	31.6024
24	24 hour	5%	20	165.00	0.99	32.0310
25	48 hour	5%	11	206.00	0.99	22.4489
25	48 hour	5%	12	206.00	0.99	29.3410
25	48 hour	5%	13	206.00	0.99	28.4754
25	48 hour	5%	14	206.00	0.99	21.6519
25	48 hour	5%	15	206.00	0.99	21.2143
25	48 hour	5%	16	206.00	0.99	49.3690
25	48 hour	5%	17	206.00	0.99	22.6842
25	48 hour	5%	18	206.00	0.99	36.0755
25	48 hour	5%	19	206.00	0.99	22.1951
25	48 hour	5%	20	206.00	0.99	49.4404
26	72 hour	5%	11	230.00	0.99	13.1998
26	72 hour	5%	12	230.00	0.99	19.9330
26	72 hour	5%	13	230.00	0.99	20.1624
26	72 hour	5%	14	230.00	0.99	17.9973
26	72 hour	5%	15	230.00	0.99	34.3270
26	72 hour	5%	16	230.00	0.99	32.1114
26	72 hour	5%	17	230.00	0.99	12.2861
26	72 hour	5%	18	230.00	0.99	24.8524
26	72 hour	5%	19	230.00	0.99	15.6236
26	72 hour	5%	20	230.00	0.99	33.4056
27	96 hour	5%	11	245.00	0.99	30.4934
27	96 hour	5%	12	245.00	0.99	25.1788
27	96 hour	5%	13	245.00	0.99	10.4095
27	96 hour	5%	14	245.00	0.99	24.9699
27	96 hour	5%	15	245.00	0.99	15.7299
27	96 hour	5%	16	245.00	0.99	14.8222
27	96 hour	5%	17	245.00	0.99	22.5538
27	96 hour	5%	18	245.00	0.99	27.6315
27	96 hour	5%	19	245.00	0.99	15.9527
27	96 hour	5%	20	245.00	0.99	15.4261
28	120 hour	5%	11	253.00	0.99	22.5094
28	120 hour	5%	12	253.00	0.99	15.8073
28	120 hour	5%	13	253.00	0.99	24.0184
28	120 hour	5%	14	253.00	0.99	26.3318
28	120 hour	5%	15	253.00	0.99	13.8340
28	120 hour	5%	16	253.00	0.99	14.3433
28	120 hour	5%	17	253.00	0.99	35.2021
28	120 hour	5%	18	253.00	0.99	19.8567
28	120 hour	5%	19	253.00	0.99	19.5691
28	120 hour	5%	20	253.00	0.99	19.0090
29	144 hour	5%	11	257.00	0.99	22.1341
29	144 hour	5%	12	257.00	0.99	40.4722
29	144 hour	5%	13	257.00	0.99	20.3501
29	144 hour	5%	14	257.00	0.99	32.5790
29	144 hour	5%	15	257.00	0.99	21.2276
29	144 hour	5%	16	257.00	0.99	16.4635

NorthWest_batch						
29	144 hour	5%	17	257.00	0.99	13.4050
29	144 hour	5%	18	257.00	0.99	19.6409
29	144 hour	5%	19	257.00	0.99	12.6826
29	144 hour	5%	20	257.00	0.99	20.7089
30	168 hour	5%	11	258.00	0.99	16.4478
30	168 hour	5%	12	258.00	0.99	10.4156
30	168 hour	5%	13	258.00	0.99	16.3767
30	168 hour	5%	14	258.00	0.99	13.2599
30	168 hour	5%	15	258.00	0.99	26.3361
30	168 hour	5%	16	258.00	0.99	20.2110
30	168 hour	5%	17	258.00	0.99	19.2798
30	168 hour	5%	18	258.00	0.99	14.1114
30	168 hour	5%	19	258.00	0.99	17.3408
30	168 hour	5%	20	258.00	0.99	11.6818
31	10 min	2%	21	33.80	0.82	0.2753
31	10 min	2%	22	33.80	0.82	0.2752
31	10 min	2%	23	33.80	0.82	0.2753
31	10 min	2%	24	33.80	0.82	0.2751
31	10 min	2%	25	33.80	0.82	0.2751
31	10 min	2%	26	33.80	0.82	0.2751
31	10 min	2%	27	33.80	0.82	0.2752
31	10 min	2%	28	33.80	0.82	0.2752
31	10 min	2%	29	33.80	0.82	0.2751
31	10 min	2%	30	33.80	0.82	0.2753
32	15 min	2%	21	43.10	0.85	0.3888
32	15 min	2%	22	43.10	0.85	0.3887
32	15 min	2%	23	43.10	0.85	0.3884
32	15 min	2%	24	43.10	0.85	0.3886
32	15 min	2%	25	43.10	0.85	0.3887
32	15 min	2%	26	43.10	0.85	0.3886
32	15 min	2%	27	43.10	0.85	0.3886
32	15 min	2%	28	43.10	0.85	0.3889
32	15 min	2%	29	43.10	0.85	0.3886
32	15 min	2%	30	43.10	0.85	0.3885
33	30 min	2%	21	61.00	0.88	0.6199
33	30 min	2%	22	61.00	0.88	0.6274
33	30 min	2%	23	61.00	0.88	0.6272
33	30 min	2%	24	61.00	0.88	0.6246
33	30 min	2%	25	61.00	0.88	0.6248
33	30 min	2%	26	61.00	0.88	0.6235
33	30 min	2%	27	61.00	0.88	0.6256
33	30 min	2%	28	61.00	0.88	0.6270
33	30 min	2%	29	61.00	0.88	0.6261
33	30 min	2%	30	61.00	0.88	0.6255
34	1 hour	2%	21	79.60	0.91	13.4015
34	1 hour	2%	22	79.60	0.91	13.4020
34	1 hour	2%	23	79.60	0.91	13.1067
34	1 hour	2%	24	79.60	0.91	13.0489
34	1 hour	2%	25	79.60	0.91	13.2087
34	1 hour	2%	26	79.60	0.91	13.2355
34	1 hour	2%	27	79.60	0.91	13.3223
34	1 hour	2%	28	79.60	0.91	13.2015

NorthWest_batch						
34	1 hour	2%	29	79.60	0.91	13.2016
34	1 hour	2%	30	79.60	0.91	13.1959
35	2 hour	2%	21	98.30	0.92	39.7239
35	2 hour	2%	22	98.30	0.92	39.1436
35	2 hour	2%	23	98.30	0.92	35.7668
35	2 hour	2%	24	98.30	0.92	38.7615
35	2 hour	2%	25	98.30	0.92	35.9489
35	2 hour	2%	26	98.30	0.92	39.4699
35	2 hour	2%	27	98.30	0.92	37.7361
35	2 hour	2%	28	98.30	0.92	38.7734
35	2 hour	2%	29	98.30	0.92	39.5631
35	2 hour	2%	30	98.30	0.92	39.3997
36	3 hour	2%	21	110.00	0.92	54.7944
36	3 hour	2%	22	110.00	0.92	50.9439
36	3 hour	2%	23	110.00	0.92	52.8408
36	3 hour	2%	24	110.00	0.92	44.5856
36	3 hour	2%	25	110.00	0.92	45.1676
36	3 hour	2%	26	110.00	0.92	46.5845
36	3 hour	2%	27	110.00	0.92	47.6416
36	3 hour	2%	28	110.00	0.92	51.7519
36	3 hour	2%	29	110.00	0.92	45.7384
36	3 hour	2%	30	110.00	0.92	46.7444
37	6 hour	2%	21	132.00	0.96	42.5643
37	6 hour	2%	22	132.00	0.96	54.6734
37	6 hour	2%	23	132.00	0.96	56.6390
37	6 hour	2%	24	132.00	0.96	43.5695
37	6 hour	2%	25	132.00	0.96	50.9549
37	6 hour	2%	26	132.00	0.96	54.4687
37	6 hour	2%	27	132.00	0.96	77.2641
37	6 hour	2%	28	132.00	0.96	36.1713
37	6 hour	2%	29	132.00	0.96	51.4406
37	6 hour	2%	30	132.00	0.96	69.3165
38	12 hour	2%	21	162.00	0.97	46.7501
38	12 hour	2%	22	162.00	0.97	50.0129
38	12 hour	2%	23	162.00	0.97	42.7905
38	12 hour	2%	24	162.00	0.97	40.4576
38	12 hour	2%	25	162.00	0.97	67.5374
38	12 hour	2%	26	162.00	0.97	33.7707
38	12 hour	2%	27	162.00	0.97	38.2624
38	12 hour	2%	28	162.00	0.97	43.8696
38	12 hour	2%	29	162.00	0.97	35.1206
38	12 hour	2%	30	162.00	0.97	75.4381
39	24 hour	2%	21	201.00	0.99	33.3498
39	24 hour	2%	22	201.00	0.99	25.7682
39	24 hour	2%	23	201.00	0.99	44.0133
39	24 hour	2%	24	201.00	0.99	53.9187
39	24 hour	2%	25	201.00	0.99	39.5351
39	24 hour	2%	26	201.00	0.99	33.7791
39	24 hour	2%	27	201.00	0.99	25.9486
39	24 hour	2%	28	201.00	0.99	47.2056
39	24 hour	2%	29	201.00	0.99	31.6294
39	24 hour	2%	30	201.00	0.99	43.3409

NorthWest_batch						
40	48 hour	2%	21	250.00	0.99	32.3851
40	48 hour	2%	22	250.00	0.99	27.0245
40	48 hour	2%	23	250.00	0.99	45.6165
40	48 hour	2%	24	250.00	0.99	23.0782
40	48 hour	2%	25	250.00	0.99	55.6601
40	48 hour	2%	26	250.00	0.99	36.6347
40	48 hour	2%	27	250.00	0.99	27.3129
40	48 hour	2%	28	250.00	0.99	21.9869
40	48 hour	2%	29	250.00	0.99	37.4336
40	48 hour	2%	30	250.00	0.99	42.4631
41	72 hour	2%	21	280.00	0.99	22.1361
41	72 hour	2%	22	280.00	0.99	15.6937
41	72 hour	2%	23	280.00	0.99	15.0494
41	72 hour	2%	24	280.00	0.99	26.9625
41	72 hour	2%	25	280.00	0.99	12.8357
41	72 hour	2%	26	280.00	0.99	22.0107
41	72 hour	2%	27	280.00	0.99	19.8937
41	72 hour	2%	28	280.00	0.99	19.6222
41	72 hour	2%	29	280.00	0.99	28.3188
41	72 hour	2%	30	280.00	0.99	25.9416
42	96 hour	2%	21	298.00	0.99	19.1935
42	96 hour	2%	22	298.00	0.99	28.3119
42	96 hour	2%	23	298.00	0.99	17.6781
42	96 hour	2%	24	298.00	0.99	11.0496
42	96 hour	2%	25	298.00	0.99	14.9547
42	96 hour	2%	26	298.00	0.99	17.5580
42	96 hour	2%	27	298.00	0.99	16.9653
42	96 hour	2%	28	298.00	0.99	39.9864
42	96 hour	2%	29	298.00	0.99	22.0587
42	96 hour	2%	30	298.00	0.99	20.3611
43	120 hour	2%	21	308.00	0.99	21.2004
43	120 hour	2%	22	308.00	0.99	16.6838
43	120 hour	2%	23	308.00	0.99	27.3699
43	120 hour	2%	24	308.00	0.99	33.4236
43	120 hour	2%	25	308.00	0.99	18.0618
43	120 hour	2%	26	308.00	0.99	13.4332
43	120 hour	2%	27	308.00	0.99	9.1167
43	120 hour	2%	28	308.00	0.99	18.0270
43	120 hour	2%	29	308.00	0.99	37.9938
43	120 hour	2%	30	308.00	0.99	19.1961
44	144 hour	2%	21	312.00	0.99	19.7671
44	144 hour	2%	22	312.00	0.99	12.1101
44	144 hour	2%	23	312.00	0.99	21.6902
44	144 hour	2%	24	312.00	0.99	23.2135
44	144 hour	2%	25	312.00	0.99	17.9432
44	144 hour	2%	26	312.00	0.99	29.8971
44	144 hour	2%	27	312.00	0.99	19.3229
44	144 hour	2%	28	312.00	0.99	8.9527
44	144 hour	2%	29	312.00	0.99	14.2717
44	144 hour	2%	30	312.00	0.99	36.2939
45	168 hour	2%	21	313.00	0.99	16.2169
45	168 hour	2%	22	313.00	0.99	11.2523

NorthWest_batch						
45	168 hour	2%	23	313.00	0.99	23.0791
45	168 hour	2%	24	313.00	0.99	23.2311
45	168 hour	2%	25	313.00	0.99	13.0218
45	168 hour	2%	26	313.00	0.99	13.0218
45	168 hour	2%	27	313.00	0.99	12.8148
45	168 hour	2%	28	313.00	0.99	26.5575
45	168 hour	2%	29	313.00	0.99	13.9696
45	168 hour	2%	30	313.00	0.99	22.0608
46	10 min	1%	21	37.60	0.81	0.3125
46	10 min	1%	22	37.60	0.81	0.3121
46	10 min	1%	23	37.60	0.81	0.3126
46	10 min	1%	24	37.60	0.81	0.3123
46	10 min	1%	25	37.60	0.81	0.3123
46	10 min	1%	26	37.60	0.81	0.3123
46	10 min	1%	27	37.60	0.81	0.3123
46	10 min	1%	28	37.60	0.81	0.3123
46	10 min	1%	29	37.60	0.81	0.3124
46	10 min	1%	30	37.60	0.81	0.3124
47	15 min	1%	21	48.00	0.84	0.4417
47	15 min	1%	22	48.00	0.84	0.4415
47	15 min	1%	23	48.00	0.84	0.4417
47	15 min	1%	24	48.00	0.84	0.4418
47	15 min	1%	25	48.00	0.84	0.4415
47	15 min	1%	26	48.00	0.84	0.4413
47	15 min	1%	27	48.00	0.84	0.4416
47	15 min	1%	28	48.00	0.84	0.4419
47	15 min	1%	29	48.00	0.84	0.4415
47	15 min	1%	30	48.00	0.84	0.4416
48	30 min	1%	21	68.10	0.88	0.7066
48	30 min	1%	22	68.10	0.88	0.7154
48	30 min	1%	23	68.10	0.88	0.7144
48	30 min	1%	24	68.10	0.88	0.7120
48	30 min	1%	25	68.10	0.88	0.7116
48	30 min	1%	26	68.10	0.88	0.7098
48	30 min	1%	27	68.10	0.88	0.7121
48	30 min	1%	28	68.10	0.88	0.7148
48	30 min	1%	29	68.10	0.88	0.7123
48	30 min	1%	30	68.10	0.88	0.7130
49	1 hour	1%	21	89.40	0.90	25.3065
49	1 hour	1%	22	89.40	0.90	25.3041
49	1 hour	1%	23	89.40	0.90	24.7061
49	1 hour	1%	24	89.40	0.90	24.5917
49	1 hour	1%	25	89.40	0.90	24.7718
49	1 hour	1%	26	89.40	0.90	24.8116
49	1 hour	1%	27	89.40	0.90	25.0707
49	1 hour	1%	28	89.40	0.90	24.7683
49	1 hour	1%	29	89.40	0.90	24.8815
49	1 hour	1%	30	89.40	0.90	24.8827
50	2 hour	1%	21	111.00	0.91	56.9792
50	2 hour	1%	22	111.00	0.91	56.0698
50	2 hour	1%	23	111.00	0.91	50.1545
50	2 hour	1%	24	111.00	0.91	55.2703

NorthWest_batch						
50	2 hour	1%	25	111.00	0.91	50.0902
50	2 hour	1%	26	111.00	0.91	56.9765
50	2 hour	1%	27	111.00	0.91	53.5565
50	2 hour	1%	28	111.00	0.91	55.2364
50	2 hour	1%	29	111.00	0.91	56.8690
50	2 hour	1%	30	111.00	0.91	56.9410
51	3 hour	1%	21	125.00	0.92	71.8620
51	3 hour	1%	22	125.00	0.92	62.7880
51	3 hour	1%	23	125.00	0.92	68.2530
51	3 hour	1%	24	125.00	0.92	56.4110
51	3 hour	1%	25	125.00	0.92	57.4234
51	3 hour	1%	26	125.00	0.92	60.2011
51	3 hour	1%	27	125.00	0.92	62.2440
51	3 hour	1%	28	125.00	0.92	67.7021
51	3 hour	1%	29	125.00	0.92	58.7658
51	3 hour	1%	30	125.00	0.92	63.0018
52	6 hour	1%	21	151.00	0.95	62.2446
52	6 hour	1%	22	151.00	0.95	64.3089
52	6 hour	1%	23	151.00	0.95	68.4149
52	6 hour	1%	24	151.00	0.95	51.2465
52	6 hour	1%	25	151.00	0.95	60.6525
52	6 hour	1%	26	151.00	0.95	63.9496
52	6 hour	1%	27	151.00	0.95	96.7381
52	6 hour	1%	28	151.00	0.95	54.7718
52	6 hour	1%	29	151.00	0.95	59.9239
52	6 hour	1%	30	151.00	0.95	83.4562
53	12 hour	1%	21	185.00	0.97	53.6752
53	12 hour	1%	22	185.00	0.97	57.5301
53	12 hour	1%	23	185.00	0.97	49.3362
53	12 hour	1%	24	185.00	0.97	47.6740
53	12 hour	1%	25	185.00	0.97	78.4666
53	12 hour	1%	26	185.00	0.97	38.9090
53	12 hour	1%	27	185.00	0.97	45.0768
53	12 hour	1%	28	185.00	0.97	57.2668
53	12 hour	1%	29	185.00	0.97	41.1114
53	12 hour	1%	30	185.00	0.97	87.0923
54	24 hour	1%	21	230.00	0.99	38.7932
54	24 hour	1%	22	230.00	0.99	30.0045
54	24 hour	1%	23	230.00	0.99	52.3389
54	24 hour	1%	24	230.00	0.99	69.2271
54	24 hour	1%	25	230.00	0.99	45.7118
54	24 hour	1%	26	230.00	0.99	39.2588
54	24 hour	1%	27	230.00	0.99	30.3189
54	24 hour	1%	28	230.00	0.99	55.4167
54	24 hour	1%	29	230.00	0.99	36.8252
54	24 hour	1%	30	230.00	0.99	49.9469
55	48 hour	1%	21	286.00	0.99	36.4795
55	48 hour	1%	22	286.00	0.99	33.6632
55	48 hour	1%	23	286.00	0.99	53.0461
55	48 hour	1%	24	286.00	0.99	26.8004
55	48 hour	1%	25	286.00	0.99	64.7482
55	48 hour	1%	26	286.00	0.99	42.0015

NorthWest_batch						
55	48 hour	1%	27	286.00	0.99	33.7031
55	48 hour	1%	28	286.00	0.99	25.3293
55	48 hour	1%	29	286.00	0.99	43.3090
55	48 hour	1%	30	286.00	0.99	49.4486
56	72 hour	1%	21	319.00	0.99	25.9512
56	72 hour	1%	22	319.00	0.99	18.8664
56	72 hour	1%	23	319.00	0.99	17.5459
56	72 hour	1%	24	319.00	0.99	35.9771
56	72 hour	1%	25	319.00	0.99	14.8739
56	72 hour	1%	26	319.00	0.99	26.4302
56	72 hour	1%	27	319.00	0.99	22.9651
56	72 hour	1%	28	319.00	0.99	22.9349
56	72 hour	1%	29	319.00	0.99	32.3092
56	72 hour	1%	30	319.00	0.99	30.0788
57	96 hour	1%	21	339.00	0.99	22.2768
57	96 hour	1%	22	339.00	0.99	32.7451
57	96 hour	1%	23	339.00	0.99	20.2212
57	96 hour	1%	24	339.00	0.99	12.9636
57	96 hour	1%	25	339.00	0.99	17.3757
57	96 hour	1%	26	339.00	0.99	22.4307
57	96 hour	1%	27	339.00	0.99	19.8750
57	96 hour	1%	28	339.00	0.99	45.5989
57	96 hour	1%	29	339.00	0.99	25.6680
57	96 hour	1%	30	339.00	0.99	23.6523
58	120 hour	1%	21	350.00	0.99	24.4234
58	120 hour	1%	22	350.00	0.99	19.3729
58	120 hour	1%	23	350.00	0.99	31.2343
58	120 hour	1%	24	350.00	0.99	38.1994
58	120 hour	1%	25	350.00	0.99	20.9729
58	120 hour	1%	26	350.00	0.99	15.5629
58	120 hour	1%	27	350.00	0.99	10.9347
58	120 hour	1%	28	350.00	0.99	20.9503
58	120 hour	1%	29	350.00	0.99	44.0396
58	120 hour	1%	30	350.00	0.99	22.0307
59	144 hour	1%	21	356.00	0.99	22.8900
59	144 hour	1%	22	356.00	0.99	14.3193
59	144 hour	1%	23	356.00	0.99	25.1065
59	144 hour	1%	24	356.00	0.99	26.6540
59	144 hour	1%	25	356.00	0.99	20.7572
59	144 hour	1%	26	356.00	0.99	34.2025
59	144 hour	1%	27	356.00	0.99	22.2342
59	144 hour	1%	28	356.00	0.99	10.3997
59	144 hour	1%	29	356.00	0.99	16.7641
59	144 hour	1%	30	356.00	0.99	42.2911
60	168 hour	1%	21	356.00	0.99	18.7204
60	168 hour	1%	22	356.00	0.99	13.1755
60	168 hour	1%	23	356.00	0.99	26.5899
60	168 hour	1%	24	356.00	0.99	26.5850
60	168 hour	1%	25	356.00	0.99	16.7396
60	168 hour	1%	26	356.00	0.99	16.7396
60	168 hour	1%	27	356.00	0.99	15.2115
60	168 hour	1%	28	356.00	0.99	30.6490

NorthWest_batch						
60	168	hour	1%	29	356.00	0.99
60	168	hour	1%	30	356.00	0.99
						16.3762
						25.3864

Elapsed Run Time (hh:mm:ss) = 00:00:16

North_Natural_batch

RORBWin Batch Run Summary

Program version 6.32 (last updated 3rd September 2017)
Copyright Monash University and Hydrology and Risk Consulting

Date run: 11 Jan 2018 17:43

Catchment file : G:\Synergy\Projects\17\170087 Bonnie Doon SWMP\Calculations\RORB\6_North catchment\North_Natural.catg

Rainfall location: User defined

Temporal pattern : ARR2016 point temporal patterns

Spatial pattern : Uniform

Areal Red. Fact. : Based on ARR 2016 (Book 2 Chapter 4)

Loss factors : Constant with ARI

Parameters: kc = 1.60 m = 0.80

Loss parameters	Initial loss (mm)	Cont. loss (mm/h)
60.00	0.90	

Peak Description

- 01 Calculated hydrograph, Heavy/light Road access
- 02 Calculated hydrograph, U/s of Dam
- 03 Calculated hydrograph, Outlet

Run	Duration	AEP	TPat	Rain(mm)	ARF	Peak0001	Peak0002	Peak0003
1	10 min	10%	11	25.00	0.93	0.0000	1.7545	0.5568
1	10 min	10%	12	25.00	0.93	0.0000	1.7545	0.5568
1	10 min	10%	13	25.00	0.93	0.0000	1.7545	0.5568
1	10 min	10%	14	25.00	0.93	0.0000	1.7545	0.5568
1	10 min	10%	15	25.00	0.93	0.0000	1.7545	0.5568
1	10 min	10%	16	25.00	0.93	0.0000	1.7545	0.5568
1	10 min	10%	17	25.00	0.93	0.0000	1.7545	0.5568
1	10 min	10%	18	25.00	0.93	0.0000	1.7545	0.5568
1	10 min	10%	19	25.00	0.93	0.0000	1.7545	0.5568
1	10 min	10%	20	25.00	0.93	0.0000	1.7545	0.5568
2	15 min	10%	11	31.90	0.94	0.0000	2.3957	0.7726
2	15 min	10%	12	31.90	0.94	0.0000	2.3957	0.7726
2	15 min	10%	13	31.90	0.94	0.0000	2.3957	0.7726
2	15 min	10%	14	31.90	0.94	0.0000	2.3957	0.7726
2	15 min	10%	15	31.90	0.94	0.0000	2.3957	0.7726
2	15 min	10%	16	31.90	0.94	0.0000	2.3957	0.7726
2	15 min	10%	17	31.90	0.94	0.0000	2.3957	0.7726
2	15 min	10%	18	31.90	0.94	0.0000	2.3957	0.7726
2	15 min	10%	19	31.90	0.94	0.0000	2.3957	0.7726
2	15 min	10%	20	31.90	0.94	0.0000	2.3957	0.7726
3	30 min	10%	11	44.80	0.96	0.0000	3.4400	1.1927
3	30 min	10%	12	44.80	0.96	0.0000	3.3277	1.1945
3	30 min	10%	13	44.80	0.96	0.0000	3.2097	1.1945
3	30 min	10%	14	44.80	0.96	0.0000	3.6107	1.1948
3	30 min	10%	15	44.80	0.96	0.0000	3.3120	1.1946
3	30 min	10%	16	44.80	0.96	0.0000	3.4421	1.1927
3	30 min	10%	17	44.80	0.96	0.0000	3.3836	1.1942
3	30 min	10%	18	44.80	0.96	0.0000	3.4599	1.1930
3	30 min	10%	19	44.80	0.96	0.0000	3.6335	1.1956
3	30 min	10%	20	44.80	0.96	0.0000	3.6815	1.2066
4	1 hour	10%	11	57.60	0.97	0.0000	4.7428	1.6637
4	1 hour	10%	12	57.60	0.97	0.0000	3.9198	1.6182
4	1 hour	10%	13	57.60	0.97	0.0000	3.4968	1.5962
4	1 hour	10%	14	57.60	0.97	0.0000	4.2064	1.6422
4	1 hour	10%	15	57.60	0.97	0.0000	3.8461	1.6270
4	1 hour	10%	16	57.60	0.97	0.0000	4.1982	1.6467
4	1 hour	10%	17	57.60	0.97	0.0000	3.6603	1.6217

North_Natural_batch									
4	1 hour	10%	18	57.60	0.97	0.0000	4.1600	1.6454	
4	1 hour	10%	19	57.60	0.97	0.0000	3.6855	1.6179	
4	1 hour	10%	20	57.60	0.97	0.0000	4.2718	1.6460	
5	2 hour	10%	11	70.10	0.97	2.4495	7.2796	6.9512	
5	2 hour	10%	12	70.10	0.97	2.3939	6.5523	6.7405	
5	2 hour	10%	13	70.10	0.97	2.4495	7.3073	6.7664	
5	2 hour	10%	14	70.10	0.97	2.0754	5.4242	5.8019	
5	2 hour	10%	15	70.10	0.97	1.9592	4.5292	5.6946	
5	2 hour	10%	16	70.10	0.97	2.2437	5.1027	6.0973	
5	2 hour	10%	17	70.10	0.97	2.1903	6.9478	6.1789	
5	2 hour	10%	18	70.10	0.97	2.6048	6.8622	7.1949	
5	2 hour	10%	19	70.10	0.97	2.6398	6.2742	7.2933	
5	2 hour	10%	20	70.10	0.97	2.5502	7.4664	7.0196	
6	3 hour	10%	11	77.70	0.98	2.9991	7.7531	7.8405	
6	3 hour	10%	12	77.70	0.98	3.0076	6.7225	7.3950	
6	3 hour	10%	13	77.70	0.98	3.3048	6.7272	7.8551	
6	3 hour	10%	14	77.70	0.98	3.3809	7.3328	7.9258	
6	3 hour	10%	15	77.70	0.98	4.0512	8.4458	9.0140	
6	3 hour	10%	16	77.70	0.98	3.4688	7.6101	8.4141	
6	3 hour	10%	17	77.70	0.98	3.1924	7.2338	8.2114	
6	3 hour	10%	18	77.70	0.98	2.8298	7.3024	7.4398	
6	3 hour	10%	19	77.70	0.98	3.2955	7.6321	8.2528	
6	3 hour	10%	20	77.70	0.98	4.0506	9.0968	9.9197	
7	6 hour	10%	11	92.80	0.99	2.3270	5.8376	7.1107	
7	6 hour	10%	12	92.80	0.99	3.8266	8.2784	9.3638	
7	6 hour	10%	13	92.80	0.99	2.8012	6.8870	8.0616	
7	6 hour	10%	14	92.80	0.99	5.0970	12.3256	13.0582	
7	6 hour	10%	15	92.80	0.99	4.8457	11.2434	12.1984	
7	6 hour	10%	16	92.80	0.99	3.0650	8.2519	9.8066	
7	6 hour	10%	17	92.80	0.99	3.5579	9.0201	10.6354	
7	6 hour	10%	18	92.80	0.99	3.8895	8.6748	9.2680	
7	6 hour	10%	19	92.80	0.99	5.6799	12.0330	12.5588	
7	6 hour	10%	20	92.80	0.99	4.0184	10.2245	12.0892	
8	12 hour	10%	11	113.00	0.99	3.9588	10.7807	12.8780	
8	12 hour	10%	12	113.00	0.99	5.3955	12.5264	13.5495	
8	12 hour	10%	13	113.00	0.99	4.0194	9.5936	10.5340	
8	12 hour	10%	14	113.00	0.99	2.1069	5.7132	6.8425	
8	12 hour	10%	15	113.00	0.99	3.1683	7.1939	7.7060	
8	12 hour	10%	16	113.00	0.99	2.2400	5.6036	6.9060	
8	12 hour	10%	17	113.00	0.99	3.3132	9.1325	11.1641	
8	12 hour	10%	18	113.00	0.99	5.4997	13.2725	14.8808	
8	12 hour	10%	19	113.00	0.99	5.6684	13.7239	15.0135	
8	12 hour	10%	20	113.00	0.99	4.1100	10.9163	12.7721	
9	24 hour	10%	11	140.00	0.99	4.4395	11.5304	13.2459	
9	24 hour	10%	12	140.00	0.99	4.5655	12.9093	15.1099	
9	24 hour	10%	13	140.00	0.99	2.9171	7.4334	8.5544	
9	24 hour	10%	14	140.00	0.99	2.2659	6.5048	7.8088	
9	24 hour	10%	15	140.00	0.99	1.8840	4.9413	5.8235	
9	24 hour	10%	16	140.00	0.99	2.6242	6.9966	8.3749	
9	24 hour	10%	17	140.00	0.99	2.4966	7.1026	8.4857	
9	24 hour	10%	18	140.00	0.99	2.8148	7.7352	9.1007	
9	24 hour	10%	19	140.00	0.99	3.2647	8.4945	9.4582	
9	24 hour	10%	20	140.00	0.99	2.7874	7.6132	9.2817	
10	48 hour	10%	11	175.00	1.00	1.6011	4.5656	5.5172	
10	48 hour	10%	12	175.00	1.00	2.4035	6.8765	8.2610	
10	48 hour	10%	13	175.00	1.00	2.2963	6.7334	8.2128	
10	48 hour	10%	14	175.00	1.00	2.0313	5.7295	6.7524	
10	48 hour	10%	15	175.00	1.00	1.9628	5.3708	6.6247	
10	48 hour	10%	16	175.00	1.00	3.9878	10.8582	13.2980	
10	48 hour	10%	17	175.00	1.00	2.0938	5.2158	6.0808	
10	48 hour	10%	18	175.00	1.00	2.8914	8.1969	10.0647	
10	48 hour	10%	19	175.00	1.00	1.8031	5.2007	6.4506	
10	48 hour	10%	20	175.00	1.00	5.1221	13.5620	15.7225	
11	72 hour	10%	11	195.00	1.00	1.1053	2.9917	3.5820	

North_Natural_batch							
11	72 hour	10%	12	195.00	1.00	2.0202	5.4766 6.4431
11	72 hour	10%	13	195.00	1.00	1.2560	3.7924 4.6940
11	72 hour	10%	14	195.00	1.00	1.5328	3.9458 4.7250
11	72 hour	10%	15	195.00	1.00	3.3308	8.6984 10.1432
11	72 hour	10%	16	195.00	1.00	2.8693	8.1277 9.7748
11	72 hour	10%	17	195.00	1.00	1.2883	3.3649 3.9721
11	72 hour	10%	18	195.00	1.00	2.2238	6.2111 7.5484
11	72 hour	10%	19	195.00	1.00	1.3168	3.4276 4.2863
11	72 hour	10%	20	195.00	1.00	2.4740	7.5278 9.2878
12	96 hour	10%	11	207.00	1.00	2.2962	6.5672 8.2131
12	96 hour	10%	12	207.00	1.00	2.1110	5.4581 6.4224
12	96 hour	10%	13	207.00	1.00	0.9288	2.3642 2.6771
12	96 hour	10%	14	207.00	1.00	1.6430	4.8898 5.9951
12	96 hour	10%	15	207.00	1.00	1.3475	3.5746 4.2230
12	96 hour	10%	16	207.00	1.00	1.2689	3.3348 4.1175
12	96 hour	10%	17	207.00	1.00	1.9039	5.5129 6.6610
12	96 hour	10%	18	207.00	1.00	2.3817	6.3418 7.4779
12	96 hour	10%	19	207.00	1.00	1.2121	3.2683 4.1179
12	96 hour	10%	20	207.00	1.00	1.2747	3.3741 4.1110
13	120 hour	10%	11	214.00	1.00	1.6217	4.9230 6.1057
13	120 hour	10%	12	214.00	1.00	1.4109	3.9749 4.7699
13	120 hour	10%	13	214.00	1.00	2.2052	5.6315 6.4795
13	120 hour	10%	14	214.00	1.00	2.5371	6.6118 7.8112
13	120 hour	10%	15	214.00	1.00	1.1801	3.3476 4.0688
13	120 hour	10%	16	214.00	1.00	1.1176	3.2326 4.0033
13	120 hour	10%	17	214.00	1.00	3.3096	8.4143 9.7067
13	120 hour	10%	18	214.00	1.00	1.8040	4.3647 4.9638
13	120 hour	10%	19	214.00	1.00	1.6664	4.6061 5.5682
13	120 hour	10%	20	214.00	1.00	1.4755	4.3370 5.3722
14	144 hour	10%	11	217.00	1.00	1.8140	4.7013 5.7341
14	144 hour	10%	12	217.00	1.00	3.4785	8.8530 10.2348
14	144 hour	10%	13	217.00	1.00	1.8078	4.5131 5.1534
14	144 hour	10%	14	217.00	1.00	3.0125	8.4108 10.0625
14	144 hour	10%	15	217.00	1.00	1.5884	4.5057 5.5989
14	144 hour	10%	16	217.00	1.00	1.2807	3.7636 4.6454
14	144 hour	10%	17	217.00	1.00	1.0611	2.5126 2.9698
14	144 hour	10%	18	217.00	1.00	1.4844	4.0569 5.0881
14	144 hour	10%	19	217.00	1.00	1.2482	3.5342 4.1382
14	144 hour	10%	20	217.00	1.00	1.8021	4.5556 5.3106
15	168 hour	10%	11	217.00	1.00	1.6265	4.3408 5.1008
15	168 hour	10%	12	217.00	1.00	0.8538	2.4535 2.9346
15	168 hour	10%	13	217.00	1.00	1.2733	3.8041 4.6292
15	168 hour	10%	14	217.00	1.00	1.1281	2.7317 3.1977
15	168 hour	10%	15	217.00	1.00	2.0700	5.8479 7.2021
15	168 hour	10%	16	217.00	1.00	1.7859	4.4570 5.0886
15	168 hour	10%	17	217.00	1.00	1.4352	4.0782 5.0608
15	168 hour	10%	18	217.00	1.00	0.8989	2.2894 2.6087
15	168 hour	10%	19	217.00	1.00	1.3323	3.7858 4.6698
15	168 hour	10%	20	217.00	1.00	0.9975	2.7540 3.3048
16	10 min	5%	11	28.70	0.93	0.0000	2.0711 0.6632
16	10 min	5%	12	28.70	0.93	0.0000	2.0711 0.6632
16	10 min	5%	13	28.70	0.93	0.0000	2.0711 0.6632
16	10 min	5%	14	28.70	0.93	0.0000	2.0711 0.6632
16	10 min	5%	15	28.70	0.93	0.0000	2.0711 0.6632
16	10 min	5%	16	28.70	0.93	0.0000	2.0711 0.6632
16	10 min	5%	17	28.70	0.93	0.0000	2.0711 0.6632
16	10 min	5%	18	28.70	0.93	0.0000	2.0711 0.6632
16	10 min	5%	19	28.70	0.93	0.0000	2.0711 0.6632
16	10 min	5%	20	28.70	0.93	0.0000	2.0711 0.6632
17	15 min	5%	11	36.80	0.94	0.0000	2.8420 0.9235
17	15 min	5%	12	36.80	0.94	0.0000	2.8420 0.9235
17	15 min	5%	13	36.80	0.94	0.0000	2.8420 0.9235
17	15 min	5%	14	36.80	0.94	0.0000	2.8420 0.9235
17	15 min	5%	15	36.80	0.94	0.0000	2.8420 0.9235

North_Natural_batch									
17	15 min	5%	16	36.80	0.94	0.0000	2.8420	0.9235	
17	15 min	5%	17	36.80	0.94	0.0000	2.8420	0.9235	
17	15 min	5%	18	36.80	0.94	0.0000	2.8420	0.9235	
17	15 min	5%	19	36.80	0.94	0.0000	2.8420	0.9235	
17	15 min	5%	20	36.80	0.94	0.0000	2.8420	0.9235	
18	30 min	5%	11	51.80	0.96	0.0000	4.0827	1.4327	
18	30 min	5%	12	51.80	0.96	0.0000	3.9453	1.4335	
18	30 min	5%	13	51.80	0.96	0.0000	3.8011	1.4321	
18	30 min	5%	14	51.80	0.96	0.0000	4.2917	1.4339	
18	30 min	5%	15	51.80	0.96	0.0000	3.9260	1.4334	
18	30 min	5%	16	51.80	0.96	0.0000	4.0853	1.4327	
18	30 min	5%	17	51.80	0.96	0.0000	4.0135	1.4338	
18	30 min	5%	18	51.80	0.96	0.0000	4.1070	1.4332	
18	30 min	5%	19	51.80	0.96	0.0000	4.3197	1.4340	
18	30 min	5%	20	51.80	0.96	0.0000	4.3732	1.4452	
19	1 hour	5%	11	67.00	0.97	1.2992	7.8148	4.0922	
19	1 hour	5%	12	67.00	0.97	1.4663	5.9581	5.2505	
19	1 hour	5%	13	67.00	0.97	1.3407	5.2464	4.7491	
19	1 hour	5%	14	67.00	0.97	1.4663	6.3480	5.1007	
19	1 hour	5%	15	67.00	0.97	1.3871	6.0218	4.8999	
19	1 hour	5%	16	67.00	0.97	1.4663	6.6009	5.0851	
19	1 hour	5%	17	67.00	0.97	1.3619	5.6955	4.8268	
19	1 hour	5%	18	67.00	0.97	1.4008	6.7774	4.8106	
19	1 hour	5%	19	67.00	0.97	1.4271	5.6069	5.2249	
19	1 hour	5%	20	67.00	0.97	1.3848	6.9465	4.6921	
20	2 hour	5%	11	82.00	0.97	6.2184	13.2393	13.1669	
20	2 hour	5%	12	82.00	0.97	5.7922	11.9917	12.3122	
20	2 hour	5%	13	82.00	0.97	6.2163	12.5951	13.6216	
20	2 hour	5%	14	82.00	0.97	4.8842	10.1772	10.8073	
20	2 hour	5%	15	82.00	0.97	4.1245	9.2057	10.3575	
20	2 hour	5%	16	82.00	0.97	4.4070	9.9902	10.7429	
20	2 hour	5%	17	82.00	0.97	5.6915	12.4004	13.0227	
20	2 hour	5%	18	82.00	0.97	5.9450	12.5630	13.2911	
20	2 hour	5%	19	82.00	0.97	5.6149	11.4641	12.5577	
20	2 hour	5%	20	82.00	0.97	6.4882	12.6898	14.0597	
21	3 hour	5%	11	91.20	0.97	6.1933	13.0282	13.1681	
21	3 hour	5%	12	91.20	0.97	4.9475	11.1475	12.0860	
21	3 hour	5%	13	91.20	0.97	5.3565	11.7952	12.7212	
21	3 hour	5%	14	91.20	0.97	5.3525	12.5393	13.1609	
21	3 hour	5%	15	91.20	0.97	5.9719	13.9915	14.5595	
21	3 hour	5%	16	91.20	0.97	5.5686	13.2037	13.9310	
21	3 hour	5%	17	91.20	0.97	5.7792	13.0425	13.4716	
21	3 hour	5%	18	91.20	0.97	6.0979	12.6863	13.6265	
21	3 hour	5%	19	91.20	0.97	6.0885	13.3725	13.8556	
21	3 hour	5%	20	91.20	0.97	7.2878	15.2998	15.8377	
22	6 hour	5%	11	109.00	0.98	4.7079	10.0114	11.4443	
22	6 hour	5%	12	109.00	0.98	6.0201	12.5368	12.9276	
22	6 hour	5%	13	109.00	0.98	4.9074	11.0209	12.3311	
22	6 hour	5%	14	109.00	0.98	6.2189	16.0638	17.9338	
22	6 hour	5%	15	109.00	0.98	7.1156	17.0498	18.3027	
22	6 hour	5%	16	109.00	0.98	3.9120	10.2686	12.8645	
22	6 hour	5%	17	109.00	0.98	5.2448	11.8204	13.8270	
22	6 hour	5%	18	109.00	0.98	6.0714	14.2575	15.1735	
22	6 hour	5%	19	109.00	0.98	7.9108	17.6952	18.3904	
22	6 hour	5%	20	109.00	0.98	5.4702	14.3557	16.5865	
23	12 hour	5%	11	133.00	0.99	4.7088	12.8611	15.4087	
23	12 hour	5%	12	133.00	0.99	7.9496	17.7873	19.7496	
23	12 hour	5%	13	133.00	0.99	4.8152	11.5652	12.7054	
23	12 hour	5%	14	133.00	0.99	2.5259	6.8845	8.2369	
23	12 hour	5%	15	133.00	0.99	4.6270	10.9277	11.7481	
23	12 hour	5%	16	133.00	0.99	3.4634	8.6350	9.9316	
23	12 hour	5%	17	133.00	0.99	4.1994	11.3299	13.9199	
23	12 hour	5%	18	133.00	0.99	6.5723	16.0124	17.8983	
23	12 hour	5%	19	133.00	0.99	6.7860	16.7604	18.7643	

North_Natural_batch										
23	12 hour	5%	20	133.00	0.99	5.5328	13.7840	15.3846		
24	24 hour	5%	11	165.00	0.99	5.4184	15.1644	18.0726		
24	24 hour	5%	12	165.00	0.99	5.4516	15.2349	18.6428		
24	24 hour	5%	13	165.00	0.99	3.5032	8.9704	10.3511		
24	24 hour	5%	14	165.00	0.99	2.7113	7.8068	9.3971		
24	24 hour	5%	15	165.00	0.99	2.2730	5.9717	7.0348		
24	24 hour	5%	16	165.00	0.99	3.1539	8.3705	10.0424		
24	24 hour	5%	17	165.00	0.99	3.0199	8.5341	10.1320		
24	24 hour	5%	18	165.00	0.99	3.3655	9.2890	10.9642		
24	24 hour	5%	19	165.00	0.99	3.9081	10.2471	11.4575		
24	24 hour	5%	20	165.00	0.99	3.3396	9.0904	11.1071		
25	48 hour	5%	11	206.00	1.00	2.2004	6.2828	7.7466		
25	48 hour	5%	12	206.00	1.00	2.8768	8.2062	9.8856		
25	48 hour	5%	13	206.00	1.00	2.7378	8.0395	9.8197		
25	48 hour	5%	14	206.00	1.00	2.4312	6.8933	8.1680		
25	48 hour	5%	15	206.00	1.00	2.3422	6.5842	7.8635		
25	48 hour	5%	16	206.00	1.00	4.7800	12.8786	15.8504		
25	48 hour	5%	17	206.00	1.00	2.5287	6.3037	7.4043		
25	48 hour	5%	18	206.00	1.00	3.4932	9.7285	11.9568		
25	48 hour	5%	19	206.00	1.00	2.1617	6.2312	7.7430		
25	48 hour	5%	20	206.00	1.00	6.1027	16.2338	18.8868		
26	72 hour	5%	11	230.00	1.00	1.3861	3.6253	4.3491		
26	72 hour	5%	12	230.00	1.00	2.4316	6.6145	7.8074		
26	72 hour	5%	13	230.00	1.00	1.7841	5.2904	6.5406		
26	72 hour	5%	14	230.00	1.00	1.9775	4.9090	5.7607		
26	72 hour	5%	15	230.00	1.00	3.9986	10.4890	12.2686		
26	72 hour	5%	16	230.00	1.00	3.4327	9.7493	11.7589		
26	72 hour	5%	17	230.00	1.00	1.5584	4.1550	4.9337		
26	72 hour	5%	18	230.00	1.00	2.6679	7.4573	9.0689		
26	72 hour	5%	19	230.00	1.00	1.6088	4.1334	5.1806		
26	72 hour	5%	20	230.00	1.00	2.9519	8.9994	11.1299		
27	96 hour	5%	11	245.00	1.00	2.7771	7.8559	9.8448		
27	96 hour	5%	12	245.00	1.00	2.5636	6.6635	7.7404		
27	96 hour	5%	13	245.00	1.00	1.1512	2.9590	3.4218		
27	96 hour	5%	14	245.00	1.00	2.3299	6.7842	8.3539		
27	96 hour	5%	15	245.00	1.00	1.6450	4.3802	5.1909		
27	96 hour	5%	16	245.00	1.00	1.5565	4.0469	5.0121		
27	96 hour	5%	17	245.00	1.00	2.2984	6.6662	8.0800		
27	96 hour	5%	18	245.00	1.00	3.2879	8.9813	10.6575		
27	96 hour	5%	19	245.00	1.00	1.5097	3.9923	5.0183		
27	96 hour	5%	20	245.00	1.00	1.6027	4.1127	5.0179		
28	120 hour	5%	11	253.00	1.00	1.9780	5.9193	7.3667		
28	120 hour	5%	12	253.00	1.00	1.7061	4.8288	5.8257		
28	120 hour	5%	13	253.00	1.00	2.6721	6.8234	7.9309		
28	120 hour	5%	14	253.00	1.00	3.0598	7.9977	9.4745		
28	120 hour	5%	15	253.00	1.00	1.4333	4.0724	4.9759		
28	120 hour	5%	16	253.00	1.00	1.3394	4.0620	4.8994		
28	120 hour	5%	17	253.00	1.00	3.9911	10.2005	11.8050		
28	120 hour	5%	18	253.00	1.00	2.1811	5.3010	6.0480		
28	120 hour	5%	19	253.00	1.00	1.8469	5.3941	6.7022		
28	120 hour	5%	20	253.00	1.00	1.8002	5.2388	6.5102		
29	144 hour	5%	11	257.00	1.00	2.2043	5.7452	6.9094		
29	144 hour	5%	12	257.00	1.00	4.1965	10.7337	12.4538		
29	144 hour	5%	13	257.00	1.00	2.2107	5.5571	6.3838		
29	144 hour	5%	14	257.00	1.00	3.6211	10.1401	12.1673		
29	144 hour	5%	15	257.00	1.00	1.9274	5.4428	6.7805		
29	144 hour	5%	16	257.00	1.00	1.5575	4.5710	5.6674		
29	144 hour	5%	17	257.00	1.00	1.3738	3.9359	4.4760		
29	144 hour	5%	18	257.00	1.00	1.8271	4.8945	6.1714		
29	144 hour	5%	19	257.00	1.00	1.5484	4.2052	4.9748		
29	144 hour	5%	20	257.00	1.00	2.1966	5.5691	6.5027		
30	168 hour	5%	11	258.00	1.00	1.9868	5.3232	6.2874		
30	168 hour	5%	12	258.00	1.00	1.0562	3.0455	3.6629		
30	168 hour	5%	13	258.00	1.00	1.5571	4.6562	5.6913		

North_Natural_batch								
30	168 hour	5%	14	258.00	1.00	1.4115	3.4388	3.9333
30	168 hour	5%	15	258.00	1.00	2.5088	7.0084	8.6290
30	168 hour	5%	16	258.00	1.00	2.1947	5.5155	6.3362
30	168 hour	5%	17	258.00	1.00	1.7520	4.9591	6.1701
30	168 hour	5%	18	258.00	1.00	1.5295	4.0892	4.5828
30	168 hour	5%	19	258.00	1.00	1.4974	4.6071	5.7195
30	168 hour	5%	20	258.00	1.00	1.2407	3.4060	4.1078
31	10 min	2%	21	33.80	0.93	0.0000	2.5178	0.8138
31	10 min	2%	22	33.80	0.93	0.0000	2.5178	0.8138
31	10 min	2%	23	33.80	0.93	0.0000	2.5178	0.8138
31	10 min	2%	24	33.80	0.93	0.0000	2.5178	0.8138
31	10 min	2%	25	33.80	0.93	0.0000	2.5178	0.8138
31	10 min	2%	26	33.80	0.93	0.0000	2.5178	0.8138
31	10 min	2%	27	33.80	0.93	0.0000	2.5178	0.8138
31	10 min	2%	28	33.80	0.93	0.0000	2.5178	0.8138
31	10 min	2%	29	33.80	0.93	0.0000	2.5178	0.8138
31	10 min	2%	30	33.80	0.93	0.0000	2.5178	0.8138
32	15 min	2%	21	43.10	0.94	0.0000	3.4279	1.1211
32	15 min	2%	22	43.10	0.94	0.0000	3.4279	1.1211
32	15 min	2%	23	43.10	0.94	0.0000	3.4279	1.1211
32	15 min	2%	24	43.10	0.94	0.0000	3.4279	1.1211
32	15 min	2%	25	43.10	0.94	0.0000	3.4279	1.1211
32	15 min	2%	26	43.10	0.94	0.0000	3.4279	1.1211
32	15 min	2%	27	43.10	0.94	0.0000	3.4279	1.1211
32	15 min	2%	28	43.10	0.94	0.0000	3.4279	1.1211
32	15 min	2%	29	43.10	0.94	0.0000	3.4279	1.1211
32	15 min	2%	30	43.10	0.94	0.0000	3.4279	1.1211
33	30 min	2%	21	61.00	0.95	0.0000	5.3030	1.7731
33	30 min	2%	22	61.00	0.95	0.0000	4.7313	1.7550
33	30 min	2%	23	61.00	0.95	0.0000	5.3030	1.7731
33	30 min	2%	24	61.00	0.95	0.0000	5.2138	1.7608
33	30 min	2%	25	61.00	0.95	0.0000	4.8188	1.7563
33	30 min	2%	26	61.00	0.95	0.0000	4.8486	1.7567
33	30 min	2%	27	61.00	0.95	0.0000	5.3030	1.7731
33	30 min	2%	28	61.00	0.95	0.0000	4.5904	1.7525
33	30 min	2%	29	61.00	0.95	0.0000	5.3030	1.7731
33	30 min	2%	30	61.00	0.95	0.0000	4.9310	1.7579
34	1 hour	2%	21	79.60	0.96	6.1934	14.5861	13.4477
34	1 hour	2%	22	79.60	0.96	6.3337	14.5455	14.2052
34	1 hour	2%	23	79.60	0.96	5.1206	11.3300	11.4534
34	1 hour	2%	24	79.60	0.96	4.7049	10.5966	10.6898
34	1 hour	2%	25	79.60	0.96	5.2214	11.4245	12.2168
34	1 hour	2%	26	79.60	0.96	5.3592	11.6332	12.5927
34	1 hour	2%	27	79.60	0.96	5.9371	12.9482	13.9757
34	1 hour	2%	28	79.60	0.96	5.2812	11.4343	12.3184
34	1 hour	2%	29	79.60	0.96	5.5830	11.8645	12.8010
34	1 hour	2%	30	79.60	0.96	5.7232	12.2994	12.6118
35	2 hour	2%	21	98.30	0.97	11.2121	21.9569	21.3292
35	2 hour	2%	22	98.30	0.97	9.9561	20.6682	20.0136
35	2 hour	2%	23	98.30	0.97	6.3869	15.5401	17.4619
35	2 hour	2%	24	98.30	0.97	9.5538	19.2152	19.2043
35	2 hour	2%	25	98.30	0.97	6.5287	15.4456	16.8456
35	2 hour	2%	26	98.30	0.97	10.9901	21.9255	21.8478
35	2 hour	2%	27	98.30	0.97	8.1443	18.3416	18.8779
35	2 hour	2%	28	98.30	0.97	9.4329	19.9748	20.2259
35	2 hour	2%	29	98.30	0.97	10.9861	21.7945	21.9058
35	2 hour	2%	30	98.30	0.97	10.3069	21.5508	20.8122
36	3 hour	2%	21	110.00	0.97	10.9706	24.3232	25.1454
36	3 hour	2%	22	110.00	0.97	9.5996	20.6158	21.3349
36	3 hour	2%	23	110.00	0.97	9.7890	21.6848	23.2544
36	3 hour	2%	24	110.00	0.97	6.9252	17.4693	20.0126
36	3 hour	2%	25	110.00	0.97	6.9236	17.5116	19.7904
36	3 hour	2%	26	110.00	0.97	7.4590	17.1894	20.0132
36	3 hour	2%	27	110.00	0.97	7.1972	18.5207	20.8106

North_Natural_batch										
36	3 hour	2%	28	110.00	0.97	10.0512	23.4539	24.1192		
36	3 hour	2%	29	110.00	0.97	6.5199	17.1852	19.8144		
36	3 hour	2%	30	110.00	0.97	6.8363	17.9613	21.2950		
37	6 hour	2%	21	132.00	0.98	7.1764	17.4597	18.7988		
37	6 hour	2%	22	132.00	0.98	6.3317	17.3692	21.1211		
37	6 hour	2%	23	132.00	0.98	7.2765	18.3857	20.2544		
37	6 hour	2%	24	132.00	0.98	5.9121	15.1768	17.8193		
37	6 hour	2%	25	132.00	0.98	5.5252	15.2678	18.4816		
37	6 hour	2%	26	132.00	0.98	7.8964	19.3628	22.9067		
37	6 hour	2%	27	132.00	0.98	10.4322	26.3694	29.6224		
37	6 hour	2%	28	132.00	0.98	6.9519	15.2826	16.2001		
37	6 hour	2%	29	132.00	0.98	6.7584	17.0289	19.5840		
37	6 hour	2%	30	132.00	0.98	8.5114	22.1192	25.2734		
38	12 hour	2%	21	162.00	0.99	4.7893	13.4007	16.7733		
38	12 hour	2%	22	162.00	0.99	5.2441	14.7823	17.9210		
38	12 hour	2%	23	162.00	0.99	4.8674	12.5993	14.5877		
38	12 hour	2%	24	162.00	0.99	4.7905	12.4607	14.2116		
38	12 hour	2%	25	162.00	0.99	8.4434	20.9860	23.5802		
38	12 hour	2%	26	162.00	0.99	3.5608	9.9549	12.1728		
38	12 hour	2%	27	162.00	0.99	4.9679	12.5839	13.8862		
38	12 hour	2%	28	162.00	0.99	7.1187	16.5210	16.3747		
38	12 hour	2%	29	162.00	0.99	4.1560	10.8947	12.9755		
38	12 hour	2%	30	162.00	0.99	8.4767	22.6788	27.0199		
39	24 hour	2%	21	201.00	0.99	3.3606	9.6949	11.8577		
39	24 hour	2%	22	201.00	0.99	2.6004	7.1995	8.6919		
39	24 hour	2%	23	201.00	0.99	4.6323	12.0382	14.8786		
39	24 hour	2%	24	201.00	0.99	5.9418	17.1829	20.2874		
39	24 hour	2%	25	201.00	0.99	4.3374	11.8176	13.5085		
39	24 hour	2%	26	201.00	0.99	3.8089	10.0178	11.7210		
39	24 hour	2%	27	201.00	0.99	2.9440	7.5297	8.8993		
39	24 hour	2%	28	201.00	0.99	4.8552	13.4869	15.9598		
39	24 hour	2%	29	201.00	0.99	3.5753	9.2402	10.8526		
39	24 hour	2%	30	201.00	0.99	5.3975	14.7400	16.7136		
40	48 hour	2%	21	250.00	1.00	2.9828	8.9419	10.8697		
40	48 hour	2%	22	250.00	1.00	2.5852	7.6124	9.2727		
40	48 hour	2%	23	250.00	1.00	5.5680	15.1760	17.7700		
40	48 hour	2%	24	250.00	1.00	2.2549	6.5166	8.0170		
40	48 hour	2%	25	250.00	1.00	5.1230	15.5916	18.9426		
40	48 hour	2%	26	250.00	1.00	4.0499	11.0554	13.0984		
40	48 hour	2%	27	250.00	1.00	3.1865	8.4437	10.0870		
40	48 hour	2%	28	250.00	1.00	2.2572	6.0026	7.1019		
40	48 hour	2%	29	250.00	1.00	3.5406	9.7492	12.2455		
40	48 hour	2%	30	250.00	1.00	4.9187	12.5938	14.6369		
41	72 hour	2%	21	280.00	1.00	2.0590	5.9383	7.3372		
41	72 hour	2%	22	280.00	1.00	1.7397	4.7489	5.8513		
41	72 hour	2%	23	280.00	1.00	1.4640	4.2134	5.2598		
41	72 hour	2%	24	280.00	1.00	2.6910	8.0904	9.9851		
41	72 hour	2%	25	280.00	1.00	1.2841	3.7312	4.5294		
41	72 hour	2%	26	280.00	1.00	2.2799	6.4114	7.7933		
41	72 hour	2%	27	280.00	1.00	2.0293	5.5890	6.7507		
41	72 hour	2%	28	280.00	1.00	2.0248	5.8620	7.0796		
41	72 hour	2%	29	280.00	1.00	2.9929	8.0980	10.0205		
41	72 hour	2%	30	280.00	1.00	2.4681	7.2818	8.9393		
42	96 hour	2%	21	298.00	1.00	2.0122	5.6595	6.9356		
42	96 hour	2%	22	298.00	1.00	3.0957	8.6722	10.4627		
42	96 hour	2%	23	298.00	1.00	1.7879	4.6835	5.7047		
42	96 hour	2%	24	298.00	1.00	1.2372	3.5266	4.1257		
42	96 hour	2%	25	298.00	1.00	1.4073	4.0004	4.9991		
42	96 hour	2%	26	298.00	1.00	1.9484	5.5031	6.5808		
42	96 hour	2%	27	298.00	1.00	1.4972	4.3504	5.4782		
42	96 hour	2%	28	298.00	1.00	4.6546	12.2082	14.2923		
42	96 hour	2%	29	298.00	1.00	2.3689	6.7009	8.0585		
42	96 hour	2%	30	298.00	1.00	1.9194	5.3727	6.6536		
43	120 hour	2%	21	308.00	1.00	2.0254	5.8885	7.2946		

North_Natural_batch								
43	120 hour	2%	22	308.00	1.00	1.7664	4.9769	6.0533
43	120 hour	2%	23	308.00	1.00	2.7045	7.2031	8.4976
43	120 hour	2%	24	308.00	1.00	4.0088	9.7573	10.8765
43	120 hour	2%	25	308.00	1.00	2.1881	5.8368	7.0290
43	120 hour	2%	26	308.00	1.00	1.4136	3.8321	4.5524
43	120 hour	2%	27	308.00	1.00	1.1431	3.0485	3.6263
43	120 hour	2%	28	308.00	1.00	1.6823	5.0438	6.1513
43	120 hour	2%	29	308.00	1.00	4.4868	12.2836	14.6289
43	120 hour	2%	30	308.00	1.00	2.0920	5.7698	6.9451
44	144 hour	2%	21	312.00	1.00	1.8881	5.4855	6.8013
44	144 hour	2%	22	312.00	1.00	1.2043	3.5410	4.2771
44	144 hour	2%	23	312.00	1.00	2.0549	5.6256	7.1082
44	144 hour	2%	24	312.00	1.00	2.6663	7.1390	8.4643
44	144 hour	2%	25	312.00	1.00	1.9149	4.9771	5.8372
44	144 hour	2%	26	312.00	1.00	3.8610	9.4919	10.5669
44	144 hour	2%	27	312.00	1.00	2.2731	5.7800	6.8185
44	144 hour	2%	28	312.00	1.00	1.0996	2.9934	3.4357
44	144 hour	2%	29	312.00	1.00	1.5597	4.4263	5.2807
44	144 hour	2%	30	312.00	1.00	4.2992	11.7614	13.9982
45	168 hour	2%	21	313.00	1.00	1.5237	4.3823	5.4520
45	168 hour	2%	22	313.00	1.00	1.1098	3.2901	3.9667
45	168 hour	2%	23	313.00	1.00	2.2728	6.3911	7.8596
45	168 hour	2%	24	313.00	1.00	2.6670	7.1404	8.4656
45	168 hour	2%	25	313.00	1.00	1.2466	3.4785	4.3023
45	168 hour	2%	26	313.00	1.00	1.2466	3.4785	4.3023
45	168 hour	2%	27	313.00	1.00	1.5464	4.2417	5.0161
45	168 hour	2%	28	313.00	1.00	2.4707	6.5231	8.2254
45	168 hour	2%	29	313.00	1.00	1.5067	4.2800	5.1318
45	168 hour	2%	30	313.00	1.00	2.2277	5.7691	6.7633
46	10 min	1%	21	37.60	0.92	0.0000	2.8579	0.9288
46	10 min	1%	22	37.60	0.92	0.0000	2.8579	0.9288
46	10 min	1%	23	37.60	0.92	0.0000	2.8579	0.9288
46	10 min	1%	24	37.60	0.92	0.0000	2.8579	0.9288
46	10 min	1%	25	37.60	0.92	0.0000	2.8579	0.9288
46	10 min	1%	26	37.60	0.92	0.0000	2.8579	0.9288
46	10 min	1%	27	37.60	0.92	0.0000	2.8579	0.9288
46	10 min	1%	28	37.60	0.92	0.0000	2.8579	0.9288
46	10 min	1%	29	37.60	0.92	0.0000	2.8579	0.9288
46	10 min	1%	30	37.60	0.92	0.0000	2.8579	0.9288
47	15 min	1%	21	48.00	0.94	0.0000	3.8940	1.2782
47	15 min	1%	22	48.00	0.94	0.0000	3.8940	1.2782
47	15 min	1%	23	48.00	0.94	0.0000	3.8940	1.2782
47	15 min	1%	24	48.00	0.94	0.0000	3.8940	1.2782
47	15 min	1%	25	48.00	0.94	0.0000	3.8940	1.2782
47	15 min	1%	26	48.00	0.94	0.0000	3.8940	1.2782
47	15 min	1%	27	48.00	0.94	0.0000	3.8940	1.2782
47	15 min	1%	28	48.00	0.94	0.0000	3.8940	1.2782
47	15 min	1%	29	48.00	0.94	0.0000	3.8940	1.2782
47	15 min	1%	30	48.00	0.94	0.0000	3.8940	1.2782
48	30 min	1%	21	68.10	0.95	1.4894	8.5038	4.3877
48	30 min	1%	22	68.10	0.95	1.4894	7.3685	4.8725
48	30 min	1%	23	68.10	0.95	1.4894	8.6119	4.3629
48	30 min	1%	24	68.10	0.95	1.4894	8.0278	4.5833
48	30 min	1%	25	68.10	0.95	1.4894	7.4842	4.8208
48	30 min	1%	26	68.10	0.95	1.4894	7.5237	4.8033
48	30 min	1%	27	68.10	0.95	1.4894	8.1238	4.5445
48	30 min	1%	28	68.10	0.95	1.4894	7.1857	4.9548
48	30 min	1%	29	68.10	0.95	1.4894	8.4564	4.4072
48	30 min	1%	30	68.10	0.95	1.4894	7.6336	4.7545
49	1 hour	1%	21	89.40	0.96	10.1441	20.7397	23.3831
49	1 hour	1%	22	89.40	0.96	10.2598	20.5196	22.3937
49	1 hour	1%	23	89.40	0.96	7.9331	16.7212	16.1806
49	1 hour	1%	24	89.40	0.96	7.2153	15.7281	15.3617
49	1 hour	1%	25	89.40	0.96	8.2814	16.7412	17.1137

North_Natural_batch												
49	1 hour	1%	26	89.40	0.96	8.4578	16.9931	17.5501				
49	1 hour	1%	27	89.40	0.96	9.2262	18.4904	20.2737				
49	1 hour	1%	28	89.40	0.96	8.3054	16.7078	17.2003				
49	1 hour	1%	29	89.40	0.96	8.5527	17.0120	18.0597				
49	1 hour	1%	30	89.40	0.96	8.7198	17.7333	17.5070				
50	2 hour	1%	21	111.00	0.96	14.2099	28.9202	27.6698				
50	2 hour	1%	22	111.00	0.96	12.6190	27.1239	26.4409				
50	2 hour	1%	23	111.00	0.96	8.7645	19.8682	23.0386				
50	2 hour	1%	24	111.00	0.96	12.3880	25.5150	25.1743				
50	2 hour	1%	25	111.00	0.96	8.6940	19.9067	22.2647				
50	2 hour	1%	26	111.00	0.96	14.0428	28.9100	28.0971				
50	2 hour	1%	27	111.00	0.96	10.3467	23.8942	25.1463				
50	2 hour	1%	28	111.00	0.96	11.6134	26.1840	26.7714				
50	2 hour	1%	29	111.00	0.96	13.9751	29.0325	28.8742				
50	2 hour	1%	30	111.00	0.96	13.2732	28.4400	27.7179				
51	3 hour	1%	21	125.00	0.97	13.1838	31.0091	32.6249				
51	3 hour	1%	22	125.00	0.97	11.1573	24.8914	26.4941				
51	3 hour	1%	23	125.00	0.97	11.6261	27.3132	30.0583				
51	3 hour	1%	24	125.00	0.97	8.0237	20.9325	24.6605				
51	3 hour	1%	25	125.00	0.97	8.0209	21.0282	24.4655				
51	3 hour	1%	26	125.00	0.97	9.0452	20.7302	24.9433				
51	3 hour	1%	27	125.00	0.97	8.3921	22.6119	26.2606				
51	3 hour	1%	28	125.00	0.97	11.6747	28.3856	30.1206				
51	3 hour	1%	29	125.00	0.97	7.5761	20.8135	24.7770				
51	3 hour	1%	30	125.00	0.97	10.6882	22.8215	27.6367				
52	6 hour	1%	21	151.00	0.98	9.7853	23.5252	25.8578				
52	6 hour	1%	22	151.00	0.98	7.2895	20.0394	24.6292				
52	6 hour	1%	23	151.00	0.98	8.4865	22.1480	25.0991				
52	6 hour	1%	24	151.00	0.98	6.8288	17.6524	20.8738				
52	6 hour	1%	25	151.00	0.98	6.4860	17.9439	21.9882				
52	6 hour	1%	26	151.00	0.98	9.1400	22.4061	26.7658				
52	6 hour	1%	27	151.00	0.98	12.1832	31.8792	36.7897				
52	6 hour	1%	28	151.00	0.98	9.2554	21.6965	22.7072				
52	6 hour	1%	29	151.00	0.98	7.7983	19.7272	22.7036				
52	6 hour	1%	30	151.00	0.98	9.9064	26.0632	30.4455				
53	12 hour	1%	21	185.00	0.99	5.5093	15.3873	19.2645				
53	12 hour	1%	22	185.00	0.99	6.0209	16.9836	20.5993				
53	12 hour	1%	23	185.00	0.99	5.6115	14.5690	16.8883				
53	12 hour	1%	24	185.00	0.99	5.5472	14.4286	16.4389				
53	12 hour	1%	25	185.00	0.99	9.7627	24.2318	27.4487				
53	12 hour	1%	26	185.00	0.99	4.0994	11.4677	14.0391				
53	12 hour	1%	27	185.00	0.99	5.7315	14.6470	16.2274				
53	12 hour	1%	28	185.00	0.99	8.7022	21.2689	21.0505				
53	12 hour	1%	29	185.00	0.99	4.8064	12.5754	15.0584				
53	12 hour	1%	30	185.00	0.99	9.7352	26.1154	31.1981				
54	24 hour	1%	21	230.00	0.99	3.8764	11.2004	13.7256				
54	24 hour	1%	22	230.00	0.99	3.2106	8.3638	10.0561				
54	24 hour	1%	23	230.00	0.99	5.3157	14.7115	17.3382				
54	24 hour	1%	24	230.00	0.99	7.2268	20.1195	24.3789				
54	24 hour	1%	25	230.00	0.99	4.9888	13.8734	16.6017				
54	24 hour	1%	26	230.00	0.99	4.4098	11.6394	13.6546				
54	24 hour	1%	27	230.00	0.99	3.4210	8.7658	10.3305				
54	24 hour	1%	28	230.00	0.99	5.7430	16.3884	19.5379				
54	24 hour	1%	29	230.00	0.99	4.1453	10.7376	12.6188				
54	24 hour	1%	30	230.00	0.99	6.2201	17.0948	19.5030				
55	48 hour	1%	21	286.00	1.00	3.4156	10.1619	12.4010				
55	48 hour	1%	22	286.00	1.00	3.2204	8.8961	10.9229				
55	48 hour	1%	23	286.00	1.00	6.4174	17.5402	20.5649				
55	48 hour	1%	24	286.00	1.00	2.6107	7.5452	9.2963				
55	48 hour	1%	25	286.00	1.00	5.8772	17.9448	21.8732				
55	48 hour	1%	26	286.00	1.00	4.6779	12.7841	15.2392				
55	48 hour	1%	27	286.00	1.00	3.4729	9.7822	11.9651				
55	48 hour	1%	28	286.00	1.00	2.6282	6.9661	8.3125				
55	48 hour	1%	29	286.00	1.00	4.1010	11.2158	14.1122				

North_Natural_batch								
55	48 hour	1%	30	286.00	1.00	5.7531	14.5222	16.8175
56	72 hour	1%	21	319.00	1.00	2.3272	6.6093	8.3157
56	72 hour	1%	22	319.00	1.00	1.9912	5.5910	6.8521
56	72 hour	1%	23	319.00	1.00	1.6987	4.8911	6.1144
56	72 hour	1%	24	319.00	1.00	3.3474	10.0156	12.4112
56	72 hour	1%	25	319.00	1.00	1.5025	4.2695	5.2847
56	72 hour	1%	26	319.00	1.00	2.5105	7.1891	8.8657
56	72 hour	1%	27	319.00	1.00	2.3488	6.4780	7.8112
56	72 hour	1%	28	319.00	1.00	2.3410	6.7893	8.2199
56	72 hour	1%	29	319.00	1.00	3.3138	9.1157	11.3533
56	72 hour	1%	30	319.00	1.00	2.8377	8.3882	10.3151
57	96 hour	1%	21	339.00	1.00	2.3201	6.5266	8.0139
57	96 hour	1%	22	339.00	1.00	3.5546	9.9745	12.0584
57	96 hour	1%	23	339.00	1.00	2.0437	5.4686	6.6914
57	96 hour	1%	24	339.00	1.00	1.4465	4.0577	4.8258
57	96 hour	1%	25	339.00	1.00	1.6366	4.6278	5.7920
57	96 hour	1%	26	339.00	1.00	2.2531	6.3773	7.6568
57	96 hour	1%	27	339.00	1.00	1.7621	5.0215	6.3411
57	96 hour	1%	28	339.00	1.00	5.3538	14.0868	16.5269
57	96 hour	1%	29	339.00	1.00	2.7253	7.7304	9.3122
57	96 hour	1%	30	339.00	1.00	2.2223	6.1558	7.7103
58	120 hour	1%	21	350.00	1.00	2.3317	6.7720	8.3928
58	120 hour	1%	22	350.00	1.00	2.0394	5.7502	7.0033
58	120 hour	1%	23	350.00	1.00	3.4226	9.3429	11.1322
58	120 hour	1%	24	350.00	1.00	4.6347	11.3153	12.6428
58	120 hour	1%	25	350.00	1.00	2.5264	6.7461	8.1227
58	120 hour	1%	26	350.00	1.00	1.6416	4.4617	5.3146
58	120 hour	1%	27	350.00	1.00	1.3214	3.6525	4.2638
58	120 hour	1%	28	350.00	1.00	2.0744	5.8184	7.1185
58	120 hour	1%	29	350.00	1.00	5.1450	14.1197	16.8499
58	120 hour	1%	30	350.00	1.00	2.3905	6.7080	8.0697
59	144 hour	1%	21	356.00	1.00	2.1859	6.3410	7.8669
59	144 hour	1%	22	356.00	1.00	1.3798	4.0810	4.9853
59	144 hour	1%	23	356.00	1.00	2.3789	6.5355	8.2060
59	144 hour	1%	24	356.00	1.00	3.0816	8.2792	9.8439
59	144 hour	1%	25	356.00	1.00	2.2261	5.8118	6.8398
59	144 hour	1%	26	356.00	1.00	4.4792	11.0642	12.3448
59	144 hour	1%	27	356.00	1.00	2.6418	6.7381	7.9570
59	144 hour	1%	28	356.00	1.00	1.2944	3.4784	4.0961
59	144 hour	1%	29	356.00	1.00	1.8097	5.1714	6.1466
59	144 hour	1%	30	356.00	1.00	4.9532	13.5846	16.2025
60	168 hour	1%	21	356.00	1.00	1.7611	5.0591	6.2948
60	168 hour	1%	22	356.00	1.00	1.2804	3.7800	4.6092
60	168 hour	1%	23	356.00	1.00	2.6195	7.3634	9.0731
60	168 hour	1%	24	356.00	1.00	3.0717	8.2516	9.8100
60	168 hour	1%	25	356.00	1.00	1.5167	4.6037	5.7309
60	168 hour	1%	26	356.00	1.00	1.5167	4.6037	5.7309
60	168 hour	1%	27	356.00	1.00	1.7885	4.9338	5.8633
60	168 hour	1%	28	356.00	1.00	2.8552	7.4754	9.4509
60	168 hour	1%	29	356.00	1.00	1.7417	4.9680	5.9728
60	168 hour	1%	30	356.00	1.00	2.5828	6.7152	7.8017

Elapsed Run Time (hh:mm:ss) = 00:00:22

Graincorp_nat_batch

RORBWin Batch Run Summary

Program version 6.32 (last updated 3rd September 2017)
Copyright Monash University and Hydrology and Risk Consulting

Date run: 11 Jan 2018 13:19

Catchment file : G:\Synergy\Projects\17\170087 Bonnie Doon SWMP\Calculations\RORB\7_Graincorp north catchment\Graincorp_nat.catg

Rainfall location: User defined

Temporal pattern : ARR2016 point temporal patterns

Spatial pattern : Uniform

Areal Red. Fact. : Based on ARR 2016 (Book 2 Chapter 4)

Loss factors : Constant with ARI

Parameters: kc = 0.73 m = 0.80

Loss parameters	Initial loss (mm)	Cont. loss (mm/h)
60.00	0.90	

Peak Description

01 Calculated hydrograph,

Run	Duration	AEP	TPat	Rain(mm)	ARF	Peak0001
1	30 min	10%	11	44.80	1.00	0.0000
1	30 min	10%	12	44.80	1.00	0.0000
1	30 min	10%	13	44.80	1.00	0.0000
1	30 min	10%	14	44.80	1.00	0.0000
1	30 min	10%	15	44.80	1.00	0.0000
1	30 min	10%	16	44.80	1.00	0.0000
1	30 min	10%	17	44.80	1.00	0.0000
1	30 min	10%	18	44.80	1.00	0.0000
1	30 min	10%	19	44.80	1.00	0.0000
1	30 min	10%	20	44.80	1.00	0.0000
2	1 hour	10%	11	57.60	1.00	0.0000
2	1 hour	10%	12	57.60	1.00	0.0000
2	1 hour	10%	13	57.60	1.00	0.0000
2	1 hour	10%	14	57.60	1.00	0.0000
2	1 hour	10%	15	57.60	1.00	0.0000
2	1 hour	10%	16	57.60	1.00	0.0000
2	1 hour	10%	17	57.60	1.00	0.0000
2	1 hour	10%	18	57.60	1.00	0.0000
2	1 hour	10%	19	57.60	1.00	0.0000
2	1 hour	10%	20	57.60	1.00	0.0000
3	2 hour	10%	11	70.10	1.00	2.3880
3	2 hour	10%	12	70.10	1.00	2.3020
3	2 hour	10%	13	70.10	1.00	2.3887
3	2 hour	10%	14	70.10	1.00	1.9877
3	2 hour	10%	15	70.10	1.00	1.9050
3	2 hour	10%	16	70.10	1.00	2.1065
3	2 hour	10%	17	70.10	1.00	2.1724
3	2 hour	10%	18	70.10	1.00	2.5253
3	2 hour	10%	19	70.10	1.00	2.5303
3	2 hour	10%	20	70.10	1.00	2.4776
4	3 hour	10%	11	77.70	1.00	2.6863
4	3 hour	10%	12	77.70	1.00	2.6961
4	3 hour	10%	13	77.70	1.00	2.9434
4	3 hour	10%	14	77.70	1.00	3.0000
4	3 hour	10%	15	77.70	1.00	3.4859
4	3 hour	10%	16	77.70	1.00	3.0722
4	3 hour	10%	17	77.70	1.00	2.8459
4	3 hour	10%	18	77.70	1.00	2.5839
4	3 hour	10%	19	77.70	1.00	2.9285

Graincorp_nat_batch

4	3 hour	10%	20	77.70	1.00	3.6810
5	6 hour	10%	11	92.80	1.00	1.9472
5	6 hour	10%	12	92.80	1.00	3.1265
5	6 hour	10%	13	92.80	1.00	2.3747
5	6 hour	10%	14	92.80	1.00	4.2090
5	6 hour	10%	15	92.80	1.00	4.0458
5	6 hour	10%	16	92.80	1.00	2.5344
5	6 hour	10%	17	92.80	1.00	3.0235
5	6 hour	10%	18	92.80	1.00	3.2606
5	6 hour	10%	19	92.80	1.00	4.7242
5	6 hour	10%	20	92.80	1.00	3.3456
6	12 hour	10%	11	113.00	1.00	3.2507
6	12 hour	10%	12	113.00	1.00	4.4569
6	12 hour	10%	13	113.00	1.00	3.2771
6	12 hour	10%	14	113.00	1.00	1.7301
6	12 hour	10%	15	113.00	1.00	2.6541
6	12 hour	10%	16	113.00	1.00	1.8606
6	12 hour	10%	17	113.00	1.00	2.7256
6	12 hour	10%	18	113.00	1.00	4.4863
6	12 hour	10%	19	113.00	1.00	4.6265
6	12 hour	10%	20	113.00	1.00	3.3697
7	24 hour	10%	11	140.00	1.00	3.6639
7	24 hour	10%	12	140.00	1.00	3.7108
7	24 hour	10%	13	140.00	1.00	2.3786
7	24 hour	10%	14	140.00	1.00	1.8611
7	24 hour	10%	15	140.00	1.00	1.5392
7	24 hour	10%	16	140.00	1.00	2.1413
7	24 hour	10%	17	140.00	1.00	2.0325
7	24 hour	10%	18	140.00	1.00	2.3057
7	24 hour	10%	19	140.00	1.00	2.6663
7	24 hour	10%	20	140.00	1.00	2.2793
8	48 hour	10%	11	175.00	1.00	1.3245
8	48 hour	10%	12	175.00	1.00	1.9542
8	48 hour	10%	13	175.00	1.00	1.8863
8	48 hour	10%	14	175.00	1.00	1.6646
8	48 hour	10%	15	175.00	1.00	1.6070
8	48 hour	10%	16	175.00	1.00	3.2280
8	48 hour	10%	17	175.00	1.00	1.7025
8	48 hour	10%	18	175.00	1.00	2.3416
8	48 hour	10%	19	175.00	1.00	1.4792
8	48 hour	10%	20	175.00	1.00	4.1808
9	72 hour	10%	11	195.00	1.00	0.9031
9	72 hour	10%	12	195.00	1.00	1.6501
9	72 hour	10%	13	195.00	1.00	1.0381
9	72 hour	10%	14	195.00	1.00	1.2530
9	72 hour	10%	15	195.00	1.00	2.7146
9	72 hour	10%	16	195.00	1.00	2.3504
9	72 hour	10%	17	195.00	1.00	1.0501
9	72 hour	10%	18	195.00	1.00	1.8226
9	72 hour	10%	19	195.00	1.00	1.0710
9	72 hour	10%	20	195.00	1.00	2.0357
10	96 hour	10%	11	207.00	1.00	1.8686
10	96 hour	10%	12	207.00	1.00	1.7187
10	96 hour	10%	13	207.00	1.00	0.7555
10	96 hour	10%	14	207.00	1.00	1.3522
10	96 hour	10%	15	207.00	1.00	1.0987
10	96 hour	10%	16	207.00	1.00	1.0324
10	96 hour	10%	17	207.00	1.00	1.5612
10	96 hour	10%	18	207.00	1.00	1.9439
10	96 hour	10%	19	207.00	1.00	0.9823
10	96 hour	10%	20	207.00	1.00	1.0376
11	120 hour	10%	11	214.00	1.00	1.3177
11	120 hour	10%	12	214.00	1.00	1.1545
11	120 hour	10%	13	214.00	1.00	1.7928

Graincorp_nat_batch

11	120 hour	10%	14	214.00	1.00	2.0658
11	120 hour	10%	15	214.00	1.00	0.9660
11	120 hour	10%	16	214.00	1.00	0.9167
11	120 hour	10%	17	214.00	1.00	2.6912
11	120 hour	10%	18	214.00	1.00	1.4627
11	120 hour	10%	19	214.00	1.00	1.3612
11	120 hour	10%	20	214.00	1.00	1.2104
12	144 hour	10%	11	217.00	1.00	1.4765
12	144 hour	10%	12	217.00	1.00	2.8283
12	144 hour	10%	13	217.00	1.00	1.4680
12	144 hour	10%	14	217.00	1.00	2.4633
12	144 hour	10%	15	217.00	1.00	1.2875
12	144 hour	10%	16	217.00	1.00	1.0503
12	144 hour	10%	17	217.00	1.00	0.8590
12	144 hour	10%	18	217.00	1.00	1.2039
12	144 hour	10%	19	217.00	1.00	1.0176
12	144 hour	10%	20	217.00	1.00	1.4646
13	168 hour	10%	11	217.00	1.00	1.3257
13	168 hour	10%	12	217.00	1.00	0.6992
13	168 hour	10%	13	217.00	1.00	1.0455
13	168 hour	10%	14	217.00	1.00	0.9142
13	168 hour	10%	15	217.00	1.00	1.6922
13	168 hour	10%	16	217.00	1.00	1.4500
13	168 hour	10%	17	217.00	1.00	1.1629
13	168 hour	10%	18	217.00	1.00	0.7306
13	168 hour	10%	19	217.00	1.00	1.0828
13	168 hour	10%	20	217.00	1.00	0.8148
14	30 min	5%	11	51.80	1.00	0.0000
14	30 min	5%	12	51.80	1.00	0.0000
14	30 min	5%	13	51.80	1.00	0.0000
14	30 min	5%	14	51.80	1.00	0.0000
14	30 min	5%	15	51.80	1.00	0.0000
14	30 min	5%	16	51.80	1.00	0.0000
14	30 min	5%	17	51.80	1.00	0.0000
14	30 min	5%	18	51.80	1.00	0.0000
14	30 min	5%	19	51.80	1.00	0.0000
14	30 min	5%	20	51.80	1.00	0.0000
15	1 hour	5%	11	67.00	1.00	1.6472
15	1 hour	5%	12	67.00	1.00	1.7961
15	1 hour	5%	13	67.00	1.00	1.6406
15	1 hour	5%	14	67.00	1.00	1.8475
15	1 hour	5%	15	67.00	1.00	1.7268
15	1 hour	5%	16	67.00	1.00	1.8045
15	1 hour	5%	17	67.00	1.00	1.6626
15	1 hour	5%	18	67.00	1.00	1.7403
15	1 hour	5%	19	67.00	1.00	1.7583
15	1 hour	5%	20	67.00	1.00	1.7236
16	2 hour	5%	11	82.00	1.00	5.5281
16	2 hour	5%	12	82.00	1.00	5.1151
16	2 hour	5%	13	82.00	1.00	5.5301
16	2 hour	5%	14	82.00	1.00	4.3716
16	2 hour	5%	15	82.00	1.00	3.6197
16	2 hour	5%	16	82.00	1.00	3.8586
16	2 hour	5%	17	82.00	1.00	5.1503
16	2 hour	5%	18	82.00	1.00	5.2854
16	2 hour	5%	19	82.00	1.00	4.8878
16	2 hour	5%	20	82.00	1.00	5.7169
17	3 hour	5%	11	91.20	1.00	5.5357
17	3 hour	5%	12	91.20	1.00	4.1981
17	3 hour	5%	13	91.20	1.00	4.5370
17	3 hour	5%	14	91.20	1.00	4.5842
17	3 hour	5%	15	91.20	1.00	5.0550
17	3 hour	5%	16	91.20	1.00	4.8329
17	3 hour	5%	17	91.20	1.00	4.9494

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17	3 hour	5%	18	91.20	1.00	5.2899
17	3 hour	5%	19	91.20	1.00	5.2849
17	3 hour	5%	20	91.20	1.00	6.2759
18	6 hour	5%	11	109.00	1.00	3.9567
18	6 hour	5%	12	109.00	1.00	5.0099
18	6 hour	5%	13	109.00	1.00	4.0806
18	6 hour	5%	14	109.00	1.00	5.1369
18	6 hour	5%	15	109.00	1.00	5.9198
18	6 hour	5%	16	109.00	1.00	3.2586
18	6 hour	5%	17	109.00	1.00	4.3253
18	6 hour	5%	18	109.00	1.00	5.0575
18	6 hour	5%	19	109.00	1.00	6.5259
18	6 hour	5%	20	109.00	1.00	4.5456
19	12 hour	5%	11	133.00	1.00	3.8712
19	12 hour	5%	12	133.00	1.00	6.5033
19	12 hour	5%	13	133.00	1.00	3.9317
19	12 hour	5%	14	133.00	1.00	2.0769
19	12 hour	5%	15	133.00	1.00	3.7831
19	12 hour	5%	16	133.00	1.00	2.8366
19	12 hour	5%	17	133.00	1.00	3.4397
19	12 hour	5%	18	133.00	1.00	5.3695
19	12 hour	5%	19	133.00	1.00	5.5485
19	12 hour	5%	20	133.00	1.00	4.5400
20	24 hour	5%	11	165.00	1.00	4.4228
20	24 hour	5%	12	165.00	1.00	4.4506
20	24 hour	5%	13	165.00	1.00	2.8572
20	24 hour	5%	14	165.00	1.00	2.2258
20	24 hour	5%	15	165.00	1.00	1.8571
20	24 hour	5%	16	165.00	1.00	2.5736
20	24 hour	5%	17	165.00	1.00	2.4545
20	24 hour	5%	18	165.00	1.00	2.7573
20	24 hour	5%	19	165.00	1.00	3.1931
20	24 hour	5%	20	165.00	1.00	2.7310
21	48 hour	5%	11	206.00	1.00	1.8056
21	48 hour	5%	12	206.00	1.00	2.3390
21	48 hour	5%	13	206.00	1.00	2.2492
21	48 hour	5%	14	206.00	1.00	1.9929
21	48 hour	5%	15	206.00	1.00	1.9180
21	48 hour	5%	16	206.00	1.00	3.8704
21	48 hour	5%	17	206.00	1.00	2.0564
21	48 hour	5%	18	206.00	1.00	2.8309
21	48 hour	5%	19	206.00	1.00	1.7733
21	48 hour	5%	20	206.00	1.00	4.9826
22	72 hour	5%	11	230.00	1.00	1.1298
22	72 hour	5%	12	230.00	1.00	1.9865
22	72 hour	5%	13	230.00	1.00	1.4667
22	72 hour	5%	14	230.00	1.00	1.6068
22	72 hour	5%	15	230.00	1.00	3.2596
22	72 hour	5%	16	230.00	1.00	2.8122
22	72 hour	5%	17	230.00	1.00	1.2719
22	72 hour	5%	18	230.00	1.00	2.1833
22	72 hour	5%	19	230.00	1.00	1.3089
22	72 hour	5%	20	230.00	1.00	2.4292
23	96 hour	5%	11	245.00	1.00	2.2607
23	96 hour	5%	12	245.00	1.00	2.0879
23	96 hour	5%	13	245.00	1.00	0.9370
23	96 hour	5%	14	245.00	1.00	1.9147
23	96 hour	5%	15	245.00	1.00	1.3416
23	96 hour	5%	16	245.00	1.00	1.2667
23	96 hour	5%	17	245.00	1.00	1.8849
23	96 hour	5%	18	245.00	1.00	2.6890
23	96 hour	5%	19	245.00	1.00	1.2238
23	96 hour	5%	20	245.00	1.00	1.3025
24	120 hour	5%	11	253.00	1.00	1.6076

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24	120 hour	5%	12	253.00	1.00	1.3965
24	120 hour	5%	13	253.00	1.00	2.1732
24	120 hour	5%	14	253.00	1.00	2.4900
24	120 hour	5%	15	253.00	1.00	1.1735
24	120 hour	5%	16	253.00	1.00	1.1005
24	120 hour	5%	17	253.00	1.00	3.2464
24	120 hour	5%	18	253.00	1.00	1.7688
24	120 hour	5%	19	253.00	1.00	1.5144
24	120 hour	5%	20	253.00	1.00	1.4622
25	144 hour	5%	11	257.00	1.00	1.7947
25	144 hour	5%	12	257.00	1.00	3.4130
25	144 hour	5%	13	257.00	1.00	1.7959
25	144 hour	5%	14	257.00	1.00	2.9614
25	144 hour	5%	15	257.00	1.00	1.5627
25	144 hour	5%	16	257.00	1.00	1.2753
25	144 hour	5%	17	257.00	1.00	1.1207
25	144 hour	5%	18	257.00	1.00	1.4825
25	144 hour	5%	19	257.00	1.00	1.2642
25	144 hour	5%	20	257.00	1.00	1.7854
26	168 hour	5%	11	258.00	1.00	1.6198
26	168 hour	5%	12	258.00	1.00	0.8651
26	168 hour	5%	13	258.00	1.00	1.2787
26	168 hour	5%	14	258.00	1.00	1.1444
26	168 hour	5%	15	258.00	1.00	2.0510
26	168 hour	5%	16	258.00	1.00	1.7826
26	168 hour	5%	17	258.00	1.00	1.4201
26	168 hour	5%	18	258.00	1.00	1.2464
26	168 hour	5%	19	258.00	1.00	1.2319
26	168 hour	5%	20	258.00	1.00	1.0146
27	30 min	2%	21	61.00	1.00	0.1604
27	30 min	2%	22	61.00	1.00	0.1604
27	30 min	2%	23	61.00	1.00	0.1604
27	30 min	2%	24	61.00	1.00	0.1604
27	30 min	2%	25	61.00	1.00	0.1604
27	30 min	2%	26	61.00	1.00	0.1604
27	30 min	2%	27	61.00	1.00	0.1604
27	30 min	2%	28	61.00	1.00	0.1604
27	30 min	2%	29	61.00	1.00	0.1604
27	30 min	2%	30	61.00	1.00	0.1604
28	1 hour	2%	21	79.60	1.00	5.8906
28	1 hour	2%	22	79.60	1.00	6.0103
28	1 hour	2%	23	79.60	1.00	4.8001
28	1 hour	2%	24	79.60	1.00	4.3638
28	1 hour	2%	25	79.60	1.00	4.9612
28	1 hour	2%	26	79.60	1.00	5.0871
28	1 hour	2%	27	79.60	1.00	5.5742
28	1 hour	2%	28	79.60	1.00	4.9751
28	1 hour	2%	29	79.60	1.00	5.2303
28	1 hour	2%	30	79.60	1.00	5.3282
29	2 hour	2%	21	98.30	1.00	9.6331
29	2 hour	2%	22	98.30	1.00	8.5922
29	2 hour	2%	23	98.30	1.00	5.6373
29	2 hour	2%	24	98.30	1.00	8.2719
29	2 hour	2%	25	98.30	1.00	5.6838
29	2 hour	2%	26	98.30	1.00	9.4657
29	2 hour	2%	27	98.30	1.00	7.0104
29	2 hour	2%	28	98.30	1.00	8.0820
29	2 hour	2%	29	98.30	1.00	9.4536
29	2 hour	2%	30	98.30	1.00	8.9028
30	3 hour	2%	21	110.00	1.00	9.3072
30	3 hour	2%	22	110.00	1.00	8.0167
30	3 hour	2%	23	110.00	1.00	8.2574
30	3 hour	2%	24	110.00	1.00	5.8328
30	3 hour	2%	25	110.00	1.00	5.8338

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30	3 hour	2%	26	110.00	1.00	6.3273
30	3 hour	2%	27	110.00	1.00	6.0904
30	3 hour	2%	28	110.00	1.00	8.4364
30	3 hour	2%	29	110.00	1.00	5.5070
30	3 hour	2%	30	110.00	1.00	6.0360
31	6 hour	2%	21	132.00	1.00	6.0522
31	6 hour	2%	22	132.00	1.00	5.2544
31	6 hour	2%	23	132.00	1.00	6.0354
31	6 hour	2%	24	132.00	1.00	4.8899
31	6 hour	2%	25	132.00	1.00	4.5918
31	6 hour	2%	26	132.00	1.00	6.5052
31	6 hour	2%	27	132.00	1.00	8.6460
31	6 hour	2%	28	132.00	1.00	5.8685
31	6 hour	2%	29	132.00	1.00	5.5828
31	6 hour	2%	30	132.00	1.00	7.0508
32	12 hour	2%	21	162.00	1.00	3.9476
32	12 hour	2%	22	162.00	1.00	4.3255
32	12 hour	2%	23	162.00	1.00	3.9957
32	12 hour	2%	24	162.00	1.00	3.9259
32	12 hour	2%	25	162.00	1.00	6.8814
32	12 hour	2%	26	162.00	1.00	2.9357
32	12 hour	2%	27	162.00	1.00	4.0749
32	12 hour	2%	28	162.00	1.00	5.8129
32	12 hour	2%	29	162.00	1.00	3.4136
32	12 hour	2%	30	162.00	1.00	6.9695
33	24 hour	2%	21	201.00	1.00	2.7606
33	24 hour	2%	22	201.00	1.00	2.1310
33	24 hour	2%	23	201.00	1.00	3.7837
33	24 hour	2%	24	201.00	1.00	4.8806
33	24 hour	2%	25	201.00	1.00	3.5501
33	24 hour	2%	26	201.00	1.00	3.1113
33	24 hour	2%	27	201.00	1.00	2.4011
33	24 hour	2%	28	201.00	1.00	3.9803
33	24 hour	2%	29	201.00	1.00	2.9175
33	24 hour	2%	30	201.00	1.00	4.4206
34	48 hour	2%	21	250.00	1.00	2.4220
34	48 hour	2%	22	250.00	1.00	2.1212
34	48 hour	2%	23	250.00	1.00	4.5555
34	48 hour	2%	24	250.00	1.00	1.8502
34	48 hour	2%	25	250.00	1.00	4.2186
34	48 hour	2%	26	250.00	1.00	3.3109
34	48 hour	2%	27	250.00	1.00	2.6022
34	48 hour	2%	28	250.00	1.00	1.8424
34	48 hour	2%	29	250.00	1.00	2.8869
34	48 hour	2%	30	250.00	1.00	4.0043
35	72 hour	2%	21	280.00	1.00	1.6884
35	72 hour	2%	22	280.00	1.00	1.4223
35	72 hour	2%	23	280.00	1.00	1.2001
35	72 hour	2%	24	280.00	1.00	2.2146
35	72 hour	2%	25	280.00	1.00	1.0534
35	72 hour	2%	26	280.00	1.00	1.8753
35	72 hour	2%	27	280.00	1.00	1.6592
35	72 hour	2%	28	280.00	1.00	1.6610
35	72 hour	2%	29	280.00	1.00	2.4442
35	72 hour	2%	30	280.00	1.00	2.0268
36	96 hour	2%	21	298.00	1.00	1.6465
36	96 hour	2%	22	298.00	1.00	2.5336
36	96 hour	2%	23	298.00	1.00	1.4578
36	96 hour	2%	24	298.00	1.00	1.0126
36	96 hour	2%	25	298.00	1.00	1.1492
36	96 hour	2%	26	298.00	1.00	1.5951
36	96 hour	2%	27	298.00	1.00	1.2137
36	96 hour	2%	28	298.00	1.00	3.7930
36	96 hour	2%	29	298.00	1.00	1.9391

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36	96 hour	2%	30	298.00	1.00	1.5630
37	120 hour	2%	21	308.00	1.00	1.6605
37	120 hour	2%	22	308.00	1.00	1.4453
37	120 hour	2%	23	308.00	1.00	2.2062
37	120 hour	2%	24	308.00	1.00	3.2526
37	120 hour	2%	25	308.00	1.00	1.7844
37	120 hour	2%	26	308.00	1.00	1.1538
37	120 hour	2%	27	308.00	1.00	0.9337
37	120 hour	2%	28	308.00	1.00	1.3844
37	120 hour	2%	29	308.00	1.00	3.6650
37	120 hour	2%	30	308.00	1.00	1.7098
38	144 hour	2%	21	312.00	1.00	1.5475
38	144 hour	2%	22	312.00	1.00	0.9852
38	144 hour	2%	23	312.00	1.00	1.6781
38	144 hour	2%	24	312.00	1.00	2.1744
38	144 hour	2%	25	312.00	1.00	1.5588
38	144 hour	2%	26	312.00	1.00	3.1334
38	144 hour	2%	27	312.00	1.00	1.8478
38	144 hour	2%	28	312.00	1.00	0.8969
38	144 hour	2%	29	312.00	1.00	1.2768
38	144 hour	2%	30	312.00	1.00	3.5108
39	168 hour	2%	21	313.00	1.00	1.2457
39	168 hour	2%	22	313.00	1.00	0.9111
39	168 hour	2%	23	313.00	1.00	1.8586
39	168 hour	2%	24	313.00	1.00	2.1746
39	168 hour	2%	25	313.00	1.00	1.0193
39	168 hour	2%	26	313.00	1.00	1.0193
39	168 hour	2%	27	313.00	1.00	1.2629
39	168 hour	2%	28	313.00	1.00	2.0024
39	168 hour	2%	29	313.00	1.00	1.2331
39	168 hour	2%	30	313.00	1.00	1.8128
40	30 min	1%	21	68.10	1.00	2.2480
40	30 min	1%	22	68.10	1.00	2.2104
40	30 min	1%	23	68.10	1.00	2.2480
40	30 min	1%	24	68.10	1.00	2.2480
40	30 min	1%	25	68.10	1.00	2.2480
40	30 min	1%	26	68.10	1.00	2.2480
40	30 min	1%	27	68.10	1.00	2.2480
40	30 min	1%	28	68.10	1.00	2.1567
40	30 min	1%	29	68.10	1.00	2.2480
40	30 min	1%	30	68.10	1.00	2.2480
41	1 hour	1%	21	89.40	1.00	9.2056
41	1 hour	1%	22	89.40	1.00	9.2745
41	1 hour	1%	23	89.40	1.00	7.1558
41	1 hour	1%	24	89.40	1.00	6.5214
41	1 hour	1%	25	89.40	1.00	7.4945
41	1 hour	1%	26	89.40	1.00	7.6442
41	1 hour	1%	27	89.40	1.00	8.2954
41	1 hour	1%	28	89.40	1.00	7.5002
41	1 hour	1%	29	89.40	1.00	7.6693
41	1 hour	1%	30	89.40	1.00	7.8409
42	2 hour	1%	21	111.00	1.00	12.0809
42	2 hour	1%	22	111.00	1.00	10.7312
42	2 hour	1%	23	111.00	1.00	7.6681
42	2 hour	1%	24	111.00	1.00	10.5228
42	2 hour	1%	25	111.00	1.00	7.5126
42	2 hour	1%	26	111.00	1.00	11.9467
42	2 hour	1%	27	111.00	1.00	8.8643
42	2 hour	1%	28	111.00	1.00	9.8868
42	2 hour	1%	29	111.00	1.00	11.9390
42	2 hour	1%	30	111.00	1.00	11.4004
43	3 hour	1%	21	125.00	1.00	11.1564
43	3 hour	1%	22	125.00	1.00	9.3527
43	3 hour	1%	23	125.00	1.00	9.8047

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43	3 hour	1%	24	125.00	1.00	6.7744
43	3 hour	1%	25	125.00	1.00	6.7737
43	3 hour	1%	26	125.00	1.00	7.6460
43	3 hour	1%	27	125.00	1.00	7.1017
43	3 hour	1%	28	125.00	1.00	9.8248
43	3 hour	1%	29	125.00	1.00	6.4242
43	3 hour	1%	30	125.00	1.00	9.5012
44	6 hour	1%	21	151.00	1.00	8.1949
44	6 hour	1%	22	151.00	1.00	6.0503
44	6 hour	1%	23	151.00	1.00	7.0449
44	6 hour	1%	24	151.00	1.00	5.6599
44	6 hour	1%	25	151.00	1.00	5.3994
44	6 hour	1%	26	151.00	1.00	7.5450
44	6 hour	1%	27	151.00	1.00	10.1169
44	6 hour	1%	28	151.00	1.00	7.7422
44	6 hour	1%	29	151.00	1.00	6.4554
44	6 hour	1%	30	151.00	1.00	8.2200
45	12 hour	1%	21	185.00	1.00	4.5456
45	12 hour	1%	22	185.00	1.00	4.9704
45	12 hour	1%	23	185.00	1.00	4.6122
45	12 hour	1%	24	185.00	1.00	4.5542
45	12 hour	1%	25	185.00	1.00	7.9690
45	12 hour	1%	26	185.00	1.00	3.3833
45	12 hour	1%	27	185.00	1.00	4.7083
45	12 hour	1%	28	185.00	1.00	7.2222
45	12 hour	1%	29	185.00	1.00	3.9465
45	12 hour	1%	30	185.00	1.00	8.0138
46	24 hour	1%	21	230.00	1.00	3.1845
46	24 hour	1%	22	230.00	1.00	2.6520
46	24 hour	1%	23	230.00	1.00	4.3541
46	24 hour	1%	24	230.00	1.00	5.8838
46	24 hour	1%	25	230.00	1.00	4.0883
46	24 hour	1%	26	230.00	1.00	3.6028
46	24 hour	1%	27	230.00	1.00	2.7904
46	24 hour	1%	28	230.00	1.00	4.6767
46	24 hour	1%	29	230.00	1.00	3.3830
46	24 hour	1%	30	230.00	1.00	5.0960
47	48 hour	1%	21	286.00	1.00	2.8085
47	48 hour	1%	22	286.00	1.00	2.6193
47	48 hour	1%	23	286.00	1.00	5.2485
47	48 hour	1%	24	286.00	1.00	2.1422
47	48 hour	1%	25	286.00	1.00	4.8407
47	48 hour	1%	26	286.00	1.00	3.8250
47	48 hour	1%	27	286.00	1.00	2.8438
47	48 hour	1%	28	286.00	1.00	2.1449
47	48 hour	1%	29	286.00	1.00	3.3448
47	48 hour	1%	30	286.00	1.00	4.6806
48	72 hour	1%	21	319.00	1.00	1.9046
48	72 hour	1%	22	319.00	1.00	1.6295
48	72 hour	1%	23	319.00	1.00	1.3924
48	72 hour	1%	24	319.00	1.00	2.7567
48	72 hour	1%	25	319.00	1.00	1.2315
48	72 hour	1%	26	319.00	1.00	2.0577
48	72 hour	1%	27	319.00	1.00	1.9204
48	72 hour	1%	28	319.00	1.00	1.9205
48	72 hour	1%	29	319.00	1.00	2.7068
48	72 hour	1%	30	319.00	1.00	2.3305
49	96 hour	1%	21	339.00	1.00	1.8986
49	96 hour	1%	22	339.00	1.00	2.9093
49	96 hour	1%	23	339.00	1.00	1.6681
49	96 hour	1%	24	339.00	1.00	1.1835
49	96 hour	1%	25	339.00	1.00	1.3365
49	96 hour	1%	26	339.00	1.00	1.8447
49	96 hour	1%	27	339.00	1.00	1.4286

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49	96 hour	1%	28	339.00	1.00	4.3636
49	96 hour	1%	29	339.00	1.00	2.2318
49	96 hour	1%	30	339.00	1.00	1.8104
50	120 hour	1%	21	350.00	1.00	1.9115
50	120 hour	1%	22	350.00	1.00	1.6688
50	120 hour	1%	23	350.00	1.00	2.7964
50	120 hour	1%	24	350.00	1.00	3.7611
50	120 hour	1%	25	350.00	1.00	2.0605
50	120 hour	1%	26	350.00	1.00	1.3402
50	120 hour	1%	27	350.00	1.00	1.0793
50	120 hour	1%	28	350.00	1.00	1.6957
50	120 hour	1%	29	350.00	1.00	4.2033
50	120 hour	1%	30	350.00	1.00	1.9560
51	144 hour	1%	21	356.00	1.00	1.7914
51	144 hour	1%	22	356.00	1.00	1.1322
51	144 hour	1%	23	356.00	1.00	1.9431
51	144 hour	1%	24	356.00	1.00	2.5136
51	144 hour	1%	25	356.00	1.00	1.8126
51	144 hour	1%	26	356.00	1.00	3.6362
51	144 hour	1%	27	356.00	1.00	2.1480
51	144 hour	1%	28	356.00	1.00	1.0560
51	144 hour	1%	29	356.00	1.00	1.4819
51	144 hour	1%	30	356.00	1.00	4.0456
52	168 hour	1%	21	356.00	1.00	1.4398
52	168 hour	1%	22	356.00	1.00	1.0524
52	168 hour	1%	23	356.00	1.00	2.1420
52	168 hour	1%	24	356.00	1.00	2.5051
52	168 hour	1%	25	356.00	1.00	1.2516
52	168 hour	1%	26	356.00	1.00	1.2516
52	168 hour	1%	27	356.00	1.00	1.4610
52	168 hour	1%	28	356.00	1.00	2.3146
52	168 hour	1%	29	356.00	1.00	1.4276
52	168 hour	1%	30	356.00	1.00	2.1022

Elapsed Run Time (hh:mm:ss) = 00:00:14

South3_Dev_batch

RORBWin Batch Run Summary

Program version 6.32 (last updated 3rd September 2017)
Copyright Monash University and Hydrology and Risk Consulting

Date run: 11 Jan 2018 13:11

Catchment file : G:\Synergy\Projects\17\170087 Bonnie Doon SWMP\Calculations\RORB\5_South 3\Developed\South3_Dev.catg

Rainfall location: User defined

Temporal pattern : ARR2016 point temporal patterns

Spatial pattern : Uniform

Areal Red. Fact. : Based on ARR 2016 (Book 2 Chapter 4)

Loss factors : Constant with ARI

Parameters: kc = 1.09 m = 0.80

Loss parameters	Initial loss (mm)	Cont. loss (mm/h)
	60.00	0.90

Peak Description

01 Calculated hydrograph,

Run	Duration	AEP	TPat	Rain(mm)	ARF	Peak0001
1	30 min	10%	11	44.80	0.99	3.9026
1	30 min	10%	12	44.80	0.99	3.8423
1	30 min	10%	13	44.80	0.99	3.7761
1	30 min	10%	14	44.80	0.99	3.9951
1	30 min	10%	15	44.80	0.99	3.8337
1	30 min	10%	16	44.80	0.99	3.9037
1	30 min	10%	17	44.80	0.99	3.8701
1	30 min	10%	18	44.80	0.99	3.9135
1	30 min	10%	19	44.80	0.99	4.0073
1	30 min	10%	20	44.80	0.99	4.0502
2	1 hour	10%	11	57.60	0.99	5.1766
2	1 hour	10%	12	57.60	0.99	4.8397
2	1 hour	10%	13	57.60	0.99	4.3673
2	1 hour	10%	14	57.60	0.99	5.0286
2	1 hour	10%	15	57.60	0.99	4.7391
2	1 hour	10%	16	57.60	0.99	5.0341
2	1 hour	10%	17	57.60	0.99	4.5505
2	1 hour	10%	18	57.60	0.99	4.9564
2	1 hour	10%	19	57.60	0.99	4.6925
2	1 hour	10%	20	57.60	0.99	4.9528
3	2 hour	10%	11	70.10	0.99	9.1153
3	2 hour	10%	12	70.10	0.99	8.4232
3	2 hour	10%	13	70.10	0.99	9.0704
3	2 hour	10%	14	70.10	0.99	7.0830
3	2 hour	10%	15	70.10	0.99	6.1971
3	2 hour	10%	16	70.10	0.99	6.5841
3	2 hour	10%	17	70.10	0.99	8.5567
3	2 hour	10%	18	70.10	0.99	8.7012
3	2 hour	10%	19	70.10	0.99	8.0413
3	2 hour	10%	20	70.10	0.99	9.1416
4	3 hour	10%	11	77.70	0.99	9.0216
4	3 hour	10%	12	77.70	0.99	6.9052
4	3 hour	10%	13	77.70	0.99	7.5179
4	3 hour	10%	14	77.70	0.99	7.6543
4	3 hour	10%	15	77.70	0.99	8.4888
4	3 hour	10%	16	77.70	0.99	8.1355
4	3 hour	10%	17	77.70	0.99	8.3334
4	3 hour	10%	18	77.70	0.99	8.7483
4	3 hour	10%	19	77.70	0.99	8.7626

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4	3 hour	10%	20	77.70	0.99	10.1441
5	6 hour	10%	11	92.80	1.00	6.6451
5	6 hour	10%	12	92.80	1.00	8.1739
5	6 hour	10%	13	92.80	1.00	6.7908
5	6 hour	10%	14	92.80	1.00	8.6833
5	6 hour	10%	15	92.80	1.00	9.7720
5	6 hour	10%	16	92.80	1.00	5.6519
5	6 hour	10%	17	92.80	1.00	7.0812
5	6 hour	10%	18	92.80	1.00	8.3475
5	6 hour	10%	19	92.80	1.00	10.5819
5	6 hour	10%	20	92.80	1.00	7.8247
6	12 hour	10%	11	113.00	1.00	6.7176
6	12 hour	10%	12	113.00	1.00	10.6959
6	12 hour	10%	13	113.00	1.00	6.4213
6	12 hour	10%	14	113.00	1.00	3.6067
6	12 hour	10%	15	113.00	1.00	6.1907
6	12 hour	10%	16	113.00	1.00	4.7373
6	12 hour	10%	17	113.00	1.00	5.8727
6	12 hour	10%	18	113.00	1.00	8.8060
6	12 hour	10%	19	113.00	1.00	9.1689
6	12 hour	10%	20	113.00	1.00	7.7011
7	24 hour	10%	11	140.00	1.00	7.9002
7	24 hour	10%	12	140.00	1.00	7.6961
7	24 hour	10%	13	140.00	1.00	4.8021
7	24 hour	10%	14	140.00	1.00	3.9632
7	24 hour	10%	15	140.00	1.00	3.1855
7	24 hour	10%	16	140.00	1.00	4.3836
7	24 hour	10%	17	140.00	1.00	4.3156
7	24 hour	10%	18	140.00	1.00	4.8097
7	24 hour	10%	19	140.00	1.00	5.4237
7	24 hour	10%	20	140.00	1.00	4.7179
8	48 hour	10%	11	175.00	1.00	3.2232
8	48 hour	10%	12	175.00	1.00	4.0798
8	48 hour	10%	13	175.00	1.00	4.0716
8	48 hour	10%	14	175.00	1.00	3.5226
8	48 hour	10%	15	175.00	1.00	3.3890
8	48 hour	10%	16	175.00	1.00	6.2397
8	48 hour	10%	17	175.00	1.00	3.4357
8	48 hour	10%	18	175.00	1.00	4.7815
8	48 hour	10%	19	175.00	1.00	3.1853
8	48 hour	10%	20	175.00	1.00	8.5151
9	72 hour	10%	11	195.00	1.00	1.9267
9	72 hour	10%	12	195.00	1.00	3.4393
9	72 hour	10%	13	195.00	1.00	2.6161
9	72 hour	10%	14	195.00	1.00	2.6558
9	72 hour	10%	15	195.00	1.00	5.5336
9	72 hour	10%	16	195.00	1.00	4.9768
9	72 hour	10%	17	195.00	1.00	2.1832
9	72 hour	10%	18	195.00	1.00	3.8572
9	72 hour	10%	19	195.00	1.00	2.1939
9	72 hour	10%	20	195.00	1.00	4.4651
10	96 hour	10%	11	207.00	1.00	3.8758
10	96 hour	10%	12	207.00	1.00	3.5158
10	96 hour	10%	13	207.00	1.00	1.5738
10	96 hour	10%	14	207.00	1.00	3.4509
10	96 hour	10%	15	207.00	1.00	2.2976
10	96 hour	10%	16	207.00	1.00	2.1294
10	96 hour	10%	17	207.00	1.00	3.3623
10	96 hour	10%	18	207.00	1.00	4.7892
10	96 hour	10%	19	207.00	1.00	2.0587
10	96 hour	10%	20	207.00	1.00	2.1725
11	120 hour	10%	11	214.00	1.00	2.9183
11	120 hour	10%	12	214.00	1.00	2.4654
11	120 hour	10%	13	214.00	1.00	3.6417

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11	120 hour	10%	14	214.00	1.00	4.2211
11	120 hour	10%	15	214.00	1.00	2.0819
11	120 hour	10%	16	214.00	1.00	2.0045
11	120 hour	10%	17	214.00	1.00	5.4270
11	120 hour	10%	18	214.00	1.00	2.8866
11	120 hour	10%	19	214.00	1.00	2.7259
11	120 hour	10%	20	214.00	1.00	2.6336
12	144 hour	10%	11	217.00	1.00	3.0321
12	144 hour	10%	12	217.00	1.00	5.6977
12	144 hour	10%	13	217.00	1.00	2.9726
12	144 hour	10%	14	217.00	1.00	5.1799
12	144 hour	10%	15	217.00	1.00	2.6422
12	144 hour	10%	16	217.00	1.00	2.2928
12	144 hour	10%	17	217.00	1.00	2.0448
12	144 hour	10%	18	217.00	1.00	2.4328
12	144 hour	10%	19	217.00	1.00	2.1946
12	144 hour	10%	20	217.00	1.00	2.9854
13	168 hour	10%	11	217.00	1.00	2.7584
13	168 hour	10%	12	217.00	1.00	1.5324
13	168 hour	10%	13	217.00	1.00	2.3059
13	168 hour	10%	14	217.00	1.00	1.8628
13	168 hour	10%	15	217.00	1.00	3.5927
13	168 hour	10%	16	217.00	1.00	2.9367
13	168 hour	10%	17	217.00	1.00	2.3963
13	168 hour	10%	18	217.00	1.00	2.2237
13	168 hour	10%	19	217.00	1.00	2.2557
13	168 hour	10%	20	217.00	1.00	1.8770
14	30 min	5%	11	51.80	0.99	4.6615
14	30 min	5%	12	51.80	0.99	4.5871
14	30 min	5%	13	51.80	0.99	4.5055
14	30 min	5%	14	51.80	0.99	4.7758
14	30 min	5%	15	51.80	0.99	4.5764
14	30 min	5%	16	51.80	0.99	4.6630
14	30 min	5%	17	51.80	0.99	4.6214
14	30 min	5%	18	51.80	0.99	4.6749
14	30 min	5%	19	51.80	0.99	4.7909
14	30 min	5%	20	51.80	0.99	4.8374
15	1 hour	5%	11	67.00	0.99	9.1631
15	1 hour	5%	12	67.00	0.99	7.9165
15	1 hour	5%	13	67.00	0.99	7.1879
15	1 hour	5%	14	67.00	0.99	8.1785
15	1 hour	5%	15	67.00	0.99	7.8238
15	1 hour	5%	16	67.00	0.99	8.5147
15	1 hour	5%	17	67.00	0.99	7.5505
15	1 hour	5%	18	67.00	0.99	8.3263
15	1 hour	5%	19	67.00	0.99	7.6595
15	1 hour	5%	20	67.00	0.99	8.4159
16	2 hour	5%	11	82.00	0.99	14.1853
16	2 hour	5%	12	82.00	0.99	12.6483
16	2 hour	5%	13	82.00	0.99	13.3300
16	2 hour	5%	14	82.00	0.99	10.1582
16	2 hour	5%	15	82.00	0.99	9.1580
16	2 hour	5%	16	82.00	0.99	9.3637
16	2 hour	5%	17	82.00	0.99	13.7723
16	2 hour	5%	18	82.00	0.99	13.2958
16	2 hour	5%	19	82.00	0.99	11.3961
16	2 hour	5%	20	82.00	0.99	13.8275
17	3 hour	5%	11	91.20	0.99	12.1832
17	3 hour	5%	12	91.20	0.99	9.1324
17	3 hour	5%	13	91.20	0.99	9.9713
17	3 hour	5%	14	91.20	0.99	10.9069
17	3 hour	5%	15	91.20	0.99	10.8888
17	3 hour	5%	16	91.20	0.99	11.5333
17	3 hour	5%	17	91.20	0.99	12.2720

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17	3 hour	5%	18	91.20	0.99	12.5266
17	3 hour	5%	19	91.20	0.99	12.9479
17	3 hour	5%	20	91.20	0.99	14.1479
18	6 hour	5%	11	109.00	1.00	10.9453
18	6 hour	5%	12	109.00	1.00	10.2281
18	6 hour	5%	13	109.00	1.00	8.9319
18	6 hour	5%	14	109.00	1.00	10.4218
18	6 hour	5%	15	109.00	1.00	12.4851
18	6 hour	5%	16	109.00	1.00	7.3269
18	6 hour	5%	17	109.00	1.00	8.9843
18	6 hour	5%	18	109.00	1.00	11.3304
18	6 hour	5%	19	109.00	1.00	13.3932
18	6 hour	5%	20	109.00	1.00	10.6042
19	12 hour	5%	11	133.00	1.00	7.9969
19	12 hour	5%	12	133.00	1.00	14.0015
19	12 hour	5%	13	133.00	1.00	7.7048
19	12 hour	5%	14	133.00	1.00	5.1390
19	12 hour	5%	15	133.00	1.00	7.6152
19	12 hour	5%	16	133.00	1.00	5.8261
19	12 hour	5%	17	133.00	1.00	7.0385
19	12 hour	5%	18	133.00	1.00	10.5409
19	12 hour	5%	19	133.00	1.00	10.9835
19	12 hour	5%	20	133.00	1.00	9.5435
20	24 hour	5%	11	165.00	1.00	11.1084
20	24 hour	5%	12	165.00	1.00	9.1342
20	24 hour	5%	13	165.00	1.00	6.2375
20	24 hour	5%	14	165.00	1.00	4.7357
20	24 hour	5%	15	165.00	1.00	3.8315
20	24 hour	5%	16	165.00	1.00	5.2545
20	24 hour	5%	17	165.00	1.00	5.1488
20	24 hour	5%	18	165.00	1.00	5.7497
20	24 hour	5%	19	165.00	1.00	6.4984
20	24 hour	5%	20	165.00	1.00	5.6435
21	48 hour	5%	11	206.00	1.00	4.6782
21	48 hour	5%	12	206.00	1.00	4.8495
21	48 hour	5%	13	206.00	1.00	4.8458
21	48 hour	5%	14	206.00	1.00	4.2146
21	48 hour	5%	15	206.00	1.00	4.0560
21	48 hour	5%	16	206.00	1.00	7.4133
21	48 hour	5%	17	206.00	1.00	4.1394
21	48 hour	5%	18	206.00	1.00	5.6667
21	48 hour	5%	19	206.00	1.00	3.8057
21	48 hour	5%	20	206.00	1.00	10.1565
22	72 hour	5%	11	230.00	1.00	2.3336
22	72 hour	5%	12	230.00	1.00	4.1340
22	72 hour	5%	13	230.00	1.00	3.3847
22	72 hour	5%	14	230.00	1.00	3.2442
22	72 hour	5%	15	230.00	1.00	6.6425
22	72 hour	5%	16	230.00	1.00	5.9486
22	72 hour	5%	17	230.00	1.00	2.6487
22	72 hour	5%	18	230.00	1.00	4.6111
22	72 hour	5%	19	230.00	1.00	2.6722
22	72 hour	5%	20	230.00	1.00	5.3200
23	96 hour	5%	11	245.00	1.00	4.6271
23	96 hour	5%	12	245.00	1.00	4.2645
23	96 hour	5%	13	245.00	1.00	2.1550
23	96 hour	5%	14	245.00	1.00	3.8646
23	96 hour	5%	15	245.00	1.00	2.7943
23	96 hour	5%	16	245.00	1.00	2.6025
23	96 hour	5%	17	245.00	1.00	4.0449
23	96 hour	5%	18	245.00	1.00	5.9548
23	96 hour	5%	19	245.00	1.00	2.5013
23	96 hour	5%	20	245.00	1.00	2.6424
24	120 hour	5%	11	253.00	1.00	3.4948

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24	120 hour	5%	12	253.00	1.00	3.5555
24	120 hour	5%	13	253.00	1.00	4.4050
24	120 hour	5%	14	253.00	1.00	5.0830
24	120 hour	5%	15	253.00	1.00	2.5199
24	120 hour	5%	16	253.00	1.00	2.4260
24	120 hour	5%	17	253.00	1.00	6.5458
24	120 hour	5%	18	253.00	1.00	3.4892
24	120 hour	5%	19	253.00	1.00	3.2776
24	120 hour	5%	20	253.00	1.00	3.1691
25	144 hour	5%	11	257.00	1.00	3.6790
25	144 hour	5%	12	257.00	1.00	6.8670
25	144 hour	5%	13	257.00	1.00	3.6288
25	144 hour	5%	14	257.00	1.00	6.2221
25	144 hour	5%	15	257.00	1.00	3.1800
25	144 hour	5%	16	257.00	1.00	2.7721
25	144 hour	5%	17	257.00	1.00	3.3290
25	144 hour	5%	18	257.00	1.00	2.9816
25	144 hour	5%	19	257.00	1.00	2.6694
25	144 hour	5%	20	257.00	1.00	3.6284
26	168 hour	5%	11	258.00	1.00	3.3616
26	168 hour	5%	12	258.00	1.00	1.8838
26	168 hour	5%	13	258.00	1.00	2.8066
26	168 hour	5%	14	258.00	1.00	2.3168
26	168 hour	5%	15	258.00	1.00	4.3335
26	168 hour	5%	16	258.00	1.00	3.6023
26	168 hour	5%	17	258.00	1.00	2.9023
26	168 hour	5%	18	258.00	1.00	3.3438
26	168 hour	5%	19	258.00	1.00	2.7311
26	168 hour	5%	20	258.00	1.00	2.5568
27	30 min	2%	21	61.00	0.99	5.9653
27	30 min	2%	22	61.00	0.99	5.6256
27	30 min	2%	23	61.00	0.99	5.9653
27	30 min	2%	24	61.00	0.99	5.8933
27	30 min	2%	25	61.00	0.99	5.6747
27	30 min	2%	26	61.00	0.99	5.6914
27	30 min	2%	27	61.00	0.99	5.9275
27	30 min	2%	28	61.00	0.99	5.5441
27	30 min	2%	29	61.00	0.99	5.9653
27	30 min	2%	30	61.00	0.99	5.7339
28	1 hour	2%	21	79.60	0.99	16.0125
28	1 hour	2%	22	79.60	0.99	16.0850
28	1 hour	2%	23	79.60	0.99	12.8559
28	1 hour	2%	24	79.60	0.99	11.9459
28	1 hour	2%	25	79.60	0.99	13.1765
28	1 hour	2%	26	79.60	0.99	13.3983
28	1 hour	2%	27	79.60	0.99	14.4805
28	1 hour	2%	28	79.60	0.99	13.1634
28	1 hour	2%	29	79.60	0.99	13.2783
28	1 hour	2%	30	79.60	0.99	13.7228
29	2 hour	2%	21	98.30	0.99	19.7435
29	2 hour	2%	22	98.30	0.99	17.8552
29	2 hour	2%	23	98.30	0.99	13.3742
29	2 hour	2%	24	98.30	0.99	17.2075
29	2 hour	2%	25	98.30	0.99	12.9672
29	2 hour	2%	26	98.30	0.99	19.5327
29	2 hour	2%	27	98.30	0.99	15.2607
29	2 hour	2%	28	98.30	0.99	16.9459
29	2 hour	2%	29	98.30	0.99	20.0521
29	2 hour	2%	30	98.30	0.99	19.1870
30	3 hour	2%	21	110.00	0.99	18.9629
30	3 hour	2%	22	110.00	0.99	15.4212
30	3 hour	2%	23	110.00	0.99	16.6839
30	3 hour	2%	24	110.00	0.99	12.0039
30	3 hour	2%	25	110.00	0.99	12.0168

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30	3 hour	2%	26	110.00	0.99	13.0248
30	3 hour	2%	27	110.00	0.99	12.7190
30	3 hour	2%	28	110.00	0.99	16.7660
30	3 hour	2%	29	110.00	0.99	11.6677
30	3 hour	2%	30	110.00	0.99	15.9119
31	6 hour	2%	21	132.00	0.99	14.2697
31	6 hour	2%	22	132.00	0.99	10.8885
31	6 hour	2%	23	132.00	0.99	12.3855
31	6 hour	2%	24	132.00	0.99	9.8958
31	6 hour	2%	25	132.00	0.99	9.7015
31	6 hour	2%	26	132.00	0.99	12.7927
31	6 hour	2%	27	132.00	0.99	17.7729
31	6 hour	2%	28	132.00	0.99	13.5909
31	6 hour	2%	29	132.00	0.99	11.1183
31	6 hour	2%	30	132.00	0.99	14.3053
32	12 hour	2%	21	162.00	1.00	8.2762
32	12 hour	2%	22	162.00	1.00	9.0827
32	12 hour	2%	23	162.00	1.00	8.0794
32	12 hour	2%	24	162.00	1.00	7.9326
32	12 hour	2%	25	162.00	1.00	12.9937
32	12 hour	2%	26	162.00	1.00	6.1548
32	12 hour	2%	27	162.00	1.00	8.1413
32	12 hour	2%	28	162.00	1.00	13.1726
32	12 hour	2%	29	162.00	1.00	6.9543
32	12 hour	2%	30	162.00	1.00	14.2266
33	24 hour	2%	21	201.00	1.00	5.8740
33	24 hour	2%	22	201.00	1.00	4.9641
33	24 hour	2%	23	201.00	1.00	7.8042
33	24 hour	2%	24	201.00	1.00	10.3490
33	24 hour	2%	25	201.00	1.00	7.3708
33	24 hour	2%	26	201.00	1.00	6.3382
33	24 hour	2%	27	201.00	1.00	4.8751
33	24 hour	2%	28	201.00	1.00	8.4057
33	24 hour	2%	29	201.00	1.00	5.9240
33	24 hour	2%	30	201.00	1.00	9.0857
34	48 hour	2%	21	250.00	1.00	5.2621
34	48 hour	2%	22	250.00	1.00	4.4870
34	48 hour	2%	23	250.00	1.00	9.4144
34	48 hour	2%	24	250.00	1.00	3.9716
34	48 hour	2%	25	250.00	1.00	9.1583
34	48 hour	2%	26	250.00	1.00	6.8594
34	48 hour	2%	27	250.00	1.00	5.1242
34	48 hour	2%	28	250.00	1.00	3.7981
34	48 hour	2%	29	250.00	1.00	5.8540
34	48 hour	2%	30	250.00	1.00	8.0744
35	72 hour	2%	21	280.00	1.00	3.7032
35	72 hour	2%	22	280.00	1.00	2.9851
35	72 hour	2%	23	280.00	1.00	2.5961
35	72 hour	2%	24	280.00	1.00	5.4905
35	72 hour	2%	25	280.00	1.00	2.2915
35	72 hour	2%	26	280.00	1.00	3.7335
35	72 hour	2%	27	280.00	1.00	3.4944
35	72 hour	2%	28	280.00	1.00	3.5717
35	72 hour	2%	29	280.00	1.00	4.8421
35	72 hour	2%	30	280.00	1.00	4.3764
36	96 hour	2%	21	298.00	1.00	3.5007
36	96 hour	2%	22	298.00	1.00	5.3314
36	96 hour	2%	23	298.00	1.00	3.0104
36	96 hour	2%	24	298.00	1.00	2.1786
36	96 hour	2%	25	298.00	1.00	2.4290
36	96 hour	2%	26	298.00	1.00	3.3950
36	96 hour	2%	27	298.00	1.00	2.6815
36	96 hour	2%	28	298.00	1.00	7.7180
36	96 hour	2%	29	298.00	1.00	4.1175

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36	96 hour	2%	30	298.00	1.00	3.2115
37	120 hour	2%	21	308.00	1.00	3.5852
37	120 hour	2%	22	308.00	1.00	3.0865
37	120 hour	2%	23	308.00	1.00	5.3157
37	120 hour	2%	24	308.00	1.00	6.4544
37	120 hour	2%	25	308.00	1.00	3.7071
37	120 hour	2%	26	308.00	1.00	2.4287
37	120 hour	2%	27	308.00	1.00	1.9684
37	120 hour	2%	28	308.00	1.00	3.0345
37	120 hour	2%	29	308.00	1.00	7.6048
37	120 hour	2%	30	308.00	1.00	3.6012
38	144 hour	2%	21	312.00	1.00	3.3443
38	144 hour	2%	22	312.00	1.00	2.1359
38	144 hour	2%	23	312.00	1.00	3.5133
38	144 hour	2%	24	312.00	1.00	4.4889
38	144 hour	2%	25	312.00	1.00	3.1983
38	144 hour	2%	26	312.00	1.00	6.2248
38	144 hour	2%	27	312.00	1.00	3.7551
38	144 hour	2%	28	312.00	1.00	1.9015
38	144 hour	2%	29	312.00	1.00	2.7350
38	144 hour	2%	30	312.00	1.00	7.2861
39	168 hour	2%	21	313.00	1.00	2.6626
39	168 hour	2%	22	313.00	1.00	1.9889
39	168 hour	2%	23	313.00	1.00	3.9499
39	168 hour	2%	24	313.00	1.00	4.4894
39	168 hour	2%	25	313.00	1.00	2.6446
39	168 hour	2%	26	313.00	1.00	2.6446
39	168 hour	2%	27	313.00	1.00	2.6576
39	168 hour	2%	28	313.00	1.00	3.9387
39	168 hour	2%	29	313.00	1.00	2.6446
39	168 hour	2%	30	313.00	1.00	3.7073
40	30 min	1%	21	68.10	0.99	10.1997
40	30 min	1%	22	68.10	0.99	9.4778
40	30 min	1%	23	68.10	0.99	10.3947
40	30 min	1%	24	68.10	0.99	9.9108
40	30 min	1%	25	68.10	0.99	9.5077
40	30 min	1%	26	68.10	0.99	9.5583
40	30 min	1%	27	68.10	0.99	9.9686
40	30 min	1%	28	68.10	0.99	9.4092
40	30 min	1%	29	68.10	0.99	10.1703
40	30 min	1%	30	68.10	0.99	9.5983
41	1 hour	1%	21	89.40	0.99	21.3840
41	1 hour	1%	22	89.40	0.99	21.3451
41	1 hour	1%	23	89.40	0.99	16.9586
41	1 hour	1%	24	89.40	0.99	16.2631
41	1 hour	1%	25	89.40	0.99	17.3139
41	1 hour	1%	26	89.40	0.99	17.5637
41	1 hour	1%	27	89.40	0.99	19.0033
41	1 hour	1%	28	89.40	0.99	17.2150
41	1 hour	1%	29	89.40	0.99	17.3344
41	1 hour	1%	30	89.40	0.99	17.7589
42	2 hour	1%	21	111.00	0.99	23.6256
42	2 hour	1%	22	111.00	0.99	21.3213
42	2 hour	1%	23	111.00	0.99	17.0178
42	2 hour	1%	24	111.00	0.99	20.8071
42	2 hour	1%	25	111.00	0.99	16.1746
42	2 hour	1%	26	111.00	0.99	23.2338
42	2 hour	1%	27	111.00	0.99	18.4052
42	2 hour	1%	28	111.00	0.99	20.1821
42	2 hour	1%	29	111.00	0.99	24.3563
42	2 hour	1%	30	111.00	0.99	23.3044
43	3 hour	1%	21	125.00	0.99	22.3069
43	3 hour	1%	22	125.00	0.99	17.9426
43	3 hour	1%	23	125.00	0.99	19.7272

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43	3 hour	1%	24	125.00	0.99	13.9467
43	3 hour	1%	25	125.00	0.99	13.9341
43	3 hour	1%	26	125.00	0.99	15.5717
43	3 hour	1%	27	125.00	0.99	14.7611
43	3 hour	1%	28	125.00	0.99	19.4378
43	3 hour	1%	29	125.00	0.99	13.7138
43	3 hour	1%	30	125.00	0.99	20.9027
44	6 hour	1%	21	151.00	0.99	18.5831
44	6 hour	1%	22	151.00	0.99	12.5259
44	6 hour	1%	23	151.00	0.99	14.3902
44	6 hour	1%	24	151.00	0.99	11.4485
44	6 hour	1%	25	151.00	0.99	11.3466
44	6 hour	1%	26	151.00	0.99	14.8147
44	6 hour	1%	27	151.00	0.99	20.7185
44	6 hour	1%	28	151.00	0.99	17.6121
44	6 hour	1%	29	151.00	0.99	12.8568
44	6 hour	1%	30	151.00	0.99	16.5569
45	12 hour	1%	21	185.00	1.00	9.5053
45	12 hour	1%	22	185.00	1.00	10.4278
45	12 hour	1%	23	185.00	1.00	9.3221
45	12 hour	1%	24	185.00	1.00	9.1538
45	12 hour	1%	25	185.00	1.00	17.0345
45	12 hour	1%	26	185.00	1.00	7.0842
45	12 hour	1%	27	185.00	1.00	9.4173
45	12 hour	1%	28	185.00	1.00	17.9506
45	12 hour	1%	29	185.00	1.00	8.2000
45	12 hour	1%	30	185.00	1.00	16.3578
46	24 hour	1%	21	230.00	1.00	6.8763
46	24 hour	1%	22	230.00	1.00	5.9670
46	24 hour	1%	23	230.00	1.00	9.0218
46	24 hour	1%	24	230.00	1.00	11.8940
46	24 hour	1%	25	230.00	1.00	8.5112
46	24 hour	1%	26	230.00	1.00	7.3402
46	24 hour	1%	27	230.00	1.00	5.6583
46	24 hour	1%	28	230.00	1.00	9.6803
46	24 hour	1%	29	230.00	1.00	6.8643
46	24 hour	1%	30	230.00	1.00	10.4946
47	48 hour	1%	21	286.00	1.00	6.0608
47	48 hour	1%	22	286.00	1.00	5.1779
47	48 hour	1%	23	286.00	1.00	10.8546
47	48 hour	1%	24	286.00	1.00	4.5890
47	48 hour	1%	25	286.00	1.00	10.5154
47	48 hour	1%	26	286.00	1.00	7.9208
47	48 hour	1%	27	286.00	1.00	5.8266
47	48 hour	1%	28	286.00	1.00	4.4115
47	48 hour	1%	29	286.00	1.00	6.7866
47	48 hour	1%	30	286.00	1.00	9.3860
48	72 hour	1%	21	319.00	1.00	4.4431
48	72 hour	1%	22	319.00	1.00	3.4520
48	72 hour	1%	23	319.00	1.00	3.0013
48	72 hour	1%	24	319.00	1.00	6.1660
48	72 hour	1%	25	319.00	1.00	2.6537
48	72 hour	1%	26	319.00	1.00	4.1404
48	72 hour	1%	27	319.00	1.00	4.0351
48	72 hour	1%	28	319.00	1.00	4.1226
48	72 hour	1%	29	319.00	1.00	5.5492
48	72 hour	1%	30	319.00	1.00	5.0246
49	96 hour	1%	21	339.00	1.00	4.0228
49	96 hour	1%	22	339.00	1.00	6.1177
49	96 hour	1%	23	339.00	1.00	3.5615
49	96 hour	1%	24	339.00	1.00	2.5282
49	96 hour	1%	25	339.00	1.00	2.8150
49	96 hour	1%	26	339.00	1.00	3.9195
49	96 hour	1%	27	339.00	1.00	3.3466

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49	96 hour	1%	28	339.00	1.00	8.8805
49	96 hour	1%	29	339.00	1.00	4.7336
49	96 hour	1%	30	339.00	1.00	3.7166
50	120 hour	1%	21	350.00	1.00	4.1162
50	120 hour	1%	22	350.00	1.00	3.5551
50	120 hour	1%	23	350.00	1.00	6.4588
50	120 hour	1%	24	350.00	1.00	7.4577
50	120 hour	1%	25	350.00	1.00	4.2723
50	120 hour	1%	26	350.00	1.00	2.8134
50	120 hour	1%	27	350.00	1.00	2.2902
50	120 hour	1%	28	350.00	1.00	3.4940
50	120 hour	1%	29	350.00	1.00	8.7213
50	120 hour	1%	30	350.00	1.00	4.1417
51	144 hour	1%	21	356.00	1.00	3.8597
51	144 hour	1%	22	356.00	1.00	2.4785
51	144 hour	1%	23	356.00	1.00	4.0654
51	144 hour	1%	24	356.00	1.00	5.1876
51	144 hour	1%	25	356.00	1.00	3.7153
51	144 hour	1%	26	356.00	1.00	7.2223
51	144 hour	1%	27	356.00	1.00	4.3592
51	144 hour	1%	28	356.00	1.00	2.2236
51	144 hour	1%	29	356.00	1.00	3.1691
51	144 hour	1%	30	356.00	1.00	8.3949
52	168 hour	1%	21	356.00	1.00	3.0677
52	168 hour	1%	22	356.00	1.00	2.3027
52	168 hour	1%	23	356.00	1.00	4.5423
52	168 hour	1%	24	356.00	1.00	5.1700
52	168 hour	1%	25	356.00	1.00	3.0659
52	168 hour	1%	26	356.00	1.00	3.0659
52	168 hour	1%	27	356.00	1.00	3.0731
52	168 hour	1%	28	356.00	1.00	4.5699
52	168 hour	1%	29	356.00	1.00	3.0548
52	168 hour	1%	30	356.00	1.00	4.2944

Elapsed Run Time (hh:mm:ss) = 00:00:14

South_2_Dev_batch

RORBWin Batch Run Summary

Program version 6.32 (last updated 3rd September 2017)
Copyright Monash University and Hydrology and Risk Consulting

Date run: 11 Jan 2018 12:56

Catchment file : G:\Synergy\Projects\17\170087 Bonnie Doon SWMP\Calculations\RORB\4_South 2\Developed\South_2_Dev.catg

Rainfall location: User defined

Temporal pattern : ARR2016 point temporal patterns

Spatial pattern : Uniform

Areal Red. Fact. : Based on ARR 2016 (Book 2 Chapter 4)

Loss factors : Constant with ARI

Parameters: kc = 0.91 m = 0.80

Loss parameters	Initial loss (mm)	Cont. loss (mm/h)
60.00	0.90	

Peak Description

01 Calculated hydrograph,

Run	Duration	AEP	TPat	Rain(mm)	ARF	Peak0001
1	10 min	10%	11	25.00	1.00	1.6106
1	10 min	10%	12	25.00	1.00	1.6106
1	10 min	10%	13	25.00	1.00	1.6106
1	10 min	10%	14	25.00	1.00	1.6106
1	10 min	10%	15	25.00	1.00	1.6106
1	10 min	10%	16	25.00	1.00	1.6106
1	10 min	10%	17	25.00	1.00	1.6106
1	10 min	10%	18	25.00	1.00	1.6106
1	10 min	10%	19	25.00	1.00	1.6106
1	10 min	10%	20	25.00	1.00	1.6106
2	15 min	10%	11	31.90	1.00	2.1774
2	15 min	10%	12	31.90	1.00	2.1774
2	15 min	10%	13	31.90	1.00	2.1774
2	15 min	10%	14	31.90	1.00	2.1774
2	15 min	10%	15	31.90	1.00	2.1774
2	15 min	10%	16	31.90	1.00	2.1774
2	15 min	10%	17	31.90	1.00	2.1774
2	15 min	10%	18	31.90	1.00	2.1774
2	15 min	10%	19	31.90	1.00	2.1774
2	15 min	10%	20	31.90	1.00	2.1774
3	30 min	10%	11	44.80	1.00	3.1761
3	30 min	10%	12	44.80	1.00	3.1198
3	30 min	10%	13	44.80	1.00	3.0586
3	30 min	10%	14	44.80	1.00	3.2623
3	30 min	10%	15	44.80	1.00	3.1118
3	30 min	10%	16	44.80	1.00	3.1772
3	30 min	10%	17	44.80	1.00	3.1459
3	30 min	10%	18	44.80	1.00	3.1862
3	30 min	10%	19	44.80	1.00	3.2736
3	30 min	10%	20	44.80	1.00	3.3094
4	1 hour	10%	11	57.60	1.00	4.2143
4	1 hour	10%	12	57.60	1.00	3.8755
4	1 hour	10%	13	57.60	1.00	3.4513
4	1 hour	10%	14	57.60	1.00	4.0441
4	1 hour	10%	15	57.60	1.00	3.7827
4	1 hour	10%	16	57.60	1.00	4.0480
4	1 hour	10%	17	57.60	1.00	3.6122
4	1 hour	10%	18	57.60	1.00	3.9761
4	1 hour	10%	19	57.60	1.00	3.7418

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4	1 hour	10%	20	57.60	1.00	3.9726
5	2 hour	10%	11	70.10	1.00	7.2868
5	2 hour	10%	12	70.10	1.00	6.6661
5	2 hour	10%	13	70.10	1.00	7.2516
5	2 hour	10%	14	70.10	1.00	5.6338
5	2 hour	10%	15	70.10	1.00	4.8021
5	2 hour	10%	16	70.10	1.00	5.0645
5	2 hour	10%	17	70.10	1.00	6.8420
5	2 hour	10%	18	70.10	1.00	6.9071
5	2 hour	10%	19	70.10	1.00	6.2734
5	2 hour	10%	20	70.10	1.00	7.3287
6	3 hour	10%	11	77.70	1.00	7.1831
6	3 hour	10%	12	77.70	1.00	5.2368
6	3 hour	10%	13	77.70	1.00	5.7150
6	3 hour	10%	14	77.70	1.00	5.8230
6	3 hour	10%	15	77.70	1.00	6.3804
6	3 hour	10%	16	77.70	1.00	6.1946
6	3 hour	10%	17	77.70	1.00	6.3659
6	3 hour	10%	18	77.70	1.00	6.7996
6	3 hour	10%	19	77.70	1.00	6.8473
6	3 hour	10%	20	77.70	1.00	7.8575
7	6 hour	10%	11	92.80	1.00	5.2408
7	6 hour	10%	12	92.80	1.00	6.2438
7	6 hour	10%	13	92.80	1.00	5.1373
7	6 hour	10%	14	92.80	1.00	6.3968
7	6 hour	10%	15	92.80	1.00	7.3665
7	6 hour	10%	16	92.80	1.00	4.1890
7	6 hour	10%	17	92.80	1.00	5.3290
7	6 hour	10%	18	92.80	1.00	6.3535
7	6 hour	10%	19	92.80	1.00	7.9968
7	6 hour	10%	20	92.80	1.00	5.7945
8	12 hour	10%	11	113.00	1.00	4.8725
8	12 hour	10%	12	113.00	1.00	8.0574
8	12 hour	10%	13	113.00	1.00	4.7736
8	12 hour	10%	14	113.00	1.00	2.6177
8	12 hour	10%	15	113.00	1.00	4.6218
8	12 hour	10%	16	113.00	1.00	3.5223
8	12 hour	10%	17	113.00	1.00	4.2574
8	12 hour	10%	18	113.00	1.00	6.5360
8	12 hour	10%	19	113.00	1.00	6.7843
8	12 hour	10%	20	113.00	1.00	5.6900
9	24 hour	10%	11	140.00	1.00	5.7056
9	24 hour	10%	12	140.00	1.00	5.5157
9	24 hour	10%	13	140.00	1.00	3.5264
9	24 hour	10%	14	140.00	1.00	2.8461
9	24 hour	10%	15	140.00	1.00	2.3173
9	24 hour	10%	16	140.00	1.00	3.1956
9	24 hour	10%	17	140.00	1.00	3.1019
9	24 hour	10%	18	140.00	1.00	3.4820
9	24 hour	10%	19	140.00	1.00	3.9679
9	24 hour	10%	20	140.00	1.00	3.4228
10	48 hour	10%	11	175.00	1.00	2.2837
10	48 hour	10%	12	175.00	1.00	2.8941
10	48 hour	10%	13	175.00	1.00	2.9022
10	48 hour	10%	14	175.00	1.00	2.5392
10	48 hour	10%	15	175.00	1.00	2.4412
10	48 hour	10%	16	175.00	1.00	4.6296
10	48 hour	10%	17	175.00	1.00	2.5285
10	48 hour	10%	18	175.00	1.00	3.4114
10	48 hour	10%	19	175.00	1.00	2.2773
10	48 hour	10%	20	175.00	1.00	6.2147
11	72 hour	10%	11	195.00	1.00	1.4053
11	72 hour	10%	12	195.00	1.00	2.4956
11	72 hour	10%	13	195.00	1.00	1.8444

South_2_Dev_batch

11	72 hour	10%	14	195.00	1.00	1.9701
11	72 hour	10%	15	195.00	1.00	4.0460
11	72 hour	10%	16	195.00	1.00	3.5787
11	72 hour	10%	17	195.00	1.00	1.5920
11	72 hour	10%	18	195.00	1.00	2.7742
11	72 hour	10%	19	195.00	1.00	1.6148
11	72 hour	10%	20	195.00	1.00	3.1597
12	96 hour	10%	11	207.00	1.00	2.7844
12	96 hour	10%	12	207.00	1.00	2.5774
12	96 hour	10%	13	207.00	1.00	1.1574
12	96 hour	10%	14	207.00	1.00	2.4503
12	96 hour	10%	15	207.00	1.00	1.6723
12	96 hour	10%	16	207.00	1.00	1.5626
12	96 hour	10%	17	207.00	1.00	2.4087
12	96 hour	10%	18	207.00	1.00	3.4767
12	96 hour	10%	19	207.00	1.00	1.4844
12	96 hour	10%	20	207.00	1.00	1.5958
13	120 hour	10%	11	214.00	1.00	2.0631
13	120 hour	10%	12	214.00	1.00	1.7941
13	120 hour	10%	13	214.00	1.00	2.6738
13	120 hour	10%	14	214.00	1.00	3.0821
13	120 hour	10%	15	214.00	1.00	1.4953
13	120 hour	10%	16	214.00	1.00	1.4252
13	120 hour	10%	17	214.00	1.00	3.9901
13	120 hour	10%	18	214.00	1.00	2.1415
13	120 hour	10%	19	214.00	1.00	1.9440
13	120 hour	10%	20	214.00	1.00	1.8791
14	144 hour	10%	11	217.00	1.00	2.2178
14	144 hour	10%	12	217.00	1.00	4.1838
14	144 hour	10%	13	217.00	1.00	2.1947
14	144 hour	10%	14	217.00	1.00	3.7348
14	144 hour	10%	15	217.00	1.00	1.8881
14	144 hour	10%	16	217.00	1.00	1.6368
14	144 hour	10%	17	217.00	1.00	1.5278
14	144 hour	10%	18	217.00	1.00	1.8024
14	144 hour	10%	19	217.00	1.00	1.5960
14	144 hour	10%	20	217.00	1.00	2.1914
15	168 hour	10%	11	217.00	1.00	2.0082
15	168 hour	10%	12	217.00	1.00	1.1004
15	168 hour	10%	13	217.00	1.00	1.6434
15	168 hour	10%	14	217.00	1.00	1.3838
15	168 hour	10%	15	217.00	1.00	2.5795
15	168 hour	10%	16	217.00	1.00	2.1684
15	168 hour	10%	17	217.00	1.00	1.7075
15	168 hour	10%	18	217.00	1.00	1.6602
15	168 hour	10%	19	217.00	1.00	1.5971
15	168 hour	10%	20	217.00	1.00	1.3731
16	10 min	5%	11	28.70	1.00	1.9096
16	10 min	5%	12	28.70	1.00	1.9096
16	10 min	5%	13	28.70	1.00	1.9096
16	10 min	5%	14	28.70	1.00	1.9096
16	10 min	5%	15	28.70	1.00	1.9096
16	10 min	5%	16	28.70	1.00	1.9096
16	10 min	5%	17	28.70	1.00	1.9096
16	10 min	5%	18	28.70	1.00	1.9096
16	10 min	5%	19	28.70	1.00	1.9096
16	10 min	5%	20	28.70	1.00	1.9096
17	15 min	5%	11	36.80	1.00	2.5966
17	15 min	5%	12	36.80	1.00	2.5966
17	15 min	5%	13	36.80	1.00	2.5966
17	15 min	5%	14	36.80	1.00	2.5966
17	15 min	5%	15	36.80	1.00	2.5966
17	15 min	5%	16	36.80	1.00	2.5966
17	15 min	5%	17	36.80	1.00	2.5966

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17	15 min	5%	18	36.80	1.00	2.5966
17	15 min	5%	19	36.80	1.00	2.5966
17	15 min	5%	20	36.80	1.00	2.5966
18	30 min	5%	11	51.80	1.00	3.7940
18	30 min	5%	12	51.80	1.00	3.7245
18	30 min	5%	13	51.80	1.00	3.6490
18	30 min	5%	14	51.80	1.00	3.9004
18	30 min	5%	15	51.80	1.00	3.7147
18	30 min	5%	16	51.80	1.00	3.7954
18	30 min	5%	17	51.80	1.00	3.7596
18	30 min	5%	18	51.80	1.00	3.8065
18	30 min	5%	19	51.80	1.00	3.9145
18	30 min	5%	20	51.80	1.00	3.9535
19	1 hour	5%	11	67.00	1.00	7.6209
19	1 hour	5%	12	67.00	1.00	6.3829
19	1 hour	5%	13	67.00	1.00	5.7993
19	1 hour	5%	14	67.00	1.00	6.6225
19	1 hour	5%	15	67.00	1.00	6.3379
19	1 hour	5%	16	67.00	1.00	6.9466
19	1 hour	5%	17	67.00	1.00	6.1511
19	1 hour	5%	18	67.00	1.00	6.7800
19	1 hour	5%	19	67.00	1.00	6.1513
19	1 hour	5%	20	67.00	1.00	6.9996
20	2 hour	5%	11	82.00	1.00	11.1195
20	2 hour	5%	12	82.00	1.00	9.8235
20	2 hour	5%	13	82.00	1.00	10.3835
20	2 hour	5%	14	82.00	1.00	7.8755
20	2 hour	5%	15	82.00	1.00	7.3003
20	2 hour	5%	16	82.00	1.00	7.2078
20	2 hour	5%	17	82.00	1.00	10.9776
20	2 hour	5%	18	82.00	1.00	10.3902
20	2 hour	5%	19	82.00	1.00	8.7037
20	2 hour	5%	20	82.00	1.00	10.8452
21	3 hour	5%	11	91.20	1.00	9.4632
21	3 hour	5%	12	91.20	1.00	6.7913
21	3 hour	5%	13	91.20	1.00	7.4304
21	3 hour	5%	14	91.20	1.00	8.2544
21	3 hour	5%	15	91.20	1.00	8.1976
21	3 hour	5%	16	91.20	1.00	8.7682
21	3 hour	5%	17	91.20	1.00	9.5154
21	3 hour	5%	18	91.20	1.00	9.5788
21	3 hour	5%	19	91.20	1.00	9.9124
21	3 hour	5%	20	91.20	1.00	10.7631
22	6 hour	5%	11	109.00	1.00	8.4516
22	6 hour	5%	12	109.00	1.00	7.7150
22	6 hour	5%	13	109.00	1.00	6.6238
22	6 hour	5%	14	109.00	1.00	7.6401
22	6 hour	5%	15	109.00	1.00	9.2872
22	6 hour	5%	16	109.00	1.00	5.3878
22	6 hour	5%	17	109.00	1.00	6.6606
22	6 hour	5%	18	109.00	1.00	8.4510
22	6 hour	5%	19	109.00	1.00	9.9834
22	6 hour	5%	20	109.00	1.00	8.0246
23	12 hour	5%	11	133.00	1.00	5.7968
23	12 hour	5%	12	133.00	1.00	10.3807
23	12 hour	5%	13	133.00	1.00	5.7232
23	12 hour	5%	14	133.00	1.00	3.8172
23	12 hour	5%	15	133.00	1.00	5.6299
23	12 hour	5%	16	133.00	1.00	4.2877
23	12 hour	5%	17	133.00	1.00	5.1297
23	12 hour	5%	18	133.00	1.00	7.8158
23	12 hour	5%	19	133.00	1.00	8.1114
23	12 hour	5%	20	133.00	1.00	6.9653
24	24 hour	5%	11	165.00	1.00	8.3268

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24	24 hour	5%	12	165.00	1.00	6.5903
24	24 hour	5%	13	165.00	1.00	4.6203
24	24 hour	5%	14	165.00	1.00	3.3970
24	24 hour	5%	15	165.00	1.00	2.7861
24	24 hour	5%	16	165.00	1.00	3.8301
24	24 hour	5%	17	165.00	1.00	3.7001
24	24 hour	5%	18	165.00	1.00	4.1540
24	24 hour	5%	19	165.00	1.00	4.7480
24	24 hour	5%	20	165.00	1.00	4.0922
25	48 hour	5%	11	206.00	1.00	3.4320
25	48 hour	5%	12	206.00	1.00	3.4477
25	48 hour	5%	13	206.00	1.00	3.4522
25	48 hour	5%	14	206.00	1.00	3.0339
25	48 hour	5%	15	206.00	1.00	2.9164
25	48 hour	5%	16	206.00	1.00	5.5519
25	48 hour	5%	17	206.00	1.00	3.0443
25	48 hour	5%	18	206.00	1.00	4.1180
25	48 hour	5%	19	206.00	1.00	2.7200
25	48 hour	5%	20	206.00	1.00	7.4039
26	72 hour	5%	11	230.00	1.00	1.6954
26	72 hour	5%	12	230.00	1.00	2.9965
26	72 hour	5%	13	230.00	1.00	2.4738
26	72 hour	5%	14	230.00	1.00	2.4046
26	72 hour	5%	15	230.00	1.00	4.8513
26	72 hour	5%	16	230.00	1.00	4.2736
26	72 hour	5%	17	230.00	1.00	1.9279
26	72 hour	5%	18	230.00	1.00	3.3129
26	72 hour	5%	19	230.00	1.00	1.9638
26	72 hour	5%	20	230.00	1.00	3.7622
27	96 hour	5%	11	245.00	1.00	3.3616
27	96 hour	5%	12	245.00	1.00	3.1219
27	96 hour	5%	13	245.00	1.00	1.5411
27	96 hour	5%	14	245.00	1.00	2.8185
27	96 hour	5%	15	245.00	1.00	2.0320
27	96 hour	5%	16	245.00	1.00	1.9070
27	96 hour	5%	17	245.00	1.00	2.8949
27	96 hour	5%	18	245.00	1.00	4.3093
27	96 hour	5%	19	245.00	1.00	1.8300
27	96 hour	5%	20	245.00	1.00	1.9333
28	120 hour	5%	11	253.00	1.00	2.4687
28	120 hour	5%	12	253.00	1.00	2.6414
28	120 hour	5%	13	253.00	1.00	3.2317
28	120 hour	5%	14	253.00	1.00	3.7085
28	120 hour	5%	15	253.00	1.00	1.8077
28	120 hour	5%	16	253.00	1.00	1.7256
28	120 hour	5%	17	253.00	1.00	4.8037
28	120 hour	5%	18	253.00	1.00	2.5857
28	120 hour	5%	19	253.00	1.00	2.3368
28	120 hour	5%	20	253.00	1.00	2.2595
29	144 hour	5%	11	257.00	1.00	2.6876
29	144 hour	5%	12	257.00	1.00	5.0368
29	144 hour	5%	13	257.00	1.00	2.6749
29	144 hour	5%	14	257.00	1.00	4.4820
29	144 hour	5%	15	257.00	1.00	2.2874
29	144 hour	5%	16	257.00	1.00	1.9774
29	144 hour	5%	17	257.00	1.00	2.4786
29	144 hour	5%	18	257.00	1.00	2.2048
29	144 hour	5%	19	257.00	1.00	1.9379
29	144 hour	5%	20	257.00	1.00	2.6614
30	168 hour	5%	11	258.00	1.00	2.4444
30	168 hour	5%	12	258.00	1.00	1.3509
30	168 hour	5%	13	258.00	1.00	1.9983
30	168 hour	5%	14	258.00	1.00	1.7182
30	168 hour	5%	15	258.00	1.00	3.1151

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30	168 hour	5%	16	258.00	1.00	2.6554
30	168 hour	5%	17	258.00	1.00	2.0805
30	168 hour	5%	18	258.00	1.00	2.4669
30	168 hour	5%	19	258.00	1.00	1.9316
30	168 hour	5%	20	258.00	1.00	1.8436
31	10 min	2%	21	33.80	1.00	2.3362
31	10 min	2%	22	33.80	1.00	2.3362
31	10 min	2%	23	33.80	1.00	2.3362
31	10 min	2%	24	33.80	1.00	2.3362
31	10 min	2%	25	33.80	1.00	2.3362
31	10 min	2%	26	33.80	1.00	2.3362
31	10 min	2%	27	33.80	1.00	2.3362
31	10 min	2%	28	33.80	1.00	2.3362
31	10 min	2%	29	33.80	1.00	2.3362
31	10 min	2%	30	33.80	1.00	2.3362
32	15 min	2%	21	43.10	1.00	3.1529
32	15 min	2%	22	43.10	1.00	3.1529
32	15 min	2%	23	43.10	1.00	3.1529
32	15 min	2%	24	43.10	1.00	3.1529
32	15 min	2%	25	43.10	1.00	3.1529
32	15 min	2%	26	43.10	1.00	3.1529
32	15 min	2%	27	43.10	1.00	3.1529
32	15 min	2%	28	43.10	1.00	3.1529
32	15 min	2%	29	43.10	1.00	3.1529
32	15 min	2%	30	43.10	1.00	3.1529
33	30 min	2%	21	61.00	1.00	5.1684
33	30 min	2%	22	61.00	1.00	4.8161
33	30 min	2%	23	61.00	1.00	5.1684
33	30 min	2%	24	61.00	1.00	5.0745
33	30 min	2%	25	61.00	1.00	4.8631
33	30 min	2%	26	61.00	1.00	4.8790
33	30 min	2%	27	61.00	1.00	5.1096
33	30 min	2%	28	61.00	1.00	4.7389
33	30 min	2%	29	61.00	1.00	5.1684
33	30 min	2%	30	61.00	1.00	4.9197
34	1 hour	2%	21	79.60	1.00	12.9274
34	1 hour	2%	22	79.60	1.00	12.9956
34	1 hour	2%	23	79.60	1.00	10.1583
34	1 hour	2%	24	79.60	1.00	9.5985
34	1 hour	2%	25	79.60	1.00	10.4829
34	1 hour	2%	26	79.60	1.00	10.6685
34	1 hour	2%	27	79.60	1.00	11.5768
34	1 hour	2%	28	79.60	1.00	10.4786
34	1 hour	2%	29	79.60	1.00	10.5983
34	1 hour	2%	30	79.60	1.00	10.8409
35	2 hour	2%	21	98.30	1.00	15.2055
35	2 hour	2%	22	98.30	1.00	13.7046
35	2 hour	2%	23	98.30	1.00	10.3981
35	2 hour	2%	24	98.30	1.00	13.3464
35	2 hour	2%	25	98.30	1.00	9.9908
35	2 hour	2%	26	98.30	1.00	15.0518
35	2 hour	2%	27	98.30	1.00	11.6535
35	2 hour	2%	28	98.30	1.00	12.8525
35	2 hour	2%	29	98.30	1.00	15.4766
35	2 hour	2%	30	98.30	1.00	14.7607
36	3 hour	2%	21	110.00	1.00	14.2620
36	3 hour	2%	22	110.00	1.00	11.6661
36	3 hour	2%	23	110.00	1.00	12.5277
36	3 hour	2%	24	110.00	1.00	8.8166
36	3 hour	2%	25	110.00	1.00	8.8257
36	3 hour	2%	26	110.00	1.00	9.8120
36	3 hour	2%	27	110.00	1.00	9.3166
36	3 hour	2%	28	110.00	1.00	12.5134
36	3 hour	2%	29	110.00	1.00	8.4967

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36	3 hour	2%	30	110.00	1.00	12.5856
37	6 hour	2%	21	132.00	1.00	10.7729
37	6 hour	2%	22	132.00	1.00	7.8734
37	6 hour	2%	23	132.00	1.00	9.0760
37	6 hour	2%	24	132.00	1.00	7.2437
37	6 hour	2%	25	132.00	1.00	7.0568
37	6 hour	2%	26	132.00	1.00	9.4715
37	6 hour	2%	27	132.00	1.00	13.0436
37	6 hour	2%	28	132.00	1.00	10.2332
37	6 hour	2%	29	132.00	1.00	8.1932
37	6 hour	2%	30	132.00	1.00	10.5239
38	12 hour	2%	21	162.00	1.00	5.9507
38	12 hour	2%	22	162.00	1.00	6.5280
38	12 hour	2%	23	162.00	1.00	5.9130
38	12 hour	2%	24	162.00	1.00	5.8043
38	12 hour	2%	25	162.00	1.00	9.8166
38	12 hour	2%	26	162.00	1.00	4.4351
38	12 hour	2%	27	162.00	1.00	6.0012
38	12 hour	2%	28	162.00	1.00	10.0592
38	12 hour	2%	29	162.00	1.00	5.0784
38	12 hour	2%	30	162.00	1.00	10.3494
39	24 hour	2%	21	201.00	1.00	4.2045
39	24 hour	2%	22	201.00	1.00	3.6398
39	24 hour	2%	23	201.00	1.00	5.6543
39	24 hour	2%	24	201.00	1.00	7.4511
39	24 hour	2%	25	201.00	1.00	5.3264
39	24 hour	2%	26	201.00	1.00	4.6276
39	24 hour	2%	27	201.00	1.00	3.5667
39	24 hour	2%	28	201.00	1.00	6.0126
39	24 hour	2%	29	201.00	1.00	4.3294
39	24 hour	2%	30	201.00	1.00	6.6062
40	48 hour	2%	21	250.00	1.00	3.7449
40	48 hour	2%	22	250.00	1.00	3.2694
40	48 hour	2%	23	250.00	1.00	6.8141
40	48 hour	2%	24	250.00	1.00	2.8376
40	48 hour	2%	25	250.00	1.00	6.4847
40	48 hour	2%	26	250.00	1.00	4.9654
40	48 hour	2%	27	250.00	1.00	3.6573
40	48 hour	2%	28	250.00	1.00	2.7687
40	48 hour	2%	29	250.00	1.00	4.2855
40	48 hour	2%	30	250.00	1.00	5.9453
41	72 hour	2%	21	280.00	1.00	2.6912
41	72 hour	2%	22	280.00	1.00	2.1432
41	72 hour	2%	23	280.00	1.00	1.8559
41	72 hour	2%	24	280.00	1.00	3.8957
41	72 hour	2%	25	280.00	1.00	1.6405
41	72 hour	2%	26	280.00	1.00	2.6524
41	72 hour	2%	27	280.00	1.00	2.5214
41	72 hour	2%	28	280.00	1.00	2.5589
41	72 hour	2%	29	280.00	1.00	3.4708
41	72 hour	2%	30	280.00	1.00	3.1163
42	96 hour	2%	21	298.00	1.00	2.5109
42	96 hour	2%	22	298.00	1.00	3.8353
42	96 hour	2%	23	298.00	1.00	2.1745
42	96 hour	2%	24	298.00	1.00	1.5716
42	96 hour	2%	25	298.00	1.00	1.7571
42	96 hour	2%	26	298.00	1.00	2.4446
42	96 hour	2%	27	298.00	1.00	2.0001
42	96 hour	2%	28	298.00	1.00	5.6353
42	96 hour	2%	29	298.00	1.00	2.9562
42	96 hour	2%	30	298.00	1.00	2.3465
43	120 hour	2%	21	308.00	1.00	2.5573
43	120 hour	2%	22	308.00	1.00	2.2141
43	120 hour	2%	23	308.00	1.00	3.8582

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43	120 hour	2%	24	308.00	1.00	4.7779
43	120 hour	2%	25	308.00	1.00	2.6896
43	120 hour	2%	26	308.00	1.00	1.7613
43	120 hour	2%	27	308.00	1.00	1.4244
43	120 hour	2%	28	308.00	1.00	2.1596
43	120 hour	2%	29	308.00	1.00	5.5030
43	120 hour	2%	30	308.00	1.00	2.5893
44	144 hour	2%	21	312.00	1.00	2.3860
44	144 hour	2%	22	312.00	1.00	1.5228
44	144 hour	2%	23	312.00	1.00	2.5411
44	144 hour	2%	24	312.00	1.00	3.2612
44	144 hour	2%	25	312.00	1.00	2.3377
44	144 hour	2%	26	312.00	1.00	4.6045
44	144 hour	2%	27	312.00	1.00	2.7523
44	144 hour	2%	28	312.00	1.00	1.3829
44	144 hour	2%	29	312.00	1.00	1.9642
44	144 hour	2%	30	312.00	1.00	5.2730
45	168 hour	2%	21	313.00	1.00	1.9095
45	168 hour	2%	22	313.00	1.00	1.4186
45	168 hour	2%	23	313.00	1.00	2.8370
45	168 hour	2%	24	313.00	1.00	3.2615
45	168 hour	2%	25	313.00	1.00	1.8661
45	168 hour	2%	26	313.00	1.00	1.8661
45	168 hour	2%	27	313.00	1.00	1.9226
45	168 hour	2%	28	313.00	1.00	2.9234
45	168 hour	2%	29	313.00	1.00	1.8989
45	168 hour	2%	30	313.00	1.00	2.7161
46	10 min	1%	21	37.60	1.00	2.6638
46	10 min	1%	22	37.60	1.00	2.6638
46	10 min	1%	23	37.60	1.00	2.6638
46	10 min	1%	24	37.60	1.00	2.6638
46	10 min	1%	25	37.60	1.00	2.6638
46	10 min	1%	26	37.60	1.00	2.6638
46	10 min	1%	27	37.60	1.00	2.6638
46	10 min	1%	28	37.60	1.00	2.6638
46	10 min	1%	29	37.60	1.00	2.6638
46	10 min	1%	30	37.60	1.00	2.6638
47	15 min	1%	21	48.00	1.00	3.5976
47	15 min	1%	22	48.00	1.00	3.5976
47	15 min	1%	23	48.00	1.00	3.5976
47	15 min	1%	24	48.00	1.00	3.5976
47	15 min	1%	25	48.00	1.00	3.5976
47	15 min	1%	26	48.00	1.00	3.5976
47	15 min	1%	27	48.00	1.00	3.5976
47	15 min	1%	28	48.00	1.00	3.5976
47	15 min	1%	29	48.00	1.00	3.5976
47	15 min	1%	30	48.00	1.00	3.5976
48	30 min	1%	21	68.10	1.00	8.5999
48	30 min	1%	22	68.10	1.00	7.8964
48	30 min	1%	23	68.10	1.00	8.8184
48	30 min	1%	24	68.10	1.00	8.3322
48	30 min	1%	25	68.10	1.00	7.9231
48	30 min	1%	26	68.10	1.00	7.9719
48	30 min	1%	27	68.10	1.00	8.3800
48	30 min	1%	28	68.10	1.00	7.8532
48	30 min	1%	29	68.10	1.00	8.5717
48	30 min	1%	30	68.10	1.00	8.0088
49	1 hour	1%	21	89.40	1.00	17.3101
49	1 hour	1%	22	89.40	1.00	17.0630
49	1 hour	1%	23	89.40	1.00	13.4180
49	1 hour	1%	24	89.40	1.00	13.0252
49	1 hour	1%	25	89.40	1.00	13.6026
49	1 hour	1%	26	89.40	1.00	13.8051
49	1 hour	1%	27	89.40	1.00	15.2045

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49	1 hour	1%	28	89.40	1.00	13.5284
49	1 hour	1%	29	89.40	1.00	13.6804
49	1 hour	1%	30	89.40	1.00	13.9033
50	2 hour	1%	21	111.00	1.00	18.2148
50	2 hour	1%	22	111.00	1.00	16.2287
50	2 hour	1%	23	111.00	1.00	13.0690
50	2 hour	1%	24	111.00	1.00	15.9885
50	2 hour	1%	25	111.00	1.00	12.3161
50	2 hour	1%	26	111.00	1.00	17.9146
50	2 hour	1%	27	111.00	1.00	13.9118
50	2 hour	1%	28	111.00	1.00	15.2012
50	2 hour	1%	29	111.00	1.00	18.6264
50	2 hour	1%	30	111.00	1.00	17.9700
51	3 hour	1%	21	125.00	1.00	16.6724
51	3 hour	1%	22	125.00	1.00	13.5294
51	3 hour	1%	23	125.00	1.00	14.7145
51	3 hour	1%	24	125.00	1.00	10.2007
51	3 hour	1%	25	125.00	1.00	10.1912
51	3 hour	1%	26	125.00	1.00	11.6356
51	3 hour	1%	27	125.00	1.00	10.7621
51	3 hour	1%	28	125.00	1.00	14.4555
51	3 hour	1%	29	125.00	1.00	10.4732
51	3 hour	1%	30	125.00	1.00	16.3677
52	6 hour	1%	21	151.00	1.00	14.3606
52	6 hour	1%	22	151.00	1.00	9.0547
52	6 hour	1%	23	151.00	1.00	10.5052
52	6 hour	1%	24	151.00	1.00	8.3713
52	6 hour	1%	25	151.00	1.00	8.3518
52	6 hour	1%	26	151.00	1.00	10.9649
52	6 hour	1%	27	151.00	1.00	15.1471
52	6 hour	1%	28	151.00	1.00	13.5009
52	6 hour	1%	29	151.00	1.00	9.4698
52	6 hour	1%	30	151.00	1.00	12.1564
53	12 hour	1%	21	185.00	1.00	6.8362
53	12 hour	1%	22	185.00	1.00	7.4947
53	12 hour	1%	23	185.00	1.00	6.8208
53	12 hour	1%	24	185.00	1.00	6.6943
53	12 hour	1%	25	185.00	1.00	12.8389
53	12 hour	1%	26	185.00	1.00	5.1045
53	12 hour	1%	27	185.00	1.00	6.9338
53	12 hour	1%	28	185.00	1.00	13.6399
53	12 hour	1%	29	185.00	1.00	6.0234
53	12 hour	1%	30	185.00	1.00	11.8968
54	24 hour	1%	21	230.00	1.00	5.1480
54	24 hour	1%	22	230.00	1.00	4.2925
54	24 hour	1%	23	230.00	1.00	6.5235
54	24 hour	1%	24	230.00	1.00	8.6216
54	24 hour	1%	25	230.00	1.00	6.1428
54	24 hour	1%	26	230.00	1.00	5.3547
54	24 hour	1%	27	230.00	1.00	4.1380
54	24 hour	1%	28	230.00	1.00	6.9354
54	24 hour	1%	29	230.00	1.00	5.0143
54	24 hour	1%	30	230.00	1.00	7.6194
55	48 hour	1%	21	286.00	1.00	4.3105
55	48 hour	1%	22	286.00	1.00	3.6846
55	48 hour	1%	23	286.00	1.00	7.8522
55	48 hour	1%	24	286.00	1.00	3.2778
55	48 hour	1%	25	286.00	1.00	7.4399
55	48 hour	1%	26	286.00	1.00	5.7304
55	48 hour	1%	27	286.00	1.00	4.1490
55	48 hour	1%	28	286.00	1.00	3.2142
55	48 hour	1%	29	286.00	1.00	4.9627
55	48 hour	1%	30	286.00	1.00	6.9193
56	72 hour	1%	21	319.00	1.00	3.2090

South_2_Dev_batch

56	72 hour	1%	22	319.00	1.00	2.4792
56	72 hour	1%	23	319.00	1.00	2.1454
56	72 hour	1%	24	319.00	1.00	4.3606
56	72 hour	1%	25	319.00	1.00	1.8982
56	72 hour	1%	26	319.00	1.00	3.0039
56	72 hour	1%	27	319.00	1.00	2.9107
56	72 hour	1%	28	319.00	1.00	2.9514
56	72 hour	1%	29	319.00	1.00	3.9851
56	72 hour	1%	30	319.00	1.00	3.5781
57	96 hour	1%	21	339.00	1.00	2.8890
57	96 hour	1%	22	339.00	1.00	4.3968
57	96 hour	1%	23	339.00	1.00	2.5371
57	96 hour	1%	24	339.00	1.00	1.8231
57	96 hour	1%	25	339.00	1.00	2.0356
57	96 hour	1%	26	339.00	1.00	2.8203
57	96 hour	1%	27	339.00	1.00	2.4895
57	96 hour	1%	28	339.00	1.00	6.4791
57	96 hour	1%	29	339.00	1.00	3.3966
57	96 hour	1%	30	339.00	1.00	2.7150
58	120 hour	1%	21	350.00	1.00	2.9356
58	120 hour	1%	22	350.00	1.00	2.5493
58	120 hour	1%	23	350.00	1.00	4.6657
58	120 hour	1%	24	350.00	1.00	5.5196
58	120 hour	1%	25	350.00	1.00	3.0985
58	120 hour	1%	26	350.00	1.00	2.0386
58	120 hour	1%	27	350.00	1.00	1.6578
58	120 hour	1%	28	350.00	1.00	2.4850
58	120 hour	1%	29	350.00	1.00	6.3065
58	120 hour	1%	30	350.00	1.00	2.9765
59	144 hour	1%	21	356.00	1.00	2.7534
59	144 hour	1%	22	356.00	1.00	1.7656
59	144 hour	1%	23	356.00	1.00	2.9381
59	144 hour	1%	24	356.00	1.00	3.7654
59	144 hour	1%	25	356.00	1.00	2.7126
59	144 hour	1%	26	356.00	1.00	5.3378
59	144 hour	1%	27	356.00	1.00	3.1931
59	144 hour	1%	28	356.00	1.00	1.6149
59	144 hour	1%	29	356.00	1.00	2.2744
59	144 hour	1%	30	356.00	1.00	6.0711
60	168 hour	1%	21	356.00	1.00	2.2040
60	168 hour	1%	22	356.00	1.00	1.6410
60	168 hour	1%	23	356.00	1.00	3.2561
60	168 hour	1%	24	356.00	1.00	3.7528
60	168 hour	1%	25	356.00	1.00	2.2605
60	168 hour	1%	26	356.00	1.00	2.2605
60	168 hour	1%	27	356.00	1.00	2.2206
60	168 hour	1%	28	356.00	1.00	3.3883
60	168 hour	1%	29	356.00	1.00	2.1921
60	168 hour	1%	30	356.00	1.00	3.1432

Elapsed Run Time (hh:mm:ss) = 00:00:16

South1_Dev_batch

RORBWin Batch Run Summary

Program version 6.32 (last updated 3rd September 2017)
Copyright Monash University and Hydrology and Risk Consulting

Date run: 11 Jan 2018 12:33

Catchment file : G:\Synergy\Projects\17\170087 Bonnie Doon SWMP\Calculations\RORB\3_South 1\Developed\South1_Dev.catg

Rainfall location: User defined

Temporal pattern : ARR2016 point temporal patterns

Spatial pattern : Uniform

Areal Red. Fact. : Based on ARR 2016 (Book 2 Chapter 4)

Loss factors : Constant with ARI

Parameters: kc = 0.72 m = 0.80

Loss parameters	Initial loss (mm)	Cont. loss (mm/h)
60.00	0.90	

Peak Description

01 Calculated hydrograph:

Run	Duration	AEP	TPat	Rain(mm)	ARF	Peak0001
1	10 min	10%	11	25.00	1.00	1.2211
1	10 min	10%	12	25.00	1.00	1.2211
1	10 min	10%	13	25.00	1.00	1.2211
1	10 min	10%	14	25.00	1.00	1.2211
1	10 min	10%	15	25.00	1.00	1.2211
1	10 min	10%	16	25.00	1.00	1.2211
1	10 min	10%	17	25.00	1.00	1.2211
1	10 min	10%	18	25.00	1.00	1.2211
1	10 min	10%	19	25.00	1.00	1.2211
1	10 min	10%	20	25.00	1.00	1.2211
2	15 min	10%	11	31.90	1.00	1.6479
2	15 min	10%	12	31.90	1.00	1.6479
2	15 min	10%	13	31.90	1.00	1.6479
2	15 min	10%	14	31.90	1.00	1.6479
2	15 min	10%	15	31.90	1.00	1.6479
2	15 min	10%	16	31.90	1.00	1.6479
2	15 min	10%	17	31.90	1.00	1.6479
2	15 min	10%	18	31.90	1.00	1.6479
2	15 min	10%	19	31.90	1.00	1.6479
2	15 min	10%	20	31.90	1.00	1.6479
3	30 min	10%	11	44.80	1.00	2.3826
3	30 min	10%	12	44.80	1.00	2.3324
3	30 min	10%	13	44.80	1.00	2.2783
3	30 min	10%	14	44.80	1.00	2.4593
3	30 min	10%	15	44.80	1.00	2.3253
3	30 min	10%	16	44.80	1.00	2.3836
3	30 min	10%	17	44.80	1.00	2.3576
3	30 min	10%	18	44.80	1.00	2.3916
3	30 min	10%	19	44.80	1.00	2.4694
3	30 min	10%	20	44.80	1.00	2.4974
4	1 hour	10%	11	57.60	1.00	3.1776
4	1 hour	10%	12	57.60	1.00	2.8519
4	1 hour	10%	13	57.60	1.00	2.5338
4	1 hour	10%	14	57.60	1.00	2.9964
4	1 hour	10%	15	57.60	1.00	2.7698
4	1 hour	10%	16	57.60	1.00	2.9968
4	1 hour	10%	17	57.60	1.00	2.6226
4	1 hour	10%	18	57.60	1.00	2.9331
4	1 hour	10%	19	57.60	1.00	2.7364

South1_Dev_batch

4	1 hour	10%	20	57.60	1.00	2.9297
5	2 hour	10%	11	70.10	1.00	5.2565
5	2 hour	10%	12	70.10	1.00	4.7501
5	2 hour	10%	13	70.10	1.00	5.2343
5	2 hour	10%	14	70.10	1.00	4.0697
5	2 hour	10%	15	70.10	1.00	3.3342
5	2 hour	10%	16	70.10	1.00	3.4902
5	2 hour	10%	17	70.10	1.00	5.0465
5	2 hour	10%	18	70.10	1.00	4.9856
5	2 hour	10%	19	70.10	1.00	4.4000
5	2 hour	10%	20	70.10	1.00	5.3245
6	3 hour	10%	11	77.70	1.00	5.1881
6	3 hour	10%	12	77.70	1.00	3.5765
6	3 hour	10%	13	77.70	1.00	3.9040
6	3 hour	10%	14	77.70	1.00	4.0579
6	3 hour	10%	15	77.70	1.00	4.3060
6	3 hour	10%	16	77.70	1.00	4.3317
6	3 hour	10%	17	77.70	1.00	4.3920
6	3 hour	10%	18	77.70	1.00	4.7954
6	3 hour	10%	19	77.70	1.00	4.8194
6	3 hour	10%	20	77.70	1.00	5.4898
7	6 hour	10%	11	92.80	1.00	3.7587
7	6 hour	10%	12	92.80	1.00	4.3289
7	6 hour	10%	13	92.80	1.00	3.5070
7	6 hour	10%	14	92.80	1.00	4.2426
7	6 hour	10%	15	92.80	1.00	5.0194
7	6 hour	10%	16	92.80	1.00	2.7845
7	6 hour	10%	17	92.80	1.00	3.6265
7	6 hour	10%	18	92.80	1.00	4.3680
7	6 hour	10%	19	92.80	1.00	5.4639
7	6 hour	10%	20	92.80	1.00	4.0517
8	12 hour	10%	11	113.00	1.00	3.1885
8	12 hour	10%	12	113.00	1.00	5.4931
8	12 hour	10%	13	113.00	1.00	3.2238
8	12 hour	10%	14	113.00	1.00	1.7145
8	12 hour	10%	15	113.00	1.00	3.1241
8	12 hour	10%	16	113.00	1.00	2.3638
8	12 hour	10%	17	113.00	1.00	2.8417
8	12 hour	10%	18	113.00	1.00	4.4014
8	12 hour	10%	19	113.00	1.00	4.5513
8	12 hour	10%	20	113.00	1.00	3.7891
9	24 hour	10%	11	140.00	1.00	3.9310
9	24 hour	10%	12	140.00	1.00	3.6528
9	24 hour	10%	13	140.00	1.00	2.3465
9	24 hour	10%	14	140.00	1.00	1.8380
9	24 hour	10%	15	140.00	1.00	1.5298
9	24 hour	10%	16	140.00	1.00	2.1153
9	24 hour	10%	17	140.00	1.00	2.0127
9	24 hour	10%	18	140.00	1.00	2.2712
9	24 hour	10%	19	140.00	1.00	2.6241
9	24 hour	10%	20	140.00	1.00	2.2472
10	48 hour	10%	11	175.00	1.00	1.5309
10	48 hour	10%	12	175.00	1.00	1.9191
10	48 hour	10%	13	175.00	1.00	1.8612
10	48 hour	10%	14	175.00	1.00	1.6475
10	48 hour	10%	15	175.00	1.00	1.5842
10	48 hour	10%	16	175.00	1.00	3.1643
10	48 hour	10%	17	175.00	1.00	1.6921
10	48 hour	10%	18	175.00	1.00	2.3240
10	48 hour	10%	19	175.00	1.00	1.4679
10	48 hour	10%	20	175.00	1.00	4.0980
11	72 hour	10%	11	195.00	1.00	0.9273
11	72 hour	10%	12	195.00	1.00	1.6361
11	72 hour	10%	13	195.00	1.00	1.2116

South1_Dev_batch

11	72 hour	10%	14	195.00	1.00	1.3283
11	72 hour	10%	15	195.00	1.00	2.6772
11	72 hour	10%	16	195.00	1.00	2.3181
11	72 hour	10%	17	195.00	1.00	1.0498
11	72 hour	10%	18	195.00	1.00	1.7993
11	72 hour	10%	19	195.00	1.00	1.0784
11	72 hour	10%	20	195.00	1.00	2.0094
12	96 hour	10%	11	207.00	1.00	1.8497
12	96 hour	10%	12	207.00	1.00	1.7109
12	96 hour	10%	13	207.00	1.00	0.7715
12	96 hour	10%	14	207.00	1.00	1.5599
12	96 hour	10%	15	207.00	1.00	1.1023
12	96 hour	10%	16	207.00	1.00	1.0400
12	96 hour	10%	17	207.00	1.00	1.5522
12	96 hour	10%	18	207.00	1.00	2.2783
12	96 hour	10%	19	207.00	1.00	1.0050
12	96 hour	10%	20	207.00	1.00	1.0642
13	120 hour	10%	11	214.00	1.00	1.3189
13	120 hour	10%	12	214.00	1.00	1.2163
13	120 hour	10%	13	214.00	1.00	1.7822
13	120 hour	10%	14	214.00	1.00	2.0400
13	120 hour	10%	15	214.00	1.00	0.9683
13	120 hour	10%	16	214.00	1.00	0.9115
13	120 hour	10%	17	214.00	1.00	2.6570
13	120 hour	10%	18	214.00	1.00	1.4447
13	120 hour	10%	19	214.00	1.00	1.2489
13	120 hour	10%	20	214.00	1.00	1.2065
14	144 hour	10%	11	217.00	1.00	1.4698
14	144 hour	10%	12	217.00	1.00	2.7855
14	144 hour	10%	13	217.00	1.00	1.4702
14	144 hour	10%	14	217.00	1.00	2.4285
14	144 hour	10%	15	217.00	1.00	1.2742
14	144 hour	10%	16	217.00	1.00	1.0515
14	144 hour	10%	17	217.00	1.00	1.0371
14	144 hour	10%	18	217.00	1.00	1.2135
14	144 hour	10%	19	217.00	1.00	1.0507
14	144 hour	10%	20	217.00	1.00	1.4612
15	168 hour	10%	11	217.00	1.00	1.3228
15	168 hour	10%	12	217.00	1.00	0.7117
15	168 hour	10%	13	217.00	1.00	1.0516
15	168 hour	10%	14	217.00	1.00	0.9349
15	168 hour	10%	15	217.00	1.00	1.6760
15	168 hour	10%	16	217.00	1.00	1.4527
15	168 hour	10%	17	217.00	1.00	1.1531
15	168 hour	10%	18	217.00	1.00	1.1262
15	168 hour	10%	19	217.00	1.00	1.0134
15	168 hour	10%	20	217.00	1.00	0.9076
16	10 min	5%	11	28.70	1.00	1.4472
16	10 min	5%	12	28.70	1.00	1.4472
16	10 min	5%	13	28.70	1.00	1.4472
16	10 min	5%	14	28.70	1.00	1.4472
16	10 min	5%	15	28.70	1.00	1.4472
16	10 min	5%	16	28.70	1.00	1.4472
16	10 min	5%	17	28.70	1.00	1.4472
16	10 min	5%	18	28.70	1.00	1.4472
16	10 min	5%	19	28.70	1.00	1.4472
16	10 min	5%	20	28.70	1.00	1.4472
17	15 min	5%	11	36.80	1.00	1.9634
17	15 min	5%	12	36.80	1.00	1.9634
17	15 min	5%	13	36.80	1.00	1.9634
17	15 min	5%	14	36.80	1.00	1.9634
17	15 min	5%	15	36.80	1.00	1.9634
17	15 min	5%	16	36.80	1.00	1.9634
17	15 min	5%	17	36.80	1.00	1.9634

South1_Dev_batch

17	15 min	5%	18	36.80	1.00	1.9634
17	15 min	5%	19	36.80	1.00	1.9634
17	15 min	5%	20	36.80	1.00	1.9634
18	30 min	5%	11	51.80	1.00	2.8435
18	30 min	5%	12	51.80	1.00	2.7816
18	30 min	5%	13	51.80	1.00	2.7150
18	30 min	5%	14	51.80	1.00	2.9381
18	30 min	5%	15	51.80	1.00	2.7729
18	30 min	5%	16	51.80	1.00	2.8447
18	30 min	5%	17	51.80	1.00	2.8127
18	30 min	5%	18	51.80	1.00	2.8546
18	30 min	5%	19	51.80	1.00	2.9506
18	30 min	5%	20	51.80	1.00	2.9814
19	1 hour	5%	11	67.00	1.00	5.7234
19	1 hour	5%	12	67.00	1.00	4.6147
19	1 hour	5%	13	67.00	1.00	4.1886
19	1 hour	5%	14	67.00	1.00	4.8195
19	1 hour	5%	15	67.00	1.00	4.6727
19	1 hour	5%	16	67.00	1.00	5.0852
19	1 hour	5%	17	67.00	1.00	4.4930
19	1 hour	5%	18	67.00	1.00	5.0678
19	1 hour	5%	19	67.00	1.00	4.4187
19	1 hour	5%	20	67.00	1.00	5.2447
20	2 hour	5%	11	82.00	1.00	7.9973
20	2 hour	5%	12	82.00	1.00	6.9467
20	2 hour	5%	13	82.00	1.00	7.4042
20	2 hour	5%	14	82.00	1.00	5.5199
20	2 hour	5%	15	82.00	1.00	5.3162
20	2 hour	5%	16	82.00	1.00	4.9822
20	2 hour	5%	17	82.00	1.00	7.9265
20	2 hour	5%	18	82.00	1.00	7.3191
20	2 hour	5%	19	82.00	1.00	6.0307
20	2 hour	5%	20	82.00	1.00	7.6739
21	3 hour	5%	11	91.20	1.00	6.6852
21	3 hour	5%	12	91.20	1.00	4.5300
21	3 hour	5%	13	91.20	1.00	4.9652
21	3 hour	5%	14	91.20	1.00	5.5986
21	3 hour	5%	15	91.20	1.00	5.5676
21	3 hour	5%	16	91.20	1.00	5.9712
21	3 hour	5%	17	91.20	1.00	6.6323
21	3 hour	5%	18	91.20	1.00	6.5785
21	3 hour	5%	19	91.20	1.00	6.8072
21	3 hour	5%	20	91.20	1.00	7.3474
22	6 hour	5%	11	109.00	1.00	5.9020
22	6 hour	5%	12	109.00	1.00	5.2807
22	6 hour	5%	13	109.00	1.00	4.4184
22	6 hour	5%	14	109.00	1.00	5.0465
22	6 hour	5%	15	109.00	1.00	6.2190
22	6 hour	5%	16	109.00	1.00	3.6143
22	6 hour	5%	17	109.00	1.00	4.4596
22	6 hour	5%	18	109.00	1.00	5.6712
22	6 hour	5%	19	109.00	1.00	6.7174
22	6 hour	5%	20	109.00	1.00	5.4837
23	12 hour	5%	11	133.00	1.00	3.7901
23	12 hour	5%	12	133.00	1.00	6.9368
23	12 hour	5%	13	133.00	1.00	3.8595
23	12 hour	5%	14	133.00	1.00	2.5630
23	12 hour	5%	15	133.00	1.00	3.7692
23	12 hour	5%	16	133.00	1.00	2.8500
23	12 hour	5%	17	133.00	1.00	3.4102
23	12 hour	5%	18	133.00	1.00	5.2558
23	12 hour	5%	19	133.00	1.00	5.4312
23	12 hour	5%	20	133.00	1.00	4.5770
24	24 hour	5%	11	165.00	1.00	5.6604

South1_Dev_batch

24	24 hour	5%	12	165.00	1.00	4.3562
24	24 hour	5%	13	165.00	1.00	3.0964
24	24 hour	5%	14	165.00	1.00	2.1911
24	24 hour	5%	15	165.00	1.00	1.8898
24	24 hour	5%	16	165.00	1.00	2.5350
24	24 hour	5%	17	165.00	1.00	2.4238
24	24 hour	5%	18	165.00	1.00	2.7089
24	24 hour	5%	19	165.00	1.00	3.1348
24	24 hour	5%	20	165.00	1.00	2.6854
25	48 hour	5%	11	206.00	1.00	2.2740
25	48 hour	5%	12	206.00	1.00	2.3053
25	48 hour	5%	13	206.00	1.00	2.2125
25	48 hour	5%	14	206.00	1.00	1.9655
25	48 hour	5%	15	206.00	1.00	1.8950
25	48 hour	5%	16	206.00	1.00	3.7892
25	48 hour	5%	17	206.00	1.00	2.0355
25	48 hour	5%	18	206.00	1.00	2.8053
25	48 hour	5%	19	206.00	1.00	1.7529
25	48 hour	5%	20	206.00	1.00	4.8757
26	72 hour	5%	11	230.00	1.00	1.1126
26	72 hour	5%	12	230.00	1.00	1.9623
26	72 hour	5%	13	230.00	1.00	1.6367
26	72 hour	5%	14	230.00	1.00	1.6193
26	72 hour	5%	15	230.00	1.00	3.2059
26	72 hour	5%	16	230.00	1.00	2.7656
26	72 hour	5%	17	230.00	1.00	1.2682
26	72 hour	5%	18	230.00	1.00	2.1507
26	72 hour	5%	19	230.00	1.00	1.3092
26	72 hour	5%	20	230.00	1.00	2.3904
27	96 hour	5%	11	245.00	1.00	2.2298
27	96 hour	5%	12	245.00	1.00	2.0689
27	96 hour	5%	13	245.00	1.00	0.9888
27	96 hour	5%	14	245.00	1.00	1.8678
27	96 hour	5%	15	245.00	1.00	1.3378
27	96 hour	5%	16	245.00	1.00	1.2671
27	96 hour	5%	17	245.00	1.00	1.8632
27	96 hour	5%	18	245.00	1.00	2.8156
27	96 hour	5%	19	245.00	1.00	1.2403
27	96 hour	5%	20	245.00	1.00	1.2820
28	120 hour	5%	11	253.00	1.00	1.6003
28	120 hour	5%	12	253.00	1.00	1.7813
28	120 hour	5%	13	253.00	1.00	2.1521
28	120 hour	5%	14	253.00	1.00	2.4514
28	120 hour	5%	15	253.00	1.00	1.1672
28	120 hour	5%	16	253.00	1.00	1.1054
28	120 hour	5%	17	253.00	1.00	3.1958
28	120 hour	5%	18	253.00	1.00	1.7422
28	120 hour	5%	19	253.00	1.00	1.5012
28	120 hour	5%	20	253.00	1.00	1.4602
29	144 hour	5%	11	257.00	1.00	1.7783
29	144 hour	5%	12	257.00	1.00	3.3475
29	144 hour	5%	13	257.00	1.00	1.7873
29	144 hour	5%	14	257.00	1.00	2.9112
29	144 hour	5%	15	257.00	1.00	1.5416
29	144 hour	5%	16	257.00	1.00	1.2693
29	144 hour	5%	17	257.00	1.00	1.6762
29	144 hour	5%	18	257.00	1.00	1.4816
29	144 hour	5%	19	257.00	1.00	1.2731
29	144 hour	5%	20	257.00	1.00	1.7728
30	168 hour	5%	11	258.00	1.00	1.6078
30	168 hour	5%	12	258.00	1.00	0.8724
30	168 hour	5%	13	258.00	1.00	1.2773
30	168 hour	5%	14	258.00	1.00	1.1583
30	168 hour	5%	15	258.00	1.00	2.0227

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30	168 hour	5%	16	258.00	1.00	1.7743
30	168 hour	5%	17	258.00	1.00	1.4030
30	168 hour	5%	18	258.00	1.00	1.6485
30	168 hour	5%	19	258.00	1.00	1.2813
30	168 hour	5%	20	258.00	1.00	1.1998
31	10 min	2%	21	33.80	1.00	1.7691
31	10 min	2%	22	33.80	1.00	1.7691
31	10 min	2%	23	33.80	1.00	1.7691
31	10 min	2%	24	33.80	1.00	1.7691
31	10 min	2%	25	33.80	1.00	1.7691
31	10 min	2%	26	33.80	1.00	1.7691
31	10 min	2%	27	33.80	1.00	1.7691
31	10 min	2%	28	33.80	1.00	1.7691
31	10 min	2%	29	33.80	1.00	1.7691
31	10 min	2%	30	33.80	1.00	1.7691
32	15 min	2%	21	43.10	1.00	2.3821
32	15 min	2%	22	43.10	1.00	2.3821
32	15 min	2%	23	43.10	1.00	2.3821
32	15 min	2%	24	43.10	1.00	2.3821
32	15 min	2%	25	43.10	1.00	2.3821
32	15 min	2%	26	43.10	1.00	2.3821
32	15 min	2%	27	43.10	1.00	2.3821
32	15 min	2%	28	43.10	1.00	2.3821
32	15 min	2%	29	43.10	1.00	2.3821
32	15 min	2%	30	43.10	1.00	2.3821
33	30 min	2%	21	61.00	1.00	3.9303
33	30 min	2%	22	61.00	1.00	3.6154
33	30 min	2%	23	61.00	1.00	3.9303
33	30 min	2%	24	61.00	1.00	3.8458
33	30 min	2%	25	61.00	1.00	3.6572
33	30 min	2%	26	61.00	1.00	3.6713
33	30 min	2%	27	61.00	1.00	3.8775
33	30 min	2%	28	61.00	1.00	3.5473
33	30 min	2%	29	61.00	1.00	3.9303
33	30 min	2%	30	61.00	1.00	3.7107
34	1 hour	2%	21	79.60	1.00	9.4460
34	1 hour	2%	22	79.60	1.00	9.4741
34	1 hour	2%	23	79.60	1.00	7.3175
34	1 hour	2%	24	79.60	1.00	7.0219
34	1 hour	2%	25	79.60	1.00	7.4923
34	1 hour	2%	26	79.60	1.00	7.6305
34	1 hour	2%	27	79.60	1.00	8.4864
34	1 hour	2%	28	79.60	1.00	7.4937
34	1 hour	2%	29	79.60	1.00	7.6350
34	1 hour	2%	30	79.60	1.00	7.6829
35	2 hour	2%	21	98.30	1.00	10.7389
35	2 hour	2%	22	98.30	1.00	9.4795
35	2 hour	2%	23	98.30	1.00	7.2580
35	2 hour	2%	24	98.30	1.00	9.3558
35	2 hour	2%	25	98.30	1.00	6.9129
35	2 hour	2%	26	98.30	1.00	10.6024
35	2 hour	2%	27	98.30	1.00	7.9859
35	2 hour	2%	28	98.30	1.00	8.7821
35	2 hour	2%	29	98.30	1.00	10.7473
35	2 hour	2%	30	98.30	1.00	10.3653
36	3 hour	2%	21	110.00	1.00	9.6324
36	3 hour	2%	22	110.00	1.00	7.9873
36	3 hour	2%	23	110.00	1.00	8.4653
36	3 hour	2%	24	110.00	1.00	5.8149
36	3 hour	2%	25	110.00	1.00	5.8158
36	3 hour	2%	26	110.00	1.00	6.6476
36	3 hour	2%	27	110.00	1.00	6.1031
36	3 hour	2%	28	110.00	1.00	8.4011
36	3 hour	2%	29	110.00	1.00	5.6841

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36	3 hour	2%	30	110.00	1.00	9.0102
37	6 hour	2%	21	132.00	1.00	7.6481
37	6 hour	2%	22	132.00	1.00	5.1292
37	6 hour	2%	23	132.00	1.00	5.9879
37	6 hour	2%	24	132.00	1.00	4.7952
37	6 hour	2%	25	132.00	1.00	4.6101
37	6 hour	2%	26	132.00	1.00	6.3752
37	6 hour	2%	27	132.00	1.00	8.6137
37	6 hour	2%	28	132.00	1.00	7.1392
37	6 hour	2%	29	132.00	1.00	5.4616
37	6 hour	2%	30	132.00	1.00	6.9688
38	12 hour	2%	21	162.00	1.00	3.8624
38	12 hour	2%	22	162.00	1.00	4.2279
38	12 hour	2%	23	162.00	1.00	3.9155
38	12 hour	2%	24	162.00	1.00	3.8660
38	12 hour	2%	25	162.00	1.00	6.7321
38	12 hour	2%	26	162.00	1.00	2.8812
38	12 hour	2%	27	162.00	1.00	3.9959
38	12 hour	2%	28	162.00	1.00	6.9614
38	12 hour	2%	29	162.00	1.00	3.3536
38	12 hour	2%	30	162.00	1.00	6.7989
39	24 hour	2%	21	201.00	1.00	2.7093
39	24 hour	2%	22	201.00	1.00	2.4013
39	24 hour	2%	23	201.00	1.00	3.6939
39	24 hour	2%	24	201.00	1.00	4.9674
39	24 hour	2%	25	201.00	1.00	3.4706
39	24 hour	2%	26	201.00	1.00	3.0558
39	24 hour	2%	27	201.00	1.00	2.3680
39	24 hour	2%	28	201.00	1.00	3.9536
39	24 hour	2%	29	201.00	1.00	2.8688
39	24 hour	2%	30	201.00	1.00	4.3222
40	48 hour	2%	21	250.00	1.00	2.3937
40	48 hour	2%	22	250.00	1.00	2.1536
40	48 hour	2%	23	250.00	1.00	4.4518
40	48 hour	2%	24	250.00	1.00	1.8272
40	48 hour	2%	25	250.00	1.00	4.1217
40	48 hour	2%	26	250.00	1.00	3.2474
40	48 hour	2%	27	250.00	1.00	2.3491
40	48 hour	2%	28	250.00	1.00	1.8251
40	48 hour	2%	29	250.00	1.00	2.8377
40	48 hour	2%	30	250.00	1.00	3.9802
41	72 hour	2%	21	280.00	1.00	1.7652
41	72 hour	2%	22	280.00	1.00	1.3881
41	72 hour	2%	23	280.00	1.00	1.1973
41	72 hour	2%	24	280.00	1.00	2.4761
41	72 hour	2%	25	280.00	1.00	1.0590
41	72 hour	2%	26	280.00	1.00	1.6955
41	72 hour	2%	27	280.00	1.00	1.6447
41	72 hour	2%	28	280.00	1.00	1.6489
41	72 hour	2%	29	280.00	1.00	2.2543
41	72 hour	2%	30	280.00	1.00	1.9963
42	96 hour	2%	21	298.00	1.00	1.6287
42	96 hour	2%	22	298.00	1.00	2.4873
42	96 hour	2%	23	298.00	1.00	1.4207
42	96 hour	2%	24	298.00	1.00	1.0244
42	96 hour	2%	25	298.00	1.00	1.1505
42	96 hour	2%	26	298.00	1.00	1.5860
42	96 hour	2%	27	298.00	1.00	1.3550
42	96 hour	2%	28	298.00	1.00	3.7237
42	96 hour	2%	29	298.00	1.00	1.9135
42	96 hour	2%	30	298.00	1.00	1.5527
43	120 hour	2%	21	308.00	1.00	1.6443
43	120 hour	2%	22	308.00	1.00	1.4358
43	120 hour	2%	23	308.00	1.00	2.5284

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43	120 hour	2%	24	308.00	1.00	3.2141
43	120 hour	2%	25	308.00	1.00	1.7676
43	120 hour	2%	26	308.00	1.00	1.1548
43	120 hour	2%	27	308.00	1.00	0.9308
43	120 hour	2%	28	308.00	1.00	1.3836
43	120 hour	2%	29	308.00	1.00	3.5953
43	120 hour	2%	30	308.00	1.00	1.6802
44	144 hour	2%	21	312.00	1.00	1.5349
44	144 hour	2%	22	312.00	1.00	0.9740
44	144 hour	2%	23	312.00	1.00	1.6601
44	144 hour	2%	24	312.00	1.00	2.1425
44	144 hour	2%	25	312.00	1.00	1.5478
44	144 hour	2%	26	312.00	1.00	3.0924
44	144 hour	2%	27	312.00	1.00	1.8318
44	144 hour	2%	28	312.00	1.00	0.9103
44	144 hour	2%	29	312.00	1.00	1.2712
44	144 hour	2%	30	312.00	1.00	3.4459
45	168 hour	2%	21	313.00	1.00	1.2384
45	168 hour	2%	22	313.00	1.00	0.9091
45	168 hour	2%	23	313.00	1.00	1.8374
45	168 hour	2%	24	313.00	1.00	2.1428
45	168 hour	2%	25	313.00	1.00	1.1810
45	168 hour	2%	26	313.00	1.00	1.1810
45	168 hour	2%	27	313.00	1.00	1.2552
45	168 hour	2%	28	313.00	1.00	1.9725
45	168 hour	2%	29	313.00	1.00	1.2275
45	168 hour	2%	30	313.00	1.00	1.8022
46	10 min	1%	21	37.60	1.00	2.0158
46	10 min	1%	22	37.60	1.00	2.0158
46	10 min	1%	23	37.60	1.00	2.0158
46	10 min	1%	24	37.60	1.00	2.0158
46	10 min	1%	25	37.60	1.00	2.0158
46	10 min	1%	26	37.60	1.00	2.0158
46	10 min	1%	27	37.60	1.00	2.0158
46	10 min	1%	28	37.60	1.00	2.0158
46	10 min	1%	29	37.60	1.00	2.0158
46	10 min	1%	30	37.60	1.00	2.0158
47	15 min	1%	21	48.00	1.00	2.7169
47	15 min	1%	22	48.00	1.00	2.7169
47	15 min	1%	23	48.00	1.00	2.7169
47	15 min	1%	24	48.00	1.00	2.7169
47	15 min	1%	25	48.00	1.00	2.7169
47	15 min	1%	26	48.00	1.00	2.7169
47	15 min	1%	27	48.00	1.00	2.7169
47	15 min	1%	28	48.00	1.00	2.7169
47	15 min	1%	29	48.00	1.00	2.7169
47	15 min	1%	30	48.00	1.00	2.7169
48	30 min	1%	21	68.10	1.00	6.4707
48	30 min	1%	22	68.10	1.00	5.8503
48	30 min	1%	23	68.10	1.00	6.6662
48	30 min	1%	24	68.10	1.00	6.2332
48	30 min	1%	25	68.10	1.00	5.8744
48	30 min	1%	26	68.10	1.00	5.9170
48	30 min	1%	27	68.10	1.00	6.2809
48	30 min	1%	28	68.10	1.00	5.8113
48	30 min	1%	29	68.10	1.00	6.4457
48	30 min	1%	30	68.10	1.00	5.9501
49	1 hour	1%	21	89.40	1.00	12.8411
49	1 hour	1%	22	89.40	1.00	12.2988
49	1 hour	1%	23	89.40	1.00	9.5249
49	1 hour	1%	24	89.40	1.00	9.3924
49	1 hour	1%	25	89.40	1.00	9.5800
49	1 hour	1%	26	89.40	1.00	9.7368
49	1 hour	1%	27	89.40	1.00	10.9921

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49	1 hour	1%	28	89.40	1.00	9.5304
49	1 hour	1%	29	89.40	1.00	9.7086
49	1 hour	1%	30	89.40	1.00	9.9158
50	2 hour	1%	21	111.00	1.00	12.7310
50	2 hour	1%	22	111.00	1.00	11.1098
50	2 hour	1%	23	111.00	1.00	9.0433
50	2 hour	1%	24	111.00	1.00	11.0799
50	2 hour	1%	25	111.00	1.00	8.3968
50	2 hour	1%	26	111.00	1.00	12.4892
50	2 hour	1%	27	111.00	1.00	9.4227
50	2 hour	1%	28	111.00	1.00	10.3484
50	2 hour	1%	29	111.00	1.00	12.7937
50	2 hour	1%	30	111.00	1.00	12.4666
51	3 hour	1%	21	125.00	1.00	11.1753
51	3 hour	1%	22	125.00	1.00	9.2262
51	3 hour	1%	23	125.00	1.00	9.8573
51	3 hour	1%	24	125.00	1.00	7.0038
51	3 hour	1%	25	125.00	1.00	6.6865
51	3 hour	1%	26	125.00	1.00	7.8036
51	3 hour	1%	27	125.00	1.00	7.0729
51	3 hour	1%	28	125.00	1.00	9.6639
51	3 hour	1%	29	125.00	1.00	7.1462
51	3 hour	1%	30	125.00	1.00	11.5540
52	6 hour	1%	21	151.00	1.00	10.0442
52	6 hour	1%	22	151.00	1.00	5.9103
52	6 hour	1%	23	151.00	1.00	6.9144
52	6 hour	1%	24	151.00	1.00	5.5366
52	6 hour	1%	25	151.00	1.00	5.7262
52	6 hour	1%	26	151.00	1.00	7.3780
52	6 hour	1%	27	151.00	1.00	9.9591
52	6 hour	1%	28	151.00	1.00	9.3749
52	6 hour	1%	29	151.00	1.00	6.3075
52	6 hour	1%	30	151.00	1.00	8.0335
53	12 hour	1%	21	185.00	1.00	4.4422
53	12 hour	1%	22	185.00	1.00	4.8540
53	12 hour	1%	23	185.00	1.00	4.5135
53	12 hour	1%	24	185.00	1.00	4.4633
53	12 hour	1%	25	185.00	1.00	8.7241
53	12 hour	1%	26	185.00	1.00	3.3151
53	12 hour	1%	27	185.00	1.00	4.6088
53	12 hour	1%	28	185.00	1.00	9.3790
53	12 hour	1%	29	185.00	1.00	3.9771
53	12 hour	1%	30	185.00	1.00	7.8110
54	24 hour	1%	21	230.00	1.00	3.4894
54	24 hour	1%	22	230.00	1.00	2.8803
54	24 hour	1%	23	230.00	1.00	4.2570
54	24 hour	1%	24	230.00	1.00	5.7375
54	24 hour	1%	25	230.00	1.00	3.9992
54	24 hour	1%	26	230.00	1.00	3.5325
54	24 hour	1%	27	230.00	1.00	2.7460
54	24 hour	1%	28	230.00	1.00	4.5314
54	24 hour	1%	29	230.00	1.00	3.3206
54	24 hour	1%	30	230.00	1.00	4.9765
55	48 hour	1%	21	286.00	1.00	2.7533
55	48 hour	1%	22	286.00	1.00	2.3840
55	48 hour	1%	23	286.00	1.00	5.1260
55	48 hour	1%	24	286.00	1.00	2.1101
55	48 hour	1%	25	286.00	1.00	4.7236
55	48 hour	1%	26	286.00	1.00	3.7451
55	48 hour	1%	27	286.00	1.00	2.6595
55	48 hour	1%	28	286.00	1.00	2.1175
55	48 hour	1%	29	286.00	1.00	3.2818
55	48 hour	1%	30	286.00	1.00	4.6389
56	72 hour	1%	21	319.00	1.00	2.0918

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56	72 hour	1%	22	319.00	1.00	1.6068
56	72 hour	1%	23	319.00	1.00	1.3840
56	72 hour	1%	24	319.00	1.00	2.7665
56	72 hour	1%	25	319.00	1.00	1.2233
56	72 hour	1%	26	319.00	1.00	1.9661
56	72 hour	1%	27	319.00	1.00	1.8980
56	72 hour	1%	28	319.00	1.00	1.9003
56	72 hour	1%	29	319.00	1.00	2.5937
56	72 hour	1%	30	319.00	1.00	2.2910
57	96 hour	1%	21	339.00	1.00	1.8729
57	96 hour	1%	22	339.00	1.00	2.8453
57	96 hour	1%	23	339.00	1.00	1.6241
57	96 hour	1%	24	339.00	1.00	1.1876
57	96 hour	1%	25	339.00	1.00	1.3320
57	96 hour	1%	26	339.00	1.00	1.8282
57	96 hour	1%	27	339.00	1.00	1.6833
57	96 hour	1%	28	339.00	1.00	4.2772
57	96 hour	1%	29	339.00	1.00	2.1971
57	96 hour	1%	30	339.00	1.00	1.7959
58	120 hour	1%	21	350.00	1.00	1.8876
58	120 hour	1%	22	350.00	1.00	1.6524
58	120 hour	1%	23	350.00	1.00	3.0414
58	120 hour	1%	24	350.00	1.00	3.7085
58	120 hour	1%	25	350.00	1.00	2.0354
58	120 hour	1%	26	350.00	1.00	1.3355
58	120 hour	1%	27	350.00	1.00	1.0846
58	120 hour	1%	28	350.00	1.00	1.5837
58	120 hour	1%	29	350.00	1.00	4.1172
58	120 hour	1%	30	350.00	1.00	1.9303
59	144 hour	1%	21	356.00	1.00	1.7713
59	144 hour	1%	22	356.00	1.00	1.1285
59	144 hour	1%	23	356.00	1.00	1.9179
59	144 hour	1%	24	356.00	1.00	2.4714
59	144 hour	1%	25	356.00	1.00	1.7938
59	144 hour	1%	26	356.00	1.00	3.5807
59	144 hour	1%	27	356.00	1.00	2.1237
59	144 hour	1%	28	356.00	1.00	1.0606
59	144 hour	1%	29	356.00	1.00	1.4706
59	144 hour	1%	30	356.00	1.00	3.9643
60	168 hour	1%	21	356.00	1.00	1.4286
60	168 hour	1%	22	356.00	1.00	1.0490
60	168 hour	1%	23	356.00	1.00	2.1121
60	168 hour	1%	24	356.00	1.00	2.4631
60	168 hour	1%	25	356.00	1.00	1.5089
60	168 hour	1%	26	356.00	1.00	1.5089
60	168 hour	1%	27	356.00	1.00	1.4477
60	168 hour	1%	28	356.00	1.00	2.2827
60	168 hour	1%	29	356.00	1.00	1.4161
60	168 hour	1%	30	356.00	1.00	2.0828

Elapsed Run Time (hh:mm:ss) = 00:00:24

NorthWest_Develope_batch

RORBWin Batch Run Summary

Program version 6.32 (last updated 3rd September 2017)
Copyright Monash University and Hydrology and Risk Consulting

Date run: 11 Jan 2018 11:31

Catchment file : G:\Synergy\Projects\17\170087 Bonnie Doon SWMP\Calculations\RORB\1_North West\Developed\NorthWest_Develope.catg

Rainfall location: User defined

Temporal pattern : ARR2016 point temporal patterns

Spatial pattern : Uniform

Areal Red. Fact. : Based on ARR 2016 (Book 2 Chapter 4)

Loss factors : Constant with ARI

Parameters: kc = 2.84 m = 0.80

Loss parameters	Initial loss (mm)	Cont. loss (mm/h)
60.00	0.90	

Peak Description

01 Calculated hydrograph,

Run	Duration	AEP	TPat	Rain(mm)	ARF	Peak0001
1	10 min	10%	11	25.00	0.83	5.1593
1	10 min	10%	12	25.00	0.83	5.1824
1	10 min	10%	13	25.00	0.83	5.0935
1	10 min	10%	14	25.00	0.83	5.0085
1	10 min	10%	15	25.00	0.83	5.2998
1	10 min	10%	16	25.00	0.83	5.2216
1	10 min	10%	17	25.00	0.83	5.3900
1	10 min	10%	18	25.00	0.83	5.2826
1	10 min	10%	19	25.00	0.83	5.1872
1	10 min	10%	20	25.00	0.83	5.4742
2	15 min	10%	11	31.90	0.86	6.1061
2	15 min	10%	12	31.90	0.86	6.2198
2	15 min	10%	13	31.90	0.86	6.3732
2	15 min	10%	14	31.90	0.86	6.6748
2	15 min	10%	15	31.90	0.86	6.6103
2	15 min	10%	16	31.90	0.86	6.4213
2	15 min	10%	17	31.90	0.86	6.3424
2	15 min	10%	18	31.90	0.86	6.5182
2	15 min	10%	19	31.90	0.86	7.0852
2	15 min	10%	20	31.90	0.86	7.0169
3	30 min	10%	11	44.80	0.89	7.7750
3	30 min	10%	12	44.80	0.89	7.3903
3	30 min	10%	13	44.80	0.89	9.1648
3	30 min	10%	14	44.80	0.89	8.1545
3	30 min	10%	15	44.80	0.89	8.1157
3	30 min	10%	16	44.80	0.89	8.0187
3	30 min	10%	17	44.80	0.89	9.3773
3	30 min	10%	18	44.80	0.89	8.5752
3	30 min	10%	19	44.80	0.89	9.0659
3	30 min	10%	20	44.80	0.89	8.8160
4	1 hour	10%	11	57.60	0.92	9.8366
4	1 hour	10%	12	57.60	0.92	6.7160
4	1 hour	10%	13	57.60	0.92	7.1445
4	1 hour	10%	14	57.60	0.92	6.1533
4	1 hour	10%	15	57.60	0.92	7.0059
4	1 hour	10%	16	57.60	0.92	8.5433
4	1 hour	10%	17	57.60	0.92	8.2422
4	1 hour	10%	18	57.60	0.92	7.6220
4	1 hour	10%	19	57.60	0.92	6.9980

NorthWest_Develope_batch

4	1 hour	10%	20	57.60	0.92	10.8152
5	2 hour	10%	11	70.10	0.94	12.2451
5	2 hour	10%	12	70.10	0.94	11.9588
5	2 hour	10%	13	70.10	0.94	11.7013
5	2 hour	10%	14	70.10	0.94	10.4909
5	2 hour	10%	15	70.10	0.94	10.4938
5	2 hour	10%	16	70.10	0.94	10.8003
5	2 hour	10%	17	70.10	0.94	11.9353
5	2 hour	10%	18	70.10	0.94	12.0788
5	2 hour	10%	19	70.10	0.94	11.4734
5	2 hour	10%	20	70.10	0.94	12.0872
6	3 hour	10%	11	77.70	0.94	17.1352
6	3 hour	10%	12	77.70	0.94	16.9949
6	3 hour	10%	13	77.70	0.94	16.9845
6	3 hour	10%	14	77.70	0.94	18.4200
6	3 hour	10%	15	77.70	0.94	19.1070
6	3 hour	10%	16	77.70	0.94	19.1001
6	3 hour	10%	17	77.70	0.94	18.8900
6	3 hour	10%	18	77.70	0.94	18.2933
6	3 hour	10%	19	77.70	0.94	19.6273
6	3 hour	10%	20	77.70	0.94	20.5227
7	6 hour	10%	11	92.80	0.97	19.8140
7	6 hour	10%	12	92.80	0.97	21.9558
7	6 hour	10%	13	92.80	0.97	21.7189
7	6 hour	10%	14	92.80	0.97	33.8476
7	6 hour	10%	15	92.80	0.97	33.5790
7	6 hour	10%	16	92.80	0.97	25.5396
7	6 hour	10%	17	92.80	0.97	26.8389
7	6 hour	10%	18	92.80	0.97	26.1758
7	6 hour	10%	19	92.80	0.97	35.2783
7	6 hour	10%	20	92.80	0.97	31.6490
8	12 hour	10%	11	113.00	0.98	34.5222
8	12 hour	10%	12	113.00	0.98	38.8228
8	12 hour	10%	13	113.00	0.98	27.3241
8	12 hour	10%	14	113.00	0.98	19.8981
8	12 hour	10%	15	113.00	0.98	21.8418
8	12 hour	10%	16	113.00	0.98	19.7504
8	12 hour	10%	17	113.00	0.98	31.4468
8	12 hour	10%	18	113.00	0.98	41.7976
8	12 hour	10%	19	113.00	0.98	43.0729
8	12 hour	10%	20	113.00	0.98	33.4803
9	24 hour	10%	11	140.00	0.99	34.3854
9	24 hour	10%	12	140.00	0.99	42.1292
9	24 hour	10%	13	140.00	0.99	23.7258
9	24 hour	10%	14	140.00	0.99	22.6280
9	24 hour	10%	15	140.00	0.99	16.2612
9	24 hour	10%	16	140.00	0.99	24.1313
9	24 hour	10%	17	140.00	0.99	25.7753
9	24 hour	10%	18	140.00	0.99	25.7374
9	24 hour	10%	19	140.00	0.99	26.3997
9	24 hour	10%	20	140.00	0.99	26.9109
10	48 hour	10%	11	175.00	0.99	15.5334
10	48 hour	10%	12	175.00	0.99	24.6919
10	48 hour	10%	13	175.00	0.99	24.0057
10	48 hour	10%	14	175.00	0.99	17.9559
10	48 hour	10%	15	175.00	0.99	18.1966
10	48 hour	10%	16	175.00	0.99	41.3490
10	48 hour	10%	17	175.00	0.99	19.1035
10	48 hour	10%	18	175.00	0.99	30.2796
10	48 hour	10%	19	175.00	0.99	18.6829
10	48 hour	10%	20	175.00	0.99	42.1201
11	72 hour	10%	11	195.00	0.99	10.8147
11	72 hour	10%	12	195.00	0.99	16.5601
11	72 hour	10%	13	195.00	0.99	13.5384

NorthWest_Develope_batch

11	72 hour	10%	14	195.00	0.99	14.9604
11	72 hour	10%	15	195.00	0.99	29.1469
11	72 hour	10%	16	195.00	0.99	26.8003
11	72 hour	10%	17	195.00	0.99	10.5574
11	72 hour	10%	18	195.00	0.99	20.9035
11	72 hour	10%	19	195.00	0.99	13.2191
11	72 hour	10%	20	195.00	0.99	27.9811
12	96 hour	10%	11	207.00	0.99	25.6182
12	96 hour	10%	12	207.00	0.99	21.1961
12	96 hour	10%	13	207.00	0.99	8.6878
12	96 hour	10%	14	207.00	0.99	16.4678
12	96 hour	10%	15	207.00	0.99	13.1993
12	96 hour	10%	16	207.00	0.99	12.4471
12	96 hour	10%	17	207.00	0.99	18.7511
12	96 hour	10%	18	207.00	0.99	23.0405
12	96 hour	10%	19	207.00	0.99	13.2033
12	96 hour	10%	20	207.00	0.99	12.6112
13	120 hour	10%	11	214.00	0.99	18.8058
13	120 hour	10%	12	214.00	0.99	13.0547
13	120 hour	10%	13	214.00	0.99	20.2940
13	120 hour	10%	14	214.00	0.99	22.2686
13	120 hour	10%	15	214.00	0.99	11.5950
13	120 hour	10%	16	214.00	0.99	11.7102
13	120 hour	10%	17	214.00	0.99	29.7394
13	120 hour	10%	18	214.00	0.99	16.6836
13	120 hour	10%	19	214.00	0.99	16.1921
13	120 hour	10%	20	214.00	0.99	15.8526
14	144 hour	10%	11	217.00	0.99	18.5633
14	144 hour	10%	12	217.00	0.99	34.1444
14	144 hour	10%	13	217.00	0.99	17.0906
14	144 hour	10%	14	217.00	0.99	27.0321
14	144 hour	10%	15	217.00	0.99	17.7442
14	144 hour	10%	16	217.00	0.99	13.6807
14	144 hour	10%	17	217.00	0.99	10.1153
14	144 hour	10%	18	217.00	0.99	16.3163
14	144 hour	10%	19	217.00	0.99	10.8534
14	144 hour	10%	20	217.00	0.99	17.3280
15	168 hour	10%	11	217.00	0.99	13.8429
15	168 hour	10%	12	217.00	0.99	8.7242
15	168 hour	10%	13	217.00	0.99	13.4777
15	168 hour	10%	14	217.00	0.99	10.9401
15	168 hour	10%	15	217.00	0.99	21.8503
15	168 hour	10%	16	217.00	0.99	16.9005
15	168 hour	10%	17	217.00	0.99	16.0326
15	168 hour	10%	18	217.00	0.99	8.3530
15	168 hour	10%	19	217.00	0.99	14.3167
15	168 hour	10%	20	217.00	0.99	8.9910
16	10 min	5%	11	28.70	0.82	6.0290
16	10 min	5%	12	28.70	0.82	6.0568
16	10 min	5%	13	28.70	0.82	5.9499
16	10 min	5%	14	28.70	0.82	5.8476
16	10 min	5%	15	28.70	0.82	6.1981
16	10 min	5%	16	28.70	0.82	6.1040
16	10 min	5%	17	28.70	0.82	6.3068
16	10 min	5%	18	28.70	0.82	6.1774
16	10 min	5%	19	28.70	0.82	6.0625
16	10 min	5%	20	28.70	0.82	6.4083
17	15 min	5%	11	36.80	0.85	7.1861
17	15 min	5%	12	36.80	0.85	7.3201
17	15 min	5%	13	36.80	0.85	7.4662
17	15 min	5%	14	36.80	0.85	7.8276
17	15 min	5%	15	36.80	0.85	7.7506
17	15 min	5%	16	36.80	0.85	7.5232
17	15 min	5%	17	36.80	0.85	7.4726

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17	15 min	5%	18	36.80	0.85	7.6390
17	15 min	5%	19	36.80	0.85	8.3248
17	15 min	5%	20	36.80	0.85	8.2418
18	30 min	5%	11	51.80	0.89	9.0954
18	30 min	5%	12	51.80	0.89	8.6265
18	30 min	5%	13	51.80	0.89	10.7592
18	30 min	5%	14	51.80	0.89	9.5558
18	30 min	5%	15	51.80	0.89	9.4942
18	30 min	5%	16	51.80	0.89	9.3867
18	30 min	5%	17	51.80	0.89	11.0143
18	30 min	5%	18	51.80	0.89	10.0512
18	30 min	5%	19	51.80	0.89	10.6541
18	30 min	5%	20	51.80	0.89	10.3144
19	1 hour	5%	11	67.00	0.92	11.6507
19	1 hour	5%	12	67.00	0.92	7.9449
19	1 hour	5%	13	67.00	0.92	8.4312
19	1 hour	5%	14	67.00	0.92	7.8148
19	1 hour	5%	15	67.00	0.92	8.3127
19	1 hour	5%	16	67.00	0.92	10.1185
19	1 hour	5%	17	67.00	0.92	9.7203
19	1 hour	5%	18	67.00	0.92	9.0748
19	1 hour	5%	19	67.00	0.92	8.2224
19	1 hour	5%	20	67.00	0.92	12.7796
20	2 hour	5%	11	82.00	0.93	25.9673
20	2 hour	5%	12	82.00	0.93	25.3620
20	2 hour	5%	13	82.00	0.93	24.7225
20	2 hour	5%	14	82.00	0.93	22.7984
20	2 hour	5%	15	82.00	0.93	22.5678
20	2 hour	5%	16	82.00	0.93	23.3241
20	2 hour	5%	17	82.00	0.93	25.3370
20	2 hour	5%	18	82.00	0.93	25.4458
20	2 hour	5%	19	82.00	0.93	24.2752
20	2 hour	5%	20	82.00	0.93	25.5685
21	3 hour	5%	11	91.20	0.94	31.9832
21	3 hour	5%	12	91.20	0.94	30.0099
21	3 hour	5%	13	91.20	0.94	30.4373
21	3 hour	5%	14	91.20	0.94	32.4521
21	3 hour	5%	15	91.20	0.94	33.0766
21	3 hour	5%	16	91.20	0.94	33.7874
21	3 hour	5%	17	91.20	0.94	34.9940
21	3 hour	5%	18	91.20	0.94	33.2755
21	3 hour	5%	19	91.20	0.94	34.9630
21	3 hour	5%	20	91.20	0.94	37.0531
22	6 hour	5%	11	109.00	0.96	32.4591
22	6 hour	5%	12	109.00	0.96	31.2480
22	6 hour	5%	13	109.00	0.96	34.9365
22	6 hour	5%	14	109.00	0.96	46.2974
22	6 hour	5%	15	109.00	0.96	50.2975
22	6 hour	5%	16	109.00	0.96	34.9160
22	6 hour	5%	17	109.00	0.96	37.6244
22	6 hour	5%	18	109.00	0.96	41.7490
22	6 hour	5%	19	109.00	0.96	52.2310
22	6 hour	5%	20	109.00	0.96	46.3753
23	12 hour	5%	11	133.00	0.98	41.2255
23	12 hour	5%	12	133.00	0.98	55.8790
23	12 hour	5%	13	133.00	0.98	32.6607
23	12 hour	5%	14	133.00	0.98	23.9184
23	12 hour	5%	15	133.00	0.98	33.8479
23	12 hour	5%	16	133.00	0.98	28.6239
23	12 hour	5%	17	133.00	0.98	40.2984
23	12 hour	5%	18	133.00	0.98	50.1125
23	12 hour	5%	19	133.00	0.98	52.0685
23	12 hour	5%	20	133.00	0.98	42.0144
24	24 hour	5%	11	165.00	0.99	50.7762

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24	24 hour	5%	12	165.00	0.99	53.2945
24	24 hour	5%	13	165.00	0.99	28.5501
24	24 hour	5%	14	165.00	0.99	27.0684
24	24 hour	5%	15	165.00	0.99	19.6803
24	24 hour	5%	16	165.00	0.99	29.0940
24	24 hour	5%	17	165.00	0.99	30.9220
24	24 hour	5%	18	165.00	0.99	30.8313
24	24 hour	5%	19	165.00	0.99	31.8833
24	24 hour	5%	20	165.00	0.99	32.3145
25	48 hour	5%	11	206.00	0.99	23.6849
25	48 hour	5%	12	206.00	0.99	29.6223
25	48 hour	5%	13	206.00	0.99	28.7533
25	48 hour	5%	14	206.00	0.99	21.9611
25	48 hour	5%	15	206.00	0.99	21.6120
25	48 hour	5%	16	206.00	0.99	49.6668
25	48 hour	5%	17	206.00	0.99	22.9585
25	48 hour	5%	18	206.00	0.99	36.4311
25	48 hour	5%	19	206.00	0.99	22.4784
25	48 hour	5%	20	206.00	0.99	49.7113
26	72 hour	5%	11	230.00	0.99	13.3871
26	72 hour	5%	12	230.00	0.99	20.2173
26	72 hour	5%	13	230.00	0.99	20.1114
26	72 hour	5%	14	230.00	0.99	18.3229
26	72 hour	5%	15	230.00	0.99	34.5847
26	72 hour	5%	16	230.00	0.99	32.4371
26	72 hour	5%	17	230.00	0.99	12.6042
26	72 hour	5%	18	230.00	0.99	25.1364
26	72 hour	5%	19	230.00	0.99	15.8732
26	72 hour	5%	20	230.00	0.99	33.6992
27	96 hour	5%	11	245.00	0.99	30.7659
27	96 hour	5%	12	245.00	0.99	25.4451
27	96 hour	5%	13	245.00	0.99	10.6680
27	96 hour	5%	14	245.00	0.99	24.6018
27	96 hour	5%	15	245.00	0.99	15.9937
27	96 hour	5%	16	245.00	0.99	15.0877
27	96 hour	5%	17	245.00	0.99	22.8946
27	96 hour	5%	18	245.00	0.99	27.7111
27	96 hour	5%	19	245.00	0.99	16.2986
27	96 hour	5%	20	245.00	0.99	15.5757
28	120 hour	5%	11	253.00	0.99	22.7938
28	120 hour	5%	12	253.00	0.99	16.1114
28	120 hour	5%	13	253.00	0.99	24.2867
28	120 hour	5%	14	253.00	0.99	26.5857
28	120 hour	5%	15	253.00	0.99	14.1332
28	120 hour	5%	16	253.00	0.99	14.5544
28	120 hour	5%	17	253.00	0.99	35.4593
28	120 hour	5%	18	253.00	0.99	19.9898
28	120 hour	5%	19	253.00	0.99	19.8256
28	120 hour	5%	20	253.00	0.99	19.2960
29	144 hour	5%	11	257.00	0.99	22.3998
29	144 hour	5%	12	257.00	0.99	40.7111
29	144 hour	5%	13	257.00	0.99	20.6268
29	144 hour	5%	14	257.00	0.99	32.9070
29	144 hour	5%	15	257.00	0.99	21.5244
29	144 hour	5%	16	257.00	0.99	16.7536
29	144 hour	5%	17	257.00	0.99	16.1281
29	144 hour	5%	18	257.00	0.99	19.9125
29	144 hour	5%	19	257.00	0.99	12.9012
29	144 hour	5%	20	257.00	0.99	20.9889
30	168 hour	5%	11	258.00	0.99	16.7066
30	168 hour	5%	12	258.00	0.99	10.6846
30	168 hour	5%	13	258.00	0.99	16.6897
30	168 hour	5%	14	258.00	0.99	13.5531
30	168 hour	5%	15	258.00	0.99	26.4641

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30	168 hour	5%	16	258.00	0.99	20.4893
30	168 hour	5%	17	258.00	0.99	19.5744
30	168 hour	5%	18	258.00	0.99	14.6973
30	168 hour	5%	19	258.00	0.99	17.6385
30	168 hour	5%	20	258.00	0.99	11.5617
31	10 min	2%	21	33.80	0.82	7.0948
31	10 min	2%	22	33.80	0.82	7.3084
31	10 min	2%	23	33.80	0.82	7.1047
31	10 min	2%	24	33.80	0.82	7.4223
31	10 min	2%	25	33.80	0.82	7.3733
31	10 min	2%	26	33.80	0.82	7.4040
31	10 min	2%	27	33.80	0.82	7.3370
31	10 min	2%	28	33.80	0.82	7.2042
31	10 min	2%	29	33.80	0.82	7.7012
31	10 min	2%	30	33.80	0.82	7.0397
32	15 min	2%	21	43.10	0.85	9.2988
32	15 min	2%	22	43.10	0.85	9.2525
32	15 min	2%	23	43.10	0.85	8.6874
32	15 min	2%	24	43.10	0.85	8.6262
32	15 min	2%	25	43.10	0.85	9.4648
32	15 min	2%	26	43.10	0.85	9.2525
32	15 min	2%	27	43.10	0.85	8.8276
32	15 min	2%	28	43.10	0.85	10.0277
32	15 min	2%	29	43.10	0.85	9.3376
32	15 min	2%	30	43.10	0.85	8.7672
33	30 min	2%	21	61.00	0.88	10.8708
33	30 min	2%	22	61.00	0.88	11.8433
33	30 min	2%	23	61.00	0.88	12.9829
33	30 min	2%	24	61.00	0.88	11.1655
33	30 min	2%	25	61.00	0.88	10.7955
33	30 min	2%	26	61.00	0.88	10.4148
33	30 min	2%	27	61.00	0.88	11.8530
33	30 min	2%	28	61.00	0.88	12.0810
33	30 min	2%	29	61.00	0.88	11.8676
33	30 min	2%	30	61.00	0.88	11.2686
34	1 hour	2%	21	79.60	0.91	21.6707
34	1 hour	2%	22	79.60	0.91	21.6013
34	1 hour	2%	23	79.60	0.91	20.7468
34	1 hour	2%	24	79.60	0.91	20.4678
34	1 hour	2%	25	79.60	0.91	20.7928
34	1 hour	2%	26	79.60	0.91	20.8461
34	1 hour	2%	27	79.60	0.91	21.0394
34	1 hour	2%	28	79.60	0.91	20.7095
34	1 hour	2%	29	79.60	0.91	20.6768
34	1 hour	2%	30	79.60	0.91	20.8366
35	2 hour	2%	21	98.30	0.92	46.2467
35	2 hour	2%	22	98.30	0.92	45.1682
35	2 hour	2%	23	98.30	0.92	40.8004
35	2 hour	2%	24	98.30	0.92	44.6507
35	2 hour	2%	25	98.30	0.92	40.7515
35	2 hour	2%	26	98.30	0.92	45.8582
35	2 hour	2%	27	98.30	0.92	43.3950
35	2 hour	2%	28	98.30	0.92	44.7691
35	2 hour	2%	29	98.30	0.92	46.8021
35	2 hour	2%	30	98.30	0.92	46.7493
36	3 hour	2%	21	110.00	0.92	58.5103
36	3 hour	2%	22	110.00	0.92	52.3553
36	3 hour	2%	23	110.00	0.92	56.0604
36	3 hour	2%	24	110.00	0.92	46.5399
36	3 hour	2%	25	110.00	0.92	47.2089
36	3 hour	2%	26	110.00	0.92	49.0326
36	3 hour	2%	27	110.00	0.92	50.4734
36	3 hour	2%	28	110.00	0.92	54.7219
36	3 hour	2%	29	110.00	0.92	48.0974

NorthWest_Develope_batch

36	3 hour	2%	30	110.00	0.92	51.3867
37	6 hour	2%	21	132.00	0.96	48.8263
37	6 hour	2%	22	132.00	0.96	55.0888
37	6 hour	2%	23	132.00	0.96	57.4815
37	6 hour	2%	24	132.00	0.96	43.9055
37	6 hour	2%	25	132.00	0.96	51.4277
37	6 hour	2%	26	132.00	0.96	54.7450
37	6 hour	2%	27	132.00	0.96	79.5943
37	6 hour	2%	28	132.00	0.96	42.7533
37	6 hour	2%	29	132.00	0.96	51.7178
37	6 hour	2%	30	132.00	0.96	70.1279
38	12 hour	2%	21	162.00	0.97	47.0269
38	12 hour	2%	22	162.00	0.97	50.2875
38	12 hour	2%	23	162.00	0.97	43.0701
38	12 hour	2%	24	162.00	0.97	40.7760
38	12 hour	2%	25	162.00	0.97	67.8229
38	12 hour	2%	26	162.00	0.97	34.0468
38	12 hour	2%	27	162.00	0.97	38.5343
38	12 hour	2%	28	162.00	0.97	46.0936
38	12 hour	2%	29	162.00	0.97	35.3960
38	12 hour	2%	30	162.00	0.97	75.7239
39	24 hour	2%	21	201.00	0.99	33.6300
39	24 hour	2%	22	201.00	0.99	26.0448
39	24 hour	2%	23	201.00	0.99	43.9101
39	24 hour	2%	24	201.00	0.99	55.1971
39	24 hour	2%	25	201.00	0.99	39.4879
39	24 hour	2%	26	201.00	0.99	34.0574
39	24 hour	2%	27	201.00	0.99	26.2356
39	24 hour	2%	28	201.00	0.99	46.6929
39	24 hour	2%	29	201.00	0.99	31.9124
39	24 hour	2%	30	201.00	0.99	43.5233
40	48 hour	2%	21	250.00	0.99	32.3810
40	48 hour	2%	22	250.00	0.99	26.8065
40	48 hour	2%	23	250.00	0.99	45.8994
40	48 hour	2%	24	250.00	0.99	23.3636
40	48 hour	2%	25	250.00	0.99	55.9501
40	48 hour	2%	26	250.00	0.99	36.8545
40	48 hour	2%	27	250.00	0.99	26.8654
40	48 hour	2%	28	250.00	0.99	22.1914
40	48 hour	2%	29	250.00	0.99	37.7137
40	48 hour	2%	30	250.00	0.99	43.1825
41	72 hour	2%	21	280.00	0.99	21.9320
41	72 hour	2%	22	280.00	0.99	16.0911
41	72 hour	2%	23	280.00	0.99	15.3525
41	72 hour	2%	24	280.00	0.99	28.6458
41	72 hour	2%	25	280.00	0.99	13.0789
41	72 hour	2%	26	280.00	0.99	22.2294
41	72 hour	2%	27	280.00	0.99	20.1506
41	72 hour	2%	28	280.00	0.99	19.9236
41	72 hour	2%	29	280.00	0.99	28.1274
41	72 hour	2%	30	280.00	0.99	26.2294
42	96 hour	2%	21	298.00	0.99	19.4792
42	96 hour	2%	22	298.00	0.99	28.7024
42	96 hour	2%	23	298.00	0.99	17.7358
42	96 hour	2%	24	298.00	0.99	11.2272
42	96 hour	2%	25	298.00	0.99	15.2336
42	96 hour	2%	26	298.00	0.99	17.8439
42	96 hour	2%	27	298.00	0.99	17.2739
42	96 hour	2%	28	298.00	0.99	40.2411
42	96 hour	2%	29	298.00	0.99	22.3671
42	96 hour	2%	30	298.00	0.99	20.5832
43	120 hour	2%	21	308.00	0.99	21.4670
43	120 hour	2%	22	308.00	0.99	16.9665
43	120 hour	2%	23	308.00	0.99	27.0195

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43	120 hour	2%	24	308.00	0.99	33.5577
43	120 hour	2%	25	308.00	0.99	18.3401
43	120 hour	2%	26	308.00	0.99	13.7057
43	120 hour	2%	27	308.00	0.99	9.4166
43	120 hour	2%	28	308.00	0.99	18.0658
43	120 hour	2%	29	308.00	0.99	38.3241
43	120 hour	2%	30	308.00	0.99	19.3884
44	144 hour	2%	21	312.00	0.99	20.0297
44	144 hour	2%	22	312.00	0.99	12.3527
44	144 hour	2%	23	312.00	0.99	21.9699
44	144 hour	2%	24	312.00	0.99	23.4631
44	144 hour	2%	25	312.00	0.99	18.1907
44	144 hour	2%	26	312.00	0.99	30.0117
44	144 hour	2%	27	312.00	0.99	19.4584
44	144 hour	2%	28	312.00	0.99	9.2620
44	144 hour	2%	29	312.00	0.99	14.6246
44	144 hour	2%	30	312.00	0.99	36.6245
45	168 hour	2%	21	313.00	0.99	16.4753
45	168 hour	2%	22	313.00	0.99	11.4850
45	168 hour	2%	23	313.00	0.99	23.3367
45	168 hour	2%	24	313.00	0.99	23.4807
45	168 hour	2%	25	313.00	0.99	13.2354
45	168 hour	2%	26	313.00	0.99	13.2354
45	168 hour	2%	27	313.00	0.99	13.1371
45	168 hour	2%	28	313.00	0.99	26.8359
45	168 hour	2%	29	313.00	0.99	14.3055
45	168 hour	2%	30	313.00	0.99	22.2962
46	10 min	1%	21	37.60	0.81	7.9821
46	10 min	1%	22	37.60	0.81	8.2278
46	10 min	1%	23	37.60	0.81	7.9935
46	10 min	1%	24	37.60	0.81	8.3589
46	10 min	1%	25	37.60	0.81	8.3025
46	10 min	1%	26	37.60	0.81	8.3378
46	10 min	1%	27	37.60	0.81	8.2606
46	10 min	1%	28	37.60	0.81	8.1027
46	10 min	1%	29	37.60	0.81	8.6802
46	10 min	1%	30	37.60	0.81	7.9186
47	15 min	1%	21	48.00	0.84	10.5053
47	15 min	1%	22	48.00	0.84	10.4045
47	15 min	1%	23	48.00	0.84	9.7970
47	15 min	1%	24	48.00	0.84	9.6903
47	15 min	1%	25	48.00	0.84	10.6493
47	15 min	1%	26	48.00	0.84	10.4059
47	15 min	1%	27	48.00	0.84	9.9184
47	15 min	1%	28	48.00	0.84	11.2972
47	15 min	1%	29	48.00	0.84	10.5043
47	15 min	1%	30	48.00	0.84	9.8491
48	30 min	1%	21	68.10	0.88	12.2019
48	30 min	1%	22	68.10	0.88	13.3170
48	30 min	1%	23	68.10	0.88	14.6014
48	30 min	1%	24	68.10	0.88	12.5611
48	30 min	1%	25	68.10	0.88	12.1277
48	30 min	1%	26	68.10	0.88	11.6929
48	30 min	1%	27	68.10	0.88	13.3524
48	30 min	1%	28	68.10	0.88	13.5876
48	30 min	1%	29	68.10	0.88	13.3296
48	30 min	1%	30	68.10	0.88	12.6724
49	1 hour	1%	21	89.40	0.90	34.0470
49	1 hour	1%	22	89.40	0.90	33.9670
49	1 hour	1%	23	89.40	0.90	32.8452
49	1 hour	1%	24	89.40	0.90	32.4113
49	1 hour	1%	25	89.40	0.90	32.7373
49	1 hour	1%	26	89.40	0.90	32.8471
49	1 hour	1%	27	89.40	0.90	33.0661

NorthWest_Develope_batch

49	1 hour	1%	28	89.40	0.90	32.5981
49	1 hour	1%	29	89.40	0.90	32.6403
49	1 hour	1%	30	89.40	0.90	32.9164
50	2 hour	1%	21	111.00	0.91	62.8448
50	2 hour	1%	22	111.00	0.91	61.4199
50	2 hour	1%	23	111.00	0.91	55.1011
50	2 hour	1%	24	111.00	0.91	60.5940
50	2 hour	1%	25	111.00	0.91	54.6108
50	2 hour	1%	26	111.00	0.91	62.3489
50	2 hour	1%	27	111.00	0.91	58.6228
50	2 hour	1%	28	111.00	0.91	60.7623
50	2 hour	1%	29	111.00	0.91	63.9457
50	2 hour	1%	30	111.00	0.91	63.8344
51	3 hour	1%	21	125.00	0.92	76.1258
51	3 hour	1%	22	125.00	0.92	63.5174
51	3 hour	1%	23	125.00	0.92	70.7760
51	3 hour	1%	24	125.00	0.92	57.8798
51	3 hour	1%	25	125.00	0.92	58.6006
51	3 hour	1%	26	125.00	0.92	62.9390
51	3 hour	1%	27	125.00	0.92	63.8040
51	3 hour	1%	28	125.00	0.92	69.2673
51	3 hour	1%	29	125.00	0.92	61.4718
51	3 hour	1%	30	125.00	0.92	68.9424
52	6 hour	1%	21	151.00	0.95	67.9283
52	6 hour	1%	22	151.00	0.95	64.6033
52	6 hour	1%	23	151.00	0.95	68.8917
52	6 hour	1%	24	151.00	0.95	51.5085
52	6 hour	1%	25	151.00	0.95	61.0966
52	6 hour	1%	26	151.00	0.95	64.1813
52	6 hour	1%	27	151.00	0.95	98.0428
52	6 hour	1%	28	151.00	0.95	59.7189
52	6 hour	1%	29	151.00	0.95	60.1878
52	6 hour	1%	30	151.00	0.95	83.8680
53	12 hour	1%	21	185.00	0.97	53.9515
53	12 hour	1%	22	185.00	0.97	57.8080
53	12 hour	1%	23	185.00	0.97	49.6146
53	12 hour	1%	24	185.00	0.97	47.9674
53	12 hour	1%	25	185.00	0.97	78.7506
53	12 hour	1%	26	185.00	0.97	39.1845
53	12 hour	1%	27	185.00	0.97	45.3604
53	12 hour	1%	28	185.00	0.97	63.9290
53	12 hour	1%	29	185.00	0.97	41.4072
53	12 hour	1%	30	185.00	0.97	87.3739
54	24 hour	1%	21	230.00	0.99	39.0722
54	24 hour	1%	22	230.00	0.99	30.2717
54	24 hour	1%	23	230.00	0.99	52.3509
54	24 hour	1%	24	230.00	0.99	69.4954
54	24 hour	1%	25	230.00	0.99	46.0141
54	24 hour	1%	26	230.00	0.99	39.5358
54	24 hour	1%	27	230.00	0.99	30.6054
54	24 hour	1%	28	230.00	0.99	55.2808
54	24 hour	1%	29	230.00	0.99	37.1074
54	24 hour	1%	30	230.00	0.99	50.1289
55	48 hour	1%	21	286.00	0.99	36.7666
55	48 hour	1%	22	286.00	0.99	33.1595
55	48 hour	1%	23	286.00	0.99	53.3289
55	48 hour	1%	24	286.00	0.99	27.0744
55	48 hour	1%	25	286.00	0.99	65.0360
55	48 hour	1%	26	286.00	0.99	42.2552
55	48 hour	1%	27	286.00	0.99	33.5041
55	48 hour	1%	28	286.00	0.99	25.5813
55	48 hour	1%	29	286.00	0.99	43.5906
55	48 hour	1%	30	286.00	0.99	50.0367
56	72 hour	1%	21	319.00	0.99	25.6732

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56	72 hour	1%	22	319.00	0.99	19.0492
56	72 hour	1%	23	319.00	0.99	17.8438
56	72 hour	1%	24	319.00	0.99	36.6178
56	72 hour	1%	25	319.00	0.99	15.2314
56	72 hour	1%	26	319.00	0.99	26.2621
56	72 hour	1%	27	319.00	0.99	23.2214
56	72 hour	1%	28	319.00	0.99	23.2356
56	72 hour	1%	29	319.00	0.99	32.1657
56	72 hour	1%	30	319.00	0.99	30.3547
57	96 hour	1%	21	339.00	0.99	22.5717
57	96 hour	1%	22	339.00	0.99	33.1695
57	96 hour	1%	23	339.00	0.99	20.3670
57	96 hour	1%	24	339.00	0.99	13.2054
57	96 hour	1%	25	339.00	0.99	17.6496
57	96 hour	1%	26	339.00	0.99	22.2962
57	96 hour	1%	27	339.00	0.99	20.1803
57	96 hour	1%	28	339.00	0.99	45.8516
57	96 hour	1%	29	339.00	0.99	25.9670
57	96 hour	1%	30	339.00	0.99	23.8714
58	120 hour	1%	21	350.00	0.99	24.6855
58	120 hour	1%	22	350.00	0.99	19.6551
58	120 hour	1%	23	350.00	0.99	30.9058
58	120 hour	1%	24	350.00	0.99	38.3360
58	120 hour	1%	25	350.00	0.99	21.2552
58	120 hour	1%	26	350.00	0.99	15.8367
58	120 hour	1%	27	350.00	0.99	11.1670
58	120 hour	1%	28	350.00	0.99	20.9925
58	120 hour	1%	29	350.00	0.99	44.3699
58	120 hour	1%	30	350.00	0.99	22.3292
59	144 hour	1%	21	356.00	0.99	23.1468
59	144 hour	1%	22	356.00	0.99	14.6133
59	144 hour	1%	23	356.00	0.99	25.3820
59	144 hour	1%	24	356.00	0.99	26.9047
59	144 hour	1%	25	356.00	0.99	21.0030
59	144 hour	1%	26	356.00	0.99	34.3176
59	144 hour	1%	27	356.00	0.99	22.3778
59	144 hour	1%	28	356.00	0.99	10.6724
59	144 hour	1%	29	356.00	0.99	17.1200
59	144 hour	1%	30	356.00	0.99	42.6217
60	168 hour	1%	21	356.00	0.99	18.9836
60	168 hour	1%	22	356.00	0.99	13.4711
60	168 hour	1%	23	356.00	0.99	26.8419
60	168 hour	1%	24	356.00	0.99	26.8358
60	168 hour	1%	25	356.00	0.99	17.4683
60	168 hour	1%	26	356.00	0.99	17.4683
60	168 hour	1%	27	356.00	0.99	15.5250
60	168 hour	1%	28	356.00	0.99	30.9129
60	168 hour	1%	29	356.00	0.99	16.7214
60	168 hour	1%	30	356.00	0.99	25.6525

Elapsed Run Time (hh:mm:ss) = 00:00:18

North_Developed_batch

RORBWin Batch Run Summary

Program version 6.32 (last updated 3rd September 2017)
Copyright Monash University and Hydrology and Risk Consulting

Date run: 11 Jan 2018 17:51

Catchment file : G:\Synergy\Projects\17\170087 Bonnie Doon SWMP\Calculations\RORB\6_North catchment\Developed\North_Developed.catg

Rainfall location: User defined

Temporal pattern : ARR2016 point temporal patterns

Spatial pattern : Uniform

Areal Red. Fact. : Based on ARR 2016 (Book 2 Chapter 4)

Loss factors : Constant with ARI

Parameters: kc = 1.60 m = 0.80

Loss parameters	Initial loss (mm)	Cont. loss (mm/h)
60.00	0.90	

Peak Description

01 Calculated hydrograph, Heavy/light Road access

02 Calculated hydrograph, U/s of Dam

03 Calculated hydrograph, Outlet

Run	Duration	AEP	TPat	Rain(mm)	ARF	Peak0001	Peak0002	Peak0003
1	10 min	10%	11	25.00	0.93	5.3572	11.1280	13.5351
1	10 min	10%	12	25.00	0.93	5.3776	11.1416	13.6662
1	10 min	10%	13	25.00	0.93	5.3009	11.0912	13.3898
1	10 min	10%	14	25.00	0.93	5.2275	11.0368	13.7852
1	10 min	10%	15	25.00	0.93	5.4790	11.2079	14.3420
1	10 min	10%	16	25.00	0.93	5.4120	11.1647	13.9002
1	10 min	10%	17	25.00	0.93	5.5621	11.2628	14.8888
1	10 min	10%	18	25.00	0.93	5.4645	11.2010	14.2424
1	10 min	10%	19	25.00	0.93	5.3818	11.1444	13.6934
1	10 min	10%	20	25.00	0.93	5.5621	11.3342	15.3941
2	15 min	10%	11	31.90	0.94	6.6330	14.4007	16.3851
2	15 min	10%	12	31.90	0.94	6.6002	14.3855	16.6968
2	15 min	10%	13	31.90	0.94	6.8846	14.5705	15.4660
2	15 min	10%	14	31.90	0.94	6.9574	14.9015	18.4500
2	15 min	10%	15	31.90	0.94	7.0199	14.7844	17.0432
2	15 min	10%	16	31.90	0.94	6.9373	14.6179	16.6298
2	15 min	10%	17	31.90	0.94	6.7542	14.5531	17.7212
2	15 min	10%	18	31.90	0.94	6.8797	14.7676	18.1315
2	15 min	10%	19	31.90	0.94	7.3261	15.1272	17.9563
2	15 min	10%	20	31.90	0.94	7.2566	15.0964	17.5646
3	30 min	10%	11	44.80	0.96	8.5735	19.7061	19.0969
3	30 min	10%	12	44.80	0.96	8.1485	19.2868	17.9243
3	30 min	10%	13	44.80	0.96	9.8556	20.3434	23.9284
3	30 min	10%	14	44.80	0.96	9.0587	20.5227	19.4395
3	30 min	10%	15	44.80	0.96	8.8457	19.7924	19.4169
3	30 min	10%	16	44.80	0.96	8.6325	20.0854	18.6739
3	30 min	10%	17	44.80	0.96	9.6044	20.9316	22.7132
3	30 min	10%	18	44.80	0.96	8.9848	20.5509	20.1221
3	30 min	10%	19	44.80	0.96	9.5913	21.2689	22.1184
3	30 min	10%	20	44.80	0.96	9.8981	21.3501	21.9644
4	1 hour	10%	11	57.60	0.97	11.8126	25.8947	26.0220
4	1 hour	10%	12	57.60	0.97	7.9782	20.3595	21.6066
4	1 hour	10%	13	57.60	0.97	7.7134	19.8991	21.1353
4	1 hour	10%	14	57.60	0.97	7.5586	19.2839	21.3998
4	1 hour	10%	15	57.60	0.97	8.7643	21.6869	22.2347
4	1 hour	10%	16	57.60	0.97	10.2937	23.7163	23.6251
4	1 hour	10%	17	57.60	0.97	9.0869	22.4785	21.8496

North_Developed_batch										
4	1 hour	10%	18	57.60	0.97	9.4214	22.2408	23.7641		
4	1 hour	10%	19	57.60	0.97	8.1393	20.8885	21.3319		
4	1 hour	10%	20	57.60	0.97	11.9753	26.6989	26.4459		
5	2 hour	10%	11	70.10	0.97	10.8325	25.0099	26.2582		
5	2 hour	10%	12	70.10	0.97	9.4174	23.3042	25.3651		
5	2 hour	10%	13	70.10	0.97	8.8356	20.2887	23.1383		
5	2 hour	10%	14	70.10	0.97	6.9038	17.9568	20.8219		
5	2 hour	10%	15	70.10	0.97	9.4950	22.1071	23.7599		
5	2 hour	10%	16	70.10	0.97	7.7228	19.2359	21.6767		
5	2 hour	10%	17	70.10	0.97	9.9942	22.3660	24.9612		
5	2 hour	10%	18	70.10	0.97	9.3709	23.4565	25.7005		
5	2 hour	10%	19	70.10	0.97	8.2775	20.8786	24.7577		
5	2 hour	10%	20	70.10	0.97	9.7642	23.7460	26.2673		
6	3 hour	10%	11	77.70	0.98	7.4601	17.6193	19.9888		
6	3 hour	10%	12	77.70	0.98	6.7764	16.8549	18.4313		
6	3 hour	10%	13	77.70	0.98	5.7849	15.4217	18.7812		
6	3 hour	10%	14	77.70	0.98	8.3033	19.4406	23.1879		
6	3 hour	10%	15	77.70	0.98	6.1918	16.2882	19.6456		
6	3 hour	10%	16	77.70	0.98	7.6629	19.9374	22.9634		
6	3 hour	10%	17	77.70	0.98	8.8856	21.9360	23.7222		
6	3 hour	10%	18	77.70	0.98	7.8470	20.7160	23.4101		
6	3 hour	10%	19	77.70	0.98	9.1672	22.1875	24.1356		
6	3 hour	10%	20	77.70	0.98	9.0675	23.3282	26.2284		
7	6 hour	10%	11	92.80	0.99	9.1674	22.1359	23.6986		
7	6 hour	10%	12	92.80	0.99	6.1401	15.7830	15.9712		
7	6 hour	10%	13	92.80	0.99	4.8775	13.3169	15.9301		
7	6 hour	10%	14	92.80	0.99	5.4115	14.2743	16.3893		
7	6 hour	10%	15	92.80	0.99	6.7596	17.6368	20.1224		
7	6 hour	10%	16	92.80	0.99	4.1660	11.7422	14.1649		
7	6 hour	10%	17	92.80	0.99	7.0505	15.9414	16.4897		
7	6 hour	10%	18	92.80	0.99	6.7126	18.1991	21.5168		
7	6 hour	10%	19	92.80	0.99	7.2984	18.7006	21.5683		
7	6 hour	10%	20	92.80	0.99	6.2063	15.8684	18.5208		
8	12 hour	10%	11	113.00	0.99	4.0921	11.2201	13.4562		
8	12 hour	10%	12	113.00	0.99	7.5975	20.2249	23.1261		
8	12 hour	10%	13	113.00	0.99	4.1619	10.0694	11.1421		
8	12 hour	10%	14	113.00	0.99	3.8096	10.3699	12.1157		
8	12 hour	10%	15	113.00	0.99	4.1722	10.4043	11.9942		
8	12 hour	10%	16	113.00	0.99	3.6954	9.5979	10.1308		
8	12 hour	10%	17	113.00	0.99	3.6889	10.0773	12.3649		
8	12 hour	10%	18	113.00	0.99	5.6445	13.8029	15.5224		
8	12 hour	10%	19	113.00	0.99	5.8320	14.5048	16.3980		
8	12 hour	10%	20	113.00	0.99	4.9397	13.4015	15.7484		
9	24 hour	10%	11	140.00	0.99	7.1857	17.5880	19.3459		
9	24 hour	10%	12	140.00	0.99	4.7000	13.2373	15.9999		
9	24 hour	10%	13	140.00	0.99	3.3629	8.6727	10.0556		
9	24 hour	10%	14	140.00	0.99	2.3962	6.9373	8.3692		
9	24 hour	10%	15	140.00	0.99	2.0758	5.3803	6.3827		
9	24 hour	10%	16	140.00	0.99	2.7610	7.4226	8.9271		
9	24 hour	10%	17	140.00	0.99	3.6505	12.1868	13.7164		
9	24 hour	10%	18	140.00	0.99	2.9931	8.1797	9.6806		
9	24 hour	10%	19	140.00	0.99	3.3998	8.9628	10.0958		
9	24 hour	10%	20	140.00	0.99	2.9216	8.0367	9.8332		
10	48 hour	10%	11	175.00	1.00	2.8590	8.0094	9.7427		
10	48 hour	10%	12	175.00	1.00	3.2645	9.3746	11.3745		
10	48 hour	10%	13	175.00	1.00	2.4249	7.1601	8.7562		
10	48 hour	10%	14	175.00	1.00	2.1594	6.1676	7.3382		
10	48 hour	10%	15	175.00	1.00	2.0889	5.8768	7.1963		
10	48 hour	10%	16	175.00	1.00	4.0778	11.3176	13.8637		
10	48 hour	10%	17	175.00	1.00	2.2356	5.6640	6.6912		
10	48 hour	10%	18	175.00	1.00	3.0671	8.6657	10.5369		
10	48 hour	10%	19	175.00	1.00	1.9337	5.6226	7.0011		
10	48 hour	10%	20	175.00	1.00	5.2756	14.0523	16.3300		
11	72 hour	10%	11	195.00	1.00	1.2528	3.4359	4.1526		

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11	72 hour	10%	12	195.00	1.00	2.1539	5.9101	7.0134
11	72 hour	10%	13	195.00	1.00	1.7828	4.6893	5.9250
11	72 hour	10%	14	195.00	1.00	1.7929	4.4877	5.3194
11	72 hour	10%	15	195.00	1.00	3.4889	9.2185	10.8004
11	72 hour	10%	16	195.00	1.00	3.0203	8.6223	10.4026
11	72 hour	10%	17	195.00	1.00	1.4087	4.5863	5.3668
11	72 hour	10%	18	195.00	1.00	2.3532	6.6432	8.1804
11	72 hour	10%	19	195.00	1.00	1.4591	3.8141	4.8311
11	72 hour	10%	20	195.00	1.00	2.6220	7.9938	9.8569
12	96 hour	10%	11	207.00	1.00	2.4275	6.9672	8.7261
12	96 hour	10%	12	207.00	1.00	2.2697	5.9759	6.9667
12	96 hour	10%	13	207.00	1.00	1.6949	4.7043	5.9080
12	96 hour	10%	14	207.00	1.00	2.6229	8.2583	10.2040
12	96 hour	10%	15	207.00	1.00	1.4830	4.0210	4.8024
12	96 hour	10%	16	207.00	1.00	1.4090	3.7235	4.6737
12	96 hour	10%	17	207.00	1.00	2.0302	5.9387	7.2404
12	96 hour	10%	18	207.00	1.00	3.0516	8.3999	10.0057
12	96 hour	10%	19	207.00	1.00	1.4022	3.6975	4.6500
12	96 hour	10%	20	207.00	1.00	1.4273	3.8030	4.6799
13	120 hour	10%	11	214.00	1.00	1.7677	5.3362	6.6494
13	120 hour	10%	12	214.00	1.00	2.6040	7.9491	9.7021
13	120 hour	10%	13	214.00	1.00	2.3531	6.0525	7.1081
13	120 hour	10%	14	214.00	1.00	2.6665	7.0577	8.4107
13	120 hour	10%	15	214.00	1.00	1.2985	3.7654	4.6392
13	120 hour	10%	16	214.00	1.00	1.2365	3.7030	4.5787
13	120 hour	10%	17	214.00	1.00	3.4723	8.9492	10.3801
13	120 hour	10%	18	214.00	1.00	1.8902	4.6153	5.3011
13	120 hour	10%	19	214.00	1.00	1.6618	4.8849	6.0774
13	120 hour	10%	20	214.00	1.00	2.0712	6.3298	7.3416
14	144 hour	10%	11	217.00	1.00	1.9504	5.1663	6.2648
14	144 hour	10%	12	217.00	1.00	3.6115	9.3358	10.8922
14	144 hour	10%	13	217.00	1.00	1.9566	5.0247	5.7891
14	144 hour	10%	14	217.00	1.00	3.1645	8.9088	10.6945
14	144 hour	10%	15	217.00	1.00	1.6738	4.9757	6.1729
14	144 hour	10%	16	217.00	1.00	1.6446	5.2671	6.1223
14	144 hour	10%	17	217.00	1.00	2.4337	6.1357	7.0347
14	144 hour	10%	18	217.00	1.00	1.6395	4.4554	5.6320
14	144 hour	10%	19	217.00	1.00	1.4147	3.8623	4.5901
14	144 hour	10%	20	217.00	1.00	1.9481	5.0121	5.8844
15	168 hour	10%	11	217.00	1.00	1.7628	4.7806	5.6885
15	168 hour	10%	12	217.00	1.00	0.9827	2.8814	3.4944
15	168 hour	10%	13	217.00	1.00	1.4216	4.2681	5.2178
15	168 hour	10%	14	217.00	1.00	1.3004	3.2592	3.7474
15	168 hour	10%	15	217.00	1.00	2.2003	6.2117	7.5903
15	168 hour	10%	16	217.00	1.00	1.9353	4.9686	5.7234
15	168 hour	10%	17	217.00	1.00	1.9066	4.9544	5.9485
15	168 hour	10%	18	217.00	1.00	2.2224	6.0860	7.2243
15	168 hour	10%	19	217.00	1.00	1.4191	4.1934	5.2431
15	168 hour	10%	20	217.00	1.00	1.2730	3.5417	4.3462
16	10 min	5%	11	28.70	0.93	6.3145	13.1525	15.7542
16	10 min	5%	12	28.70	0.93	6.3393	13.1691	15.9062
16	10 min	5%	13	28.70	0.93	6.2461	13.1002	15.6765
16	10 min	5%	14	28.70	0.93	6.1568	13.0416	16.1335
16	10 min	5%	15	28.70	0.93	6.4626	13.2501	16.7022
16	10 min	5%	16	28.70	0.93	6.3811	13.1973	16.1702
16	10 min	5%	17	28.70	0.93	6.5612	13.3173	17.3472
16	10 min	5%	18	28.70	0.93	6.4449	13.2416	16.5702
16	10 min	5%	19	28.70	0.93	6.3444	13.1725	15.9382
16	10 min	5%	20	28.70	0.93	6.5612	13.4049	17.9437
17	15 min	5%	11	36.80	0.94	7.8371	17.0830	19.2050
17	15 min	5%	12	36.80	0.94	7.7969	17.0589	19.5674
17	15 min	5%	13	36.80	0.94	8.1446	17.2915	18.1415
17	15 min	5%	14	36.80	0.94	8.2304	17.6988	21.6809
17	15 min	5%	15	36.80	0.94	8.3068	17.5545	20.0158

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17	15 min	5%	16	36.80	0.94	8.2058	17.3497	19.5147		
17	15 min	5%	17	36.80	0.94	7.9823	17.2697	20.7893		
17	15 min	5%	18	36.80	0.94	8.1357	17.5340	21.2927		
17	15 min	5%	19	36.80	0.94	8.6814	17.9769	21.0231		
17	15 min	5%	20	36.80	0.94	8.5963	17.9386	20.5632		
18	30 min	5%	11	51.80	0.96	10.0945	23.3304	22.5573		
18	30 min	5%	12	51.80	0.96	9.6167	22.8107	21.2124		
18	30 min	5%	13	51.80	0.96	11.6972	24.1726	28.2407		
18	30 min	5%	14	51.80	0.96	10.6849	24.3293	22.9104		
18	30 min	5%	15	51.80	0.96	10.4660	23.4336	22.9122		
18	30 min	5%	16	51.80	0.96	10.1691	23.7912	22.0144		
18	30 min	5%	17	51.80	0.96	11.3982	24.8311	26.7111		
18	30 min	5%	18	51.80	0.96	10.5964	24.3622	23.6827		
18	30 min	5%	19	51.80	0.96	11.3289	25.2440	26.0067		
18	30 min	5%	20	51.80	0.96	11.7033	25.3444	25.8563		
19	1 hour	5%	11	67.00	0.97	14.4611	31.4585	31.5861		
19	1 hour	5%	12	67.00	0.97	9.6298	24.6643	26.4036		
19	1 hour	5%	13	67.00	0.97	9.5382	24.0492	25.8319		
19	1 hour	5%	14	67.00	0.97	9.0353	23.2367	25.9734		
19	1 hour	5%	15	67.00	0.97	10.5960	26.2978	27.1669		
19	1 hour	5%	16	67.00	0.97	12.5763	28.8236	28.7816		
19	1 hour	5%	17	67.00	0.97	11.1910	27.2802	26.7840		
19	1 hour	5%	18	67.00	0.97	11.4320	26.9941	28.9547		
19	1 hour	5%	19	67.00	0.97	9.9957	25.3230	26.0989		
19	1 hour	5%	20	67.00	0.97	14.7922	32.5044	31.9120		
20	2 hour	5%	11	82.00	0.97	13.1961	30.5737	32.3770		
20	2 hour	5%	12	82.00	0.97	11.4536	28.5108	31.3338		
20	2 hour	5%	13	82.00	0.97	10.5619	24.4611	28.1076		
20	2 hour	5%	14	82.00	0.97	9.5173	22.9303	25.4167		
20	2 hour	5%	15	82.00	0.97	11.9137	27.6285	29.7545		
20	2 hour	5%	16	82.00	0.97	9.7649	23.7774	26.7738		
20	2 hour	5%	17	82.00	0.97	12.0060	27.2629	30.5968		
20	2 hour	5%	18	82.00	0.97	11.2310	28.5564	31.5958		
20	2 hour	5%	19	82.00	0.97	10.3989	25.3425	30.3121		
20	2 hour	5%	20	82.00	0.97	11.7664	28.8807	32.3330		
21	3 hour	5%	11	91.20	0.97	8.9128	22.6170	24.0819		
21	3 hour	5%	12	91.20	0.97	8.3892	21.1137	23.2847		
21	3 hour	5%	13	91.20	0.97	7.0302	18.9374	22.5096		
21	3 hour	5%	14	91.20	0.97	10.0937	24.0506	28.2096		
21	3 hour	5%	15	91.20	0.97	7.3220	19.4199	23.5951		
21	3 hour	5%	16	91.20	0.97	9.2010	24.0261	28.0226		
21	3 hour	5%	17	91.20	0.97	10.8340	26.7008	29.0620		
21	3 hour	5%	18	91.20	0.97	9.4239	24.9762	28.5339		
21	3 hour	5%	19	91.20	0.97	11.0522	26.8246	29.5732		
21	3 hour	5%	20	91.20	0.97	10.9410	28.1759	32.0175		
22	6 hour	5%	11	109.00	0.98	11.5130	27.2605	29.4653		
22	6 hour	5%	12	109.00	0.98	8.5375	19.9247	20.2486		
22	6 hour	5%	13	109.00	0.98	5.7656	15.8253	19.0256		
22	6 hour	5%	14	109.00	0.98	6.3880	16.9276	19.4859		
22	6 hour	5%	15	109.00	0.98	7.9887	20.9868	23.9543		
22	6 hour	5%	16	109.00	0.98	4.9174	13.9569	16.9615		
22	6 hour	5%	17	109.00	0.98	8.9957	19.8153	20.5484		
22	6 hour	5%	18	109.00	0.98	7.9856	21.7442	25.9506		
22	6 hour	5%	19	109.00	0.98	8.6351	22.2274	25.7047		
22	6 hour	5%	20	109.00	0.98	7.3522	18.9562	22.0135		
23	12 hour	5%	11	133.00	0.99	4.8418	13.2980	15.9804		
23	12 hour	5%	12	133.00	0.99	8.9859	24.0695	27.6764		
23	12 hour	5%	13	133.00	0.99	4.9572	12.1753	13.7385		
23	12 hour	5%	14	133.00	0.99	4.5470	12.6156	14.9183		
23	12 hour	5%	15	133.00	0.99	5.1573	12.6375	14.2388		
23	12 hour	5%	16	133.00	0.99	4.6492	11.8122	12.6269		
23	12 hour	5%	17	133.00	0.99	4.3809	11.9447	14.6378		
23	12 hour	5%	18	133.00	0.99	6.7130	16.4871	18.4869		
23	12 hour	5%	19	133.00	0.99	6.9294	17.2904	19.5394		

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23	12 hour	5%	20	133.00	0.99	5.8439	15.9083	18.7549
24	24 hour	5%	11	165.00	0.99	8.5608	21.0857	23.2816
24	24 hour	5%	12	165.00	0.99	5.5872	15.6646	18.9721
24	24 hour	5%	13	165.00	0.99	4.0062	10.3570	12.0222
24	24 hour	5%	14	165.00	0.99	2.8481	8.2378	9.9688
24	24 hour	5%	15	165.00	0.99	2.4891	6.8037	7.8156
24	24 hour	5%	16	165.00	0.99	3.2907	8.7960	10.5998
24	24 hour	5%	17	165.00	0.99	4.8710	15.0634	17.0976
24	24 hour	5%	18	165.00	0.99	3.5525	9.7794	11.5515
24	24 hour	5%	19	165.00	0.99	4.0427	10.7092	12.0847
24	24 hour	5%	20	165.00	0.99	3.4738	9.5132	11.6576
25	48 hour	5%	11	206.00	1.00	3.2855	9.5500	11.7012
25	48 hour	5%	12	206.00	1.00	4.1004	11.3335	13.7708
25	48 hour	5%	13	206.00	1.00	2.8662	8.4660	10.3636
25	48 hour	5%	14	206.00	1.00	2.5590	7.3289	8.7499
25	48 hour	5%	15	206.00	1.00	2.4798	6.9713	8.5458
25	48 hour	5%	16	206.00	1.00	4.8710	13.3403	16.4169
25	48 hour	5%	17	206.00	1.00	2.6699	6.7619	7.9821
25	48 hour	5%	18	206.00	1.00	3.6745	10.2334	12.5117
25	48 hour	5%	19	206.00	1.00	2.2923	6.6537	8.2894
25	48 hour	5%	20	206.00	1.00	6.2563	16.7261	19.4904
26	72 hour	5%	11	230.00	1.00	1.4999	4.1157	4.9484
26	72 hour	5%	12	230.00	1.00	2.5653	7.0469	8.3769
26	72 hour	5%	13	230.00	1.00	2.1600	5.5796	7.0387
26	72 hour	5%	14	230.00	1.00	2.1528	5.4018	6.3517
26	72 hour	5%	15	230.00	1.00	4.1564	11.0091	12.9274
26	72 hour	5%	16	230.00	1.00	3.5835	10.2444	12.3885
26	72 hour	5%	17	230.00	1.00	1.9270	5.9027	6.8825
26	72 hour	5%	18	230.00	1.00	2.7957	7.8918	9.6482
26	72 hour	5%	19	230.00	1.00	1.7501	4.5480	5.7187
26	72 hour	5%	20	230.00	1.00	3.0986	9.4591	11.6936
27	96 hour	5%	11	245.00	1.00	2.9075	8.2563	10.3589
27	96 hour	5%	12	245.00	1.00	2.7220	7.1820	8.3930
27	96 hour	5%	13	245.00	1.00	2.2320	5.7172	7.0761
27	96 hour	5%	14	245.00	1.00	3.2651	10.1964	12.6275
27	96 hour	5%	15	245.00	1.00	1.7801	4.8251	5.7680
27	96 hour	5%	16	245.00	1.00	1.6959	4.4591	5.5629
27	96 hour	5%	17	245.00	1.00	2.4151	7.0777	8.6562
27	96 hour	5%	18	245.00	1.00	3.6381	10.0311	11.9764
27	96 hour	5%	19	245.00	1.00	1.7019	4.4197	5.5502
27	96 hour	5%	20	245.00	1.00	1.7172	4.5436	5.5909
28	120 hour	5%	11	253.00	1.00	2.1236	6.3308	7.9100
28	120 hour	5%	12	253.00	1.00	3.2531	9.7332	11.8962
28	120 hour	5%	13	253.00	1.00	2.8197	7.2609	8.5265
28	120 hour	5%	14	253.00	1.00	3.1859	8.4410	10.0707
28	120 hour	5%	15	253.00	1.00	1.5508	4.4892	5.5423
28	120 hour	5%	16	253.00	1.00	1.4753	4.4115	5.4642
28	120 hour	5%	17	253.00	1.00	4.1532	10.7354	12.4804
28	120 hour	5%	18	253.00	1.00	2.2677	5.5502	6.3836
28	120 hour	5%	19	253.00	1.00	1.9806	5.8065	7.2284
28	120 hour	5%	20	253.00	1.00	2.7520	8.0310	9.2977
29	144 hour	5%	11	257.00	1.00	2.3399	6.2079	7.4377
29	144 hour	5%	12	257.00	1.00	4.3215	11.2099	13.1110
29	144 hour	5%	13	257.00	1.00	2.3511	6.0607	7.0035
29	144 hour	5%	14	257.00	1.00	3.7728	10.6385	12.8011
29	144 hour	5%	15	257.00	1.00	2.0131	5.9165	7.3586
29	144 hour	5%	16	257.00	1.00	2.2470	6.7682	7.8454
29	144 hour	5%	17	257.00	1.00	2.9279	7.4034	8.5081
29	144 hour	5%	18	257.00	1.00	1.9770	5.2874	6.6959
29	144 hour	5%	19	257.00	1.00	1.6999	4.6386	5.5189
29	144 hour	5%	20	257.00	1.00	2.3427	6.0212	7.0738
30	168 hour	5%	11	258.00	1.00	2.1226	5.7611	6.8694
30	168 hour	5%	12	258.00	1.00	1.1849	3.4705	4.2193
30	168 hour	5%	13	258.00	1.00	1.7033	5.1150	6.2732

North_Developed_batch								
30	168 hour	5%	14	258.00	1.00	1.5828	3.9708	4.5274
30	168 hour	5%	15	258.00	1.00	2.6369	7.4430	9.0748
30	168 hour	5%	16	258.00	1.00	2.3355	6.0196	6.9550
30	168 hour	5%	17	258.00	1.00	2.4911	6.2450	7.1791
30	168 hour	5%	18	258.00	1.00	2.6651	7.3208	8.7169
30	168 hour	5%	19	258.00	1.00	1.7167	5.0115	6.2843
30	168 hour	5%	20	258.00	1.00	1.5289	4.2740	5.2308
31	10 min	2%	21	33.80	0.93	7.5354	15.9230	19.1022
31	10 min	2%	22	33.80	0.93	7.7215	16.0570	19.1833
31	10 min	2%	23	33.80	0.93	7.5445	15.9288	19.0601
31	10 min	2%	24	33.80	0.93	7.8221	16.1267	19.8053
31	10 min	2%	25	33.80	0.93	7.7792	16.0966	19.5557
31	10 min	2%	26	33.80	0.93	7.8062	16.1154	19.7120
31	10 min	2%	27	33.80	0.93	7.7470	16.0744	19.3390
31	10 min	2%	28	33.80	0.93	7.6271	15.9938	18.6530
31	10 min	2%	29	33.80	0.93	7.9720	16.3249	21.4066
31	10 min	2%	30	33.80	0.93	7.4844	15.8905	19.3359
32	15 min	2%	21	43.10	0.94	9.5865	21.1534	26.8500
32	15 min	2%	22	43.10	0.94	9.8005	21.3646	26.5398
32	15 min	2%	23	43.10	0.94	9.3491	20.5663	23.0581
32	15 min	2%	24	43.10	0.94	9.5740	20.7282	23.0157
32	15 min	2%	25	43.10	0.94	10.0780	21.4403	24.7648
32	15 min	2%	26	43.10	0.94	9.9956	21.2375	24.1049
32	15 min	2%	27	43.10	0.94	9.7444	20.8756	23.5699
32	15 min	2%	28	43.10	0.94	10.5204	21.8207	25.4094
32	15 min	2%	29	43.10	0.94	10.1442	21.2305	22.8953
32	15 min	2%	30	43.10	0.94	9.6917	20.8334	23.5463
33	30 min	2%	21	61.00	0.95	13.1373	28.6967	28.9314
33	30 min	2%	22	61.00	0.95	12.7985	28.9679	27.9864
33	30 min	2%	23	61.00	0.95	14.6608	31.3201	31.4202
33	30 min	2%	24	61.00	0.95	12.8413	29.1252	27.5476
33	30 min	2%	25	61.00	0.95	12.1011	28.0276	26.7298
33	30 min	2%	26	61.00	0.95	11.6863	27.6792	26.7568
33	30 min	2%	27	61.00	0.95	13.4146	29.7784	29.4942
33	30 min	2%	28	61.00	0.95	13.3006	29.1135	29.1071
33	30 min	2%	29	61.00	0.95	13.8113	30.2575	29.0944
33	30 min	2%	30	61.00	0.95	12.3731	28.7202	27.0292
34	1 hour	2%	21	79.60	0.96	19.0118	38.5182	41.2383
34	1 hour	2%	22	79.60	0.96	18.2048	38.5393	39.7608
34	1 hour	2%	23	79.60	0.96	14.1691	33.7882	33.6984
34	1 hour	2%	24	79.60	0.96	13.7016	32.2789	32.3815
34	1 hour	2%	25	79.60	0.96	13.4910	33.0616	34.0888
34	1 hour	2%	26	79.60	0.96	13.8336	34.3778	35.0445
34	1 hour	2%	27	79.60	0.96	14.6120	33.3276	36.0933
34	1 hour	2%	28	79.60	0.96	13.0695	32.5080	34.0609
34	1 hour	2%	29	79.60	0.96	13.2824	32.9627	34.8803
34	1 hour	2%	30	79.60	0.96	13.5988	33.0769	34.2656
35	2 hour	2%	21	98.30	0.97	14.7002	34.9205	38.8457
35	2 hour	2%	22	98.30	0.97	12.5817	31.3655	35.2715
35	2 hour	2%	23	98.30	0.97	11.7183	30.1766	33.4524
35	2 hour	2%	24	98.30	0.97	12.7609	30.9424	35.6396
35	2 hour	2%	25	98.30	0.97	12.2728	28.4597	33.3147
35	2 hour	2%	26	98.30	0.97	14.1533	33.4712	37.5831
35	2 hour	2%	27	98.30	0.97	11.0380	28.8028	34.2489
35	2 hour	2%	28	98.30	0.97	11.9348	31.2249	36.1662
35	2 hour	2%	29	98.30	0.97	14.9478	37.1040	40.5438
35	2 hour	2%	30	98.30	0.97	14.7263	36.2979	39.8605
36	3 hour	2%	21	110.00	0.97	12.2593	31.7063	36.3013
36	3 hour	2%	22	110.00	0.97	10.0470	23.6817	26.8721
36	3 hour	2%	23	110.00	0.97	11.2303	29.2781	35.3903
36	3 hour	2%	24	110.00	0.97	10.2792	24.8796	27.3938
36	3 hour	2%	25	110.00	0.97	9.1879	22.7565	25.7443
36	3 hour	2%	26	110.00	0.97	9.7285	23.3996	27.8785
36	3 hour	2%	27	110.00	0.97	7.9204	21.9880	27.1704

North_Developed_batch								
36	3 hour	2%	28	110.00	0.97	10.5054	26.8154	30.2388
36	3 hour	2%	29	110.00	0.97	9.0602	23.5104	26.9325
36	3 hour	2%	30	110.00	0.97	14.3078	33.9520	36.5455
37	6 hour	2%	21	132.00	0.98	14.5464	35.5948	37.5441
37	6 hour	2%	22	132.00	0.98	6.4716	17.8528	22.1451
37	6 hour	2%	23	132.00	0.98	7.5726	20.3023	24.0374
37	6 hour	2%	24	132.00	0.98	7.7069	19.2738	22.0449
37	6 hour	2%	25	132.00	0.98	7.1282	19.0565	21.7574
37	6 hour	2%	26	132.00	0.98	8.0591	19.8965	24.0892
37	6 hour	2%	27	132.00	0.98	10.9130	29.7652	35.8459
37	6 hour	2%	28	132.00	0.98	12.2103	31.5750	34.6619
37	6 hour	2%	29	132.00	0.98	9.5842	22.9305	24.1430
37	6 hour	2%	30	132.00	0.98	8.7757	23.2556	27.3930
38	12 hour	2%	21	162.00	0.99	4.9260	13.8260	17.3254
38	12 hour	2%	22	162.00	0.99	5.3771	15.2162	18.4884
38	12 hour	2%	23	162.00	0.99	5.0037	13.0520	15.1806
38	12 hour	2%	24	162.00	0.99	5.9713	15.0023	16.1412
38	12 hour	2%	25	162.00	0.99	13.5924	34.5795	35.4880
38	12 hour	2%	26	162.00	0.99	4.5939	11.5077	12.7295
38	12 hour	2%	27	162.00	0.99	6.0501	15.3992	16.8610
38	12 hour	2%	28	162.00	0.99	14.6118	38.9876	39.4714
38	12 hour	2%	29	162.00	0.99	6.2764	16.6558	18.8354
38	12 hour	2%	30	162.00	0.99	8.6117	23.1370	27.6516
39	24 hour	2%	21	201.00	0.99	5.2769	13.7769	15.5339
39	24 hour	2%	22	201.00	0.99	4.0309	10.6140	12.3499
39	24 hour	2%	23	201.00	0.99	4.7393	13.0401	15.5592
39	24 hour	2%	24	201.00	0.99	6.3642	17.8144	21.8082
39	24 hour	2%	25	201.00	0.99	4.4563	12.3961	14.8715
39	24 hour	2%	26	201.00	0.99	3.9441	10.4718	12.3077
39	24 hour	2%	27	201.00	0.99	3.0812	8.8836	10.0563
39	24 hour	2%	28	201.00	0.99	4.9833	14.3868	18.0567
39	24 hour	2%	29	201.00	0.99	3.7117	9.6864	11.4219
39	24 hour	2%	30	201.00	0.99	5.5288	15.2009	17.3639
40	48 hour	2%	21	250.00	1.00	3.0915	9.2207	11.2806
40	48 hour	2%	22	250.00	1.00	2.7221	7.9166	9.7650
40	48 hour	2%	23	250.00	1.00	5.7027	15.6112	18.3275
40	48 hour	2%	24	250.00	1.00	2.3850	6.9377	8.5668
40	48 hour	2%	25	250.00	1.00	5.2596	16.0269	19.5166
40	48 hour	2%	26	250.00	1.00	4.1833	11.4788	13.7167
40	48 hour	2%	27	250.00	1.00	3.0545	8.7646	10.8061
40	48 hour	2%	28	250.00	1.00	2.3947	6.4079	7.6816
40	48 hour	2%	29	250.00	1.00	3.6729	10.1556	12.7743
40	48 hour	2%	30	250.00	1.00	5.1504	12.8579	14.9293
41	72 hour	2%	21	280.00	1.00	2.1844	6.2129	7.6791
41	72 hour	2%	22	280.00	1.00	2.4354	7.1685	8.6997
41	72 hour	2%	23	280.00	1.00	1.5945	4.7385	5.8348
41	72 hour	2%	24	280.00	1.00	3.4794	9.1946	11.3060
41	72 hour	2%	25	280.00	1.00	1.4171	4.1413	5.0783
41	72 hour	2%	26	280.00	1.00	2.1620	6.4034	7.9302
41	72 hour	2%	27	280.00	1.00	2.1632	6.0186	7.3196
41	72 hour	2%	28	280.00	1.00	2.1549	6.2889	7.6567
41	72 hour	2%	29	280.00	1.00	3.1683	8.5275	10.1908
41	72 hour	2%	30	280.00	1.00	2.5966	7.7017	9.4908
42	96 hour	2%	21	298.00	1.00	2.1384	6.0784	7.4745
42	96 hour	2%	22	298.00	1.00	3.2147	9.1487	11.0269
42	96 hour	2%	23	298.00	1.00	2.1602	5.9605	7.0778
42	96 hour	2%	24	298.00	1.00	1.3769	3.8987	4.6801
42	96 hour	2%	25	298.00	1.00	1.5414	4.4188	5.5387
42	96 hour	2%	26	298.00	1.00	2.0900	5.9515	7.1631
42	96 hour	2%	27	298.00	1.00	1.8810	4.7747	6.0097
42	96 hour	2%	28	298.00	1.00	4.8127	12.7302	14.9545
42	96 hour	2%	29	298.00	1.00	2.4966	7.1370	8.6282
42	96 hour	2%	30	298.00	1.00	2.0586	5.7817	7.1886
43	120 hour	2%	21	308.00	1.00	2.1600	6.3047	7.8216

North_Developed_batch								
43	120 hour	2%	22	308.00	1.00	1.8975	5.4067	6.6081
43	120 hour	2%	23	308.00	1.00	3.1135	9.0202	10.9545
43	120 hour	2%	24	308.00	1.00	4.2094	10.2900	11.5329
43	120 hour	2%	25	308.00	1.00	2.3238	6.2782	7.5798
43	120 hour	2%	26	308.00	1.00	1.5472	4.2731	5.1272
43	120 hour	2%	27	308.00	1.00	1.2664	3.5418	4.2101
43	120 hour	2%	28	308.00	1.00	1.8238	5.4766	6.7110
43	120 hour	2%	29	308.00	1.00	4.6402	12.7894	15.2727
43	120 hour	2%	30	308.00	1.00	2.2048	6.2470	7.5522
44	144 hour	2%	21	312.00	1.00	2.0229	5.9007	7.3279
44	144 hour	2%	22	312.00	1.00	1.3083	3.9249	4.8130
44	144 hour	2%	23	312.00	1.00	2.1831	6.0572	7.6549
44	144 hour	2%	24	312.00	1.00	2.7893	7.5705	9.0542
44	144 hour	2%	25	312.00	1.00	2.0449	5.4327	6.4468
44	144 hour	2%	26	312.00	1.00	4.0403	10.0348	11.2278
44	144 hour	2%	27	312.00	1.00	2.4141	6.2411	7.3988
44	144 hour	2%	28	312.00	1.00	1.2369	3.4028	4.0317
44	144 hour	2%	29	312.00	1.00	1.6878	4.8676	5.8974
44	144 hour	2%	30	312.00	1.00	4.4527	12.2671	14.6415
45	168 hour	2%	21	313.00	1.00	1.6444	4.7958	5.9756
45	168 hour	2%	22	313.00	1.00	1.2245	3.6786	4.4985
45	168 hour	2%	23	313.00	1.00	2.4068	6.8141	8.4116
45	168 hour	2%	24	313.00	1.00	2.7900	7.5720	9.0555
45	168 hour	2%	25	313.00	1.00	1.9400	5.2081	6.1402
45	168 hour	2%	26	313.00	1.00	1.9400	5.2081	6.1402
45	168 hour	2%	27	313.00	1.00	1.6631	4.6704	5.6155
45	168 hour	2%	28	313.00	1.00	2.6125	6.9073	8.7537
45	168 hour	2%	29	313.00	1.00	1.6340	4.7067	5.7351
45	168 hour	2%	30	313.00	1.00	2.3863	6.2870	7.3345
46	10 min	1%	21	37.60	0.92	8.5419	18.0967	21.5517
46	10 min	1%	22	37.60	0.92	8.7580	18.2524	21.5543
46	10 min	1%	23	37.60	0.92	8.5525	18.1035	21.5047
46	10 min	1%	24	37.60	0.92	8.8749	18.3337	22.2663
46	10 min	1%	25	37.60	0.92	8.8251	18.2986	21.9560
46	10 min	1%	26	37.60	0.92	8.8564	18.3205	22.1603
46	10 min	1%	27	37.60	0.92	8.7877	18.2727	21.7305
46	10 min	1%	28	37.60	0.92	8.6485	18.1787	21.0506
46	10 min	1%	29	37.60	0.92	9.0471	18.5654	24.0741
46	10 min	1%	30	37.60	0.92	8.4827	18.0588	21.8124
47	15 min	1%	21	48.00	0.94	10.8600	24.0524	30.2800
47	15 min	1%	22	48.00	0.94	11.1086	24.2991	29.9451
47	15 min	1%	23	48.00	0.94	10.5868	23.3670	25.9703
47	15 min	1%	24	48.00	0.94	10.8476	23.5560	25.9318
47	15 min	1%	25	48.00	0.94	11.4308	24.3874	27.9484
47	15 min	1%	26	48.00	0.94	11.3350	24.1504	27.1903
47	15 min	1%	27	48.00	0.94	11.0451	23.7275	26.5658
47	15 min	1%	28	48.00	0.94	11.9452	24.8163	28.5921
47	15 min	1%	29	48.00	0.94	11.5077	24.1425	25.8497
47	15 min	1%	30	48.00	0.94	10.9840	23.6783	26.5400
48	30 min	1%	21	68.10	0.95	15.3791	33.3468	33.4627
48	30 min	1%	22	68.10	0.95	15.2355	33.6758	32.2291
48	30 min	1%	23	68.10	0.95	17.3773	36.3827	36.0013
48	30 min	1%	24	68.10	0.95	15.1017	33.8554	31.7415
48	30 min	1%	25	68.10	0.95	14.3180	32.5716	30.9067
48	30 min	1%	26	68.10	0.95	13.8209	32.1618	30.9727
48	30 min	1%	27	68.10	0.95	15.7850	34.6202	33.9044
48	30 min	1%	28	68.10	0.95	15.8206	33.9148	33.5022
48	30 min	1%	29	68.10	0.95	16.2619	35.1817	33.4240
48	30 min	1%	30	68.10	0.95	14.7516	33.3654	31.1609
49	1 hour	1%	21	89.40	0.96	22.2049	44.8900	48.0411
49	1 hour	1%	22	89.40	0.96	21.2558	44.9501	46.4554
49	1 hour	1%	23	89.40	0.96	16.8211	39.4523	39.6288
49	1 hour	1%	24	89.40	0.96	16.1204	37.7929	38.1216
49	1 hour	1%	25	89.40	0.96	15.6625	38.4765	40.0486

North_Developed_batch										
49	1 hour	1%	26	89.40	0.96	16.1689	40.0679	41.1967		
49	1 hour	1%	27	89.40	0.96	16.8796	38.8477	42.2349		
49	1 hour	1%	28	89.40	0.96	15.1564	37.8284	40.0000		
49	1 hour	1%	29	89.40	0.96	15.3488	38.3916	40.9157		
49	1 hour	1%	30	89.40	0.96	15.7309	38.5596	40.1672		
50	2 hour	1%	21	111.00	0.96	16.7902	40.1015	44.8855		
50	2 hour	1%	22	111.00	0.96	14.3141	35.9901	40.6859		
50	2 hour	1%	23	111.00	0.96	13.6677	35.1423	39.1798		
50	2 hour	1%	24	111.00	0.96	14.5467	35.5663	41.1598		
50	2 hour	1%	25	111.00	0.96	14.7972	33.1635	38.8445		
50	2 hour	1%	26	111.00	0.96	16.1505	38.3910	43.3713		
50	2 hour	1%	27	111.00	0.96	12.7845	33.0056	39.5139		
50	2 hour	1%	28	111.00	0.96	13.5758	35.7331	41.7684		
50	2 hour	1%	29	111.00	0.96	17.0415	42.6342	46.9316		
50	2 hour	1%	30	111.00	0.96	16.8395	41.8132	46.3756		
51	3 hour	1%	21	125.00	0.97	13.9661	36.3170	41.7454		
51	3 hour	1%	22	125.00	0.97	11.4952	27.1539	30.7437		
51	3 hour	1%	23	125.00	0.97	13.2392	33.4965	40.6568		
51	3 hour	1%	24	125.00	0.97	12.1001	29.1663	32.0978		
51	3 hour	1%	25	125.00	0.97	10.8410	26.9982	30.1267		
51	3 hour	1%	26	125.00	0.97	11.4084	26.8040	32.0178		
51	3 hour	1%	27	125.00	0.97	9.0240	25.0499	31.0196		
51	3 hour	1%	28	125.00	0.97	11.9677	30.6456	34.5652		
51	3 hour	1%	29	125.00	0.97	10.4708	27.2474	31.2831		
51	3 hour	1%	30	125.00	0.97	16.5531	39.7197	42.9650		
52	6 hour	1%	21	151.00	0.98	17.7215	42.4871	44.8078		
52	6 hour	1%	22	151.00	0.98	7.4292	20.4499	25.3700		
52	6 hour	1%	23	151.00	0.98	8.6897	23.3179	27.6127		
52	6 hour	1%	24	151.00	0.98	9.1597	23.0774	26.0917		
52	6 hour	1%	25	151.00	0.98	8.2471	22.2415	25.6419		
52	6 hour	1%	26	151.00	0.98	9.2902	22.8552	27.6311		
52	6 hour	1%	27	151.00	0.98	12.5083	34.1925	41.2617		
52	6 hour	1%	28	151.00	0.98	14.7974	37.4979	41.0900		
52	6 hour	1%	29	151.00	0.98	11.4600	27.5173	29.0766		
52	6 hour	1%	30	151.00	0.98	10.0742	26.7120	31.5580		
53	12 hour	1%	21	185.00	0.99	5.6412	15.8103	19.8121		
53	12 hour	1%	22	185.00	0.99	6.1522	17.4101	21.1511		
53	12 hour	1%	23	185.00	0.99	5.7473	15.0171	17.4678		
53	12 hour	1%	24	185.00	0.99	7.1698	18.0654	19.6430		
53	12 hour	1%	25	185.00	0.99	15.8067	40.9085	42.3985		
53	12 hour	1%	26	185.00	0.99	5.6090	13.9671	15.4120		
53	12 hour	1%	27	185.00	0.99	7.0141	18.1903	20.0734		
53	12 hour	1%	28	185.00	0.99	17.6631	46.0618	46.8650		
53	12 hour	1%	29	185.00	0.99	7.4630	20.1120	22.4545		
53	12 hour	1%	30	185.00	0.99	9.8693	26.5571	31.7786		
54	24 hour	1%	21	230.00	0.99	6.0754	16.0033	18.2037		
54	24 hour	1%	22	230.00	0.99	4.6451	12.3228	14.4833		
54	24 hour	1%	23	230.00	0.99	5.4481	15.0116	17.9316		
54	24 hour	1%	24	230.00	0.99	7.3354	20.4420	25.0743		
54	24 hour	1%	25	230.00	0.99	5.1211	14.2658	17.1443		
54	24 hour	1%	26	230.00	0.99	4.5447	12.0875	14.2443		
54	24 hour	1%	27	230.00	0.99	3.7005	10.7467	12.2155		
54	24 hour	1%	28	230.00	0.99	5.7137	16.5428	20.6950		
54	24 hour	1%	29	230.00	0.99	4.2817	11.1834	13.1872		
54	24 hour	1%	30	230.00	0.99	6.3509	17.5527	20.1417		
55	48 hour	1%	21	286.00	1.00	3.5428	10.5789	12.9612		
55	48 hour	1%	22	286.00	1.00	3.1625	9.1096	11.2240		
55	48 hour	1%	23	286.00	1.00	6.5521	17.9752	21.1210		
55	48 hour	1%	24	286.00	1.00	2.7409	7.9656	9.8399		
55	48 hour	1%	25	286.00	1.00	6.0081	18.3735	22.4482		
55	48 hour	1%	26	286.00	1.00	4.8104	13.2181	15.8139		
55	48 hour	1%	27	286.00	1.00	3.5106	10.0559	12.4362		
55	48 hour	1%	28	286.00	1.00	2.7635	7.3931	8.8743		
55	48 hour	1%	29	286.00	1.00	4.2328	11.6222	14.6411		

North_Developed_batch								
55	48 hour	1%	30	286.00	1.00	5.9368	14.8981	17.2712
56	72 hour	1%	21	319.00	1.00	2.5028	7.1108	8.7936
56	72 hour	1%	22	319.00	1.00	2.9007	8.3958	10.1885
56	72 hour	1%	23	319.00	1.00	1.8310	5.4168	6.6909
56	72 hour	1%	24	319.00	1.00	3.9152	10.5775	12.8212
56	72 hour	1%	25	319.00	1.00	1.6269	4.7451	5.8272
56	72 hour	1%	26	319.00	1.00	2.4902	7.2791	9.0273
56	72 hour	1%	27	319.00	1.00	2.4823	6.9023	8.3968
56	72 hour	1%	28	319.00	1.00	2.4641	7.2021	8.7864
56	72 hour	1%	29	319.00	1.00	3.6587	9.7914	11.6415
56	72 hour	1%	30	319.00	1.00	2.9670	8.8033	10.8643
57	96 hour	1%	21	339.00	1.00	2.4483	6.9503	8.5513
57	96 hour	1%	22	339.00	1.00	3.6728	10.4595	12.6323
57	96 hour	1%	23	339.00	1.00	2.5167	6.9023	8.2201
57	96 hour	1%	24	339.00	1.00	1.5817	4.4719	5.3830
57	96 hour	1%	25	339.00	1.00	1.7705	5.0461	6.3282
57	96 hour	1%	26	339.00	1.00	2.3904	6.8167	8.2231
57	96 hour	1%	27	339.00	1.00	2.1759	5.4430	6.8725
57	96 hour	1%	28	339.00	1.00	5.5116	14.6089	17.1904
57	96 hour	1%	29	339.00	1.00	2.8539	8.1633	9.8808
57	96 hour	1%	30	339.00	1.00	2.3651	6.5927	8.2098
58	120 hour	1%	21	350.00	1.00	2.4665	7.1889	8.9194
58	120 hour	1%	22	350.00	1.00	2.1705	6.1799	7.5569
58	120 hour	1%	23	350.00	1.00	3.5905	10.2863	12.4712
58	120 hour	1%	24	350.00	1.00	4.8351	11.8545	13.3044
58	120 hour	1%	25	350.00	1.00	2.6610	7.1894	8.6786
58	120 hour	1%	26	350.00	1.00	1.7750	4.9017	5.8879
58	120 hour	1%	27	350.00	1.00	1.4549	4.0687	4.8444
58	120 hour	1%	28	350.00	1.00	2.0794	6.2519	7.6788
58	120 hour	1%	29	350.00	1.00	5.2983	14.6257	17.4948
58	120 hour	1%	30	350.00	1.00	2.5201	7.1419	8.6412
59	144 hour	1%	21	356.00	1.00	2.3208	6.7580	8.3928
59	144 hour	1%	22	356.00	1.00	1.5027	4.5062	5.5372
59	144 hour	1%	23	356.00	1.00	2.5090	6.9637	8.7503
59	144 hour	1%	24	356.00	1.00	3.2040	8.7070	10.4279
59	144 hour	1%	25	356.00	1.00	2.3568	6.2629	7.4420
59	144 hour	1%	26	356.00	1.00	4.6587	11.6072	13.0075
59	144 hour	1%	27	356.00	1.00	2.7833	7.1965	8.5311
59	144 hour	1%	28	356.00	1.00	1.4279	3.9282	4.6541
59	144 hour	1%	29	356.00	1.00	1.9388	5.5947	6.7927
59	144 hour	1%	30	356.00	1.00	5.1065	14.0906	16.8472
60	168 hour	1%	21	356.00	1.00	1.8839	5.4740	6.8192
60	168 hour	1%	22	356.00	1.00	1.4024	4.2117	5.1608
60	168 hour	1%	23	356.00	1.00	2.7534	7.7871	9.6174
60	168 hour	1%	24	356.00	1.00	3.1942	8.6796	10.3942
60	168 hour	1%	25	356.00	1.00	2.2258	5.9868	7.0706
60	168 hour	1%	26	356.00	1.00	2.2258	5.9868	7.0706
60	168 hour	1%	27	356.00	1.00	1.9057	5.3571	6.4543
60	168 hour	1%	28	356.00	1.00	3.0078	7.8504	9.9725
60	168 hour	1%	29	356.00	1.00	1.8716	5.3910	6.5784
60	168 hour	1%	30	356.00	1.00	2.7411	7.2336	8.4544

Elapsed Run Time (hh:mm:ss) = 00:00:23

Graincorp_dev_batch

RORBWin Batch Run Summary

Program version 6.32 (last updated 3rd September 2017)
Copyright Monash University and Hydrology and Risk Consulting

Date run: 11 Jan 2018 13:21

Catchment file : G:\Synergy\Projects\17\170087 Bonnie Doon SWMP\Calculations\RORB\7_Graincorp north
catchment\Developed\Graincorp_dev.catg

Rainfall location: User defined

Temporal pattern : ARR2016 point temporal patterns

Spatial pattern : Uniform

Areal Red. Fact. : Based on ARR 2016 (Book 2 Chapter 4)

Loss factors : Constant with ARI

Parameters: kc = 0.73 m = 0.80

Loss parameters	Initial loss (mm)	Cont. loss (mm/h)
60.00	0.90	

Peak Description

01 Calculated hydrograph,

Run	Duration	AEP	TPat	Rain(mm)	ARF	Peak0001
1	30 min	10%	11	44.80	1.00	9.2290
1	30 min	10%	12	44.80	1.00	8.9426
1	30 min	10%	13	44.80	1.00	10.5314
1	30 min	10%	14	44.80	1.00	9.5893
1	30 min	10%	15	44.80	1.00	9.6198
1	30 min	10%	16	44.80	1.00	9.4934
1	30 min	10%	17	44.80	1.00	10.7047
1	30 min	10%	18	44.80	1.00	9.9773
1	30 min	10%	19	44.80	1.00	10.2939
1	30 min	10%	20	44.80	1.00	10.4809
2	1 hour	10%	11	57.60	1.00	11.6400
2	1 hour	10%	12	57.60	1.00	7.7981
2	1 hour	10%	13	57.60	1.00	8.3540
2	1 hour	10%	14	57.60	1.00	7.0976
2	1 hour	10%	15	57.60	1.00	8.5653
2	1 hour	10%	16	57.60	1.00	10.2723
2	1 hour	10%	17	57.60	1.00	9.6872
2	1 hour	10%	18	57.60	1.00	9.1524
2	1 hour	10%	19	57.60	1.00	8.5178
2	1 hour	10%	20	57.60	1.00	12.3104
3	2 hour	10%	11	70.10	1.00	9.6270
3	2 hour	10%	12	70.10	1.00	8.5171
3	2 hour	10%	13	70.10	1.00	7.5539
3	2 hour	10%	14	70.10	1.00	8.7943
3	2 hour	10%	15	70.10	1.00	9.2405
3	2 hour	10%	16	70.10	1.00	7.5793
3	2 hour	10%	17	70.10	1.00	8.6686
3	2 hour	10%	18	70.10	1.00	8.2281
3	2 hour	10%	19	70.10	1.00	8.3432
3	2 hour	10%	20	70.10	1.00	8.6173
4	3 hour	10%	11	77.70	1.00	7.5309
4	3 hour	10%	12	77.70	1.00	6.3739
4	3 hour	10%	13	77.70	1.00	5.3354
4	3 hour	10%	14	77.70	1.00	7.3455
4	3 hour	10%	15	77.70	1.00	5.2394
4	3 hour	10%	16	77.70	1.00	6.7138
4	3 hour	10%	17	77.70	1.00	7.8752
4	3 hour	10%	18	77.70	1.00	6.8062

Graincorp_dev_batch

4	3 hour	10%	19	77.70	1.00	7.9383
4	3 hour	10%	20	77.70	1.00	7.8913
5	6 hour	10%	11	92.80	1.00	8.4477
5	6 hour	10%	12	92.80	1.00	7.0260
5	6 hour	10%	13	92.80	1.00	4.5922
5	6 hour	10%	14	92.80	1.00	4.4971
5	6 hour	10%	15	92.80	1.00	5.6158
5	6 hour	10%	16	92.80	1.00	3.5006
5	6 hour	10%	17	92.80	1.00	6.4998
5	6 hour	10%	18	92.80	1.00	5.6832
5	6 hour	10%	19	92.80	1.00	6.0530
5	6 hour	10%	20	92.80	1.00	5.1652
6	12 hour	10%	11	113.00	1.00	3.3959
6	12 hour	10%	12	113.00	1.00	6.2659
6	12 hour	10%	13	113.00	1.00	3.4326
6	12 hour	10%	14	113.00	1.00	3.2263
6	12 hour	10%	15	113.00	1.00	3.6412
6	12 hour	10%	16	113.00	1.00	3.2137
6	12 hour	10%	17	113.00	1.00	3.0558
6	12 hour	10%	18	113.00	1.00	4.6439
6	12 hour	10%	19	113.00	1.00	4.8007
6	12 hour	10%	20	113.00	1.00	4.0901
7	24 hour	10%	11	140.00	1.00	5.8840
7	24 hour	10%	12	140.00	1.00	3.8738
7	24 hour	10%	13	140.00	1.00	2.7798
7	24 hour	10%	14	140.00	1.00	2.0032
7	24 hour	10%	15	140.00	1.00	2.0891
7	24 hour	10%	16	140.00	1.00	2.2902
7	24 hour	10%	17	140.00	1.00	4.0816
7	24 hour	10%	18	140.00	1.00	2.4867
7	24 hour	10%	19	140.00	1.00	2.8141
7	24 hour	10%	20	140.00	1.00	2.4255
8	48 hour	10%	11	175.00	1.00	2.3045
8	48 hour	10%	12	175.00	1.00	2.7915
8	48 hour	10%	13	175.00	1.00	2.0266
8	48 hour	10%	14	175.00	1.00	1.8048
8	48 hour	10%	15	175.00	1.00	1.7457
8	48 hour	10%	16	175.00	1.00	3.3250
8	48 hour	10%	17	175.00	1.00	1.8567
8	48 hour	10%	18	175.00	1.00	2.5287
8	48 hour	10%	19	175.00	1.00	1.6215
8	48 hour	10%	20	175.00	1.00	4.3479
9	72 hour	10%	11	195.00	1.00	1.0594
9	72 hour	10%	12	195.00	1.00	1.7953
9	72 hour	10%	13	195.00	1.00	1.5038
9	72 hour	10%	14	195.00	1.00	1.4978
9	72 hour	10%	15	195.00	1.00	2.8870
9	72 hour	10%	16	195.00	1.00	2.5150
9	72 hour	10%	17	195.00	1.00	1.7103
9	72 hour	10%	18	195.00	1.00	1.9611
9	72 hour	10%	19	195.00	1.00	1.2256
9	72 hour	10%	20	195.00	1.00	2.1891
10	96 hour	10%	11	207.00	1.00	2.0137
10	96 hour	10%	12	207.00	1.00	1.8916
10	96 hour	10%	13	207.00	1.00	1.5387
10	96 hour	10%	14	207.00	1.00	2.5055
10	96 hour	10%	15	207.00	1.00	1.2464
10	96 hour	10%	16	207.00	1.00	1.1848
10	96 hour	10%	17	207.00	1.00	1.6963
10	96 hour	10%	18	207.00	1.00	2.5273
10	96 hour	10%	19	207.00	1.00	1.1887
10	96 hour	10%	20	207.00	1.00	1.1999
11	120 hour	10%	11	214.00	1.00	1.4753
11	120 hour	10%	12	214.00	1.00	2.4984

Graincorp_dev_batch

11	120 hour	10%	13	214.00	1.00	1.9520
11	120 hour	10%	14	214.00	1.00	2.2071
11	120 hour	10%	15	214.00	1.00	1.0967
11	120 hour	10%	16	214.00	1.00	1.0493
11	120 hour	10%	17	214.00	1.00	2.8684
11	120 hour	10%	18	214.00	1.00	1.5559
11	120 hour	10%	19	214.00	1.00	1.3988
11	120 hour	10%	20	214.00	1.00	2.2962
12	144 hour	10%	11	217.00	1.00	1.6253
12	144 hour	10%	12	217.00	1.00	2.9727
12	144 hour	10%	13	217.00	1.00	1.6273
12	144 hour	10%	14	217.00	1.00	2.6288
12	144 hour	10%	15	217.00	1.00	1.4677
12	144 hour	10%	16	217.00	1.00	1.9432
12	144 hour	10%	17	217.00	1.00	2.0215
12	144 hour	10%	18	217.00	1.00	1.3709
12	144 hour	10%	19	217.00	1.00	1.1908
12	144 hour	10%	20	217.00	1.00	1.6229
13	168 hour	10%	11	217.00	1.00	1.4741
13	168 hour	10%	12	217.00	1.00	0.8400
13	168 hour	10%	13	217.00	1.00	1.1981
13	168 hour	10%	14	217.00	1.00	1.1003
13	168 hour	10%	15	217.00	1.00	1.8341
13	168 hour	10%	16	217.00	1.00	1.6097
13	168 hour	10%	17	217.00	1.00	1.7093
13	168 hour	10%	18	217.00	1.00	1.8445
13	168 hour	10%	19	217.00	1.00	1.1932
13	168 hour	10%	20	217.00	1.00	1.0662
14	30 min	5%	11	51.80	1.00	10.8984
14	30 min	5%	12	51.80	1.00	10.5396
14	30 min	5%	13	51.80	1.00	12.4728
14	30 min	5%	14	51.80	1.00	11.2962
14	30 min	5%	15	51.80	1.00	11.3625
14	30 min	5%	16	51.80	1.00	11.2130
14	30 min	5%	17	51.80	1.00	12.6862
14	30 min	5%	18	51.80	1.00	11.8074
14	30 min	5%	19	51.80	1.00	12.2096
14	30 min	5%	20	51.80	1.00	12.3754
15	1 hour	5%	11	67.00	1.00	13.9238
15	1 hour	5%	12	67.00	1.00	9.4066
15	1 hour	5%	13	67.00	1.00	10.1193
15	1 hour	5%	14	67.00	1.00	8.4922
15	1 hour	5%	15	67.00	1.00	10.2355
15	1 hour	5%	16	67.00	1.00	12.2568
15	1 hour	5%	17	67.00	1.00	11.6768
15	1 hour	5%	18	67.00	1.00	10.9029
15	1 hour	5%	19	67.00	1.00	10.2239
15	1 hour	5%	20	67.00	1.00	14.8046
16	2 hour	5%	11	82.00	1.00	11.4679
16	2 hour	5%	12	82.00	1.00	10.1074
16	2 hour	5%	13	82.00	1.00	8.9713
16	2 hour	5%	14	82.00	1.00	11.0330
16	2 hour	5%	15	82.00	1.00	11.1109
16	2 hour	5%	16	82.00	1.00	9.1854
16	2 hour	5%	17	82.00	1.00	10.2996
16	2 hour	5%	18	82.00	1.00	9.7172
16	2 hour	5%	19	82.00	1.00	10.0744
16	2 hour	5%	20	82.00	1.00	10.2243
17	3 hour	5%	11	91.20	1.00	9.3875
17	3 hour	5%	12	91.20	1.00	7.6361
17	3 hour	5%	13	91.20	1.00	6.5097
17	3 hour	5%	14	91.20	1.00	8.8269
17	3 hour	5%	15	91.20	1.00	6.1943
17	3 hour	5%	16	91.20	1.00	7.9462

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17	3 hour	5%	17	91.20	1.00	9.3960
17	3 hour	5%	18	91.20	1.00	8.0713
17	3 hour	5%	19	91.20	1.00	9.4402
17	3 hour	5%	20	91.20	1.00	9.3637
18	6 hour	5%	11	109.00	1.00	10.0986
18	6 hour	5%	12	109.00	1.00	8.5510
18	6 hour	5%	13	109.00	1.00	5.6441
18	6 hour	5%	14	109.00	1.00	5.3144
18	6 hour	5%	15	109.00	1.00	6.6371
18	6 hour	5%	16	109.00	1.00	4.1241
18	6 hour	5%	17	109.00	1.00	7.7626
18	6 hour	5%	18	109.00	1.00	6.7081
18	6 hour	5%	19	109.00	1.00	7.1621
18	6 hour	5%	20	109.00	1.00	6.1116
19	12 hour	5%	11	133.00	1.00	4.0162
19	12 hour	5%	12	133.00	1.00	7.4149
19	12 hour	5%	13	133.00	1.00	4.0866
19	12 hour	5%	14	133.00	1.00	3.8113
19	12 hour	5%	15	133.00	1.00	4.3457
19	12 hour	5%	16	133.00	1.00	3.8521
19	12 hour	5%	17	133.00	1.00	3.6265
19	12 hour	5%	18	133.00	1.00	5.5231
19	12 hour	5%	19	133.00	1.00	5.7043
19	12 hour	5%	20	133.00	1.00	4.8381
20	24 hour	5%	11	165.00	1.00	7.0054
20	24 hour	5%	12	165.00	1.00	4.5985
20	24 hour	5%	13	165.00	1.00	3.3050
20	24 hour	5%	14	165.00	1.00	2.3676
20	24 hour	5%	15	165.00	1.00	2.4892
20	24 hour	5%	16	165.00	1.00	2.7224
20	24 hour	5%	17	165.00	1.00	4.8094
20	24 hour	5%	18	165.00	1.00	2.9459
20	24 hour	5%	19	165.00	1.00	3.3401
20	24 hour	5%	20	165.00	1.00	2.8772
21	48 hour	5%	11	206.00	1.00	2.7172
21	48 hour	5%	12	206.00	1.00	3.2504
21	48 hour	5%	13	206.00	1.00	2.3893
21	48 hour	5%	14	206.00	1.00	2.1327
21	48 hour	5%	15	206.00	1.00	2.0657
21	48 hour	5%	16	206.00	1.00	3.9685
21	48 hour	5%	17	206.00	1.00	2.2101
21	48 hour	5%	18	206.00	1.00	3.0211
21	48 hour	5%	19	206.00	1.00	1.9155
21	48 hour	5%	20	206.00	1.00	5.1497
22	72 hour	5%	11	230.00	1.00	1.2611
22	72 hour	5%	12	230.00	1.00	2.1313
22	72 hour	5%	13	230.00	1.00	1.7928
22	72 hour	5%	14	230.00	1.00	1.7895
22	72 hour	5%	15	230.00	1.00	3.4317
22	72 hour	5%	16	230.00	1.00	2.9766
22	72 hour	5%	17	230.00	1.00	2.1347
22	72 hour	5%	18	230.00	1.00	2.3226
22	72 hour	5%	19	230.00	1.00	1.4627
22	72 hour	5%	20	230.00	1.00	2.5793
23	96 hour	5%	11	245.00	1.00	2.4055
23	96 hour	5%	12	245.00	1.00	2.2604
23	96 hour	5%	13	245.00	1.00	1.8510
23	96 hour	5%	14	245.00	1.00	3.0242
23	96 hour	5%	15	245.00	1.00	1.4888
23	96 hour	5%	16	245.00	1.00	1.4185
23	96 hour	5%	17	245.00	1.00	2.0126
23	96 hour	5%	18	245.00	1.00	3.0069
23	96 hour	5%	19	245.00	1.00	1.4321
23	96 hour	5%	20	245.00	1.00	1.4361

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24	120 hour	5%	11	253.00	1.00	1.7644
24	120 hour	5%	12	253.00	1.00	2.9700
24	120 hour	5%	13	253.00	1.00	2.3317
24	120 hour	5%	14	253.00	1.00	2.6304
24	120 hour	5%	15	253.00	1.00	1.3039
24	120 hour	5%	16	253.00	1.00	1.2453
24	120 hour	5%	17	253.00	1.00	3.4231
24	120 hour	5%	18	253.00	1.00	1.8625
24	120 hour	5%	19	253.00	1.00	1.6599
24	120 hour	5%	20	253.00	1.00	2.8566
25	144 hour	5%	11	257.00	1.00	1.9427
25	144 hour	5%	12	257.00	1.00	3.5508
25	144 hour	5%	13	257.00	1.00	1.9485
25	144 hour	5%	14	257.00	1.00	3.1268
25	144 hour	5%	15	257.00	1.00	1.8704
25	144 hour	5%	16	257.00	1.00	2.4404
25	144 hour	5%	17	257.00	1.00	2.4234
25	144 hour	5%	18	257.00	1.00	1.6451
25	144 hour	5%	19	257.00	1.00	1.4231
25	144 hour	5%	20	257.00	1.00	1.9438
26	168 hour	5%	11	258.00	1.00	1.7677
26	168 hour	5%	12	258.00	1.00	1.0056
26	168 hour	5%	13	258.00	1.00	1.4245
26	168 hour	5%	14	258.00	1.00	1.3298
26	168 hour	5%	15	258.00	1.00	2.1906
26	168 hour	5%	16	258.00	1.00	1.9355
26	168 hour	5%	17	258.00	1.00	2.0580
26	168 hour	5%	18	258.00	1.00	2.2066
26	168 hour	5%	19	258.00	1.00	1.4356
26	168 hour	5%	20	258.00	1.00	1.2776
27	30 min	2%	21	61.00	1.00	13.4250
27	30 min	2%	22	61.00	1.00	14.2956
27	30 min	2%	23	61.00	1.00	15.6066
27	30 min	2%	24	61.00	1.00	13.4387
27	30 min	2%	25	61.00	1.00	13.2258
27	30 min	2%	26	61.00	1.00	12.8108
27	30 min	2%	27	61.00	1.00	14.0728
27	30 min	2%	28	61.00	1.00	14.5394
27	30 min	2%	29	61.00	1.00	14.5484
27	30 min	2%	30	61.00	1.00	13.6491
28	1 hour	2%	21	79.60	1.00	17.4620
28	1 hour	2%	22	79.60	1.00	16.8591
28	1 hour	2%	23	79.60	1.00	14.0494
28	1 hour	2%	24	79.60	1.00	13.2475
28	1 hour	2%	25	79.60	1.00	12.7809
28	1 hour	2%	26	79.60	1.00	13.4387
28	1 hour	2%	27	79.60	1.00	13.2774
28	1 hour	2%	28	79.60	1.00	12.2768
28	1 hour	2%	29	79.60	1.00	12.4328
28	1 hour	2%	30	79.60	1.00	12.6477
29	2 hour	2%	21	98.30	1.00	12.5732
29	2 hour	2%	22	98.30	1.00	10.7574
29	2 hour	2%	23	98.30	1.00	11.0958
29	2 hour	2%	24	98.30	1.00	10.9214
29	2 hour	2%	25	98.30	1.00	12.3793
29	2 hour	2%	26	98.30	1.00	12.0610
29	2 hour	2%	27	98.30	1.00	9.9275
29	2 hour	2%	28	98.30	1.00	10.2508
29	2 hour	2%	29	98.30	1.00	12.7559
29	2 hour	2%	30	98.30	1.00	12.7379
30	3 hour	2%	21	110.00	1.00	10.3389
30	3 hour	2%	22	110.00	1.00	8.4415
30	3 hour	2%	23	110.00	1.00	10.1766
30	3 hour	2%	24	110.00	1.00	9.3976

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30	3 hour	2%	25	110.00	1.00	8.4742
30	3 hour	2%	26	110.00	1.00	8.8708
30	3 hour	2%	27	110.00	1.00	7.1263
30	3 hour	2%	28	110.00	1.00	8.8400
30	3 hour	2%	29	110.00	1.00	7.9724
30	3 hour	2%	30	110.00	1.00	12.5008
31	6 hour	2%	21	132.00	1.00	14.1080
31	6 hour	2%	22	132.00	1.00	5.3968
31	6 hour	2%	23	132.00	1.00	6.3112
31	6 hour	2%	24	132.00	1.00	7.2283
31	6 hour	2%	25	132.00	1.00	6.0399
31	6 hour	2%	26	132.00	1.00	6.6782
31	6 hour	2%	27	132.00	1.00	9.0872
31	6 hour	2%	28	132.00	1.00	11.4158
31	6 hour	2%	29	132.00	1.00	8.6545
31	6 hour	2%	30	132.00	1.00	7.2999
32	12 hour	2%	21	162.00	1.00	4.0952
32	12 hour	2%	22	162.00	1.00	4.4701
32	12 hour	2%	23	162.00	1.00	4.1443
32	12 hour	2%	24	162.00	1.00	5.5998
32	12 hour	2%	25	162.00	1.00	11.7230
32	12 hour	2%	26	162.00	1.00	4.4240
32	12 hour	2%	27	162.00	1.00	5.1142
32	12 hour	2%	28	162.00	1.00	14.2317
32	12 hour	2%	29	162.00	1.00	6.1637
32	12 hour	2%	30	162.00	1.00	7.1167
33	24 hour	2%	21	201.00	1.00	4.3444
33	24 hour	2%	22	201.00	1.00	3.3287
33	24 hour	2%	23	201.00	1.00	3.9169
33	24 hour	2%	24	201.00	1.00	5.2268
33	24 hour	2%	25	201.00	1.00	3.6871
33	24 hour	2%	26	201.00	1.00	3.2588
33	24 hour	2%	27	201.00	1.00	3.3303
33	24 hour	2%	28	201.00	1.00	4.1283
33	24 hour	2%	29	201.00	1.00	3.0662
33	24 hour	2%	30	201.00	1.00	4.5643
34	48 hour	2%	21	250.00	1.00	2.5760
34	48 hour	2%	22	250.00	1.00	2.2795
34	48 hour	2%	23	250.00	1.00	4.6998
34	48 hour	2%	24	250.00	1.00	1.9920
34	48 hour	2%	25	250.00	1.00	4.3597
34	48 hour	2%	26	250.00	1.00	3.4563
34	48 hour	2%	27	250.00	1.00	2.5407
34	48 hour	2%	28	250.00	1.00	1.9912
34	48 hour	2%	29	250.00	1.00	3.0318
34	48 hour	2%	30	250.00	1.00	4.2185
35	72 hour	2%	21	280.00	1.00	1.8216
35	72 hour	2%	22	280.00	1.00	2.1527
35	72 hour	2%	23	280.00	1.00	1.3423
35	72 hour	2%	24	280.00	1.00	2.7882
35	72 hour	2%	25	280.00	1.00	1.1967
35	72 hour	2%	26	280.00	1.00	1.8420
35	72 hour	2%	27	280.00	1.00	1.8048
35	72 hour	2%	28	280.00	1.00	1.7982
35	72 hour	2%	29	280.00	1.00	2.6739
35	72 hour	2%	30	280.00	1.00	2.1671
36	96 hour	2%	21	298.00	1.00	1.7873
36	96 hour	2%	22	298.00	1.00	2.6714
36	96 hour	2%	23	298.00	1.00	1.8279
36	96 hour	2%	24	298.00	1.00	1.1620
36	96 hour	2%	25	298.00	1.00	1.2952
36	96 hour	2%	26	298.00	1.00	1.7435
36	96 hour	2%	27	298.00	1.00	1.5723
36	96 hour	2%	28	298.00	1.00	3.9654

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36	96 hour	2%	29	298.00	1.00	2.0802
36	96 hour	2%	30	298.00	1.00	1.7131
37	120 hour	2%	21	308.00	1.00	1.8067
37	120 hour	2%	22	308.00	1.00	1.5882
37	120 hour	2%	23	308.00	1.00	2.6751
37	120 hour	2%	24	308.00	1.00	3.4633
37	120 hour	2%	25	308.00	1.00	1.9315
37	120 hour	2%	26	308.00	1.00	1.2995
37	120 hour	2%	27	308.00	1.00	1.0713
37	120 hour	2%	28	308.00	1.00	1.5291
37	120 hour	2%	29	308.00	1.00	3.8323
37	120 hour	2%	30	308.00	1.00	1.8398
38	144 hour	2%	21	312.00	1.00	1.6939
38	144 hour	2%	22	312.00	1.00	1.1078
38	144 hour	2%	23	312.00	1.00	1.8190
38	144 hour	2%	24	312.00	1.00	2.3091
38	144 hour	2%	25	312.00	1.00	1.7037
38	144 hour	2%	26	312.00	1.00	3.3259
38	144 hour	2%	27	312.00	1.00	2.0014
38	144 hour	2%	28	312.00	1.00	1.0458
38	144 hour	2%	29	312.00	1.00	1.4170
38	144 hour	2%	30	312.00	1.00	3.6782
39	168 hour	2%	21	313.00	1.00	1.3783
39	168 hour	2%	22	313.00	1.00	1.0413
39	168 hour	2%	23	313.00	1.00	2.0040
39	168 hour	2%	24	313.00	1.00	2.3093
39	168 hour	2%	25	313.00	1.00	1.6145
39	168 hour	2%	26	313.00	1.00	1.6145
39	168 hour	2%	27	313.00	1.00	1.3917
39	168 hour	2%	28	313.00	1.00	2.1623
39	168 hour	2%	29	313.00	1.00	1.3726
39	168 hour	2%	30	313.00	1.00	1.9855
40	30 min	1%	21	68.10	1.00	15.4202
40	30 min	1%	22	68.10	1.00	16.5667
40	30 min	1%	23	68.10	1.00	18.0105
40	30 min	1%	24	68.10	1.00	15.5553
40	30 min	1%	25	68.10	1.00	15.2756
40	30 min	1%	26	68.10	1.00	14.7986
40	30 min	1%	27	68.10	1.00	16.2521
40	30 min	1%	28	68.10	1.00	16.8412
40	30 min	1%	29	68.10	1.00	16.7659
40	30 min	1%	30	68.10	1.00	15.8138
41	1 hour	1%	21	89.40	1.00	20.0007
41	1 hour	1%	22	89.40	1.00	19.3338
41	1 hour	1%	23	89.40	1.00	16.1680
41	1 hour	1%	24	89.40	1.00	15.2275
41	1 hour	1%	25	89.40	1.00	14.6433
41	1 hour	1%	26	89.40	1.00	15.5300
41	1 hour	1%	27	89.40	1.00	15.1407
41	1 hour	1%	28	89.40	1.00	14.0070
41	1 hour	1%	29	89.40	1.00	14.5297
41	1 hour	1%	30	89.40	1.00	14.4594
42	2 hour	1%	21	111.00	1.00	14.3344
42	2 hour	1%	22	111.00	1.00	12.2314
42	2 hour	1%	23	111.00	1.00	12.8097
42	2 hour	1%	24	111.00	1.00	12.4371
42	2 hour	1%	25	111.00	1.00	14.3495
42	2 hour	1%	26	111.00	1.00	13.7526
42	2 hour	1%	27	111.00	1.00	11.3571
42	2 hour	1%	28	111.00	1.00	11.6361
42	2 hour	1%	29	111.00	1.00	14.5216
42	2 hour	1%	30	111.00	1.00	14.4992
43	3 hour	1%	21	125.00	1.00	11.8083
43	3 hour	1%	22	125.00	1.00	9.6806

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43	3 hour	1%	23	125.00	1.00	11.7482
43	3 hour	1%	24	125.00	1.00	10.8508
43	3 hour	1%	25	125.00	1.00	9.7518
43	3 hour	1%	26	125.00	1.00	10.2325
43	3 hour	1%	27	125.00	1.00	8.3287
43	3 hour	1%	28	125.00	1.00	10.1009
43	3 hour	1%	29	125.00	1.00	9.1381
43	3 hour	1%	30	125.00	1.00	14.3370
44	6 hour	1%	21	151.00	1.00	16.6856
44	6 hour	1%	22	151.00	1.00	6.2010
44	6 hour	1%	23	151.00	1.00	7.2495
44	6 hour	1%	24	151.00	1.00	8.4756
44	6 hour	1%	25	151.00	1.00	6.9570
44	6 hour	1%	26	151.00	1.00	7.7068
44	6 hour	1%	27	151.00	1.00	10.4284
44	6 hour	1%	28	151.00	1.00	13.3405
44	6 hour	1%	29	151.00	1.00	10.0365
44	6 hour	1%	30	151.00	1.00	8.3916
45	12 hour	1%	21	185.00	1.00	4.6891
45	12 hour	1%	22	185.00	1.00	5.1148
45	12 hour	1%	23	185.00	1.00	4.7603
45	12 hour	1%	24	185.00	1.00	6.4709
45	12 hour	1%	25	185.00	1.00	13.4920
45	12 hour	1%	26	185.00	1.00	5.1243
45	12 hour	1%	27	185.00	1.00	5.8769
45	12 hour	1%	28	185.00	1.00	16.4775
45	12 hour	1%	29	185.00	1.00	7.5034
45	12 hour	1%	30	185.00	1.00	8.1599
46	24 hour	1%	21	230.00	1.00	4.9987
46	24 hour	1%	22	230.00	1.00	3.8310
46	24 hour	1%	23	230.00	1.00	4.4977
46	24 hour	1%	24	230.00	1.00	6.0201
46	24 hour	1%	25	230.00	1.00	4.2322
46	24 hour	1%	26	230.00	1.00	3.7500
46	24 hour	1%	27	230.00	1.00	3.8380
46	24 hour	1%	28	230.00	1.00	4.7289
46	24 hour	1%	29	230.00	1.00	3.5315
46	24 hour	1%	30	230.00	1.00	5.2391
47	48 hour	1%	21	286.00	1.00	2.9473
47	48 hour	1%	22	286.00	1.00	2.6256
47	48 hour	1%	23	286.00	1.00	5.3953
47	48 hour	1%	24	286.00	1.00	2.2839
47	48 hour	1%	25	286.00	1.00	4.9771
47	48 hour	1%	26	286.00	1.00	3.9695
47	48 hour	1%	27	286.00	1.00	2.9135
47	48 hour	1%	28	286.00	1.00	2.2924
47	48 hour	1%	29	286.00	1.00	3.4892
47	48 hour	1%	30	286.00	1.00	4.8654
48	72 hour	1%	21	319.00	1.00	2.0821
48	72 hour	1%	22	319.00	1.00	2.4589
48	72 hour	1%	23	319.00	1.00	1.5349
48	72 hour	1%	24	319.00	1.00	3.2048
48	72 hour	1%	25	319.00	1.00	1.3686
48	72 hour	1%	26	319.00	1.00	2.0970
48	72 hour	1%	27	319.00	1.00	2.0657
48	72 hour	1%	28	319.00	1.00	2.0526
48	72 hour	1%	29	319.00	1.00	3.0704
48	72 hour	1%	30	319.00	1.00	2.4714
49	96 hour	1%	21	339.00	1.00	2.0409
49	96 hour	1%	22	339.00	1.00	3.0466
49	96 hour	1%	23	339.00	1.00	2.0894
49	96 hour	1%	24	339.00	1.00	1.3289
49	96 hour	1%	25	339.00	1.00	1.4823
49	96 hour	1%	26	339.00	1.00	1.9898

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49	96 hour	1%	27	339.00	1.00	1.8078
49	96 hour	1%	28	339.00	1.00	4.5357
49	96 hour	1%	29	339.00	1.00	2.3730
49	96 hour	1%	30	339.00	1.00	1.9627
50	120 hour	1%	21	350.00	1.00	2.0580
50	120 hour	1%	22	350.00	1.00	1.8116
50	120 hour	1%	23	350.00	1.00	3.0628
50	120 hour	1%	24	350.00	1.00	3.9713
50	120 hour	1%	25	350.00	1.00	2.2074
50	120 hour	1%	26	350.00	1.00	1.4856
50	120 hour	1%	27	350.00	1.00	1.2249
50	120 hour	1%	28	350.00	1.00	1.7394
50	120 hour	1%	29	350.00	1.00	4.3704
50	120 hour	1%	30	350.00	1.00	2.0980
51	144 hour	1%	21	356.00	1.00	1.9380
51	144 hour	1%	22	356.00	1.00	1.2675
51	144 hour	1%	23	356.00	1.00	2.0854
51	144 hour	1%	24	356.00	1.00	2.6477
51	144 hour	1%	25	356.00	1.00	1.9582
51	144 hour	1%	26	356.00	1.00	3.8278
51	144 hour	1%	27	356.00	1.00	2.3019
51	144 hour	1%	28	356.00	1.00	1.2020
51	144 hour	1%	29	356.00	1.00	1.6226
51	144 hour	1%	30	356.00	1.00	4.2127
52	168 hour	1%	21	356.00	1.00	1.5742
52	168 hour	1%	22	356.00	1.00	1.2371
52	168 hour	1%	23	356.00	1.00	2.2875
52	168 hour	1%	24	356.00	1.00	2.6392
52	168 hour	1%	25	356.00	1.00	1.8479
52	168 hour	1%	26	356.00	1.00	1.8479
52	168 hour	1%	27	356.00	1.00	1.5900
52	168 hour	1%	28	356.00	1.00	2.4831
52	168 hour	1%	29	356.00	1.00	1.5671
52	168 hour	1%	30	356.00	1.00	2.2747

Elapsed Run Time (hh:mm:ss) = 00:00:14

East_Developed catchments_1_batch

RORBWin Batch Run Summary

Program version 6.32 (last updated 3rd September 2017)
Copyright Monash University and Hydrology and Risk Consulting

Date run: 11 Jan 2018 16:26

Catchment file : G:\Synergy\Projects\17\170087 Bonnie Doon SWMP\Calculations\RORB\2B_East DS\Developed\East_Developed catchments_1.catg

Rainfall location: User defined

Temporal pattern : ARR2016 point temporal patterns

Spatial pattern : Uniform

Areal Red. Fact. : Based on ARR 2016 (Book 2 Chapter 4)

Loss factors : Constant with ARI

Parameters: kc = 4.15 m = 0.80

Loss parameters	Initial loss (mm)	Cont. loss (mm/h)
60.00	0.90	

Peak Description

- 01 Calculated hydrograph, End Ag zone West
- 02 Calculated hydrograph, CQ Inland port entrance
- 03 Calculated hydrograph, Downstream DAM D
- 04 Calculated hydrograph, Bonnie Doon Road Crossing
- 05 Calculated hydrograph, u/S DAM
- 06 Calculated hydrograph, Graincorp exit
- 07 Calculated hydrograph, Cotton Gin Access Culverts
- 08 Calculated hydrograph, Ch 1050 culverts
- 09 Calculated hydrograph, U/S B23
- 10 Calculated hydrograph, Outlet of model

Run	Duration	AEP	TPat	Rain(mm)	ARF	Peak0001	Peak0002	Peak0003	Peak0004	Peak0005	Peak0006	Peak0007	Peak0008	Peak0009	Peak0010
1	15 min	10%	11	31.90	0.81	4.2091	4.5921	6.6765	7.0714	6.4807	2.7556	2.6721	5.5355	13.0242	13.7641
1	15 min	10%	12	31.90	0.81	4.2066	4.5837	6.6758	7.0697	6.4813	2.7121	2.6755	5.5362	13.0365	13.7629
1	15 min	10%	13	31.90	0.81	4.2115	4.6612	6.6741	7.0813	6.4774	2.9703	2.6563	5.5654	13.0101	13.7637
1	15 min	10%	14	31.90	0.81	4.2106	4.7332	6.6853	7.1027	6.4956	2.9332	2.6813	5.5755	13.1523	13.7783
1	15 min	10%	15	31.90	0.81	4.2119	4.7217	6.6807	7.0964	6.4873	2.9878	2.6682	5.5830	13.0925	13.7718
1	15 min	10%	16	31.90	0.81	4.2101	4.6804	6.6790	7.0875	6.4840	2.9155	2.6678	5.5696	13.0636	13.7673
1	15 min	10%	17	31.90	0.81	4.2091	4.6410	6.6836	7.0846	6.4907	2.7560	2.6830	5.5507	13.0977	13.7708
1	15 min	10%	18	31.90	0.81	4.2077	4.6993	6.6835	7.0948	6.4922	2.8690	2.6812	5.5661	13.1283	13.7709
1	15 min	10%	19	31.90	0.81	4.2363	4.8297	6.7032	7.1356	6.5140	3.1003	2.6923	5.6443	13.1517	13.8265
1	15 min	10%	20	31.90	0.81	4.2363	4.8125	6.7041	7.1344	6.5139	3.1003	2.6875	5.6362	13.1582	13.8261
2	30 min	10%	11	44.80	0.86	6.7823	6.7283	10.8653	11.4965	10.5389	3.7498	4.1647	8.9210	19.5998	22.5117
2	30 min	10%	12	44.80	0.86	6.6867	6.5401	10.7860	11.4424	10.5081	3.4517	3.9944	8.7484	19.2818	22.4806
2	30 min	10%	13	44.80	0.86	6.8789	6.9139	10.9415	11.5775	10.5964	4.3926	4.2826	9.0966	20.0747	22.6157
2	30 min	10%	14	44.80	0.86	6.8209	6.9613	10.9042	11.5226	10.5525	3.9837	4.2355	8.9827	20.1221	22.5445
2	30 min	10%	15	44.80	0.86	6.7974	6.7311	10.8773	11.5312	10.5656	3.8339	4.1546	8.9284	19.7523	22.5402
2	30 min	10%	16	44.80	0.86	6.7568	6.8068	10.8814	11.5355	10.5703	3.6502	4.1469	8.9179	19.9075	22.5547
2	30 min	10%	17	44.80	0.86	6.8945	7.0887	10.9842	11.6176	10.6224	4.1518	4.3234	9.1164	20.5897	22.6226
2	30 min	10%	18	44.80	0.86	6.8037	6.9552	10.9189	11.5610	10.5819	3.8150	4.2283	8.9998	20.2612	22.5693
2	30 min	10%	19	44.80	0.86	6.9127	7.1956	10.9790	11.6044	10.6332	4.1936	4.3450	9.1130	20.6961	22.6152
2	30 min	10%	20	44.80	0.86	6.9314	7.2655	10.9735	11.6140	10.6374	4.3707	4.3572	9.1253	20.6840	22.6248
3	1 hour	10%	11	57.60	0.89	9.7243	9.3228	15.4420	16.3439	15.0089	5.5585	5.8736	12.6715	26.4796	32.1959
3	1 hour	10%	12	57.60	0.89	8.6785	7.4633	14.7172	15.4574	14.4095	3.5426	4.7579	11.4186	24.8338	31.7904
3	1 hour	10%	13	57.60	0.89	8.1771	7.2686	14.6345	15.3690	14.3720	3.0900	4.4676	11.2519	24.8226	31.8156
3	1 hour	10%	14	57.60	0.89	8.5432	7.2496	14.3816	15.0527	14.0944	3.4975	4.5790	11.1716	24.4315	31.5452
3	1 hour	10%	15	57.60	0.89	8.9929	7.8618	14.9950	15.7558	14.6198	3.9338	5.0682	11.8301	25.0702	31.9057
3	1 hour	10%	16	57.60	0.89	9.5664	8.4864	15.3070	16.1724	14.8912	4.7551	5.5582	12.4296	25.4103	32.0919
3	1 hour	10%	17	57.60	0.89	8.8487	8.0321	15.1011	15.9553	14.7545	3.8098	5.0113	11.9646	25.2685	32.0508
3	1 hour	10%	18	57.60	0.89	9.1973	8.0820	14.9680	15.7474	14.5524	4.5170	5.2512	11.9518	24.9875	31.8406

		East_Developed catchments_1_batch																		
3	1 hour	10%	19	57.60	0.89	8.7296	7.5544	14.8731	15.6651	14.5513	3.4762	4.8238	11.6265	25.0219	31.9036					
3	1 hour	10%	20	57.60	0.89	9.7952	9.4386	15.6073	16.5164	15.1545	5.4011	5.9347	12.8404	26.9763	32.3715					
4	2 hour	10%	11	70.10	0.91	12.6950	9.5686	21.5094	22.4790	20.9448	5.3606	6.8056	16.4814	35.6752	44.4750					
4	2 hour	10%	12	70.10	0.91	11.4906	8.8650	20.8490	21.8195	20.5090	4.3902	5.9965	15.4795	35.2115	44.4442					
4	2 hour	10%	13	70.10	0.91	11.5312	8.2262	19.7266	20.5329	19.2813	4.7863	5.9631	14.9894	33.3907	42.8212					
4	2 hour	10%	14	70.10	0.91	8.6147	6.9042	17.4564	18.1982	17.4929	3.3205	4.4701	12.3739	31.3313	42.4705					
4	2 hour	10%	15	70.10	0.91	8.0801	7.9245	17.9570	18.8395	18.4839	4.1381	4.6671	12.1614	33.3044	43.6138					
4	2 hour	10%	16	70.10	0.91	8.4623	7.2920	18.5979	19.4103	18.7599	2.9463	4.4389	12.6963	33.3842	43.6333					
4	2 hour	10%	17	70.10	0.91	12.1116	8.7943	20.8088	21.6214	20.2825	5.3001	6.4961	15.9289	34.7969	43.6688					
4	2 hour	10%	18	70.10	0.91	11.9829	9.0386	20.9621	21.8957	20.5205	4.3627	6.1354	15.7305	35.1924	44.2943					
4	2 hour	10%	19	70.10	0.91	10.1997	8.1400	19.6226	20.5667	19.5952	3.4634	5.0939	13.9866	34.2122	44.1255					
4	2 hour	10%	20	70.10	0.91	12.0647	9.2055	20.8405	21.7292	20.4037	4.8226	6.2640	15.7383	35.0336	44.2245					
5	3 hour	10%	11	77.70	0.92	10.8902	7.3482	20.5855	21.5190	20.9428	4.1633	5.1270	14.2632	36.8002	50.8626					
5	3 hour	10%	12	77.70	0.92	8.4989	6.5216	18.8936	19.6279	19.7964	2.7714	3.7453	11.8014	37.8233	52.0775					
5	3 hour	10%	13	77.70	0.92	9.3175	6.8218	19.5044	20.3329	20.2121	2.5858	4.1844	12.4289	37.5473	51.5985					
5	3 hour	10%	14	77.70	0.92	10.4016	7.8581	22.0274	23.2046	23.1349	3.3943	4.6419	14.4618	41.3817	54.2729					
5	3 hour	10%	15	77.70	0.92	11.0295	7.2209	21.3677	22.4914	22.0080	3.0455	4.6807	14.2842	39.5616	52.5007					
5	3 hour	10%	16	77.70	0.92	11.0823	8.0720	23.1323	24.3433	24.0194	3.4761	5.2606	15.3756	42.3200	54.8569					
5	3 hour	10%	17	77.70	0.92	11.9111	8.6353	24.3790	25.5419	24.8487	4.1457	5.9740	16.4441	43.4636	55.1778					
5	3 hour	10%	18	77.70	0.92	11.6766	8.4090	22.5911	23.6376	23.4302	3.7175	5.6635	15.4730	42.1625	54.0736					
5	3 hour	10%	19	77.70	0.92	12.4248	8.8587	24.2441	25.6036	25.0608	4.3329	6.1367	16.6467	43.6507	55.3273					
5	3 hour	10%	20	77.70	0.92	13.9449	9.4153	26.1972	27.1389	26.1483	4.3215	6.4541	17.4476	44.0409	56.0033					
6	6 hour	10%	11	92.80	0.95	11.0026	8.7574	21.6166	22.8638	23.0438	4.1277	5.8847	15.2136	43.0044	60.6269					
6	6 hour	10%	12	92.80	0.95	9.7591	6.2755	18.3403	18.9821	18.5814	3.0375	4.3162	12.1905	32.1907	50.7422					
6	6 hour	10%	13	92.80	0.95	8.6862	6.1842	18.6425	19.4584	20.1806	2.3593	3.8601	11.7226	38.7939	57.4170					
6	6 hour	10%	14	92.80	0.95	13.1513	6.7657	24.1354	24.9256	24.6248	2.6706	4.3463	13.3297	44.0283	62.4284					
6	6 hour	10%	15	92.80	0.95	13.8207	7.9310	27.0849	28.2679	28.6846	3.4539	5.4246	16.5672	52.8921	71.5404					
6	6 hour	10%	16	92.80	0.95	8.2960	5.4140	17.1839	17.9397	18.9260	1.9441	3.2328	10.3917	36.9663	61.2322					
6	6 hour	10%	17	92.80	0.95	9.2036	6.3844	18.9855	19.6986	20.2953	2.4500	3.8375	11.5094	39.8612	64.1014					
6	6 hour	10%	18	92.80	0.95	11.8255	7.9496	24.4876	25.5919	26.2106	3.2161	5.1008	15.4627	47.7115	66.5209					
6	6 hour	10%	19	92.80	0.95	14.4461	8.5018	27.7146	28.8898	29.5517	3.6909	5.7369	17.0635	53.6828	74.0340					
6	6 hour	10%	20	92.80	0.95	11.2018	6.9950	23.5274	24.5479	25.8342	3.1001	4.7406	14.0543	49.9968	71.8391					
7	12 hour	10%	11	113.00	0.97	10.9905	5.4936	20.1323	20.7625	21.7133	1.9976	3.3035	10.5633	39.8049	59.4386					
7	12 hour	10%	12	113.00	0.97	15.6964	9.0299	31.3774	32.8130	33.4088	3.7154	6.1647	18.5091	59.9268	78.8729					
7	12 hour	10%	13	113.00	0.97	10.2031	4.8161	17.9322	18.6293	18.3375	2.1948	3.2751	9.1998	31.3407	45.6827					
7	12 hour	10%	14	113.00	0.97	5.8929	4.5079	11.7614	12.2133	12.8075	1.7831	2.5639	8.0384	24.2418	37.4685					
7	12 hour	10%	15	113.00	0.97	8.2762	5.1857	17.0913	17.7547	17.5905	2.0982	3.2571	9.5309	32.2242	50.0959					
7	12 hour	10%	16	113.00	0.97	6.4248	4.0887	13.4183	13.9203	14.7982	1.5386	2.5301	7.7904	27.8040	44.6737					
7	12 hour	10%	17	113.00	0.97	9.2477	5.1012	18.7468	19.5184	20.8273	1.8736	2.9898	9.7700	39.4656	61.9736					
7	12 hour	10%	18	113.00	0.97	13.9164	6.5011	25.9216	26.8445	26.6493	2.9635	4.4675	13.6282	46.4197	66.3902					
7	12 hour	10%	19	113.00	0.97	14.3551	7.0449	26.6520	27.6707	27.6782	3.0379	4.6354	13.7826	48.5473	72.5111					
7	12 hour	10%	20	113.00	0.97	11.3372	6.3142	21.2596	22.2690	23.0092	2.4119	4.0340	12.7259	42.9595	72.9011					
8	24 hour	10%	11	140.00	0.98	12.9133	7.8719	29.2070	30.5256	31.3330	3.5287	5.3023	15.5955	56.7277	77.5365					
8	24 hour	10%	12	140.00	0.98	13.2392	6.7817	25.8781	26.8407	27.7356	2.4186	3.9037	13.1714	50.9902	80.8320					
8	24 hour	10%	13	140.00	0.98	7.8146	4.1597	13.6774	14.3711	15.1524	1.7234	2.6756	7.9548	28.1128	41.1627					
8	24 hour	10%	14	140.00	0.98	6.7964	3.5250	13.2539	13.7483	14.2171	1.2149	2.0135	6.7529	26.8199	42.3000					
8	24 hour	10%	15	140.00	0.98	5.2605	2.8325	9.6834	10.1508	10.7401	1.1037	1.6201	5.2201	19.4144	32.6329					
8	24 hour	10%	16	140.00	0.98	7.4096	3.9429	14.8888	15.4549	16.0034	1.4318	2.1784	7.3922	29.1177	47.2132					
8	24 hour	10%	17	140.00	0.98	7.4984	4.8370	14.2984	14.8038	16.0912	1.4195	2.2544	7.5052	30.3271	49.3408					
8	24 hour	10%	18	140.00	0.98	8.1403	4.1011	14.9881	15.4568	16.1653	1.4147	2.4423	7.8729	30.0029	46.8499					
8	24 hour	10%	19	140.00	0.98	9.1402	4.4289	15.4467	15.7614	16.6799	1.6726	2.8382	8.5064	29.9429	48.3923					
8	24 hour	10%	20	140.00	0.98	7.9325	4.2400	15.9881	16.6248	17.4221	1.4627	2.3425	7.8865	32.1453	51.3114					
9	48 hour	10%	11	175.00	0.98	5.3570	4.0217	11.5231	12.1230	13.2854	1.3471	2.2592	7.0938	25.7188	43.2918					
9	48 hour	10%	12	175.00	0.98	7.3217	4.4479	14.9459	15.5503	16.0364	1.3597	2.1613	7.4442	29.3586	47.5339					
9	48 hour	10%	13	175.00	0.98	7.0714	3.8296	14.2906	14.8539	15.5756	1.1965	2.0767	7.0356	28.9500	47.2147					
9	48 hour	10%	14	175.00	0.98	6.0633	3.0952	11.5110	11.8961	12.1771	1.0077	1.8180	5.9846	22.0183	31.5043					
9	48 hour	10%	15	175.00	0.98	5.6537	3.0603	10.9300	11.3277	11.9506	1.0096	1.7002	5.5541	22.2918	35.0179					
9	48 hour	10%	16	175.00	0.98	11.3313	5.73													

East_Developed catchments_1_batch																					
10	72 hour	10%	13	195.00	0.99	4.0818	2.5540	9.1018	9.5266	10.1495	0.8686	1.3850	4.5779	19.4489	32.0900						
10	72 hour	10%	14	195.00	0.99	4.1403	2.2387	8.4480	8.9083	9.6767	0.9404	1.3917	4.0082	18.0489	28.2199						
10	72 hour	10%	15	195.00	0.99	9.1263	4.4024	15.6964	16.2966	18.0071	1.7683	2.8091	8.6100	34.1307	59.3959						
10	72 hour	10%	16	195.00	0.99	8.4878	4.3080	16.1922	16.7539	17.3962	1.4318	2.5276	8.3492	32.1307	48.3023						
10	72 hour	10%	17	195.00	0.99	3.6253	2.0071	6.5841	6.7717	6.8405	0.6887	1.1362	3.5622	12.8286	22.1436						
10	72 hour	10%	18	195.00	0.99	6.5118	3.5465	12.6197	13.0625	13.6979	1.1361	1.9418	6.6468	26.4235	41.5817						
10	72 hour	10%	19	195.00	0.99	3.5564	2.0955	7.4525	7.7882	8.4234	0.7489	1.1346	3.6023	16.2590	27.2852						
10	72 hour	10%	20	195.00	0.99	7.8588	4.1546	16.3124	17.0255	17.9050	1.2235	2.2814	8.0455	33.0126	48.5904						
11	96 hour	10%	11	207.00	0.99	6.8250	3.7909	14.5721	15.2371	16.2529	1.2508	1.9595	6.9641	30.3672	49.1375						
11	96 hour	10%	12	207.00	0.99	5.7927	3.0471	11.7054	12.2879	13.3399	1.1496	1.8115	5.5534	25.1482	41.7328						
11	96 hour	10%	13	207.00	0.99	2.6114	2.5239	6.4750	6.8289	7.1297	0.5652	1.0972	3.8723	14.5530	23.0935						
11	96 hour	10%	14	207.00	0.99	5.0196	3.9628	11.2562	11.7314	12.6886	1.0921	1.8862	5.9040	24.1427	43.4209						
11	96 hour	10%	15	207.00	0.99	3.8098	2.0566	7.5317	7.9121	8.5419	0.7374	1.1792	3.6540	16.1181	26.5697						
11	96 hour	10%	16	207.00	0.99	3.4769	2.0057	7.1463	7.4598	8.0048	0.7185	1.0987	3.5202	15.3705	24.8262						
11	96 hour	10%	17	207.00	0.99	5.7901	3.0032	11.3646	11.7871	12.2928	0.9418	1.7247	5.8050	22.6771	32.1503						
11	96 hour	10%	18	207.00	0.99	7.3911	4.1599	13.9865	14.4101	14.7061	1.4944	2.5209	8.0639	28.2006	49.6641						
11	96 hour	10%	19	207.00	0.99	3.4323	1.9341	7.8265	8.2301	8.8007	0.7422	1.0463	3.7374	15.9845	22.9195						
11	96 hour	10%	20	207.00	0.99	3.5847	2.0679	7.3262	7.6939	8.2613	0.7235	1.1111	3.5316	15.5618	25.3533						
12	120 hour	10%	11	214.00	0.99	5.1520	2.8488	10.9562	11.4542	12.1776	0.9183	1.4938	5.3107	22.5298	34.6823						
12	120 hour	10%	12	214.00	0.99	4.1908	3.7166	8.5006	8.9629	9.1075	1.1135	1.8020	5.3490	18.5582	34.0033						
12	120 hour	10%	13	214.00	0.99	5.9315	3.0216	11.2925	11.8970	12.8621	1.2271	1.8502	5.4584	23.9079	39.4505						
12	120 hour	10%	14	214.00	0.99	6.9068	3.4925	12.2663	12.9199	14.0379	1.3683	2.1218	6.4925	26.3592	45.5916						
12	120 hour	10%	15	214.00	0.99	3.5166	1.9327	6.9610	7.2364	7.6216	0.6133	1.0670	3.5504	14.3859	25.7769						
12	120 hour	10%	16	214.00	0.99	3.4625	1.9405	7.1097	7.4093	7.8298	0.5608	1.0403	3.5604	14.6827	23.1457						
12	120 hour	10%	17	214.00	0.99	8.8690	4.2064	15.9061	16.7694	18.4032	1.7975	2.7663	8.2599	34.6847	58.9008						
12	120 hour	10%	18	214.00	0.99	4.5925	2.1936	9.2234	9.7118	10.4190	1.0227	1.4533	4.2470	19.2647	30.4403						
12	120 hour	10%	19	214.00	0.99	4.7154	2.6031	9.4969	9.8827	10.4925	0.7764	1.3756	4.6688	19.6942	34.1263						
12	120 hour	10%	20	214.00	0.99	4.5082	2.5995	9.2559	9.6466	10.2947	0.8376	1.3358	4.5740	19.2949	28.5630						
13	144 hour	10%	11	217.00	0.99	5.0164	2.7187	10.4323	10.9477	11.8382	0.9874	1.5635	4.8894	22.2535	36.1082						
13	144 hour	10%	12	217.00	0.99	9.3067	4.6595	18.5157	19.4465	21.1619	1.8733	2.8897	8.6689	39.8004	66.3206						
13	144 hour	10%	13	217.00	0.99	4.8478	2.3600	9.3381	9.8441	10.7402	1.0177	1.5437	4.5254	20.2215	32.6367						
13	144 hour	10%	14	217.00	0.99	8.8081	4.4286	16.5075	17.0495	17.6311	1.5233	2.6356	8.5926	32.5459	46.5162						
13	144 hour	10%	15	217.00	0.99	4.7644	2.6144	10.2778	10.7729	11.4010	0.9052	1.3853	5.0024	21.1110	31.9169						
13	144 hour	10%	16	217.00	0.99	3.9321	2.2077	8.0710	8.4135	8.9665	0.7305	1.1707	4.0038	16.7986	24.6701						
13	144 hour	10%	17	217.00	0.99	3.7226	2.8272	8.9409	9.4610	10.1606	1.1211	1.6428	4.8883	20.3702	33.8738						
13	144 hour	10%	18	217.00	0.99	4.2350	2.3820	9.3546	9.8248	10.5286	0.8574	1.2760	4.4755	19.5530	29.7190						
13	144 hour	10%	19	217.00	0.99	3.7046	1.9850	6.7329	6.9360	7.1459	0.7006	1.1386	3.5263	13.3491	20.2253						
13	144 hour	10%	20	217.00	0.99	4.8495	2.5437	9.9126	10.4242	11.1854	1.0142	1.5219	4.6334	20.7211	33.4022						
14	168 hour	10%	11	217.00	0.99	4.6088	2.4069	8.3406	8.5892	8.8186	0.8758	1.4176	4.4205	16.6786	29.0596						
14	168 hour	10%	12	217.00	0.99	2.6548	1.4872	5.2700	5.4714	5.7020	0.4489	0.8148	2.7051	11.0376	19.0499						
14	168 hour	10%	13	217.00	0.99	4.0450	2.1542	8.2268	8.5718	8.9686	0.6327	1.2106	4.1549	16.4344	22.8365						
14	168 hour	10%	14	217.00	0.99	2.9989	1.5783	6.3330	6.6760	7.1878	0.6801	0.9920	2.9805	13.3267	20.6230						
14	168 hour	10%	15	217.00	0.99	6.0893	3.3274	12.5626	13.0921	13.8379	1.0650	1.8176	6.0804	25.5874	40.8565						
14	168 hour	10%	16	217.00	0.99	4.7925	2.3341	9.2431	9.7441	10.6303	1.0073	1.5273	4.4733	20.0105	32.2688						
14	168 hour	10%	17	217.00	0.99	4.3270	2.5455	9.3276	9.7775	10.3391	0.8226	1.2634	4.5558	19.1451	28.7846						
14	168 hour	10%	18	217.00	0.99	3.7532	2.9615	7.5254	7.8369	7.8848	0.9961	1.6034	4.9099	16.0072	29.0136						
14	168 hour	10%	19	217.00	0.99	3.9759	2.2020	8.4298	8.8176	9.3748	0.7272	1.1608	4.1336	17.3831	25.7791						
14	168 hour	10%	20	217.00	0.99	2.9269	1.9044	5.6422	5.8826	6.1732	0.5973	1.0248	3.3882	12.5777	20.6042						
15	15 min	5%	11	36.80	0.80	4.9968	5.4199	7.9222	8.4104	7.6806	3.2313	3.1729	6.5824	15.4152	16.3360						
15	15 min	5%	12	36.80	0.80	4.9928	5.4096	7.9195	8.4127	7.6786	3.1788	3.1752	6.5918	15.4294	16.3374						
15	15 min	5%	13	36.80	0.80	5.0046	5.5042	7.9290	8.3931	7.6875	3.4908	3.1623	6.5847	15.4041	16.3367						
15	15 min	5%	14	36.80	0.80	5.0026	5.5908	7.9426	8.4194	7.7094	3.4459	3.1909	6.5960	15.5856	16.3568						
15	15 min	5%	15	36.80	0.80	5.0054	5.5770	7.9396	8.4062	7.7021	3.5119	3.1770	6.6062	15.5128	16.3502						
15	15 min	5%	16	36.80	0.80	5.0016	5.5266	7.9329	8.4050	7.6936	3.4245	3.1739	6.5874	15.4707	16.3407						
15	15 min	5%	17	36.80	0.80	4.9968	5.4786	7.9310	8.4222	7.6932	3.2318	3.1858	6.6049	15.5093	16.3436						
15	15 min	5%	18	36.80	0.80	4.9977	5.5496	7.9370	8.4188	7.7024	3.3683	3.1879	6.5809	15.5527	16.3490						
15	15 min	5%	19	36.80	0.80	5.0327	5.7087														

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16	30 min	5%	17	51.80	0.85	8.1756	8.3683	13.0439	13.8392	12.6649	4.8966	5.1151	10.8101	24.3551	26.9114				
16	30 min	5%	18	51.80	0.85	8.0675	8.2060	12.9613	13.7640	12.6069	4.4623	4.9952	10.6647	23.9496	26.8437				
16	30 min	5%	19	51.80	0.85	8.2073	8.4975	13.0542	13.8219	12.6518	4.9140	5.1492	10.8211	24.4901	26.9029				
16	30 min	5%	20	51.80	0.85	8.2343	8.5830	13.0581	13.8008	12.6345	5.1281	5.1712	10.8507	24.4860	26.9111				
17	1 hour	5%	11	67.00	0.89	11.6038	11.0524	18.4999	19.5153	17.9093	6.5467	6.9891	15.1023	31.4359	38.5179				
17	1 hour	5%	12	67.00	0.89	10.2900	8.7928	17.5310	18.4616	17.1776	4.1466	5.6157	13.5764	29.6672	38.0548				
17	1 hour	5%	13	67.00	0.89	9.6903	8.5636	17.4500	18.3381	17.1517	3.5997	5.2643	13.3425	29.6687	38.0878				
17	1 hour	5%	14	67.00	0.89	10.1362	8.5413	17.1406	17.9682	16.8069	4.0838	5.4129	13.2611	29.1802	37.7530				
17	1 hour	5%	15	67.00	0.89	10.6732	9.2854	17.8761	18.8366	17.4477	4.6039	5.9839	14.1199	29.9758	38.1927				
17	1 hour	5%	16	67.00	0.89	11.4088	10.0506	18.3033	19.3088	17.7546	5.5925	6.6080	14.8143	30.3604	38.4005				
17	1 hour	5%	17	67.00	0.89	10.4833	9.4858	18.0152	19.0465	17.5895	4.4680	5.9256	14.2489	30.1847	38.3637				
17	1 hour	5%	18	67.00	0.89	10.9504	9.5552	17.8994	18.7514	17.4295	5.3095	6.2294	14.2213	29.8966	38.1100				
17	1 hour	5%	19	67.00	0.89	10.3432	8.9157	17.7045	18.6962	17.3353	4.0592	5.6843	13.8486	29.8814	38.1900				
17	1 hour	5%	20	67.00	0.89	11.6933	11.1986	18.6251	19.7501	18.0959	6.3605	7.0698	15.3171	32.0578	38.7354				
18	2 hour	5%	11	82.00	0.90	18.6392	11.7849	31.2347	32.3888	30.5653	6.7982	8.8208	22.4497	51.1844	61.4994				
18	2 hour	5%	12	82.00	0.90	16.8155	10.9656	30.1001	31.4591	29.8663	5.4712	7.6775	20.9311	50.4554	61.4742				
18	2 hour	5%	13	82.00	0.90	16.3018	10.0510	27.7850	28.7791	27.4388	5.7230	7.4316	19.3798	46.8651	58.9030				
18	2 hour	5%	14	82.00	0.90	12.3625	8.4977	24.2222	25.1863	24.6539	3.9690	5.4865	15.7249	43.7992	58.7409				
18	2 hour	5%	15	82.00	0.90	12.0564	10.0522	25.5984	26.7801	26.6575	5.6439	6.7160	16.3399	47.6437	60.4113				
18	2 hour	5%	16	82.00	0.90	12.3891	9.0460	26.3111	27.5106	27.1090	4.0919	5.7957	16.7560	47.7321	60.3556				
18	2 hour	5%	17	82.00	0.90	17.2759	10.8327	29.5720	30.7618	29.1317	6.5280	8.2179	20.9068	49.2262	60.0674				
18	2 hour	5%	18	82.00	0.90	17.4100	11.1263	30.2878	31.4214	29.8426	5.3235	7.8405	21.0871	50.3439	61.2100				
18	2 hour	5%	19	82.00	0.90	14.7339	10.0231	28.1017	29.3739	28.3278	4.4152	6.3633	18.4876	48.7346	61.0010				
18	2 hour	5%	20	82.00	0.90	17.6423	11.3154	30.2114	31.3898	29.7872	5.9699	8.0504	21.1760	50.2858	61.2196				
19	3 hour	5%	11	91.20	0.91	15.3889	8.9694	27.2812	28.5732	27.7857	4.9203	6.1033	17.6494	48.8354	68.4234				
19	3 hour	5%	12	91.20	0.91	11.8965	7.9721	25.1284	26.1250	26.8169	3.8285	5.0742	14.5047	51.4591	70.3224				
19	3 hour	5%	13	91.20	0.91	13.0495	8.2534	25.7814	26.9218	27.1140	3.2237	5.0004	15.4670	50.6090	69.5197				
19	3 hour	5%	14	91.20	0.91	14.7060	9.5950	30.2578	31.4014	31.8475	4.4567	6.2716	18.3369	57.5380	73.5723				
19	3 hour	5%	15	91.20	0.91	15.2759	8.6846	28.5051	29.2723	29.4414	3.5748	5.5465	17.4826	53.6918	70.6800				
19	3 hour	5%	16	91.20	0.91	15.5874	9.8745	31.5995	32.7893	33.2410	4.2361	6.5173	19.4819	58.8913	74.3552				
19	3 hour	5%	17	91.20	0.91	17.0560	10.6328	33.1091	34.7636	34.4676	5.4021	7.6810	21.4749	60.3969	74.7849				
19	3 hour	5%	18	91.20	0.91	16.4768	10.2685	31.6111	32.8036	32.6558	4.5428	7.0281	19.8806	57.0250	73.3672				
19	3 hour	5%	19	91.20	0.91	17.9630	10.8285	34.0519	35.3356	35.2667	5.4966	7.7498	21.7148	60.2540	74.8582				
19	3 hour	5%	20	91.20	0.91	19.5285	11.5018	35.8874	37.4445	35.7841	5.2767	7.9603	23.0141	61.3929	75.5704				
20	6 hour	5%	11	109.00	0.95	16.4429	10.9356	31.0933	32.2252	32.3128	5.4371	7.6416	20.2098	58.7791	80.2609				
20	6 hour	5%	12	109.00	0.95	13.8325	7.6050	24.4910	25.0724	24.8419	3.5808	5.1562	14.6224	41.7227	62.0633				
20	6 hour	5%	13	109.00	0.95	12.4801	7.5109	24.7356	25.6440	26.5199	2.7869	4.6061	14.2491	49.3867	74.8307				
20	6 hour	5%	14	109.00	0.95	16.4886	8.0509	29.8409	30.8798	30.9297	3.1616	5.1244	15.8268	54.5550	77.8981				
20	6 hour	5%	15	109.00	0.95	18.3341	9.5753	34.4276	35.9449	37.0083	4.0752	6.4495	19.8319	66.5138	92.5318				
20	6 hour	5%	16	109.00	0.95	10.6245	6.5313	22.3818	23.3033	24.6063	2.3614	3.9186	12.7735	47.2889	77.0103				
20	6 hour	5%	17	109.00	0.95	12.8411	7.8978	25.0476	25.9368	26.6041	4.0778	5.3952	13.8786	49.5303	81.7982				
20	6 hour	5%	18	109.00	0.95	16.3392	9.6956	32.7582	34.0200	34.8821	3.8387	6.2020	19.3291	64.0787	87.8985				
20	6 hour	5%	19	109.00	0.95	19.2989	10.2537	35.6733	36.8238	37.8267	4.3410	6.8361	20.4107	67.8491	95.7745				
20	6 hour	5%	20	109.00	0.95	14.7873	8.4700	30.3049	31.4848	32.9628	3.6576	5.7617	17.3952	62.4824	92.9651				
21	12 hour	5%	11	133.00	0.97	13.0721	6.5290	24.0471	24.8092	25.8005	2.3588	3.9083	12.5314	47.4419	71.8946				
21	12 hour	5%	12	133.00	0.97	20.9127	10.8507	39.5006	41.3535	42.8274	4.3754	7.3517	22.9321	77.9217	103.349				
21	12 hour	5%	13	133.00	0.97	12.2672	5.7488	21.4617	22.3259	22.1130	2.5987	3.9112	10.9127	37.7451	55.0505				
21	12 hour	5%	14	133.00	0.97	7.3238	5.6425	16.6297	17.3250	17.8900	2.1563	3.5952	10.6217	34.5034	51.0773				
21	12 hour	5%	15	133.00	0.97	11.6900	6.2423	22.0578	22.9257	23.0245	2.4821	3.8863	11.2994	40.7693	63.9538				
21	12 hour	5%	16	133.00	0.97	9.0332	5.0377	17.7782	18.4387	19.0905	2.0066	3.1829	9.2604	35.1614	55.2810				
21	12 hour	5%	17	133.00	0.97	11.6628	6.0490	22.8296	23.7498	25.2104	2.2170	3.5320	11.6032	47.7461	75.5011				
21	12 hour	5%	18	133.00	0.97	16.7864	7.7632	31.1124	32.2578	32.2346	3.5042	5.3243	16.1635	56.1689	80.5483				
21	12 hour	5%	19	133.00	0.97	17.4415	8.4042	32.0598	33.3286	33.5996	3.5908	5.5173	16.3132	58.9077	87.8976				
21	12 hour	5%	20	133.00	0.97	14.6901	7.5519	26.7108	27.9492	29.1714	2.8441	4.7754	15.1360	53.5805	88.2153				
22	24 hour	5%	11	165.00	0.98	17.8953	9.5416	36.9848	38.7910	40.6704	4.4750	6.8935	19.6011	73.8387	98.2760				
22	24 hour	5%	12	165.00	0.98	15.7340	8.0684	31.2095	32.3830	33.6937	2.8752	4.6203	15.6330	61.9427	97.5052				
22	24 hour	5%	13	165.00	0.98	9.4043	5.0168	17.4509	18.2920	19.0409	2.0577	3.1988	9.5685	35.1759	52.5540				
22	24 hour	5%	14	165.00	0.98	8.1222	4.2020	15.9114	16.5139	17.1264	1.4483	2.3916	8.0588	31.9597	50.8458				
22	24 hour	5%	15	165.00	0.98	6.3439	3.3798	11.5803	12.										

East_Developed catchments_1_batch																							
23	48 hour	5%	11	206.00	0.98	7.7080	4.8776	15.5568	16.0219	16.9386	1.7228	2.9604	9.5070	32.3845	55.4762								
23	48 hour	5%	12	206.00	0.98	8.7087	5.5897	17.8450	18.5729	19.1933	1.6604	2.8891	9.2685	35.1178	56.5169								
23	48 hour	5%	13	206.00	0.98	8.4219	4.5463	17.0467	17.7213	18.5931	1.4266	2.4612	8.3597	34.5097	56.5177								
23	48 hour	5%	14	206.00	0.98	7.2556	3.6910	13.8549	14.3277	14.7148	1.1946	2.1612	7.1565	26.6232	37.6049								
23	48 hour	5%	15	206.00	0.98	6.7923	3.6437	13.0160	13.4870	14.2787	1.2101	2.0154	6.5920	26.8709	41.9779								
23	48 hour	5%	16	206.00	0.98	13.3929	6.8050	28.5439	29.8186	31.3034	2.7236	3.8090	13.9891	57.0297	79.7817								
23	48 hour	5%	17	206.00	0.98	6.5887	3.4143	13.4585	14.1115	14.8763	1.4152	2.0639	6.4031	27.1049	43.1908								
23	48 hour	5%	18	206.00	0.98	10.2666	5.2428	21.7360	22.7075	23.5992	2.0437	2.9455	10.7121	42.1333	60.0520								
23	48 hour	5%	19	206.00	0.98	6.4231	3.5745	12.9933	13.5187	14.4309	1.0899	1.8834	6.3387	27.1727	43.7347								
23	48 hour	5%	20	206.00	0.98	16.9336	7.9082	29.3262	30.0982	30.2902	3.1220	5.1419	16.0199	56.9482	98.0055								
24	72 hour	5%	11	230.00	0.99	3.9050	2.1851	7.8570	8.1795	8.5935	0.7354	1.2200	3.8701	16.1146	26.7641								
24	72 hour	5%	12	230.00	0.99	6.9631	3.5388	12.7322	13.1192	13.4470	1.2559	2.1092	6.6855	24.8054	40.0016								
24	72 hour	5%	13	230.00	0.99	5.4200	3.0369	11.6695	12.2056	13.0356	1.0522	1.6634	5.4840	24.1818	39.2801								
24	72 hour	5%	14	230.00	0.99	5.2599	2.6831	10.0749	10.6337	11.6232	1.1282	1.6832	4.8202	21.7607	34.5965								
24	72 hour	5%	15	230.00	0.99	10.9696	5.2853	18.9829	19.4961	21.2904	2.1055	3.3582	10.3420	40.3853	71.0148								
24	72 hour	5%	16	230.00	0.99	10.1479	5.1496	19.4413	20.1231	20.9366	1.6984	3.0068	9.9650	38.6887	57.2103								
24	72 hour	5%	17	230.00	0.99	4.4366	2.5626	8.0965	8.3335	8.4402	0.8201	1.3686	4.3274	15.3573	26.7156								
24	72 hour	5%	18	230.00	0.99	7.8002	4.2169	15.2387	15.9586	17.0575	1.3996	2.3141	7.6475	32.6665	52.5478								
24	72 hour	5%	19	230.00	0.99	4.3494	2.4993	8.9173	9.3108	10.0644	0.8985	1.3727	4.2908	19.3936	33.0733								
24	72 hour	5%	20	230.00	0.99	9.3505	4.9472	19.4986	20.3582	21.4444	1.4625	2.7029	9.5598	39.5781	58.7890								
25	96 hour	5%	11	245.00	0.99	8.1428	4.5201	17.4060	18.2003	19.4408	1.4981	2.3277	8.2816	36.3330	59.3024								
25	96 hour	5%	12	245.00	0.99	7.0359	3.6320	13.9713	14.6666	15.9585	1.3792	2.1833	6.6537	30.0655	50.4899								
25	96 hour	5%	13	245.00	0.99	3.7150	3.0375	9.3979	9.8534	10.3626	0.8968	1.4953	5.3622	20.6870	33.0753								
25	96 hour	5%	14	245.00	0.99	6.4537	5.0090	14.0405	14.6573	16.0028	1.3906	2.4630	7.9482	29.7875	54.6177								
25	96 hour	5%	15	245.00	0.99	4.6377	2.4754	9.0422	9.4966	10.2671	0.8875	1.4224	4.4298	19.3655	32.1857								
25	96 hour	5%	16	245.00	0.99	4.2349	2.4053	8.6028	8.9762	9.6379	0.8670	1.3317	4.2130	18.4774	30.3503								
25	96 hour	5%	17	245.00	0.99	6.9555	3.6053	13.7176	14.2326	14.9040	1.1201	2.0529	6.9560	27.5727	39.4118								
25	96 hour	5%	18	245.00	0.99	9.6050	4.9981	17.8504	18.4065	18.9179	1.7855	3.0046	9.6493	35.4345	60.2002								
25	96 hour	5%	19	245.00	0.99	4.1510	2.3158	9.4549	9.9455	10.6941	0.9043	1.2770	4.4746	19.4956	28.1315								
25	96 hour	5%	20	245.00	0.99	4.3432	2.4766	8.8717	9.3128	10.0036	0.8793	1.3435	4.2571	18.7191	30.7367								
26	120 hour	5%	11	253.00	0.99	6.1649	3.4004	13.1372	13.7356	14.6404	1.1044	1.7758	6.3320	27.1002	41.9897								
26	120 hour	5%	12	253.00	0.99	6.0501	4.6947	12.4283	12.9989	13.2673	1.4274	2.3805	7.3640	26.1541	43.3959								
26	120 hour	5%	13	253.00	0.99	7.1745	3.6371	13.4517	14.1684	15.3515	1.4717	2.2250	6.5935	28.5926	47.5120								
26	120 hour	5%	14	253.00	0.99	8.3352	4.1978	14.6449	15.3542	16.7045	1.6355	2.5440	7.8062	31.3561	54.6245								
26	120 hour	5%	15	253.00	0.99	4.2548	2.3228	8.4359	8.7722	9.2648	0.7354	1.2799	4.2697	17.4966	31.0072								
26	120 hour	5%	16	253.00	0.99	4.2256	2.3270	8.6292	8.9923	9.5161	0.6720	1.2452	4.2740	17.7721	27.7504								
26	120 hour	5%	17	253.00	0.99	10.7153	5.0783	18.8442	19.8667	21.8450	2.1481	3.3224	9.9757	41.2222	70.8320								
26	120 hour	5%	18	253.00	0.99	5.5608	2.6464	10.9663	11.5509	12.4264	1.2263	1.7506	5.0158	22.9653	36.7639								
26	120 hour	5%	19	253.00	0.99	5.5985	3.1145	11.3991	11.8719	12.6834	0.9304	1.6442	5.5780	23.9152	40.6184								
26	120 hour	5%	20	253.00	0.99	5.4182	3.3839	11.1416	11.6024	12.3955	1.0882	1.7215	5.4681	23.2819	36.1417								
27	144 hour	5%	11	257.00	0.99	6.0983	3.2440	12.4845	13.0985	14.1870	1.1849	1.8850	5.8230	26.6977	43.6980								
27	144 hour	5%	12	257.00	0.99	11.2483	5.5384	21.9960	23.0993	25.1740	2.2379	3.4700	10.4725	47.4014	79.8530								
27	144 hour	5%	13	257.00	0.99	5.9208	2.8631	11.1506	11.7555	12.8643	1.2201	1.8691	5.5320	24.2620	39.7592								
27	144 hour	5%	14	257.00	0.99	10.5848	5.3210	19.9303	20.5922	21.3423	1.8172	3.1511	10.3107	39.4106	55.5398								
27	144 hour	5%	15	257.00	0.99	5.7262	3.1313	12.3974	12.9876	13.7619	1.0885	1.6523	5.9855	25.4635	38.8925								
27	144 hour	5%	16	257.00	0.99	4.7472	2.8045	9.7573	10.1611	10.8429	0.8830	1.4040	4.8095	20.3490	30.1935								
27	144 hour	5%	17	257.00	0.99	5.6232	3.4330	11.9107	12.5876	13.6362	1.4926	2.1985	6.3036	26.7413	44.7530								
27	144 hour	5%	18	257.00	0.99	5.0761	2.8507	11.2646	11.8284	12.6864	1.0336	1.5505	5.3369	23.6058	36.2623								
27	144 hour	5%	19	257.00	0.99	4.4964	2.3912	8.2285	8.4746	8.6977	0.8367	1.3818	4.3054	16.1441	25.0108								
27	144 hour	5%	20	257.00	0.99	5.9052	3.0653	11.8851	12.4990	13.4495	1.2211	1.8405	5.5207	24.9274	40.3951								
28	168 hour	5%	11	258.00	0.99	5.6183	2.9095	10.2024	10.5081	10.8192	1.0567	1.7121	5.3703	19.9958	35.3083								
28	168 hour	5%	12	258.00	0.99	3.2618	1.8007	6.4821	6.7298	7.0295	0.5443	0.9879	3.2988	13.3538	23.2787								
28	168 hour	5%	13	258.00	0.99	4.9190	2.6028	10.0090	10.4323	10.9587	0.7625	1.4585	5.0247	20.1325	28.2416								
28	168 hour	5%	14	258.00	0.99	3.7418	1.9005	7.6832	8.1007	8.7485	0.8293	1.2205	3.5794	16.2720	25.4496								

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29	15 min	2%	25	43.10	0.80	6.0482	6.7462	9.5825	10.1778	9.2902	4.2610	3.8505	7.9516	18.7356	19.7404				
29	15 min	2%	26	43.10	0.80	6.0445	6.6984	9.5726	10.1704	9.2848	4.1926	3.8449	7.9464	18.6841	19.7303				
29	15 min	2%	27	43.10	0.80	6.0336	6.5971	9.5501	10.1595	9.2824	3.9992	3.8370	7.9648	18.6130	19.7149				
29	15 min	2%	28	43.10	0.80	6.0761	6.8835	9.6192	10.2137	9.3202	4.3520	3.8889	8.0360	18.8036	19.8036				
29	15 min	2%	29	43.10	0.80	6.0505	6.7199	9.5777	10.1635	9.2771	4.3137	3.8361	7.9618	18.6400	19.7334				
29	15 min	2%	30	43.10	0.80	6.0340	6.5816	9.5482	10.1600	9.2840	3.9675	3.8370	7.9686	18.6023	19.7139				
30	30 min	2%	21	61.00	0.84	9.9447	9.8028	15.6550	16.5619	15.1908	6.1394	6.1295	12.9327	27.9098	32.4579				
30	30 min	2%	22	61.00	0.84	9.8165	9.6564	15.7553	16.6381	15.2615	5.4408	5.9174	12.9015	28.5405	32.5837				
30	30 min	2%	23	61.00	0.84	10.0059	10.5381	15.8471	16.7805	15.3653	6.4606	6.3042	13.1879	29.7886	32.6683				
30	30 min	2%	24	61.00	0.84	9.7992	9.8242	15.6811	16.6229	15.2284	5.5880	6.0390	12.8715	28.4467	32.5279				
30	30 min	2%	25	61.00	0.84	9.7391	9.4350	15.6547	16.5011	15.1689	5.1916	5.8222	12.7488	27.7457	32.4728				
30	30 min	2%	26	61.00	0.84	9.7332	9.3232	15.6200	16.4529	15.1368	5.1841	5.8124	12.6769	27.4191	32.4481				
30	30 min	2%	27	61.00	0.84	9.9021	10.0453	15.7279	16.6926	15.2840	5.8610	6.1603	13.0085	28.9313	32.5654				
30	30 min	2%	28	61.00	0.84	9.8625	9.6891	15.7625	16.6371	15.2581	5.7461	5.9461	12.9556	28.4447	32.5771				
30	30 min	2%	29	61.00	0.84	9.9462	10.1977	15.7668	16.7137	15.3045	6.1167	6.2119	13.0600	29.1771	32.5824				
30	30 min	2%	30	61.00	0.84	9.7670	9.6514	15.7124	16.6006	15.2119	5.1290	5.9094	12.8403	28.2776	32.5473				
31	1 hour	2%	21	79.60	0.88	18.8746	13.7824	28.8637	30.1045	27.9247	9.4939	10.2030	22.5194	46.3212	55.5124				
31	1 hour	2%	22	79.60	0.88	18.6357	13.7639	28.8090	30.0486	27.8936	8.9126	9.9856	22.3727	46.3002	55.5288				
31	1 hour	2%	23	79.60	0.88	16.2154	11.8408	27.8255	29.0581	27.2127	6.1901	8.2153	20.5577	45.5321	55.1796				
31	1 hour	2%	24	79.60	0.88	15.1989	11.3148	27.2710	28.4244	26.7547	6.2946	7.8241	19.8097	44.9780	54.7974				
31	1 hour	2%	25	79.60	0.88	16.2609	11.7731	27.6511	28.9964	27.0069	5.9201	8.1644	20.3476	45.3345	55.0297				
31	1 hour	2%	26	79.60	0.88	16.3084	12.0984	27.7976	29.1807	27.1500	5.9626	8.2610	20.4668	45.5394	55.2443				
31	1 hour	2%	27	79.60	0.88	17.4187	12.0356	27.6835	29.0012	27.0094	7.2068	8.8732	20.8088	45.1467	54.7277				
31	1 hour	2%	28	79.60	0.88	16.1434	11.6139	27.4741	28.7943	26.8543	5.8378	8.0238	20.1675	45.1339	54.9012				
31	1 hour	2%	29	79.60	0.88	16.1972	11.7366	27.4388	28.6749	26.8522	5.9484	8.0686	20.1258	45.1290	54.9711				
31	1 hour	2%	30	79.60	0.88	16.7902	11.8280	27.7610	28.9483	27.1065	6.1441	8.4204	20.6196	45.3602	54.9947				
32	2 hour	2%	21	98.30	0.89	25.2942	13.9664	41.8772	43.4903	41.5803	7.6114	10.4409	27.9480	69.6081	84.5796				
32	2 hour	2%	22	98.30	0.89	23.4809	12.77105	40.0815	41.4102	39.9806	6.3134	9.1767	25.8783	67.6413	83.4635				
32	2 hour	2%	23	98.30	0.89	17.6711	11.4033	34.6389	36.2271	37.3986	5.2759	7.8568	21.9450	67.6517	84.0688				
32	2 hour	2%	24	98.30	0.89	22.2502	12.4804	39.2601	40.6188	39.5804	6.4591	9.0411	25.1017	67.4136	83.6255				
32	2 hour	2%	25	98.30	0.89	16.9618	11.0051	34.2673	35.7373	36.5734	5.0175	7.1383	21.0170	66.2210	83.6517				
32	2 hour	2%	26	98.30	0.89	24.9001	13.5494	41.0622	42.6718	40.8283	7.3986	10.1456	27.3024	68.4425	83.6134				
32	2 hour	2%	27	98.30	0.89	20.3466	11.6354	37.9440	39.4756	38.6920	5.4130	7.7891	23.5349	67.1436	83.7246				
32	2 hour	2%	28	98.30	0.89	22.4225	12.6844	39.8985	41.2432	40.1023	5.6738	8.7037	25.3674	68.2857	84.3624				
32	2 hour	2%	29	98.30	0.89	26.2393	14.5113	43.7592	45.4726	43.3540	7.3424	10.7027	29.2005	72.2258	85.5614				
32	2 hour	2%	30	98.30	0.89	25.7132	14.1763	43.5625	45.3566	43.3128	7.3093	10.4496	28.9492	72.3043	86.0496				
33	3 hour	2%	21	110.00	0.90	25.7968	13.4171	45.5957	47.3230	45.4592	5.8635	9.3286	27.0954	79.1038	100.544				
33	3 hour	2%	22	110.00	0.90	20.8395	10.7409	36.2313	36.9805	36.7057	5.2286	7.3048	21.0865	62.3270	91.5248				
33	3 hour	2%	23	110.00	0.90	22.3275	12.5913	42.5234	43.9329	43.1349	5.2971	8.0041	24.3923	78.6488	101.692				
33	3 hour	2%	24	110.00	0.90	16.7735	9.7279	32.1148	33.4815	34.6152	4.5015	6.4363	17.9413	67.9610	95.9421				
33	3 hour	2%	25	110.00	0.90	16.9673	9.6309	32.5486	33.8825	34.7532	3.9648	5.6047	17.7250	66.2538	94.9907				
33	3 hour	2%	26	110.00	0.90	17.0801	10.1425	33.5435	34.9279	36.8433	4.2129	6.5839	19.2844	69.5037	95.9754				
33	3 hour	2%	27	110.00	0.90	18.1509	10.0846	35.2163	36.6946	37.9691	3.6640	5.9581	19.6430	70.5566	96.1643				
33	3 hour	2%	28	110.00	0.90	23.7396	11.9484	39.3506	41.0693	39.4956	5.2922	8.2338	23.3511	71.0071	95.9970				
33	3 hour	2%	29	110.00	0.90	16.5922	9.6497	33.4417	34.7316	36.5911	4.1947	6.3016	18.6797	69.8124	96.8173				
33	3 hour	2%	30	110.00	0.90	21.2573	12.9663	39.4701	41.3744	43.5430	7.0509	9.4208	25.9480	81.0893	102.512				
34	6 hour	2%	21	132.00	0.94	22.0033	13.6730	42.9516	44.8200	45.0850	6.2993	9.5981	26.6538	78.7208	96.5501				
34	6 hour	2%	22	132.00	0.94	17.2896	9.1754	32.7547	33.7317	35.2422	3.2605	5.2747	16.5868	67.3441	107.701				
34	6 hour	2%	23	132.00	0.94	18.8295	9.8263	34.5338	35.8894	37.3197	3.9317	6.1785	18.7741	69.6338	110.702				
34	6 hour	2%	24	132.00	0.94	15.0849	8.1916	27.8369	28.8720	29.2077	3.2232	4.7943	14.1533	55.0733	91.5309				
34	6 hour	2%	25	132.00	0.94	14.9978	8.4529	30.5173	31.7031	33.6125	3.3556	5.2679	15.8258	63.6157	104.112				
34	6 hour	2%	26	132.00	0.94	20.0314	9.9835	35.3234	36.0969	36.2623	4.3602	6.2556	18.9212	67.7641	109.421				
34	6 hour	2%	27	132.00	0.94	26.7614	13.8283	51.0969	52.9702	54.1168	5.2762	8.6197	27.3204	100.085	139.009				
34	6 hour	2%	28	132.00	0.94	20.6166	12.3881	39.5476	41.3266	40.2370	5.8110	8.7724	24.9477	70.6087	86.6619				
34	6 hour	2%	29	132.00	0.94	17.4652	8.8214	31.8460	32.7530	33.5790	4.4070	5.9041	16.8567	59.3564	89.9580				
34	6 hour	2%	30	132.00	0.94	22.3107	10.9040	41.6530	43.3611	44.9107	4.2851	6.9423	22.3169	81.9738	117.083				
35	12 hour	2%	21	162.00	0.96	13.3209	7.3688	26.8003	27.8220	29.4123	2.4103	3.9549	13.1313	55.8803	93.3781				
35	12 hour	2%	22	162.00	0.96	15.0005	7.9823	29.1228	30.1385	31.7239	2.6921	4.4756	14.5504	60.0125	97.7568				
35	12 hour	2%	23	162.00	0.96	13.0243	6.5307	24.8935	25.										

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35	12 hour	2%	29	162.00	0.96	11.1939	6.6674	22.0853	22.8884	23.5626	2.4433	3.7094	12.0395	42.2855	66.6449			
35	12 hour	2%	30	162.00	0.96	22.8756	11.3101	44.0524	45.7845	47.7634	4.2726	6.8720	21.9801	87.8393	130.150			
36	24 hour	2%	21	201.00	0.98	9.9912	6.2249	19.9191	20.6921	21.7889	2.3656	3.8005	10.8353	40.0586	64.8751			
36	24 hour	2%	22	201.00	0.98	7.5520	4.8772	16.4182	17.1275	17.3701	2.1115	3.0986	9.8841	33.0533	53.5447			
36	24 hour	2%	23	201.00	0.98	12.5974	6.5748	25.2017	26.3017	27.9835	2.3131	3.9269	12.5361	51.7510	80.7384			
36	24 hour	2%	24	201.00	0.98	17.5362	8.8397	34.5749	35.9248	37.4878	3.2565	5.1597	17.7836	68.5638	100.379			
36	24 hour	2%	25	201.00	0.98	12.1406	6.3136	22.5722	23.2765	24.6070	2.1579	3.6970	11.9322	45.7613	73.4902			
36	24 hour	2%	26	201.00	0.98	10.4335	5.1834	19.4869	20.3942	21.6391	1.9841	3.1755	9.8099	39.8753	59.3568			
36	24 hour	2%	27	201.00	0.98	7.9195	4.1058	15.9180	16.5889	17.2609	1.5889	2.4513	7.8263	31.1556	49.0972			
36	24 hour	2%	28	201.00	0.98	13.6335	7.5818	27.3953	28.5225	30.5782	2.4862	4.2179	14.1875	58.4862	95.2425			
36	24 hour	2%	29	201.00	0.98	9.6543	5.0181	18.9930	19.8141	20.7577	1.9052	2.9512	9.2318	37.7731	58.4762			
36	24 hour	2%	30	201.00	0.98	15.5698	7.0452	27.1716	27.8997	27.3817	2.6265	4.7116	15.0006	48.0923	71.1683			
37	48 hour	2%	21	250.00	0.98	9.2412	4.8313	18.6644	19.4224	20.3522	1.5710	2.6808	9.2121	37.5741	57.7113			
37	48 hour	2%	22	250.00	0.98	7.8155	4.2713	15.7675	16.3883	17.2473	1.3022	2.2604	7.6690	32.2047	52.2589			
37	48 hour	2%	23	250.00	0.98	16.0314	8.0191	29.1724	29.9986	30.4552	2.7825	4.8078	15.1708	55.7572	86.7521			
37	48 hour	2%	24	250.00	0.98	6.7659	3.7509	13.6518	14.1839	15.0641	1.1236	1.9944	6.6826	28.3647	45.6638			
37	48 hour	2%	25	250.00	0.98	16.2025	8.0618	32.8122	34.1362	35.5422	2.7269	4.6772	16.4709	64.7181	89.6792			
37	48 hour	2%	26	250.00	0.98	11.5142	5.8699	21.2420	21.9059	22.8967	2.0614	3.4387	10.9684	43.2202	73.0551			
37	48 hour	2%	27	250.00	0.98	8.5645	4.7053	16.9381	17.5712	18.5773	1.4436	2.5175	8.4433	34.9748	55.3929			
37	48 hour	2%	28	250.00	0.98	6.2513	3.3173	12.7125	13.2779	14.1484	1.2112	1.8906	6.0803	26.4727	42.8056			
37	48 hour	2%	29	250.00	0.98	9.9605	5.4156	21.0249	21.9849	23.5663	1.8547	2.9708	10.1004	44.1223	67.7277			
37	48 hour	2%	30	250.00	0.98	13.0792	6.5237	24.4801	25.7801	27.6516	2.7879	4.0302	11.4753	50.2406	79.1826			
38	72 hour	2%	21	280.00	0.99	5.9717	3.3866	12.4372	12.9664	13.9236	1.0946	1.8461	6.0419	26.1699	44.5366			
38	72 hour	2%	22	280.00	0.99	4.9867	3.4683	9.8086	10.2471	11.0858	1.0060	1.6720	5.1551	21.4838	37.8499			
38	72 hour	2%	23	280.00	0.99	4.3598	2.5633	9.0063	9.3883	10.1270	0.8188	1.3347	4.6880	18.9198	32.3978			
38	72 hour	2%	24	280.00	0.99	8.4721	4.9601	18.5075	19.3418	20.6466	1.6117	2.5792	9.1650	39.1496	63.9294			
38	72 hour	2%	25	280.00	0.99	3.9585	2.2194	7.9853	8.3000	8.7009	0.6503	1.1871	3.9656	16.1211	26.2369			
38	72 hour	2%	26	280.00	0.99	6.1039	3.5393	12.8220	13.3991	14.4824	1.1502	1.9415	6.3135	27.4330	45.5862			
38	72 hour	2%	27	280.00	0.99	5.8522	3.2141	11.4646	11.9843	12.9141	1.0604	1.7545	5.6448	24.3550	41.5938			
38	72 hour	2%	28	280.00	0.99	6.1438	3.1769	12.0430	12.4967	13.0074	1.0011	1.8266	6.1480	24.0111	38.7636			
38	72 hour	2%	29	280.00	0.99	8.2246	4.6814	16.2915	17.0033	18.0090	1.5155	2.3824	7.8740	33.7684	59.5325			
38	72 hour	2%	30	280.00	0.99	7.5777	4.1153	15.4465	16.0765	16.9969	1.1946	2.2116	7.5703	31.4466	49.1740			
39	96 hour	2%	21	298.00	0.99	5.8730	3.1835	11.5001	11.9246	12.5884	1.0558	1.7509	5.7497	23.6721	36.7462			
39	96 hour	2%	22	298.00	0.99	9.1259	4.7053	17.5850	18.1986	18.8688	1.5183	2.7150	8.9510	34.4629	50.9291			
39	96 hour	2%	23	298.00	0.99	4.9294	2.9376	10.1037	10.5425	11.2826	0.9094	1.5968	5.5912	21.6039	36.5242			
39	96 hour	2%	24	298.00	0.99	3.7396	2.0448	7.1424	7.3891	7.6300	0.6545	1.1360	3.6508	14.1828	22.5382			
39	96 hour	2%	25	298.00	0.99	4.1872	2.4281	8.8979	9.2945	9.9522	0.7559	1.2455	4.2669	18.6166	31.2351			
39	96 hour	2%	26	298.00	0.99	5.8048	3.0751	11.0371	11.4331	12.2030	0.9906	1.7471	5.7380	23.3199	38.3618			
39	96 hour	2%	27	298.00	0.99	4.5594	2.5101	10.0689	10.5676	11.2807	0.9954	1.4329	4.8262	20.6879	30.1886			
39	96 hour	2%	28	298.00	0.99	12.7575	6.1304	22.0704	22.6650	24.7318	2.4457	3.8957	12.0014	46.9019	82.7452			
39	96 hour	2%	29	298.00	0.99	7.0652	3.7940	13.8049	14.3124	14.8755	1.1814	2.0988	6.9197	27.3788	45.7103			
39	96 hour	2%	30	298.00	0.99	5.6452	3.1572	12.0220	12.5499	13.3087	1.0598	1.6382	5.7754	24.7441	40.3199			
40	120 hour	2%	21	308.00	0.99	6.1350	3.4320	12.4603	12.9588	13.7958	1.0179	1.8037	6.0639	26.0268	43.0050			
40	120 hour	2%	22	308.00	0.99	5.2285	2.8725	10.2348	10.6116	11.1653	0.9100	1.5647	5.1354	20.9578	32.8445			
40	120 hour	2%	23	308.00	0.99	8.1880	4.7015	16.0501	16.5809	17.1921	1.6175	2.7291	8.8545	33.0161	56.5846			
40	120 hour	2%	24	308.00	0.99	10.4082	5.0047	17.1110	18.1899	20.2936	2.2495	3.2623	9.2908	37.7708	60.7562			
40	120 hour	2%	25	308.00	0.99	6.1075	3.2714	11.2482	11.5908	12.1068	1.1714	1.8527	5.7982	22.7996	35.8938			
40	120 hour	2%	26	308.00	0.99	4.0723	2.2344	7.9198	8.2664	8.9300	0.7572	1.2491	3.9575	16.9845	29.1573			
40	120 hour	2%	27	308.00	0.99	3.3277	1.8224	6.2265	6.4279	6.6071	0.6136	1.0333	3.2637	12.3293	20.2730			
40	120 hour	2%	28	308.00	0.99	5.3185	2.8121	10.7745	11.2140	11.7456	0.8211	1.5704	5.4194	21.6677	35.6486			
40	120 hour	2%	29	308.00	0.99	12.8026	6.3327	23.4715	24.2090	24.9072	2.2821	3.8384	12.3071	45.8809	74.4268			
40	120 hour	2%	30	308.00	0.99	6.1356	3.3453	11.9349	12.3722	12.8618	1.0521	1.8375	6.0079	23.7561	40.3939			
41	144 hour	2%	21	312.00	0.99	5.7145	3.2042	11.6003	12.0695	12.8703	0.9553	1.6833	5.6573	24.3305	40.0002			
41	144 hour	2%	22	312.00	0.99	3.7382	2.0279	7.5769	7.8912	8.2551	0.5884	1.1138	3.8160	15.2674	23.9645			
41	144 hour	2%	23	312.00	0.99	5.8968	3.3158	12.3012	12.8643	13.9353	1.0686	1.7828	5.8408	26.4669	43.6467			
41	144 hour	2%	24	312.00	0.99	7.4670	3.7549	13.4799	13.8801	14.6792	1.3946	2.2676	7.1483	27.8079	49.0890			
41	144 hour	2%	25	312.00	0.99	5.2470	2.6570	10.1466	10.6595	11.5424	1.0413	1.6280	4.9898	21.6751	36.6413			
41	144 hour	2%	26	312.00	0.99	10.2447	4.8772	16.1138	16.3284	17.9397	2.1252	3.2371	9.2182	33.6886	55.3790			
41	144 hour	2%	27	312.00	0.99	6.0724	3.1486	10.7483	11.3342	12.2757	1.2618	1.8839	5.6097	22.7090	38.6224			
41	144 hour	2%	28	312.00	0.99	3.2359	1.7385	5.9216	6.0984	6.1788	0.5966	1.0099	3.1436	11.3625	19.3350		</td	

East_Developed catchments_1_batch																			
42	168 hour	2%	23	313.00	0.99	6.6126	3.5943	13.2259	13.8401	14.8362	1.1842	1.9658	6.4772	27.8371	45.6649				
42	168 hour	2%	24	313.00	0.99	7.4720	3.7571	13.4877	13.8880	14.6925	1.3956	2.2692	7.1528	27.8330	49.1285				
42	168 hour	2%	25	313.00	0.99	3.8052	2.5092	8.7653	9.2126	9.9959	0.9769	1.5740	4.8581	19.6228	33.3830				
42	168 hour	2%	26	313.00	0.99	3.8052	2.5092	8.7653	9.2126	9.9959	0.9769	1.5740	4.8581	19.6228	33.3830				
42	168 hour	2%	27	313.00	0.99	4.4904	2.3104	8.3840	8.6643	8.9010	0.8018	1.3695	4.4244	16.4484	25.6690				
42	168 hour	2%	28	313.00	0.99	6.7620	3.7332	15.0189	15.7412	16.8937	1.3932	2.0236	7.1145	31.4531	48.7375				
42	168 hour	2%	29	313.00	0.99	4.5336	2.4685	8.8868	9.2194	9.6486	0.7708	1.3545	4.4898	17.7698	27.7248				
42	168 hour	2%	30	313.00	0.99	6.1252	3.2055	12.3170	12.9275	14.0517	1.2110	1.9110	5.8062	26.4691	44.0842				
43	15 min	1%	21	48.00	0.79	6.8397	7.4908	10.8723	11.5595	10.5750	4.3210	4.3766	9.0850	21.2812	22.4109				
43	15 min	1%	22	48.00	0.79	6.8501	7.5714	10.8581	11.5643	10.5737	4.5370	4.3834	9.0658	21.2991	22.4066				
43	15 min	1%	23	48.00	0.79	6.8325	7.3258	10.8549	11.5141	10.5386	4.2633	4.3379	9.0485	20.9968	22.3886				
43	15 min	1%	24	48.00	0.79	6.8476	7.3992	10.8480	11.5230	10.5415	4.4245	4.3487	9.0531	21.0275	22.3857				
43	15 min	1%	25	48.00	0.79	6.8718	7.6327	10.8655	11.5659	10.5687	4.8028	4.3798	9.0448	21.2452	22.4120				
43	15 min	1%	26	48.00	0.79	6.8665	7.5774	10.8516	11.5543	10.5608	4.7241	4.3716	9.0489	21.1820	22.4039				
43	15 min	1%	27	48.00	0.79	6.8507	7.4607	10.8465	11.5327	10.5467	4.5016	4.3572	9.0622	21.0898	22.3881				
43	15 min	1%	28	48.00	0.79	6.9019	7.7917	10.9088	11.6091	10.6032	4.9058	4.4239	9.1062	21.3289	22.4809				
43	15 min	1%	29	48.00	0.79	6.8752	7.6024	10.8610	11.5509	10.5552	4.8635	4.3648	9.0376	21.1320	22.4058				
43	15 min	1%	30	48.00	0.79	6.8506	7.4428	10.8494	11.5318	10.5471	4.4650	4.3564	9.0640	21.0795	22.3908				
44	30 min	1%	21	68.10	0.84	11.3007	11.0844	17.7899	18.8301	17.2541	6.9126	6.9567	14.6868	31.5914	36.9413				
44	30 min	1%	22	68.10	0.84	11.1675	10.9118	17.9298	18.9430	17.3986	6.1345	6.6833	14.6909	32.2955	37.0918				
44	30 min	1%	23	68.10	0.84	11.3739	11.9318	18.0024	19.1060	17.4788	7.2805	7.1628	14.9867	33.7814	37.1739				
44	30 min	1%	24	68.10	0.84	11.1208	11.1069	17.8696	18.8777	17.2974	6.2800	6.8373	14.5892	32.2009	37.0216				
44	30 min	1%	25	68.10	0.84	11.0783	10.6604	17.8127	18.8008	17.2862	5.8544	6.5762	14.5156	31.3796	36.9522				
44	30 min	1%	26	68.10	0.84	11.0718	10.5299	17.7690	18.7389	17.2453	5.8470	6.5656	14.4365	31.0050	36.9138				
44	30 min	1%	27	68.10	0.84	11.2462	11.3624	17.9084	18.9745	17.3567	6.5922	6.9832	14.7588	32.7682	37.0513				
44	30 min	1%	28	68.10	0.84	11.2199	10.9708	17.9368	18.9475	17.3936	6.4825	6.7672	14.7557	32.1851	37.0801				
44	30 min	1%	29	68.10	0.84	11.3021	11.5385	17.9018	19.0134	17.3962	6.8863	7.0480	14.8270	33.0638	37.0676				
44	30 min	1%	30	68.10	0.84	11.1099	10.9067	17.8830	18.8641	17.3442	5.7846	6.6776	14.6222	31.9944	37.0444				
45	1 hour	1%	21	89.40	0.87	25.3669	16.1269	37.7125	39.3536	36.3818	11.4888	12.7465	28.2924	59.8465	69.9432				
45	1 hour	1%	22	89.40	0.87	25.0819	16.1133	37.6589	39.3010	36.3571	10.8658	12.5244	28.1486	59.8281	69.9657				
45	1 hour	1%	23	89.40	0.87	21.6018	13.9035	36.1560	37.7978	35.4004	7.6694	10.1067	25.6793	58.6171	69.5611				
45	1 hour	1%	24	89.40	0.87	20.1431	13.3283	35.2785	36.8977	34.8015	7.5777	9.5300	24.5837	57.9459	69.1345				
45	1 hour	1%	25	89.40	0.87	21.5051	13.7822	35.9993	37.4707	35.2895	7.0184	9.9573	25.4148	58.4886	69.3469				
45	1 hour	1%	26	89.40	0.87	21.6059	14.1849	36.2381	37.7606	35.5264	7.0742	10.1019	25.6178	58.8145	69.6689				
45	1 hour	1%	27	89.40	0.87	22.7189	14.0876	35.9947	37.3942	35.0879	8.3532	10.6330	25.9398	58.1832	68.9550				
45	1 hour	1%	28	89.40	0.87	21.2339	13.5865	35.6983	37.1546	35.0535	6.8514	9.7285	25.0194	58.2175	69.2380				
45	1 hour	1%	29	89.40	0.87	21.3871	13.7493	35.5133	37.1725	35.0167	6.9178	9.6743	25.0058	58.1377	69.2552				
45	1 hour	1%	30	89.40	0.87	22.2143	13.8058	36.0606	37.6598	35.2803	7.2113	10.1374	25.7310	58.4068	69.3247				
46	2 hour	1%	21	111.00	0.88	31.2034	16.1072	50.9949	52.9337	50.8193	8.6123	12.0050	32.8994	85.1920	103.790				
46	2 hour	1%	22	111.00	0.88	28.8122	14.6549	48.6121	50.3282	48.7752	7.1255	10.5159	30.1236	82.4512	102.431				
46	2 hour	1%	23	111.00	0.88	22.6793	13.2901	42.2252	44.0700	45.8880	6.3143	9.2879	26.5152	83.7252	103.482				
46	2 hour	1%	24	111.00	0.88	27.3498	14.3861	47.6857	49.4242	48.3191	7.3016	10.3848	29.5081	82.4876	102.608				
46	2 hour	1%	25	111.00	0.88	21.3355	12.8039	41.5484	43.3379	44.7295	6.5296	8.3727	25.1527	81.4348	102.973				
46	2 hour	1%	26	111.00	0.88	30.6780	15.6030	49.8887	51.6669	49.6280	8.3517	11.6070	31.8774	83.3768	102.508				
46	2 hour	1%	27	111.00	0.88	24.7047	13.4280	45.9287	47.5988	47.1969	6.2898	8.8938	27.4601	82.4594	102.930				
46	2 hour	1%	28	111.00	0.88	27.5218	14.6112	48.5034	50.2534	49.0116	6.3935	9.9529	29.6487	83.7761	103.714				
46	2 hour	1%	29	111.00	0.88	32.2217	16.7374	53.6561	55.6954	53.3421	8.3239	12.3783	34.7013	88.9576	105.126				
46	2 hour	1%	30	111.00	0.88	31.6108	16.3801	53.6714	55.5789	53.3913	8.3423	12.0870	34.3879	89.2554	105.758				
47	3 hour	1%	21	125.00	0.89	31.1476	15.4327	54.1816	56.2929	54.9110	6.6084	10.6111	31.3399	95.8247	122.392				
47	3 hour	1%	22	125.00	0.89	24.2451	12.3390	42.5658	43.5319	43.0115	5.9136	8.3293	24.0114	73.3426	110.694				
47	3 hour	1%	23	125.00	0.89	26.9126	14.5124	50.6754	52.4993	52.3662	6.2834	9.1650	28.0485	96.1673	124.424				
47	3 hour	1%	24	125.00	0.89	19.6602	11.1425	37.5637	38.9798	41.1254	5.4883	7.7807	21.9656	80.8638	116.340				
47	3 hour	1%	25	125.00	0.89	19.9097	11.0325	37.9044	39.5049	40.8380	4.8379	6.7458	20.1729	79.0164	115.149				
47	3 hour	1%	26	125.00	0.89	21.0677	11.7132	39.6807	41.3536	43.8002	5.3553	7.5488	22.3973	81.9394	116.561				
47	3 hour	1%	27	125.00	0.89	21.4315	11.5565	41.3468	42.9334	44.8531	4.1345	6.8117	22.3774	83.3795	116.959				
47	3 hour	1%	28	125.00	0.89	27.9806	13.6901	46.0349	48.1146	46.8507	6.0046	9.3501	26.7223	84.8841	116.317				
47	3 hour	1%	29	125.00	0.89	19.4896	11.0380	39.4289	40.9997	43.5928	4.8771	7.4155	22.3048	83.5482	117.573				
47	3 hour	1%	30	125.00	0.89	26.8134	15.2018	48.6170	51.0021	53.1586	8.0960	11.2948	31.2715	97.5998	125.320				
48	6 hour	1%	21	151.00	0.93	28.7328	16												

East_Developed catchments_1_batch																			
48	6 hour	1%	27	151.00	0.93	31.5762	16.0089	59.9746	62.2252	64.0792	6.0207	9.8705	31.4552	118.679	167.409				
48	6 hour	1%	28	151.00	0.93	26.4293	14.8278	49.4762	51.7905	51.9476	7.0858	10.6066	30.5242	89.5989	109.622				
48	6 hour	1%	29	151.00	0.93	20.0921	10.7130	36.8332	37.9038	38.7764	5.4558	7.2736	20.5842	68.7085	104.600				
48	6 hour	1%	30	151.00	0.93	25.9900	12.5606	48.4046	50.4310	52.5825	4.8901	7.9507	25.5813	95.1783	137.888				
49	12 hour	1%	21	185.00	0.96	15.3070	8.4358	30.6899	31.8594	33.6731	2.7617	4.5274	15.0417	63.9865	107.450				
49	12 hour	1%	22	185.00	0.96	17.2198	9.1433	33.4400	34.6047	36.4268	3.0837	5.1191	16.6573	68.9130	112.612				
49	12 hour	1%	23	185.00	0.96	15.0382	7.5074	28.6740	29.7812	30.7858	2.8711	4.6050	14.3498	57.1378	93.0127				
49	12 hour	1%	24	185.00	0.96	15.2993	7.3745	26.7944	27.9344	29.5342	2.9836	4.7845	14.1881	55.8380	88.3898				
49	12 hour	1%	25	185.00	0.96	29.0806	16.7620	45.3146	48.5177	49.3167	6.8070	11.7939	31.8747	86.0860	110.801				
49	12 hour	1%	26	185.00	0.96	11.5382	6.1827	22.4533	23.3835	24.7727	2.1172	3.4113	11.1820	46.2733	74.2644				
49	12 hour	1%	27	185.00	0.96	15.4240	7.7261	28.0209	29.1887	29.9511	3.4207	5.1718	14.3447	52.2179	71.9758				
49	12 hour	1%	28	185.00	0.96	29.3441	18.1540	53.8916	56.7099	54.7889	7.6144	12.2949	31.5658	91.2968	126.753				
49	12 hour	1%	29	185.00	0.96	12.9967	8.0214	25.7009	26.8482	28.0916	3.0305	4.7626	14.8199	51.8318	77.3968				
49	12 hour	1%	30	185.00	0.96	26.3046	13.0004	50.5693	52.5664	54.9368	4.8831	7.8681	25.1054	101.096	151.403				
50	24 hour	1%	21	230.00	0.98	11.7430	7.3663	23.4538	24.7473	26.3253	3.0135	4.9512	14.4447	48.4702	74.9694				
50	24 hour	1%	22	230.00	0.98	9.2592	5.7924	20.7232	21.6327	22.4626	2.4050	3.7438	11.3719	42.0149	65.2191				
50	24 hour	1%	23	230.00	0.98	15.0411	7.6079	29.1755	30.4463	32.5697	2.6586	4.5133	14.4492	60.3881	94.8420				
50	24 hour	1%	24	230.00	0.98	20.4265	10.2074	40.5266	42.1425	44.2745	3.7443	5.9344	20.4243	80.9023	117.615				
50	24 hour	1%	25	230.00	0.98	14.2290	7.3028	26.7531	27.6353	28.4793	2.4809	4.2381	13.7602	53.1763	85.9579				
50	24 hour	1%	26	230.00	0.98	12.0863	5.9947	22.4583	23.5069	24.9942	2.2851	3.6673	11.3746	46.1395	69.2592				
50	24 hour	1%	27	230.00	0.98	9.2106	4.7470	18.4201	19.2070	20.0305	1.8341	2.8404	9.0186	36.1572	56.8919				
50	24 hour	1%	28	230.00	0.98	16.2062	8.7517	32.2513	33.5545	36.0268	2.8758	4.8072	16.3973	68.7331	111.791				
50	24 hour	1%	29	230.00	0.98	11.2002	5.7902	21.9255	22.8797	24.0147	2.1969	3.4138	10.6154	43.7303	67.8334				
50	24 hour	1%	30	230.00	0.98	18.0011	8.1684	31.7097	32.5377	32.1100	3.0092	5.4240	17.3801	56.5739	83.5552				
51	48 hour	1%	21	286.00	0.98	10.5834	5.5684	21.4761	22.3480	23.4537	1.8149	3.0771	10.6018	43.3805	67.6284				
51	48 hour	1%	22	286.00	0.98	9.0614	4.9166	18.5608	19.3207	20.3702	1.5403	2.6053	8.9202	37.6800	61.0943				
51	48 hour	1%	23	286.00	0.98	18.5069	9.2466	33.7839	34.7563	35.3081	3.1920	5.5353	17.5250	64.5540	100.315				
51	48 hour	1%	24	286.00	0.98	7.8178	4.3178	15.7671	16.3828	17.4051	1.2940	2.2942	7.6987	32.7471	52.9838				
51	48 hour	1%	25	286.00	0.98	18.6070	9.2976	37.8958	39.4425	41.1778	3.1480	5.3523	18.9178	75.0966	105.151				
51	48 hour	1%	26	286.00	0.98	13.2978	6.7737	24.6175	25.3880	26.2413	2.3698	3.9638	12.6703	49.5883	84.4110				
51	48 hour	1%	27	286.00	0.98	10.0213	5.4203	19.6014	20.3155	21.5034	1.6980	2.9121	9.6225	40.4369	65.7638				
51	48 hour	1%	28	286.00	0.98	7.2437	3.8158	14.6565	15.3143	16.3394	1.3989	2.1920	6.9854	30.5550	49.4946				
51	48 hour	1%	29	286.00	0.98	11.4413	6.2315	24.1903	25.2970	27.1522	2.1351	3.4302	11.5770	50.9071	79.0193				
51	48 hour	1%	30	286.00	0.98	15.1407	7.5407	28.0064	29.5009	31.8132	3.1921	4.6725	13.4391	58.1376	91.5327				
52	72 hour	1%	21	319.00	0.99	6.8619	3.8765	14.2391	14.8322	15.9074	1.2130	2.0515	6.7769	29.8019	51.3278				
52	72 hour	1%	22	319.00	0.99	5.7966	4.1606	11.7335	12.2695	13.4253	1.2249	2.0843	6.6236	25.5638	45.7067				
52	72 hour	1%	23	319.00	0.99	5.0319	2.9389	10.3854	10.8246	11.6851	0.9461	1.5430	5.3336	21.8206	37.3187				
52	72 hour	1%	24	319.00	0.99	9.9910	5.6689	21.5848	22.5726	24.2579	1.9189	3.0684	10.2451	45.6269	75.4851				
52	72 hour	1%	25	319.00	0.99	4.5474	2.5514	9.2043	9.5662	10.0810	0.7523	1.3626	4.5582	18.7458	30.3674				
52	72 hour	1%	26	319.00	0.99	7.1252	4.0522	14.7216	15.3503	16.5230	1.2661	2.1549	7.1068	31.1894	52.4823				
52	72 hour	1%	27	319.00	0.99	6.7590	3.6899	13.1600	13.7545	14.8274	1.2185	2.0190	6.5056	27.9412	47.8946				
52	72 hour	1%	28	319.00	0.99	7.0791	3.6593	13.9329	14.4612	15.0911	1.1447	2.0911	7.0668	27.8717	44.4342				
52	72 hour	1%	29	319.00	0.99	9.4560	5.3578	18.7133	19.5425	20.9306	1.7729	2.8400	8.8451	39.5447	67.7997				
52	72 hour	1%	30	319.00	0.99	8.7021	4.7171	17.7595	18.4833	19.5765	1.3675	2.5286	8.6782	36.2316	56.4842				
53	96 hour	1%	21	339.00	0.99	6.7621	3.6544	13.2500	13.7415	14.5218	1.2125	2.0074	6.5990	27.2781	42.5918				
53	96 hour	1%	22	339.00	0.99	10.4709	5.3964	20.2047	20.9133	21.7481	1.7384	3.1024	10.2545	39.8523	58.9494				
53	96 hour	1%	23	339.00	0.99	5.7301	3.3597	11.9924	12.5162	13.3746	1.0989	1.7476	6.2026	25.8606	42.9734				
53	96 hour	1%	24	339.00	0.99	4.3257	2.3518	8.3294	8.6205	8.9071	0.7481	1.3123	4.2398	16.4334	26.1025				
53	96 hour	1%	25	339.00	0.99	4.8257	2.7809	10.2444	10.6967	11.4575	0.8707	1.4337	4.8976	21.4401	35.8615				
53	96 hour	1%	26	339.00	0.99	6.7021	3.5193	12.8449	13.3768	14.2915	1.1343	2.0051	6.6062	26.7889	44.3859				
53	96 hour	1%	27	339.00	0.99	5.2380	2.8791	11.6023	12.1815	13.0443	1.1199	1.6219	5.5288	23.9803	35.0411				
53	96 hour	1%	28	339.00	0.99	14.6928	7.0623	25.5333	26.2318	28.1258	2.7989	4.4714	13.8212	53.3732	94.8445				
53	96 hour	1%	29	339.00	0.99	8.1276	4.3458	15.9000	16.4883	17.1651	1.3511	2.4042	7.9484	31.5663	52.4553				
53	96 hour	1%	30	339.00	0.99	6.4696	3.6118	13.8290	14.4351	15.3125	1.2232	1.8756	6.6154	28.4025	46.6063				
54	120 hour	1%	21	350.00	0.99	7.0415	3.9261	14.2921	14.8610	15.8216	1.1664	2.0633	6.9371	29.8169	49.5014				
54	120 hour	1%	22	350.00	0.99	6.0227	3.2903	11.7899	12.2224	12.8675	1.0431	1.7943	5.8981	24.1356	37.9976				
54	120 hour	1%	23	350.00	0.99	9.7487	5.3893	18.9328	19.5896	20.4896	1.7986	3.0479	9.9533	38.8726	64.6100				
54	120 hour	1%	24	350.00	0.99	12.0371	5.7588	19.3636	20.5944	23.0537	2.5807	3.7612	10.7699	43.0408	70.0893				
54	120 hour	1%	25	350.00	0.99	7.0434	3.												

East_Developed catchments_1_batch																			
55	144 hour	1%	21	356.00	0.99	6.5924	3.6832	13.3707	13.9076	14.8325	1.0994	1.9350	6.5020	27.9964	46.2917				
55	144 hour	1%	22	356.00	0.99	4.3201	2.3423	8.8107	9.1787	9.6338	0.6778	1.2829	4.4087	17.8362	27.7654				
55	144 hour	1%	23	356.00	0.99	6.8281	3.8062	14.1435	14.7883	16.0303	1.2300	2.0541	6.6906	30.4583	50.3923				
55	144 hour	1%	24	356.00	0.99	8.6368	4.3382	15.6544	16.1249	16.7992	1.6022	2.6107	8.2518	31.8193	56.5149				
55	144 hour	1%	25	356.00	0.99	6.1030	3.0776	11.6640	12.2476	13.2729	1.2001	1.8817	5.7845	24.9401	42.4040				
55	144 hour	1%	26	356.00	0.99	11.9065	5.6366	18.8322	19.0960	20.4233	2.4459	3.7475	10.7299	38.5115	64.1391				
55	144 hour	1%	27	356.00	0.99	7.0593	3.6391	12.2821	12.9541	14.0657	1.4557	2.1800	6.5070	26.0439	44.5267				
55	144 hour	1%	28	356.00	0.99	3.7631	2.0122	6.9259	7.1351	7.2803	0.6935	1.1659	3.6521	13.3838	22.6094				
55	144 hour	1%	29	356.00	0.99	5.4837	2.9289	10.7065	11.1038	11.5715	0.9072	1.6237	5.4139	21.1641	32.5514				
55	144 hour	1%	30	356.00	0.99	14.1476	7.0018	26.0092	26.8330	27.6408	2.5123	4.2318	13.5975	50.9254	81.8395				
56	168 hour	1%	21	356.00	0.99	5.2989	3.0481	11.0084	11.4690	12.2731	0.9125	1.5479	5.2720	23.1903	39.8173				
56	168 hour	1%	22	356.00	0.99	4.0254	2.1837	8.1959	8.5372	8.9385	0.6309	1.1992	4.1154	16.5354	26.3514				
56	168 hour	1%	23	356.00	0.99	7.6038	4.1238	15.1512	15.8526	17.0033	1.3590	2.2531	7.4252	31.9107	52.7150				
56	168 hour	1%	24	356.00	0.99	8.6127	4.3257	15.6078	16.0766	16.7605	1.5981	2.6037	8.2288	31.7458	56.3764				
56	168 hour	1%	25	356.00	0.99	4.8278	2.8997	10.6780	11.2022	12.1706	1.1157	1.8058	5.6177	23.2211	39.3361				
56	168 hour	1%	26	356.00	0.99	4.8278	2.8997	10.6780	11.2022	12.1706	1.1157	1.8058	5.6177	23.2211	39.3361				
56	168 hour	1%	27	356.00	0.99	5.1979	2.6660	9.7511	10.0801	10.3878	0.9198	1.5741	5.1060	19.2047	29.5367				
56	168 hour	1%	28	356.00	0.99	7.7203	4.2696	17.1979	18.0275	19.3521	1.6025	2.3413	8.1025	36.0952	56.5155				
56	168 hour	1%	29	356.00	0.99	5.2343	2.8358	10.2813	10.6680	11.1890	0.8857	1.5535	5.1684	20.6042	32.0404				
56	168 hour	1%	30	356.00	0.99	7.1028	3.6639	14.0953	14.7919	16.0997	1.3913	2.2032	6.7167	30.3319	50.9665				

Elapsed Run Time (hh:mm:ss) = 00:00:19

Appendix V – Ch 1050 Culvert Sizing

PROJECT: Boonie Doon SWMP
TO: GBA
FROM: Kate Brand
SUBJECT: Revised Culvert Design – Ch 1050

PROJECT REF: 170087
DATE: 6 March 2018

The purpose of this memo is to document the waterway crossing design at Ch 1050 on Bonnie Doon Road, Yamala. Bonnie Doon Road is being upgraded by Central Highlands Regional Council (CHRC) as part of the Yamala Enterprise Area works.

A series of culverts were proposed for this crossing, however CHRC have requested the crossing is revised to provide alternative crossing options and an understanding of the likely risk of these options. CHRC are considering the construction of an interim floodway, to reduce the upfront construction costs. An understanding of potential inundation durations and the related hazard rating is required to inform this decision.

This memo includes the following:

- Peak flow assessment, revised to include more frequent rainfall events;
- Crossing analysis showing the depth and velocity of flows at different exceedances per year; and,
- Safety assessment of duration for flows at or above the accepted hazard criteria.

The design of this crossing is based on the vertical road alignment and details provided to ACS (by GBA) on 21 February 2018.

1. Catchment Analysis

Changes to the catchment analysis were not required for this scope, however the RORB modelling was re-run to determine the flow rates at more frequent exceedance probabilities. The intensity-frequency-duration (IFD) data for very frequent events was sourced from the Bureau of Meteorology (BOM) using the 2016 IFD data release and is supplied as Attachment 1.

Table 1 Estimated Peak Discharge

Event	Alternative terminology	Peak Duration Event	Peak Discharge (m³/s)
12 EY		2 hour	1.25
6 EY		2 hour	1.73
4 EY		2 hour	2.62
3 EY		2 hour	3.31
2 EY		2 hour	4.35
1 EY	63.2% AEP 1 year ARI	2 hour	6.32
50% AEP	0.69 EY	2 hour	7.37
0.5 EY	39.35% AEP 2 year ARI	2 hour	8.43
20% AEP		2 hour	10.78
10% AEP		3 hour	14.86
5% AEP		2 hour	19.32
2% AEP		2 hour	25.62
1% AEP		2 hour	30.23

The RORB model produces a series of peak discharge estimates using an ensemble method. The rainfall event duration with the highest mean discharge was selected as the critical event, at each AEP (annual exceedance probability). The range of peak discharge results are shown in Table 1.

The probability terminology indicates how many times per year the event is likely to be exceeded. For example, the 12EY should be expected to be exceeded 12 times per year, whereas the 0.5 EY indicates the event is likely to be greater than predicted once every 2 years (or a 2-year ARI).

2. Crossing Analysis

The crossing was analysed using the HY-8 culvert modelling program. The original design intent was to pass the 0.5 EY event within the culverts and up to the 1% AEP through the floodway (overtopping the culverts). CHRC requested the floodway was modelled for a wider range of events, based on the following options for the crossing construction:

1. Concrete floodway at EG elevation
2. Culverts with a concrete floodway, no additional cover
3. Concrete floodway at road design elevation

The third analysis was included by ACS Engineers, to show the results of installing a concrete causeway at the road elevation as opposed to existing ground.

Option 2, culverts with a concrete floodway, is similar to the scenario modelled in previous iterations of the culvert design however, the road height would be 0.15 m lower. Based on the current road design, an excavation of approximately 0.3 m depth would be required at the inlet and outlet to maintain the design road elevations.

The crossing characteristics and flows are summarised in Table 2 and results for all events are provided in Attachment 2.

Table 2 Culvert Flow Characteristics

Scenario	Event	Headwater El.	Total Discharge (m3/s)	Road Crossing Flow Depth (m)
Scenario 1	12 EY	175.66	1.25	0.20
	6 EY	175.69	1.73	0.23
	1 EY	175.92	6.32	0.46
	0.5 EY	176.0	8.43	0.54
Scenario 2	12 EY	175.75	1.25	-
	6 EY	175.78	1.73	0.02
	1 EY	176.0	6.32	0.24
	0.5 EY	176.08	8.43	0.28
Scenario 3	12 EY	175.66	1.25	0.06
	6 EY	175.69	1.73	0.07
	1 EY	175.92	6.32	0.16
	0.5 EY	176	8.43	0.24

3. Hazard rating and time of inundation

All proposed crossings should be expected to overtop regularly, based on the results shown above. To understand the risks of overtopping to road users, an assessment of the depth versus velocity was carried out. The safety design criteria for roads is separated into pedestrian and vehicle uses with an upper limit. The acceptable depth velocity factor for a large 4WD vehicle is 0.5 m flood depth and / or 3.0 m/s velocity.

As shown in Figure 1, Scenario 3 results in fewer events being above the limit for a small vehicle compared to the other scenarios.

The duration each event and scenario will result in unacceptable depths or velocities will vary and be dependent on the downstream flooding conditions. In most cases, the duration will be less than 4 hours. For example, Scenario 3 at the 10% AEP would result in the depth velocity factor being greater than the accepted safety criteria for approximately 2.5 hours (refer Attachment 3).

CHRC should expect that access to the area will be restricted during rain events and a flood warning system along with flood markers is recommended to be installed.

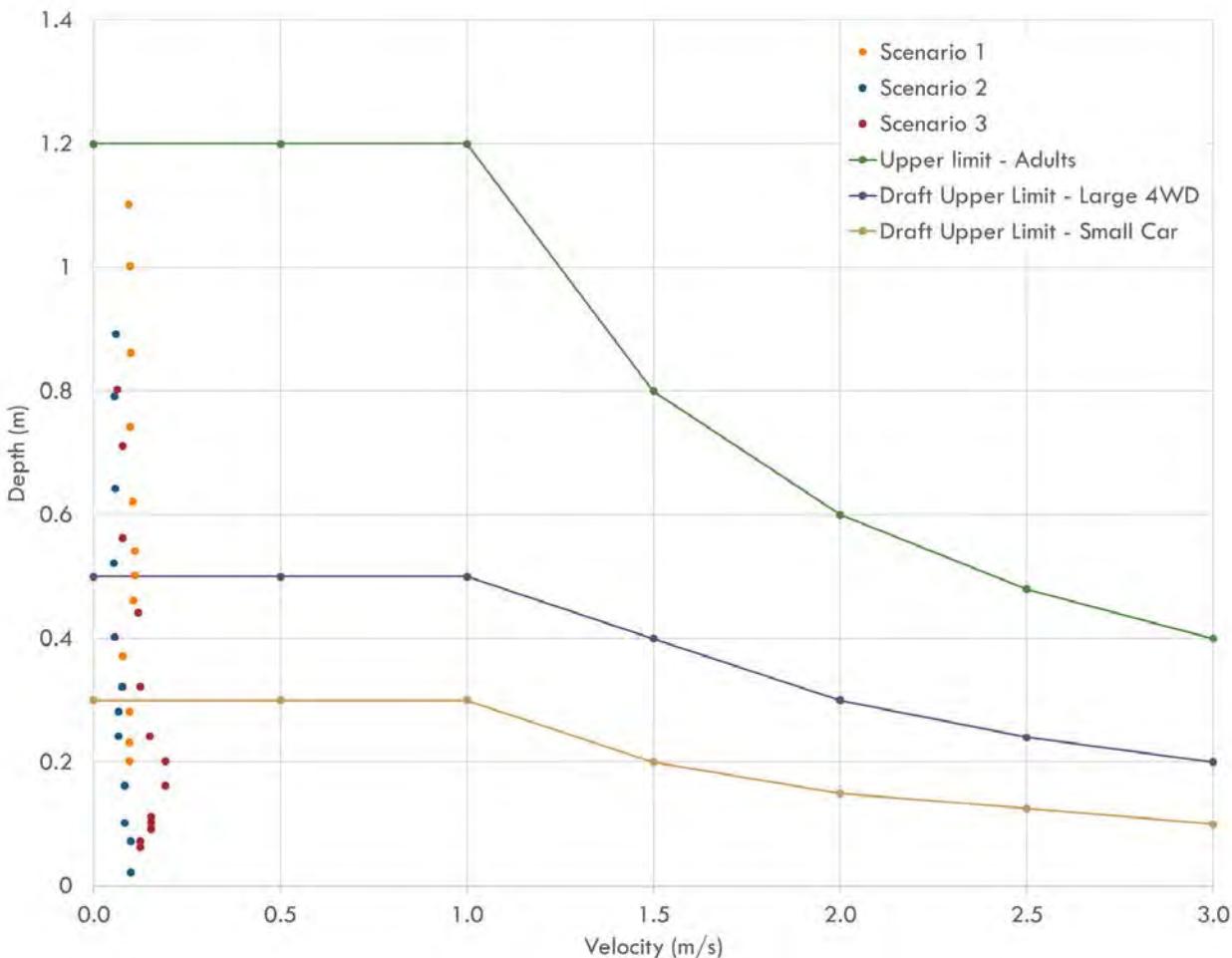


Figure 1 Safety criteria in variable flow conditions (Smith and Cox 2015)

4. Crossing Details

As Scenario 3 provides a solution with minimal channel excavation works and a lower risk profile, this design has been progressed to assess the potential afflux and length of floodway required.

The floodway length, based on the crossing calculations and current vertical alignment, will depend on the selected design event. The 10% AEP event would require hard surface protection to RL 176.2 m.

4.1. Afflux

The proposed crossing was assessed to determine if any worsening of flood could be expected upstream of the crossing. As the existing road is at a lower elevation than the proposed road, the absolute elevation was used for comparison not the depth of flow relative to the road.

The upstream afflux was assessed by comparing the headwater for the culvert calculation to the headwater for the existing scenario. The existing scenario was estimated to result in a headwater elevation of 175.68 m for the 10% AEP event, which is 0.52 m lower than estimated with the crossings in place (Scenario 3). The afflux assessment has not considered upstream storage within the floodplain. As such, the actual afflux may be less than estimated. A minor impact to the upstream properties through the installation of the culverts at this location could be expected.

Table 3 Afflux check

Event	Headwater EI – Existing	Headwater EI – Proposed Road Design
50% AEP	175.59	175.96
0.5 EY	175.6	176
20% AEP	175.63	176.08
10% AEP	175.68	176.2
5% AEP	175.72	176.32
2%AEP	175.77	176.47
1% AEP	175.84	176.56

References

- Geoscience Australia. 2016. "ARR Data Hub." ARR Data Hub. 2016. <http://data.arr-software.org/>.
 Nathan, Rory. 2017. *RORBWin* (version 6.32). Australia: HARC and Monash University.
 Smith, Grantley, and Ron Cox. 2015. "ARR: A Guide to Flood Estimation: Book 9 - Runoff in Urban Areas; Chapter 2 - Safety Design Criteria." ARR: A Guide to Flood Estimation. November 27, 2015. <http://book.arr.org.au/>.
 State of Queensland. 2017. "Qld Globe." Queensland Globe. 2017. <https://qldglobe.information.qld.gov.au/>.

Attachments:

1. IFD
2. Crossing modelling results
3. Design details

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Attachment 1 - IFD

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Very Frequent Design Rainfall Depth (mm)

Issued: #####

Location

Requested coordinate: Latitude -23.5871 Longitude 148.3609

Nearest grid cell: Latitude 23.5875(S) Longitude 148.3625(E)

Duration	Duration in min	Exceedance per Year (EY)							
		12EY	6EY	4EY	3EY	2EY	1EY	0.5EY#	0.2EY*
1 min	1	0.678	0.866	1.19	1.41	1.73	2.25	2.84	3.58
2 min	2	1.15	1.47	2.01	2.38	2.9	3.74	4.72	6.01
3 min	3	1.64	2.08	2.85	3.38	4.1	5.29	6.67	8.48
4 min	4	2.08	2.66	3.64	4.31	5.24	6.76	8.52	10.8
5 min	5	2.49	3.18	4.36	5.17	6.29	8.13	10.2	13
10 min	10	4.06	5.2	7.15	8.5	10.4	13.6	17.1	21.5
15 min	15	5.12	6.56	9.02	10.8	13.2	17.4	21.9	27.6
30 min	30	6.97	8.9	12.3	14.7	18.2	24.3	30.5	38.6
1 hour	60	8.71	11.1	15.3	18.4	22.9	30.8	38.8	49.3
2 hour	120	10.4	13.3	18.3	22	27.3	36.8	46.5	59.5
3 hour	180	11.5	14.6	20.2	24.2	30	40.5	51.2	65.8
6 hour	360	13.8	17.5	24	28.7	35.6	47.8	60.5	78.3
12 hour	720	16.8	21.3	29.2	34.9	43	57.6	73.1	95.1
24 hour	1440	20.9	26.3	35.9	42.9	52.9	70.7	90.2	118
48 hour	2880	25.5	32	43.5	52	64.3	86.7	111	147
72 hour	4320	28.1	35	47.5	56.9	70.6	95.7	123	163
96 hour	5760	29.5	36.6	49.6	59.5	74.1	101	130	173
120 hour	7200	30.3	37.5	50.7	60.9	75.9	104	134	178
144 hour	8640	30.6	37.9	51.2	61.4	76.7	105	135	181
168 hour	10080	30.7	38	51.2	61.4	76.7	105	135	181

Attachment 2 – Culvert results

Table A2-1 Culvert Flow Characteristics – Scenario 1; Concrete floodway, EG elevation

Event	Headwater El.	Total Discharge (m3/s)	Velocity – Road (m/s)	Velocity – Tailwater (m/s)	Flow Depth (m)
12 EY	175.66	1.25	0.10	0.73	0.202
6 EY	175.69	1.73	0.10	0.83	0.232
4 EY	175.74	2.62	0.10	0.97	0.282
3 EY	175.78	3.31	0.08	1.06	0.322
2 EY	175.83	4.35	0.08	1.17	0.372
1 EY	175.92	6.32	0.11	1.34	0.462
50% AEP	175.96	7.37	0.11	1.42	0.502
0.5 EY	176	8.43	0.11	1.49	0.542
20% AEP	176.08	10.78	0.11	1.63	0.622
10% AEP	176.2	14.86	0.10	1.82	0.742
5% AEP	176.32	19.32	0.10	1.99	0.862
2% AEP	176.46	25.62	0.10	2.18	1.002
1% AEP	176.56	30.23	0.09	2.3	1.102

Notes: 1. The tailwater velocity is shown for immediately downstream of the culverts. This is not the velocity at the road surface.
 2. Headwater elevation values shown in *grey italics* do not reflect actual inundation areas. At this headwater elevation the surrounding area would be inundated, and Bonnie Doon Road would be affected for in excess of 500 m.

Table A2-2 Culvert Flow Characteristics – Scenario 2; Culverts with floodway

Event	Headwater El.	Total Discharge (m3/s)	Velocity – Road (m/s)	Velocity – Tailwater (m/s)	Flow Depth (m) (on road)
12 EY	175.75	1.25	-	0.73	-
6 EY	175.78	1.73	0.00	0.83	0.022
4 EY	175.83	2.62	0.00	0.97	0.072
3 EY	175.86	3.31	0.08	1.06	0.102
2 EY	175.92	4.35	0.08	1.17	0.162
1 EY	176	6.32	0.07	1.34	0.242
50% AEP	176.04	7.37	0.07	1.42	0.282
0.5 EY	176.08	8.43	0.08	1.49	0.322
20% AEP	176.16	10.78	0.06	1.63	0.402
10% AEP	176.28	14.86	0.05	1.82	0.522
5% AEP	176.4	19.32	0.06	1.99	0.642
2% AEP	176.55	25.62	0.05	2.18	0.792
1% AEP	176.65	30.23	0.06	2.30	0.892

Notes: 1. The tailwater velocity is shown for immediately downstream of the culverts. This is not the velocity at the road surface.
 2. Headwater elevation values shown in *grey italics* do not reflect actual inundation areas. At this headwater elevation the surrounding area would be inundated, and Bonnie Doon Road would be affected for in excess of 500 m.

Table A2-3 Culvert Flow Characteristics – Scenario 3; Concrete floodway, EG elevation

Event	Headwater El.	Total Discharge (m3/s)	Velocity – Road (m/s)	Velocity – Tailwater (m/s)	Flow Depth (m)
12 EY	175.82	1.25	0.13	0.73	0.062
6 EY	175.83	1.73	0.13	0.83	0.072
4 EY	175.85	2.62	0.15	0.97	0.092
3 EY	175.86	3.31	0.15	1.06	0.102
2 EY	175.87	4.35	0.15	1.17	0.112
1 EY	175.92	6.32	0.19	1.34	0.162
50% AEP	175.96	7.37	0.19	1.42	0.202
0.5 EY	176	8.43	0.15	1.49	0.242
20% AEP	176.08	10.78	0.12	1.63	0.322
10% AEP	176.2	14.86	0.12	1.82	0.442
5% AEP	176.32	19.32	0.08	1.99	0.562
2% AEP	176.47	25.62	0.08	2.18	0.712
1% AEP	176.56	30.23	0.06	2.30	0.802

Notes: 1. The tailwater velocity is shown for immediately downstream of the culverts. This is not the velocity at the road surface.

2. Headwater elevation values shown in *grey italics* do not reflect actual inundation areas. At this headwater elevation the surrounding area would be inundated, and Bonnie Doon Road would be affected for in excess of 500 m.

Attachment 3 - Design

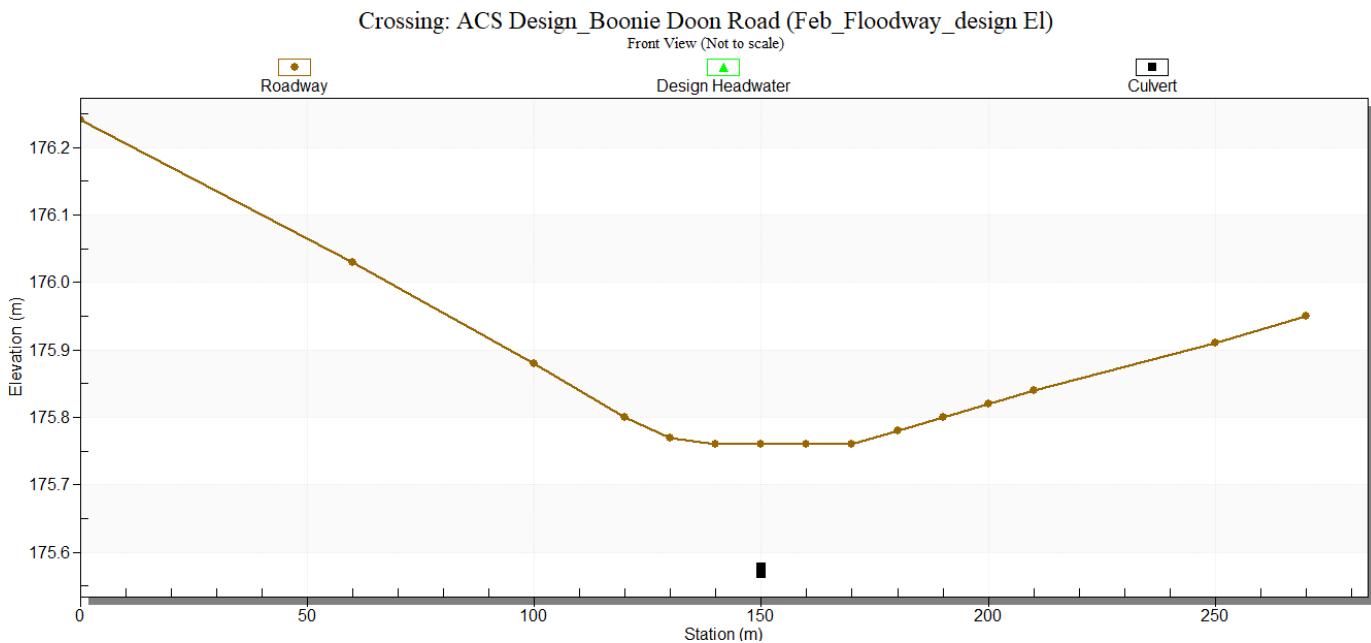


Figure A3-1 Proposed road elevation (Station 0 = Ch 1+200; Station 150 = Ch 1+050)

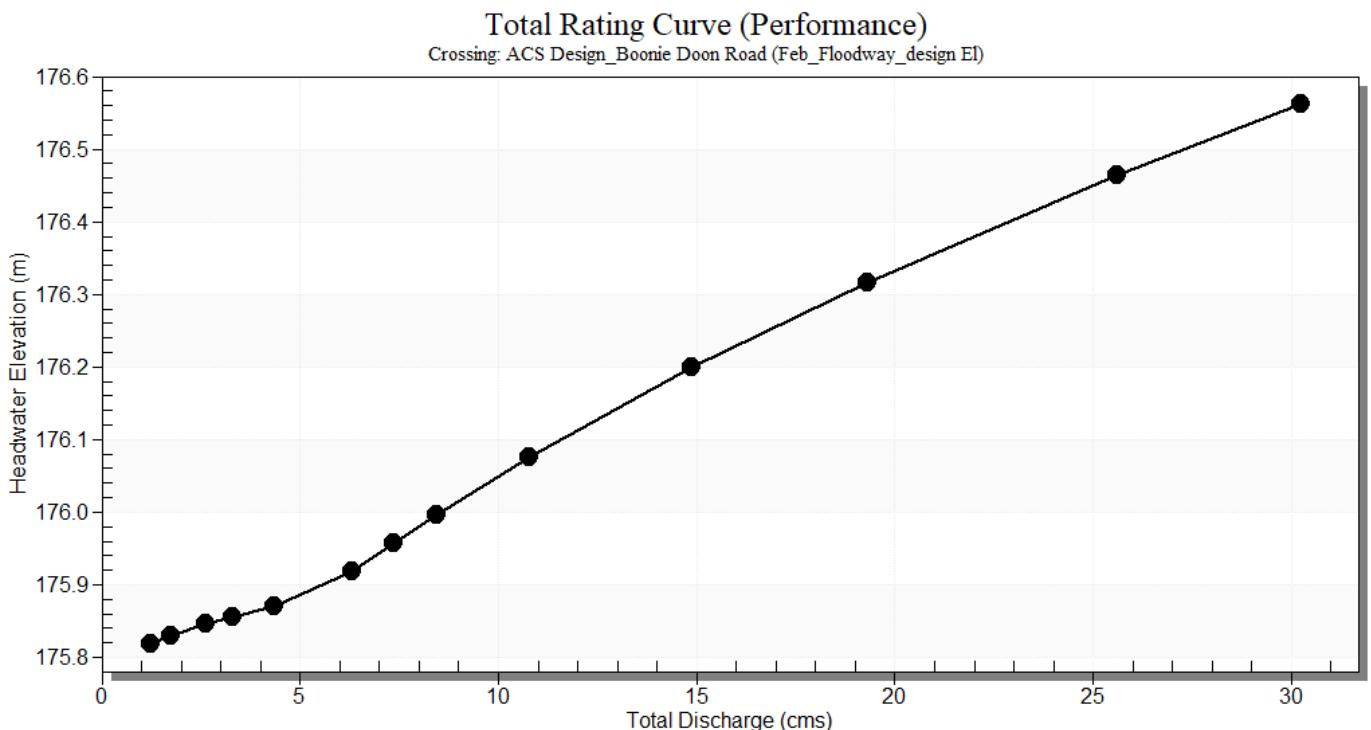


Figure A3-2 Rating Curve, proposed road design

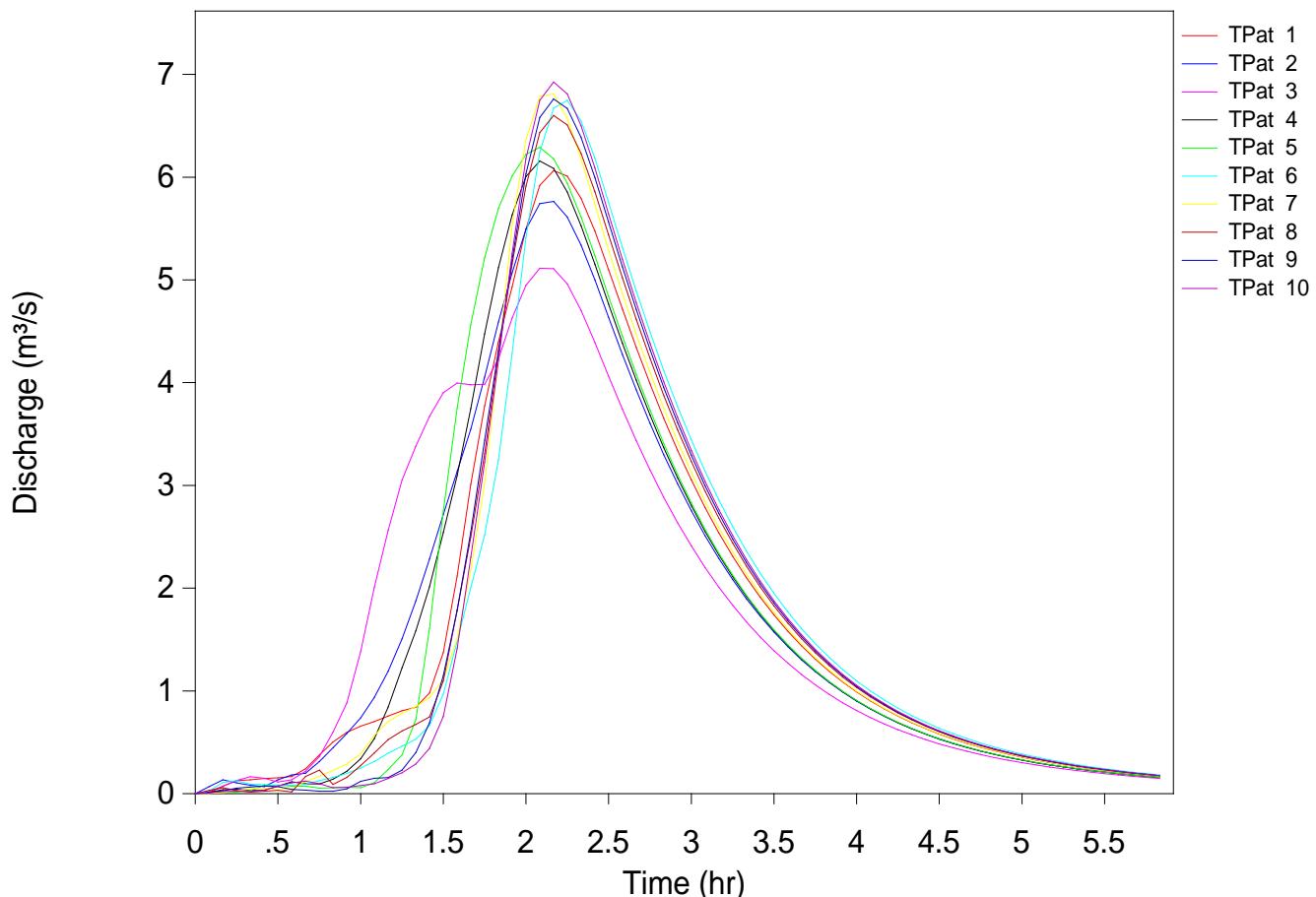


Figure A3-3 Calculated Hydrograph; 1 EY, 2-hour event

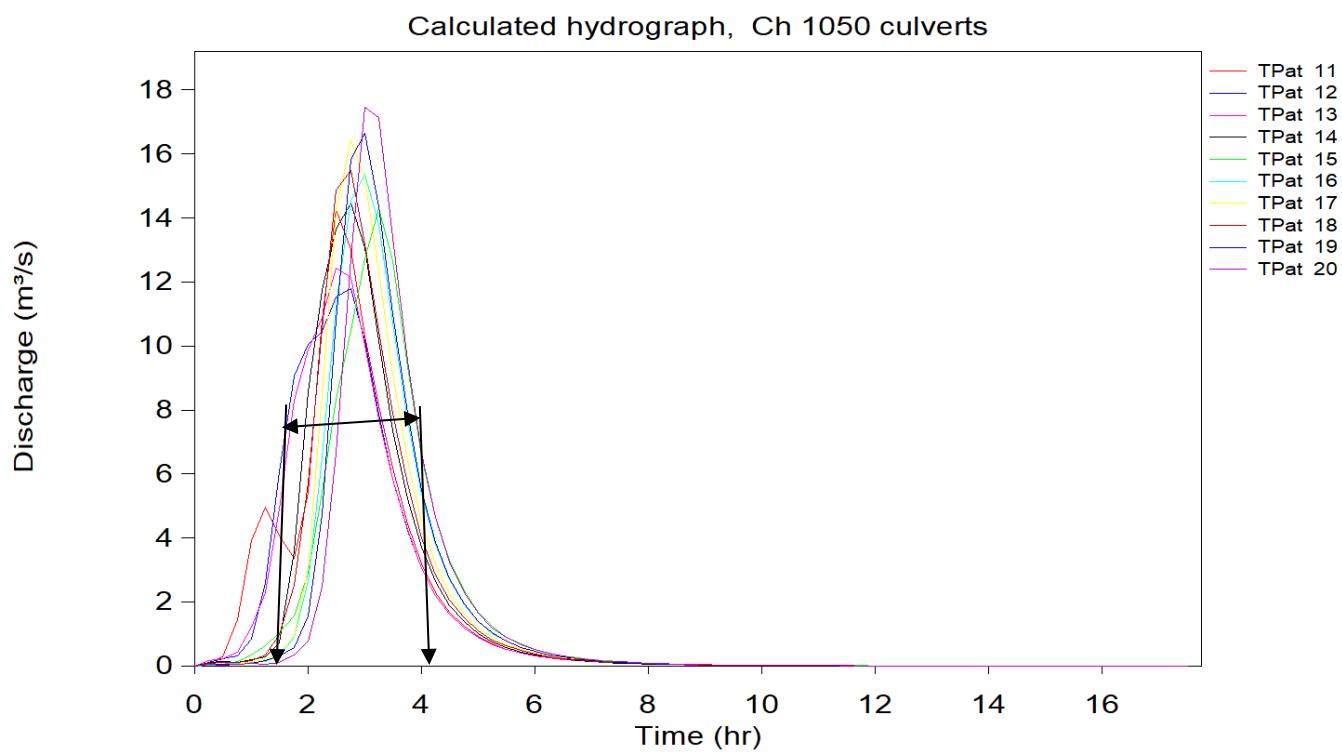


Figure A3-3 Calculated Hydrograph; 10% AEP, 2-hour event

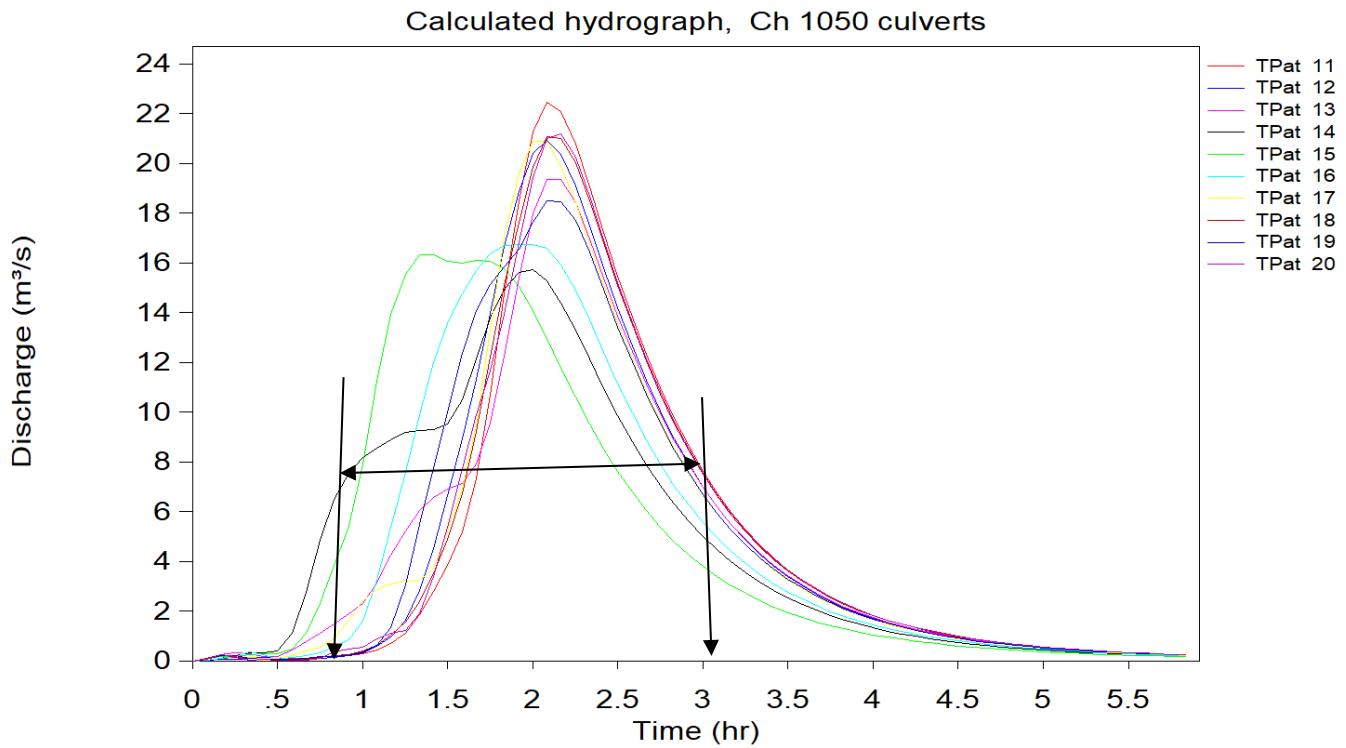


Figure A3-3 Calculated Hydrograph; 5% AEP, 2-hour event

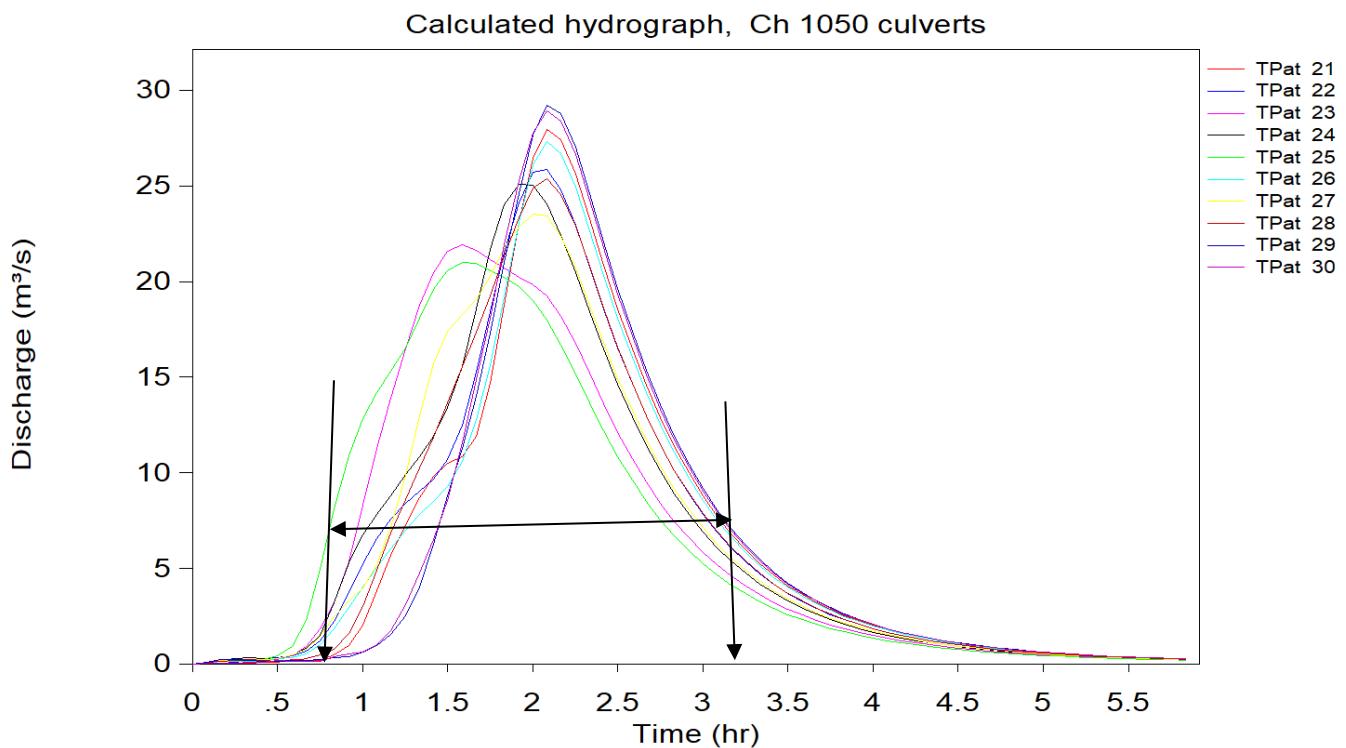


Figure A3-3 Calculated Hydrograph; 2% AEP, 2-hour event

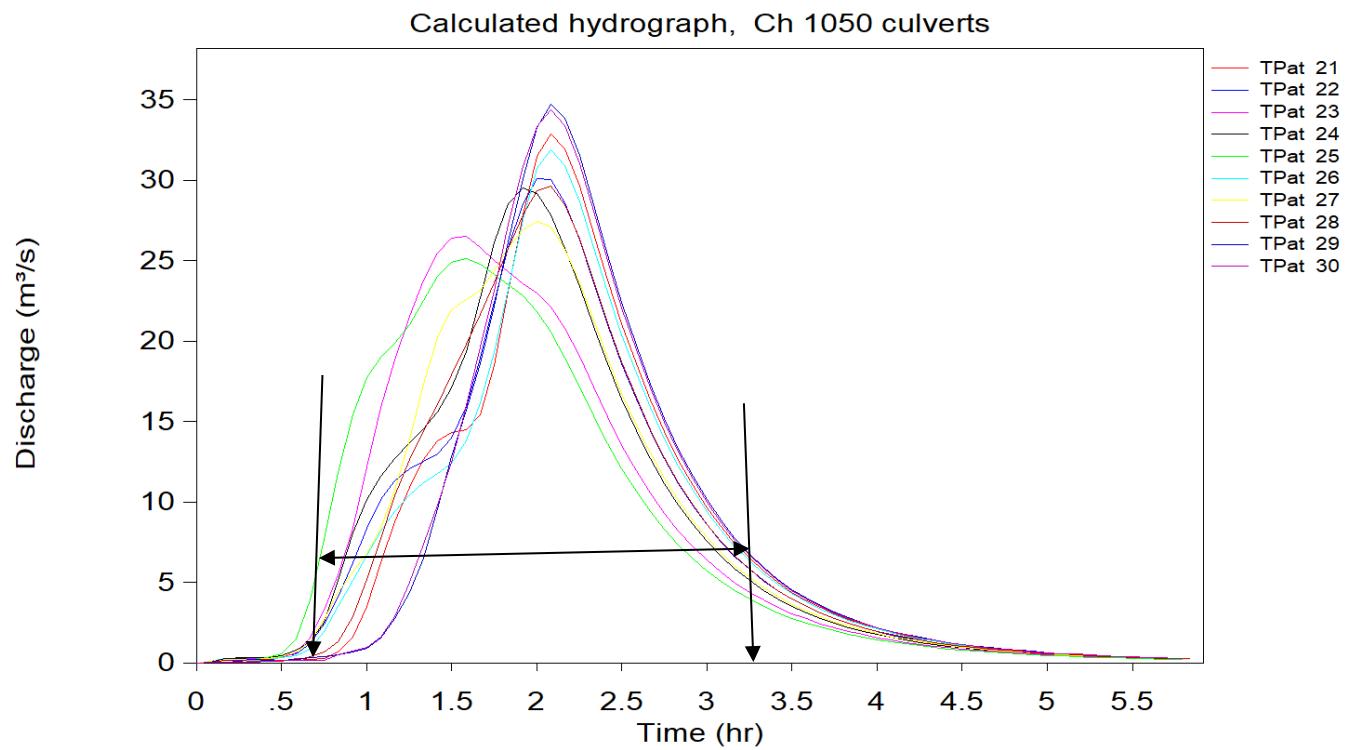


Figure A3-3 Calculated Hydrograph; 1% AEP, 2-hour event

Appendix VI – Risk Register

Project: Boonie Doon Inland Port SWMP
 Date: Wednesday, 7 March 2018
 Revision: 6

Item #	Item	Component	Cause (How can it happen)	Consequence (What Can Happen)	Safeguards (Existing controls and their effectiveness)	Likelihood	Consequence	Level of Risk	Treat Risk (Y/N)	Recommendations	Responsibility	Residual Likelihood	Residual Consequence	Residual Level of Risk	Status
ACS-1	Lack of ground survey	Design	Data not available Delays to survey access	<ul style="list-style-type: none"> Delay to project or rework 	Weekly progress updates. Don't start tasks that require survey until available, where possible.	3	1	L	N	<ul style="list-style-type: none"> CHRC to provide data asap ACS to advise on delays when arise 	CHRC				Works complete
ACS-2	Land use types	Masterplan	Proposed land uses assumed does not reflect future uses	<ul style="list-style-type: none"> Higher / lower peak flows than design assumptions (change in land use types); channel failures; additional detention required (reduced land sales) 	Design criteria. Assumptions documented within report.	4	1	M	N	<ul style="list-style-type: none"> CHRC to provide information as available. Include additional areas within the masterplan for additional detention requirements. ACS to consider similar intermodal hubs for land use breakdowns. 	CHRC ACS	4	1	M	CHRC to continue updating
ACS-3	Design criteria is inconsistent or outdated	Masterplan / functional criteria	Competing standards of design criteria between reference documentation (ARR, QUDM, Capricorn municipal design doc, functional design document),	<ul style="list-style-type: none"> Lower level of design carried out and infrastructure / planning undertaken at less than current best practice. Outdated design criteria used in future years during the development. Development experiences flood / inundation / hazardous flows / unacceptable hazards to people or infrastructure 	Functional design criteria Typical details for infrastructure (channels, detention basins)	3	2	M	Y	<ul style="list-style-type: none"> Include following guiding principles within the functional design doc: <ul style="list-style-type: none"> Latest IFD from BOM to be used (include location not data) Note that revisions of QUDM or ARR should trigger a review of the functional design criteria. Latest and fullest design criteria will be specified, regardless of CHRC design standards to capture QUDM and ARR updates. 	CHRC ACS Future land owners	2	1	L	Functional design criteria complete. Recommend CHRC add to scheduled update register (or similar)

Item #	Item	Component	Cause (How can it happen)	Consequence (What Can Happen)	Safeguards (Existing controls and their effectiveness)	Likelihood	Level of Risk	Treat Risk (Y/N)	Recommendations	Responsibility	Residual Likelihood	Residual Level of Risk	Status	
ACS-4	High depth/velocity zones, not addressed within design of channels	Design	Insufficient design criteria and standard of design	Erosion of channel banks, failure of channel banks, injury / loss of life	Design criteria. Council would prefer that such treatments were "standardised" throughout the area.	3	2	M	Y	<ul style="list-style-type: none"> ACS to recommend appropriate types of velocity dissipaters and typical details for channels. 	ACS	2	1	L Design complete.
ACS-5	Erosion of road surfaces at waterway crossings	Design	Design of road does not address overtopping satisfactorily.	Erosion of road, failure of surface and approaches, vehicles leaving roadway during high water events	Design criteria	3	3	M	Y	<ul style="list-style-type: none"> Iterative design process between GBA and ACS, review design standard and road alignment as design progresses. 	CHRC	2	1	L CHRC to select design based on risk profile.
ACS-6	Flood immunity of roads	Design	Low design flood immunity of roads	Vehicles being at risk during flood events	Design criteria	2	3	M	Y	<ul style="list-style-type: none"> ACS to provide flows at AEPs of 1 in 2, 5, 10, 20, 50, 100 and possibility of passing the 1 in 20 or 50 under the road surface. Safety markers and flood cameras are recommended. CHRC to select immunity based on risk profile vs community needs / budget constraints. 	CHRC			CHRC to select design based on risk profile.
ACS-7	Channel construction inconsistent	Construction	Channel construction is staged and downstream areas could be developed before or after, upstream areas.	Insufficient sized channels being constructed for each development. Flooding and inundation, erosion of flood areas	Design criteria and construction details	2	3	M	?	<ul style="list-style-type: none"> Staging plans to be generated (future?) reviewed as development / planning progresses. Channels designed and constructed by a third party for the whole development prior to sale / use Independent review of designs is recommended. 	CHRC ACS			

Item #	Item	Component	Cause (How can it happen)	Consequence (What Can Happen)	Safeguards (Existing controls and their effectiveness)	Likelihood	Level of Risk	Treat Risk (Y/N)	Recommendations	Responsibility	Residual Likelihood	Residual Level of Risk	Status		
ACS-8	Existing dams fail	Operation	Existing dams on properties were constructed as farm dams. Unlikely records are available of construction. No controls over maintenance Dams remain in use for detention.	Dam wall failure. Downstream erosion and environmental impacts. Potential damage to Boonie Doon Road. Risk to vehicles at Boonie Doon road? Risk to people in downstream areas of dams.	Design criteria to include maintenance and inspection requirements.	2	3	M	Y	<ul style="list-style-type: none"> Planning approvals / development guidelines to include requirement for: <ul style="list-style-type: none"> Dams to be inspected by qualified geotechnical engineer prior to downstream land use for redevelopment Regular dam audits Consider the removal of dams Include the need for a dam break assessment if the size warrants. 	ACS CHRC	1	3	M	Recommendations included within the functional design. CHRC to include within planning policies / approvals.
ACS-9	Survey data insufficient	Design	Survey data doesn't extend through <i>surrounding</i> catchments sufficiently	Catchments and resulting flows are under / overestimated	Use best available data and reality check against aerial imagery	3	1	L	N		CHRC / ACS	2	1	L	Complete
ACS-10	Survey data – quality	Design	Survey in first stage of a lower quality than surrounding areas	Hydrology and topology of the area varies from assumed, resulting in increased / decreased flows.	Make allowances for higher or lower design flows (sensitivity assessment)	4	2	M	N	Include notes on figures, and within the design basis to alert others to the possible survey inconsistencies	ACS	3	2	M	Complete
ACS-11	Dispersive soils - surface	Design / operation	Dispersive soils aren't identified, and designs are progressed without accounting for the soil types	Infiltration is lower than assumed (dispersive soils often crust at the surface reducing infiltration).	Qld globe soil mapping tool used to identify at risk soil types	4	3	H	Y	Soil tests (pre-construction) to include identification of sodic and dispersive soils.	CHRC	3	3	M	Incomplete
ACS-12	Sodic soils - subsoil	Design / operation	Dispersive soils aren't identified, and designs are progressed without accounting for the soil types	Accelerated erosion beneath the soil surface, resulting in sudden sink holes, gullies and erosion scours.	Qld globe soil mapping tool used to identify at risk soil types	4	3	H	Y	Soil tests (pre-construction) to include identification of sodic and dispersive soils.	CHRC	3	3	M	Incomplete
ACS-13	Highway access	Operation	Multiple / restricted access to the highway	Multiple access – increased heavy/light vehicle interactions						CHRC to identify extent of accesses to / from highway, and include within planning regulations.	CHRC				Incomplete

Item #	Item	Component	Cause (How can it happen)	Consequence (What Can Happen)	Safeguards (Existing controls and their effectiveness)	Treat Risk (Y/N)	Recommendations	Responsibility	Residual Likelihood	Residual Level of Risk	Status				
					Likelihood	Level of Risk	Consequence								
ACS-14	Environment – hydrology to the south	Design / operation	Development may reduce / increase flows in the catchments to the south.	Changes to the ecosystem and hydrological regime of the area (note – existing dams are manmade, however hold a large volume of water for the minimal catchment area.)	Design criteria	2	2	M	Y	Low flow and mixed flow outlet controls may be required as part of planning approval. Where downstream environments are at risk, a freshwater ecosystem review should be included within planning approvals	CHRC	1	2	L	Incomplete
ACS-15	Community interactions	Operation / development	Staging of the development may result in some properties remaining alongside industry.	Noise, vibration and dust impacts at existing landholder properties.	Buffers	4	2	M	Y	Integrated staged buffers with riparian corridors.	ACS	2	1	L	Complete

E – Extreme Risk – Detailed action plan required to manage risk before progressing H – High Risk – Needs immediate senior management attention M – Medium Risk – Specify management responsibility L – Low Risk – Manage by routine procedures.				Consequence					
				People	Injuries or ailments not requiring medical treatment	Minor injuries or First Aid Treatment	Serious injury causing hospitalization or multiple medical treatment cases	Life threatening injury or multiple serious injuries causing hospitalisation	Death or multiple life threatening injuries
Likelihood	Probability	Historical	Score	Insignificant	Minor	Moderate	Major	Catastrophic	
	>1 in 10	Is expected to occur in most circumstances	5	Almost Certain	M	H	H	E	E
	1 in 10-100	Will probably occur	4	Likely	M	M	H	H	E
	1 in 100-1,000	Might occur at some time in the future	3	Possible	L	M	M	H	E
	1 in 1,000 – 10,000	Could occur but doubtful	2	Unlikely	L	M	M	H	H
	1 in 10,000 – 100,000	May occur but only in exceptional circumstances	1	Rare	L	L	M	M	H

Appendix VII – Safety in Design Register

SAFETY IN DESIGN REVIEW

Date:-Thursday, 8 March 2018

Project Number:-170087

Project Name:-George Bourne and Associates

Project Commencement Date:-3/10/2017

Local Council:-Central Highlands Regional Council

Project Discipline:-Eng Civil

Project Manager Name:-Susan Shay

Project Manager Title:-Director/Principal Civil & Environmental Engineer

Project Contacts

Project Contact	Contact Role	Mobile Number	Email Address
George Bourne & Associates	Client		

Sub Projects

Sub Project Name	Note
Proposal	
Stormwater Drainage Masterplan Calculations and Sketches	Stormwater Drainage Masterplan showing the network of drainage channel, outlet/discharge points and likely detention basins includes associated hydrology and hydraulics calculations. Hydrology and hydraulic calculations and culvert/causeway design for Bonnie Doon Road.
Stormwater Management Plan	Site Stormwater Management Report including: Details of functional design criteria document for stormwater drainage network such as runoff coefficients and adopted immunities. Recommendation of suitable land tenure for the drainage paths. Drainage masterplan and infrastructure design discussion.
Risk Register	Identification of risks which apply to study area, individual parcels and recommendation of further assessment required, including legal point of discharge and development sequencing conflicts.

SAFETY IN DESIGN REVIEW

Questions

Who is the regulator?

Central highlands regional council

What Legislation Applies?

What standards guides should be referenced?

QUDM, ARR, Capricorn regional engineering guidelines

Consider:-

- Size
 - Too big
 - Too small
- Heights / Depths
 - Too high
 - Too low
 - Too deep – benching / battering or shoring
- Access / egress
 - Slips / trips / falls
- Toxicity
 - Precautions
 - Contamination
- Utilities and services
 - Water
 - Power – electrocution underground / overhead
 - Gas - explosions
 - Sewer
- Energy
 - Low/high energy – risk of electrocution
 - Risk of crane failure / lift planning
 - Suspended loads
- External safety interfaces
 - Traffic
 - Adjacent Properties
 - Members of the public
- Noise
- Eye Protection
- Burns
- Hardstand / working areas

SAFETY IN DESIGN REVIEW

Minutes of meeting for CHAIR Safety in Design Study
 Project: George Bourne and Associates
 Date: Friday, 2nd March 2018

CHAIR						
ATTENDEES:						
Name	Organisation	Role				
Kate Brand	ACS	Chair				
Jack Morgan	ACS	Designer				
Mitchel Hulm	ACS	Drafter				

Item	Deviation (Guide Word)	Component	Cause (How can it happen)	Consequence (What Can Happen)	Safeguards (Existing controls and their effectiveness)	Analysis			Recommendations		Responsibility	Status	Remark
						Likelihood	Consequence	Level Of Risk	Treat Risk (Y/N)				
ACS-SiD-1	Land use types	Masterplan	Proposed land uses assumed does not reflect future uses	<ul style="list-style-type: none"> Higher / lower peak flows than design assumptions (change in land use types); channel failures; additional detention required (reduced land sales) 	Design criteria. Assumptions documented within report.	4	1	M	N	<ul style="list-style-type: none"> CHRC to provide information as available. Include additional areas within the masterplan for additional detention requirements. ACS to consider similar intermodal hubs for land use breakdowns. 	CHRC ACS		
ACS-SiD-2	Design criteria is inconsistent or outdated	Masterplan / functional criteria	Competing standards of design criteria between reference documentation (ARR, QUDM, Capricorn municipal design doc, functional design document),	<ul style="list-style-type: none"> Lower level of design carried out and infrastructure / planning undertaken at less than current best practice. Outdated design criteria used in future years during the development. Development experiences flood / 	Functional design criteria Typical details for infrastructure (channels, detention basins)	3	2	M	Y	<ul style="list-style-type: none"> Include following guiding principles within the functional design doc: <ul style="list-style-type: none"> Latest IFD from BOM to be used (include location not data) Note that revisions of QUDM or ARR should trigger a review of the functional design criteria. Latest and fullest design criteria will be specified, regardless of CHRC design standards to capture QUDM and ARR updates. 	CHRC ACS Future land owners		

SAFETY IN DESIGN REVIEW

Item	Deviation (Guide Word)	Component	Cause (How can it happen)	Consequence (What Can Happen)	Safeguards (Existing controls and their effectiveness)	Analysis			Recommendations		Responsibility	Status	Remark
						Likelihood	Consequence	Level Of Risk	Treat Risk (Y/N)				
				inundation / hazardous flows / unacceptable hazards to people or infrastructure									
ACS-SiD-3	High depth/velocity zones, not addressed within design of channels	Design	Insufficient design criteria and standard of design	Erosion of channel banks, failure of channel banks, injury / loss of life	Design criteria. Council would prefer that such treatments were "standardised" throughout the area.	3	2	M	Y	• ACS to recommend appropriate types of velocity dissipaters and typical details for channels.	ACS		
ACS-SiD-4	Erosion of road surfaces at waterway crossings	Design	Design of road does not address overtopping satisfactorily.	Erosion of road, failure of surface and approaches, vehicles leaving roadway during high water events	Design criteria	3	3	M	Y	• Iterative design process between GBA and ACS, review design standard and road alignment as design progresses.	CHRC		
ACS-SiD-5	Flood immunity of roads	Design	Low design flood immunity of roads	Vehicles being at risk during flood events	Design criteria	2	3	M	Y	• ACS to provide flows at AEPs of 1 in 2, 5, 10, 20, 50, 100 and possibility of passing the 1 in 20 or 50 under the road surface. • Safety markers and flood cameras are recommended. • CHRC to select immunity based on risk profile vs community needs / budget constraints.	CHRC		
ACS-SiD-6	Channel construction inconsistent	Construction	Channel construction is staged and downstream areas could be developed before or after, upstream areas.	Insufficient sized channels being constructed for each development. Flooding and inundation, erosion of flood areas	Design criteria and construction details	2	3	M	?	• Staging plans to be generated (future?) reviewed as development / planning progresses. • Channels designed and constructed by a third party for the whole development prior to sale / use • Independent review of designs is recommended.	CHRC ACS		
ACS-SiD-7	Existing dams fail	Operation	Existing dams on properties were constructed as farm dams. Unlikely records are available of construction. No controls over maintenance	Dam wall failure. Downstream erosion and environmental impacts. Potential damage to Boonie Doon Road.	Design criteria to include maintenance and inspection requirements.	2	3	M	Y	• Planning approvals / development guidelines to include requirement for: ○ Dams to be inspected by qualified geotechnical engineer prior to	ACS CHRC		

SAFETY IN DESIGN REVIEW

Item	Deviation (Guide Word)	Component	Cause (How can it happen)	Consequence (What Can Happen)	Safeguards (Existing controls and their effectiveness)	Analysis			Recommendations		Responsibility	Status	Remark
						Likelihood	Consequence	Level Of Risk	Treat Risk (Y/N)				
			Dams remain in use for detention.	Risk to vehicles at Boonie Doon road? Risk to people in downstream areas of dams.					downstream land use for redevelopment <ul style="list-style-type: none">○ Regular dam audits○ Consider the removal of dams○ Include the need for a dam break assessment if the size warrants.				
ACS-SiD-8	Survey data insufficient	Design	Survey data doesn't extend through <i>surrounding</i> catchments sufficiently	Catchments and resulting flows are under / overestimated	Use best available data and reality check against aerial imagery	3	1	L	N		CHRC / ACS		
ACS-SiD-9	Survey data – quality	Design	Survey in first stage of a lower quality than surrounding areas	Hydrology and topology of the area varies from assumed, resulting in increased / decreased flows.	Make allowances for higher or lower design flows (sensitivity assessment)	4	2	M	N	Include notes on figures, and within the design basis to alert others to the possible survey inconsistencies	ACS		
ACS-SiD-10	Dispersive soils - surface	Design / operation	Dispersive soils aren't identified, and designs are progressed without accounting for the soil types	Infiltration is lower than assumed (dispersive soils often crust at the surface reducing infiltration).	Qld globe soil mapping tool used to identify at risk soil types	4	3	H	Y	Soil tests (pre-construction) to include identification of sodic and dispersive soils.	CHRC		
ACS-SiD-11	Sodic soils - subsoil	Design / operation	Dispersive soils aren't identified, and designs are progressed without accounting for the soil types	Accelerated erosion beneath the soil surface, resulting in sudden sink holes, gullies and erosion scours.	Qld globe soil mapping tool used to identify at risk soil types	4	3	H	Y	Soil tests (pre-construction) to include identification of sodic and dispersive soils.	CHRC		
ACS-SiD-12	Highway access	Operation	Multiple / restricted access to the highway	Multiple access – increased heavy/light vehicle interactions		3	3	M	Y	CHRC to identify extent of accesses to / from highway, and include within planning regulations.	CHRC		
ACS-SiD-13	Stormwater modelling	Design	assumptions are not realistic, no stream gauging to calibrate model	Flow estimates too high / low leading to over / under designed	Review modelling as further data is collected								

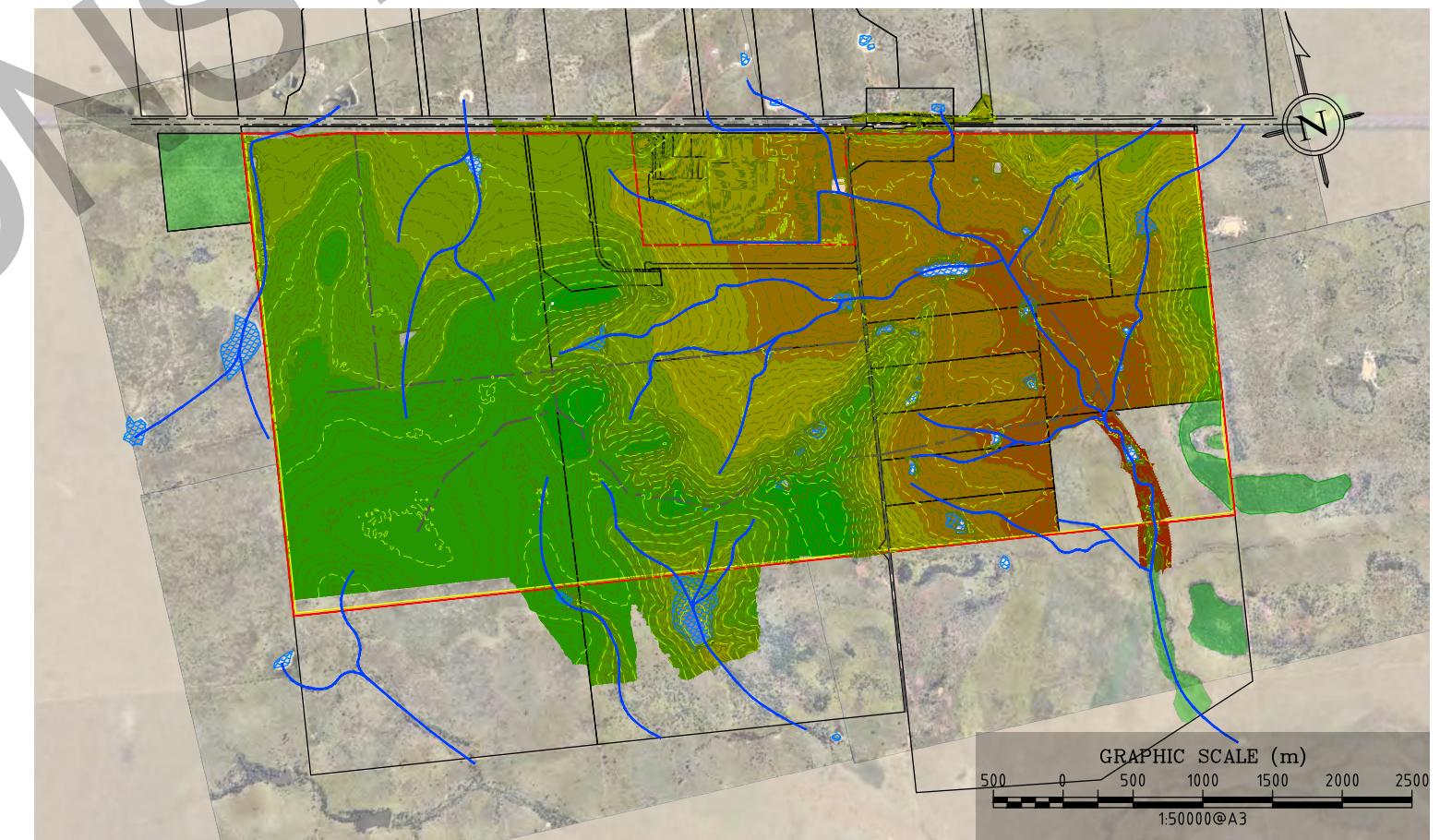
SAFETY IN DESIGN REVIEW

E – Extreme Risk – Detailed action plan required to manage risk before progressing H – High Risk – Needs immediate senior management attention M – Medium Risk – Specify management responsibility L – Low Risk – Manage by routine procedures.				Consequence					
				People	Injuries or ailments not requiring medical treatment	Minor injuries or First Aid Treatment	Serious injury causing hospitalization or multiple medical treatment cases	Life threatening injury or multiple serious injuries causing hospitalisation	Death or multiple life threatening injuries
Likelihood	Probability	Historical	Score	Insignificant	Minor	Moderate	Major	Catastrophic	
	>1 in 10	Is expected to occur in most circumstances	5	Almost Certain	M	H	H	E	E
	1 in 10-100	Will probably occur	4	Likely	M	M	H	H	E
	1 in 100-1,000	Might occur at some time in the future	3	Possible	L	M	M	H	E
	1 in 1,000 – 10,000	Could occur but doubtful	2	Unlikely	L	M	M	H	H
	1 in 10,000 – 100,000	May occur but only in exceptional circumstances	1	Rare	L	L	M	M	H

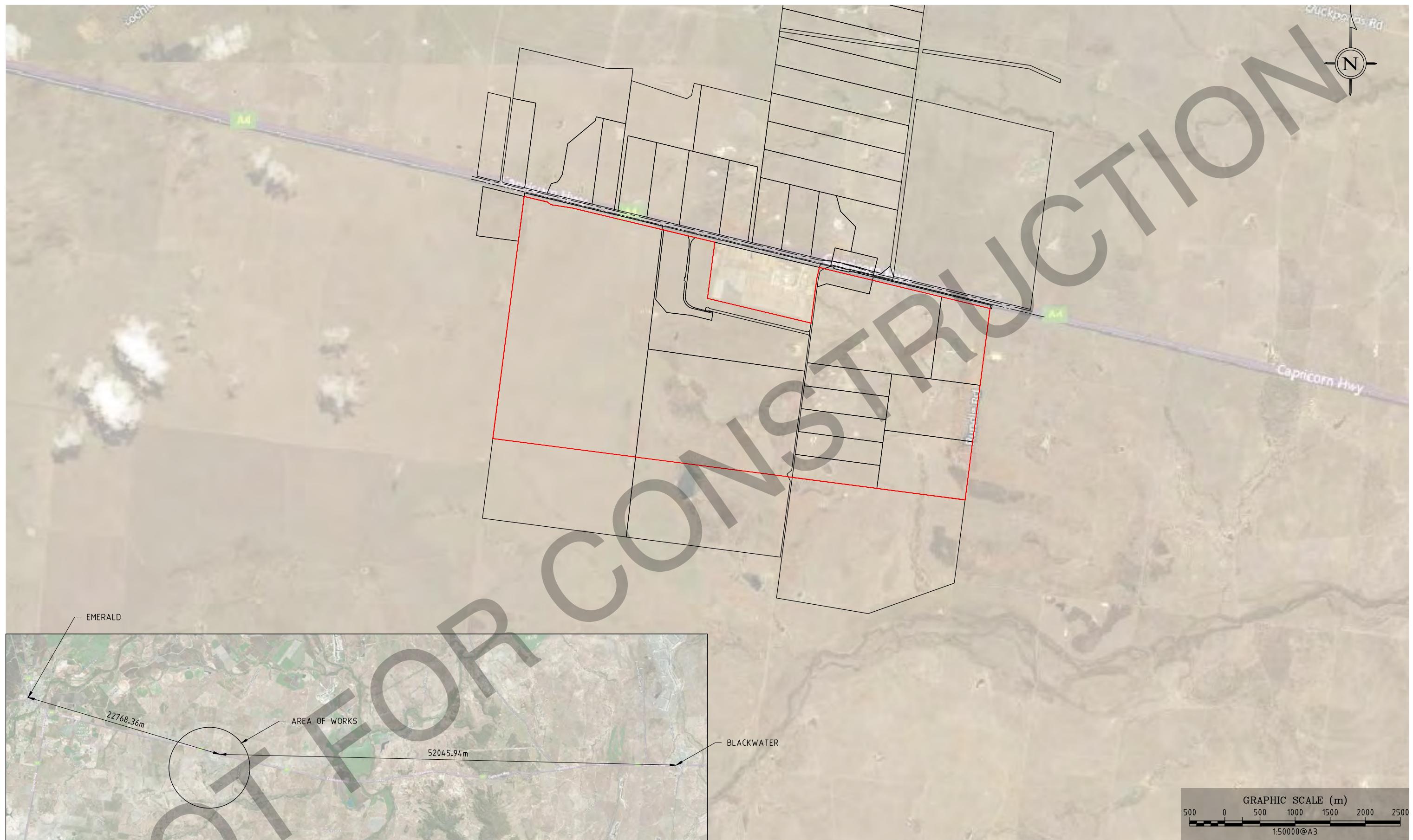
Drawings

YAMALA ENTERPRISE AREA STORMWATER MANAGEMENT MASTER PLAN

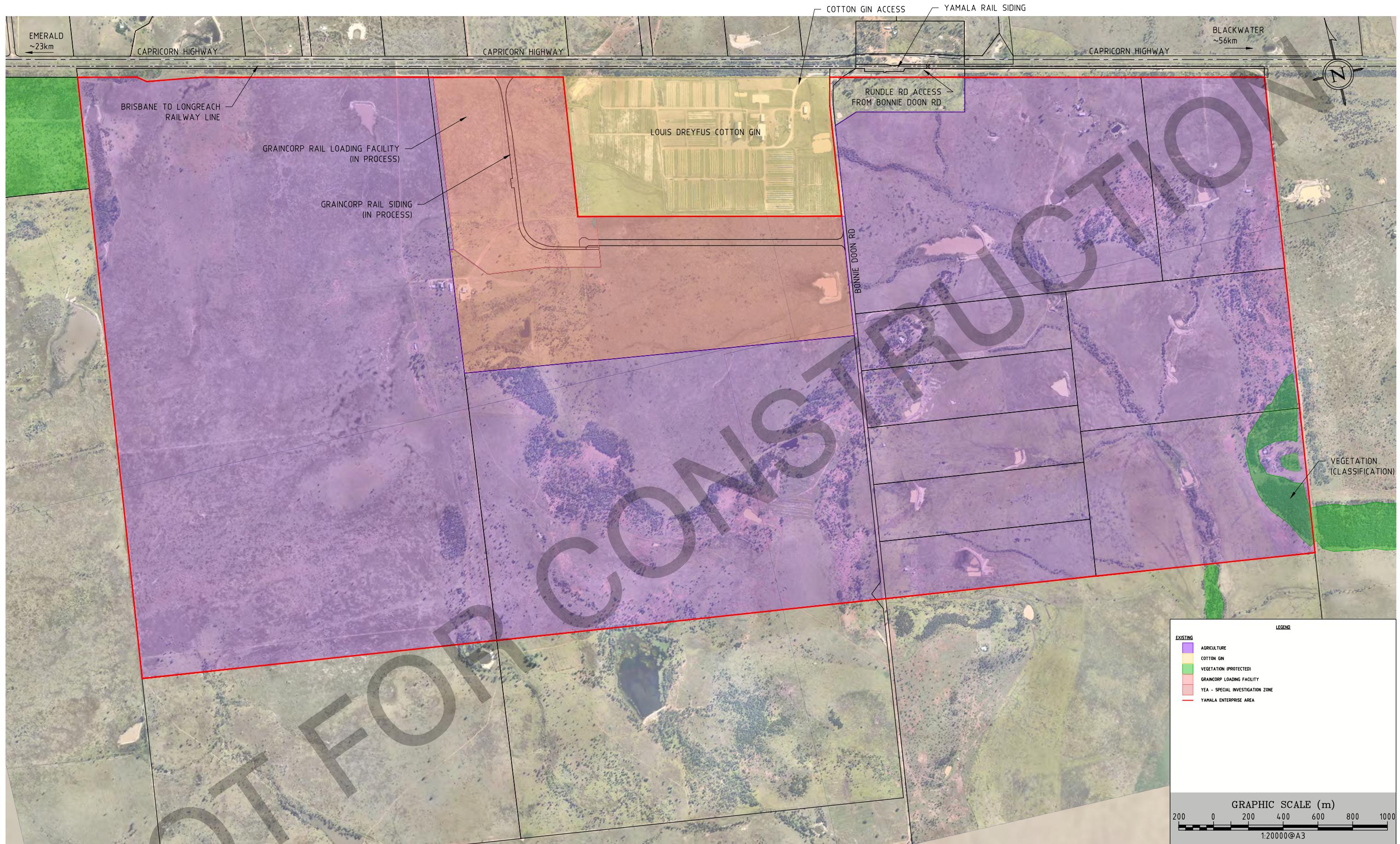
DRAWING SCHEDULE		
SHEET #	SHEET TITLE	REVISION
00	COVER PAGE	C
01	LOCALITY PLAN	C
02	EXISTING LAND USE	C
03	EXISTING ENVIRONMENT & CATCHMENTS	C
04	TOPOGRAPHIC	C
05	MASTERPLAN - GENERAL	C
06	MASTERPLAN - STORMWATER	C
07	STORMWATER - STAGE 1	C
08	STORMWATER - STAGE 2	C
09	STORMWATER - STAGE 3	C
10	VEGETATED CHANNEL DETAILS	C



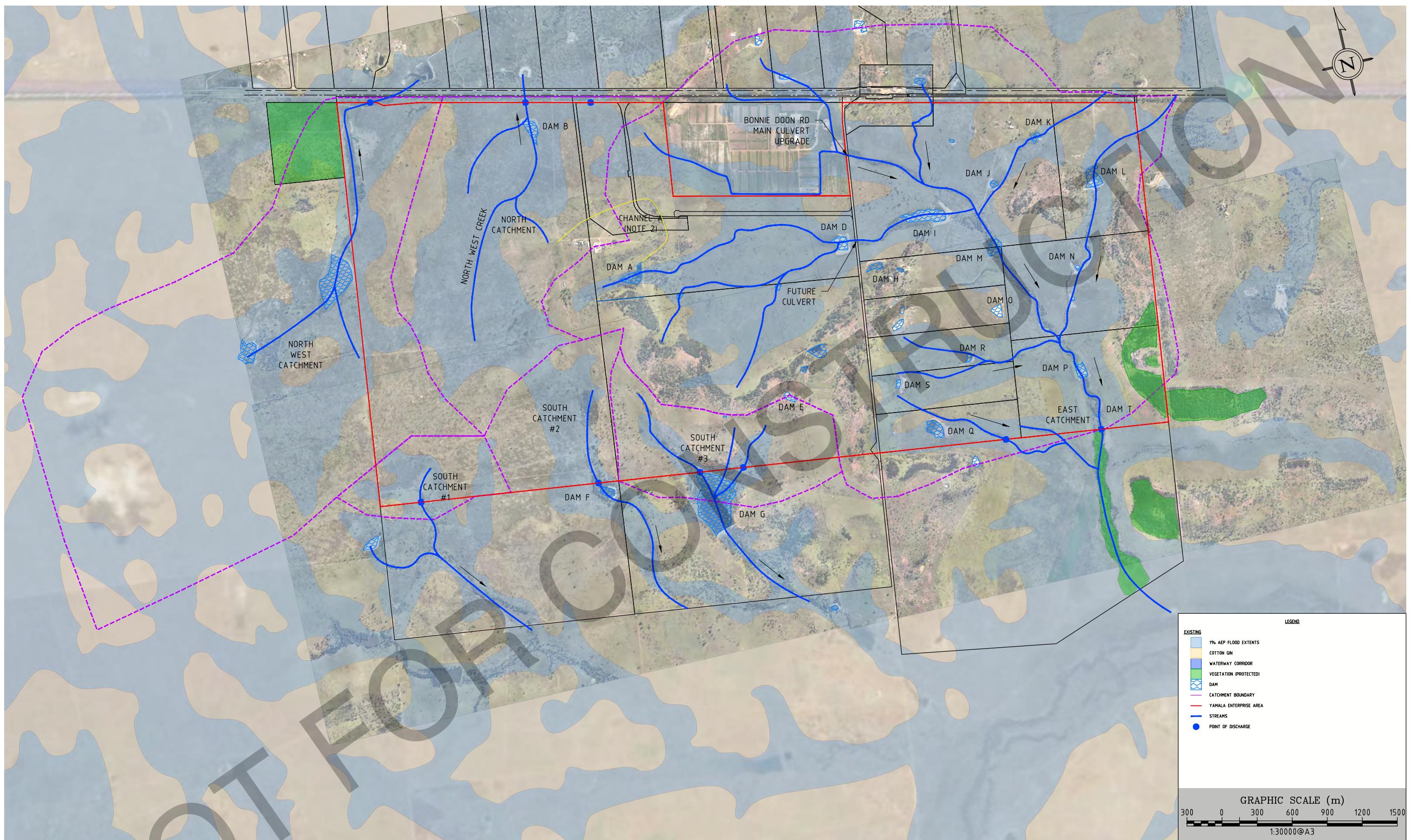
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			DATUM		67 ELM ST, BARCALDINE, QLD, 4725		ENGINEERING CERTIFICATION (RPEC)				CIVIL ENVIRONMENTAL PROJECT MANAGEMENT	
			GDA94		YAMALA ENTERPRISE AREA STORMWATER MANAGEMENT MASTER PLAN		#	FIELD	NAME	SIGNATURE	DATE	JOB NUMBER
C	FINAL DESIGN	JDM	3/18	HEIGHT ORIGIN	-	15088	CIVIL	K. BRAND	<i>[Signature]</i>	06/03/18	170087	00
B	ISSUED FOR REVIEW	JDM	1/18	SURVEY BOOKS	-						DRAWING NUMBER	OF
A	INITIAL DESIGN	JDM	12/17	JDM	12/17						ACS-DWG-170087-MASTERPLAN	10
REVISION/DETAILS			DWN	DATE	DES	DATE						



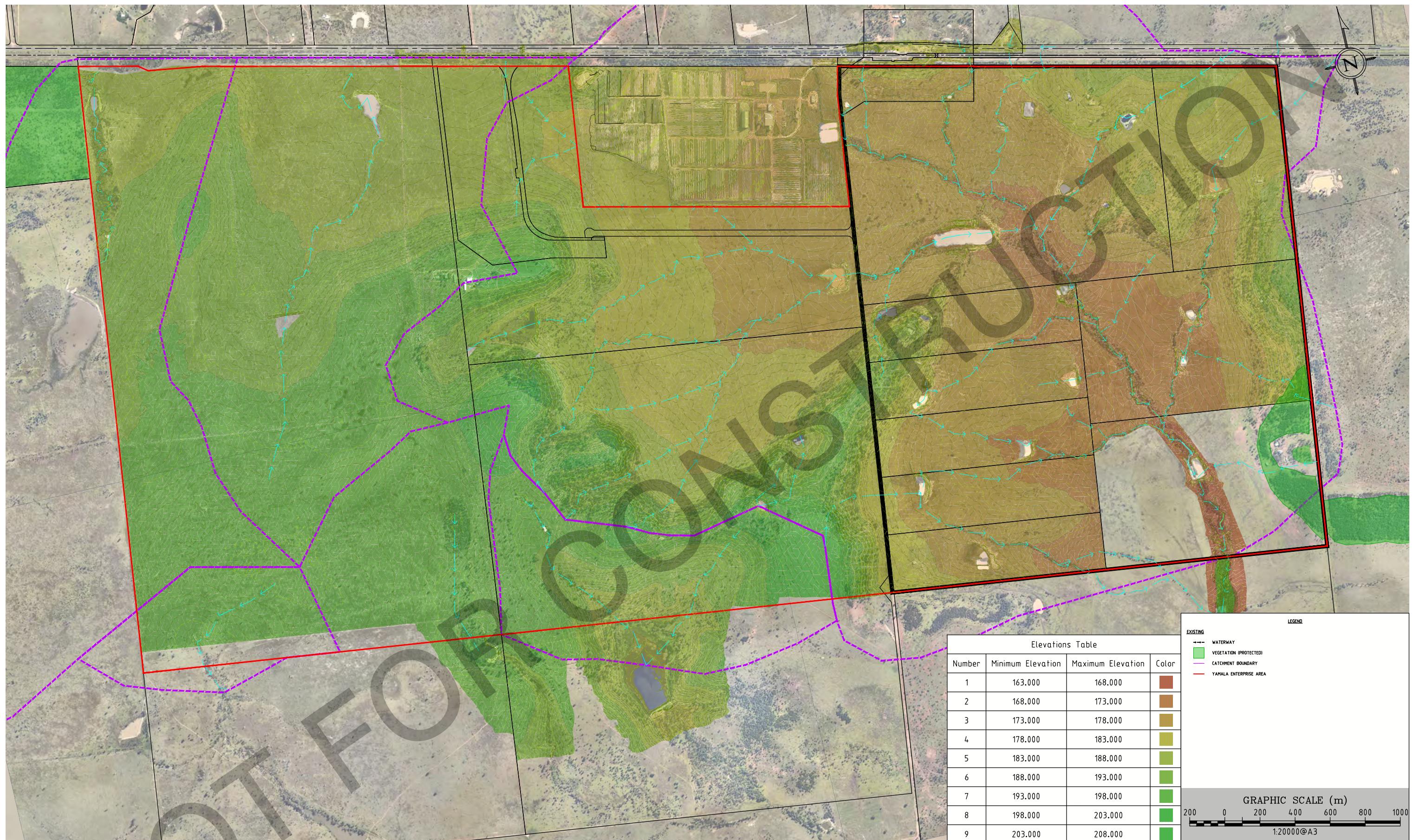
SURVEY DATA				GEORGE BOURNE & ASSOCIATES		LOCALITY PLAN				ACS Engineers	
				DATUM		ENGINEERING CERTIFICATION (RPEC)				CIVIL ENVIRONMENTAL PROJECT MANAGEMENT	
				GDA94		#	FIELD	NAME	SIGNATURE	DATE	
				MAP GRID		15088	CIVIL	K. BRAND	<i>[Signature]</i>	06/03/18	
				MGA-55							
C	FINAL DESIGN	JDM	3/18	HEIGHT ORIGIN							01
B	ISSUED FOR REVIEW	JDM	1/18	SURVEY BOOKS							OF
A	INITIAL DESIGN	JDM	12/17	JD	12/17						10
REVISION/DETAILS				DWN	DATE	DES	DATE				



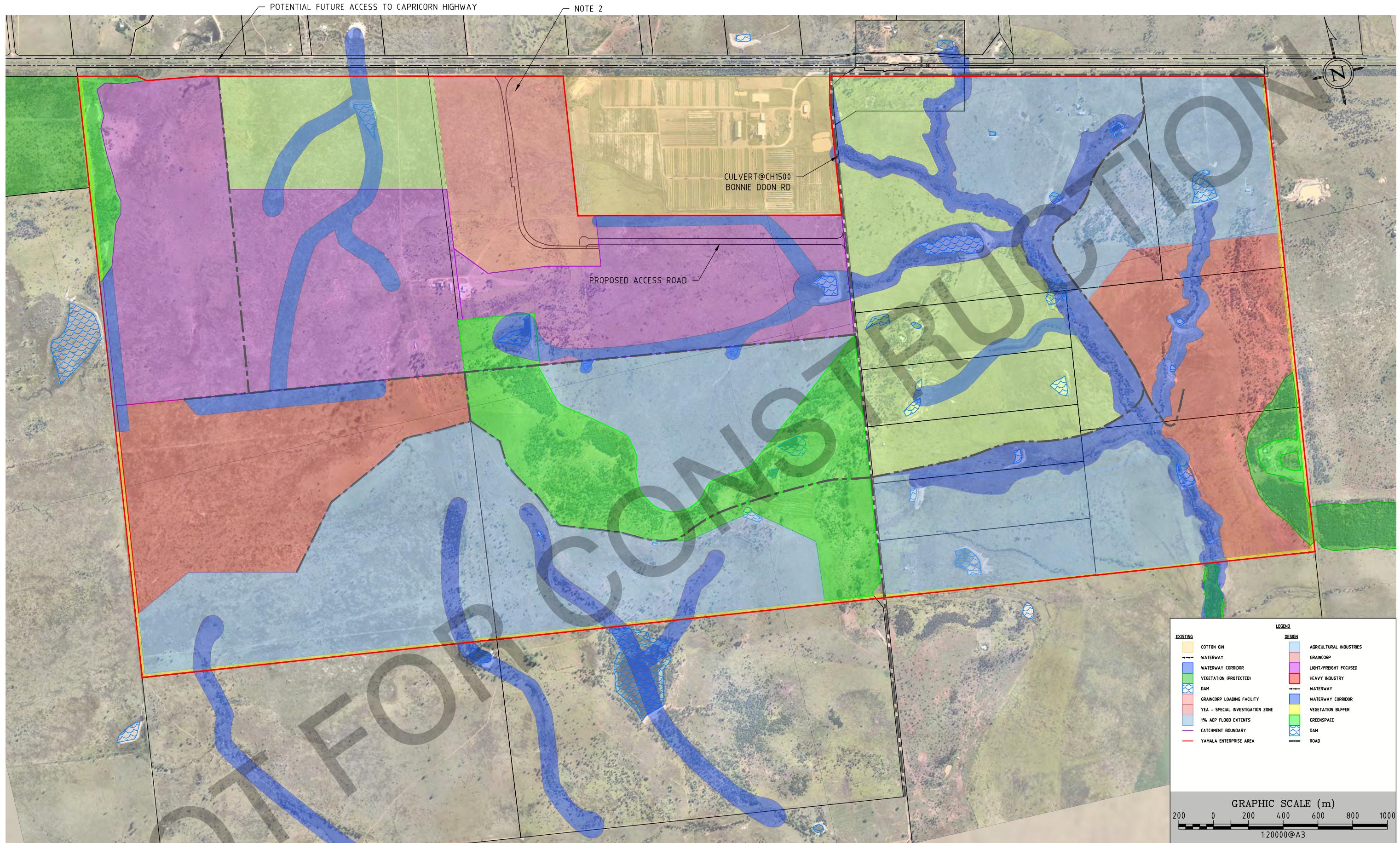
			SURVEY DATA	GEORGE BOURNE & ASSOCIATES	EXISTING LAND USE	PO Box 554 Beaudesert QLD 4285 (07) 5541 3500 www.acsengineers.com.au	ACS Engineers CIVIL ENVIRONMENTAL PROJECT MANAGEMENT
			DATUM	GDA94			
			MAP GRID	MGA-55			
			HEIGHT ORIGIN	67 ELM ST, BARCALDINE, QLD, 4725			
C	FINAL DESIGN	JDM	3/18	-			
B	ISSUED FOR REVIEW	JDM	1/18	SURVEY BOOKS			
A	INITIAL DESIGN	JDM	12/17	JDM	12/17		
	REVISION/DETAILS	DWN	DATE	DES	DATE		



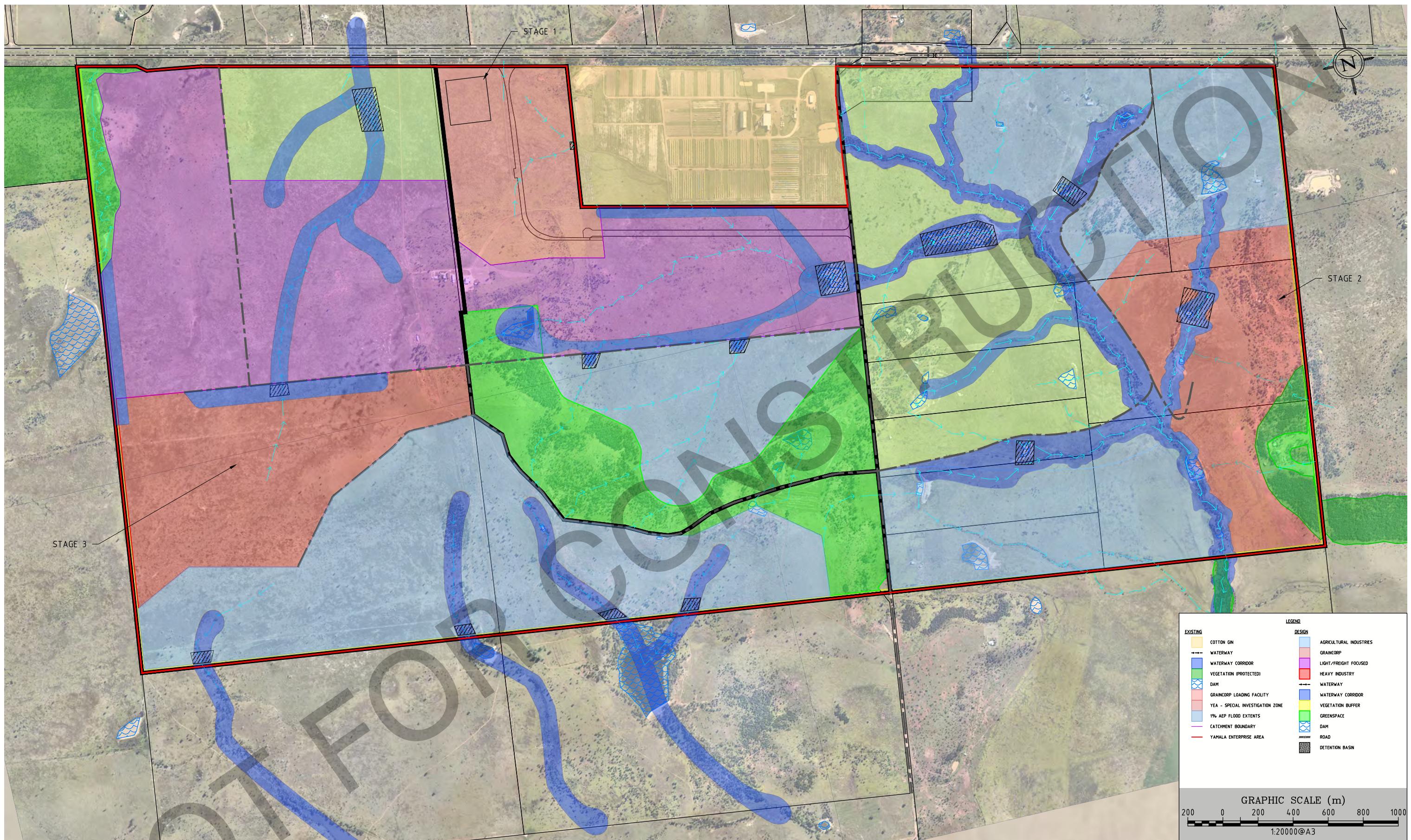
			SURVEY DATA		GEORGE BOURNE & ASSOCIATES		EXISTING ENVIRONMENT & CATCHMENTS				ACS Engineers	
			DATUM		67 ELM ST, BARCALDINE, QLD, 4725							
			GDA94		YAMALA ENTERPRISE AREA STORMWATER		ENGINEERING CERTIFICATION (RPEC)				CIVIL ENVIRONMENTAL PROJECT MANAGEMENT	
			MAP GRID		MANAGEMENT MASTER PLAN		#	FIELD	NAME	SIGNATURE	JOB NUMBER	
			MGA-55		BONNIE DOON RD, COMET, QLD, 4702		15088	CIVIL	K. BRAND	<i>[Signature]</i>	170087	
C			HEIGHT ORIGIN							DATE	DRAWING NUMBER	
			-							06/03/18	ACS-DWG-170087-MASTERPLAN	
B			SURVEY BOOKS									
			-									
A			DWN									
			DATE									
			DES									
			DATE									
REVISION/DETAILS												



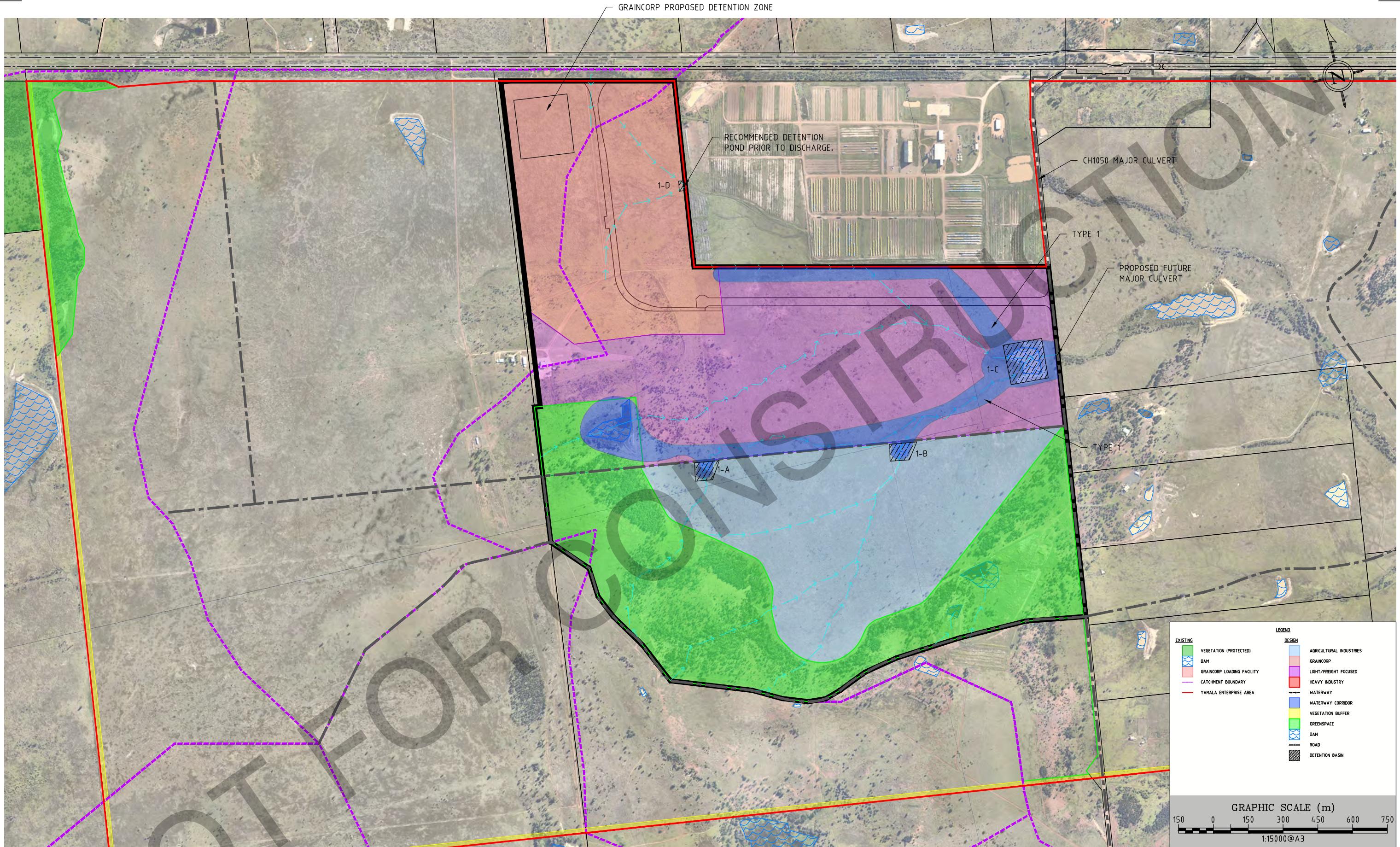
			SURVEY DATA	GEORGE BOURNE & ASSOCIATES	TOPOGRAPHIC	PO Box 554 Beaudesert QLD 4285 (07) 5541 3500 www.acsengineers.com.au	ACS Engineers CIVIL ENVIRONMENTAL PROJECT MANAGEMENT						
			DATUM	GDA94									
			MAP GRID	MGA-55									
			HEIGHT ORIGIN										
C	FINAL DESIGN	JDM	3/18	-	YAMALA ENTERPRISE AREA STORMWATER MANAGEMENT MASTER PLAN	ENGINEERING CERTIFICATION (RPEQ)		JOB NUMBER					
B	ISSUED FOR REVIEW	JDM	1/18	SURVEY BOOKS		#	FIELD	NAME	SIGNATURE	DATE	170087	C	04
A	INITIAL DESIGN	JDM	12/17	JDM		15088	CIVIL	K. BRAND	<i>K. Brand</i>	06/03/18	OF		
	REVISION/DETAILS	DWN	DATE	DES							ACS-DWG-170087-MASTERPLAN	10	
G:\Synergy\Projects\17\170087 Bonnie Doon SWMP\Design Files\ACS-DWG-170087-MASTERPLAN.DWG, 06/03/2018 10:48:19													



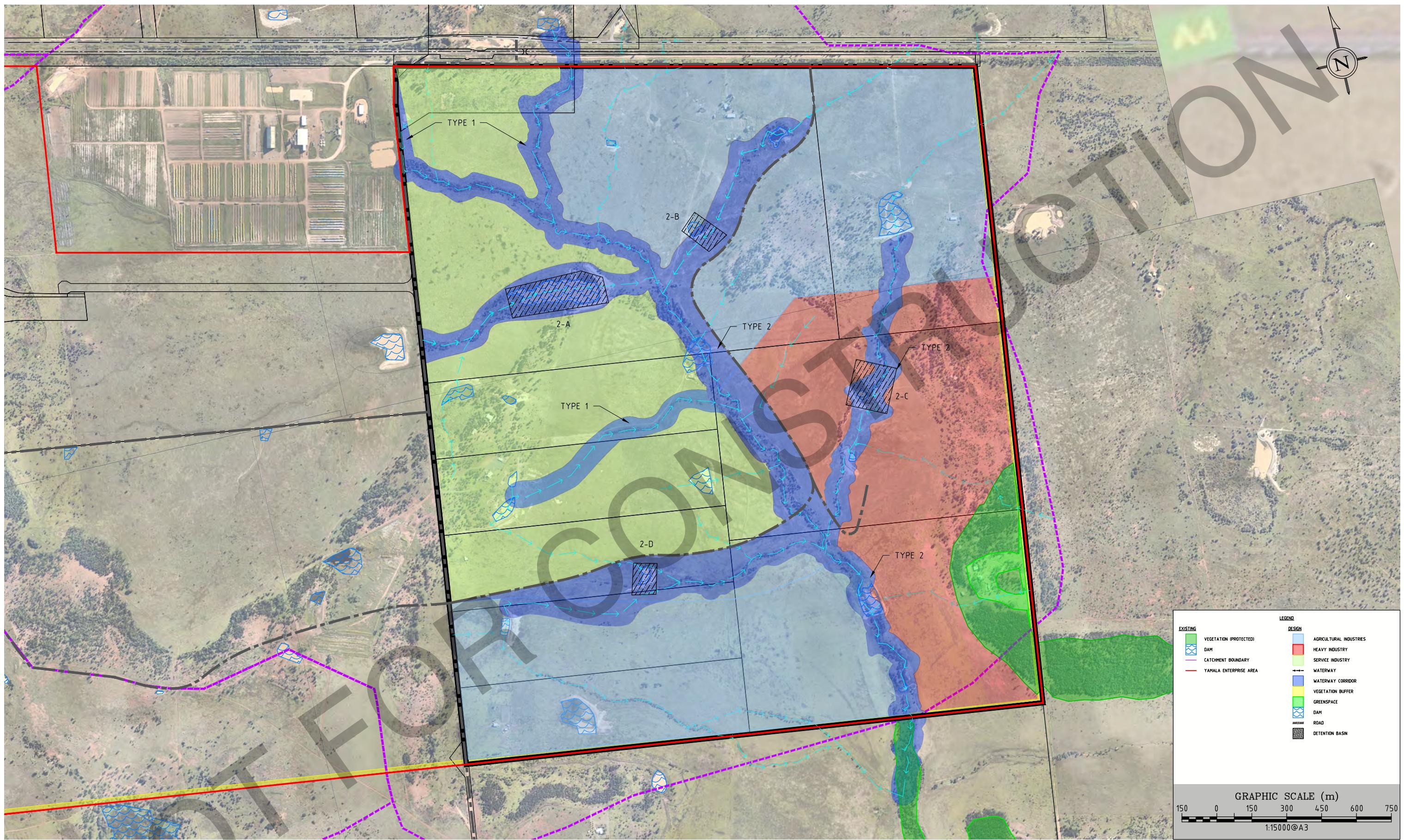
			SURVEY DATA		GEORGE BOURNE & ASSOCIATES		MASTERPLAN - GENERAL				ACS Engineers	
			DATUM		67 ELM ST, BARCALDINE, QLD, 4725							
			MAP GRID		YAMALA ENTERPRISE AREA STORMWATER		ENGINEERING CERTIFICATION (RPECQ)				CIVIL ENVIRONMENTAL PROJECT MANAGEMENT	
			MGA-55		MANAGEMENT MASTER PLAN		#	FIELD	NAME	SIGNATURE	JOB NUMBER	
C FINAL DESIGN			HEIGHT ORIGIN		BONNIE DOON RD, COMET, QLD, 4702		15088	CIVIL	K. BRAND	<i>[Signature]</i>	170087	
B ISSUED FOR REVIEW			SURVEY BOOKS							06/03/18	DRAWING NUMBER	
A INITIAL DESIGN			-								ACS-DWG-170087-MASTERPLAN	
REVISION/DETAILS			DWN	DATE	DES	DATE					C 05 OF 10	

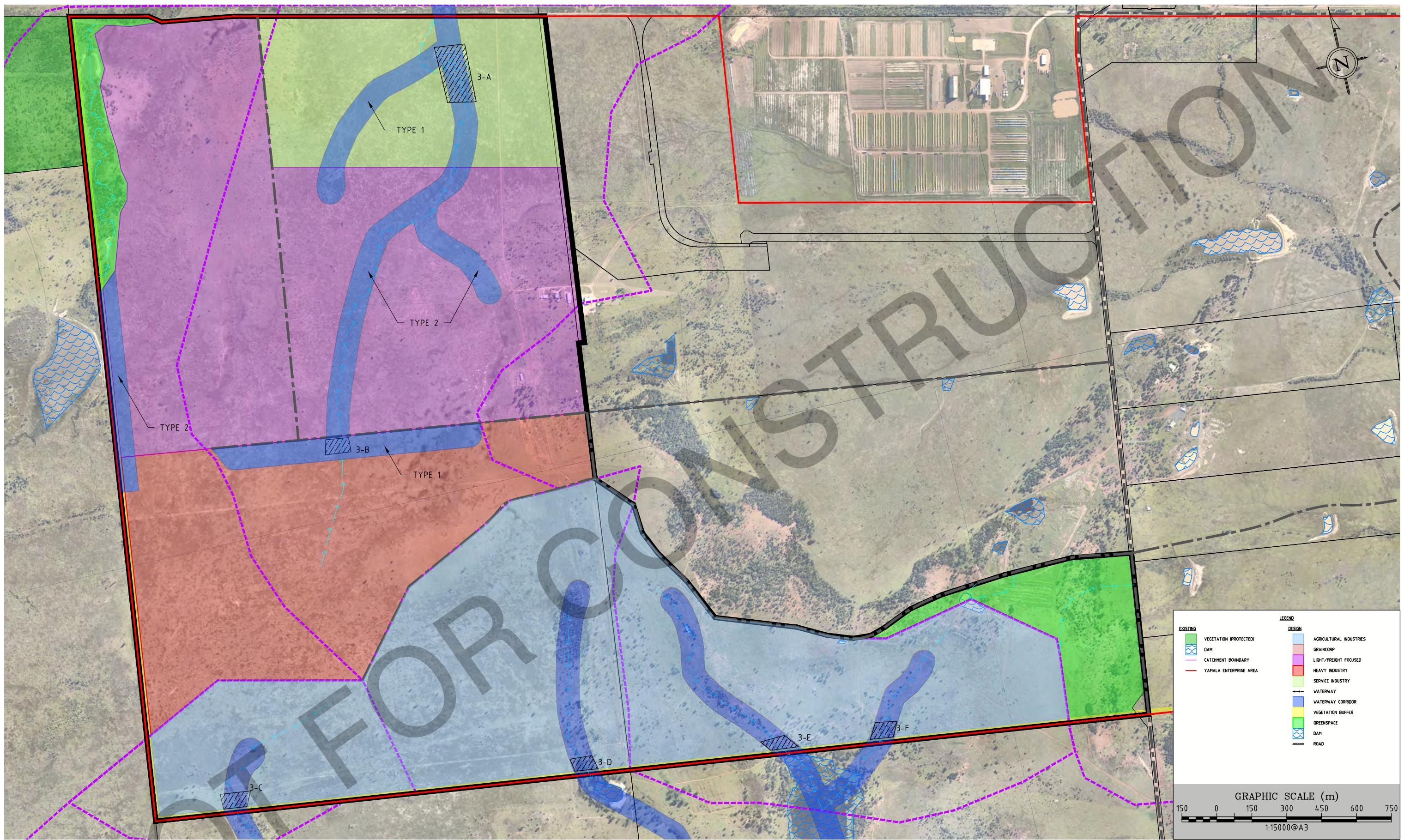


			SURVEY DATA	GEORGE BOURNE & ASSOCIATES	MASTERPLAN - STORMWATER				PO Box 554 Beaudesert QLD 4285 (07) 5541 3500 www.acsengineers.com.au	ACS Engineers	
			DATUM	67 ELM ST, BARCALDINE, QLD, 4725				ENGINEERING CERTIFICATION (RPECQ)			
			GDA94	# FIELD NAME SIGNATURE DATE				15088 CIVIL K. BRAND	06/03/18	JOB NUMBER	170087
			MAP GRID	YAMALA ENTERPRISE AREA STORMWATER MANAGEMENT MASTER PLAN						DRAWING NUMBER	ACS-DWG-170087-MASTERPLAN
C	FINAL DESIGN	JDM	3/18	HEIGHT ORIGIN	-						06 OF 10
B	ISSUED FOR REVIEW	JDM	1/18	SURVEY BOOKS	-						
A	INITIAL DESIGN	JDM	12/17	JDM	12/17						
REVISION/DETAILS			DWN	DATE	DES	DATE					



				SURVEY DATA		GEORGE BOURNE & ASSOCIATES		STORMWATER - STAGE 1				ACS Engineers	
				DATUM		67 ELM ST, BARCALDINE, QLD, 4725							
				MAP GRID		YAMALA ENTERPRISE AREA STORMWATER						CIVIL ENVIRONMENTAL PROJECT MANAGEMENT	
				MGA-55		MANAGEMENT MASTER PLAN							
C FINAL DESIGN				JDM	3/18	HEIGHT ORIGIN		ENGINEERING CERTIFICATION (RPEC)				JOB NUMBER	
B ISSUED FOR REVIEW				JDM	1/18	SURVEY BOOKS		#	FIELD	NAME	SIGNATURE	170087	
A INITIAL DESIGN				JDM	12/17	JDM	12/17	15088	CIVIL	K. BRAND	<i>(Signature)</i>	07 OF 10	
REVISION/DETAILS				DWN	DATE	DES	DATE					ACS-DWG-170087-MASTERPLAN	

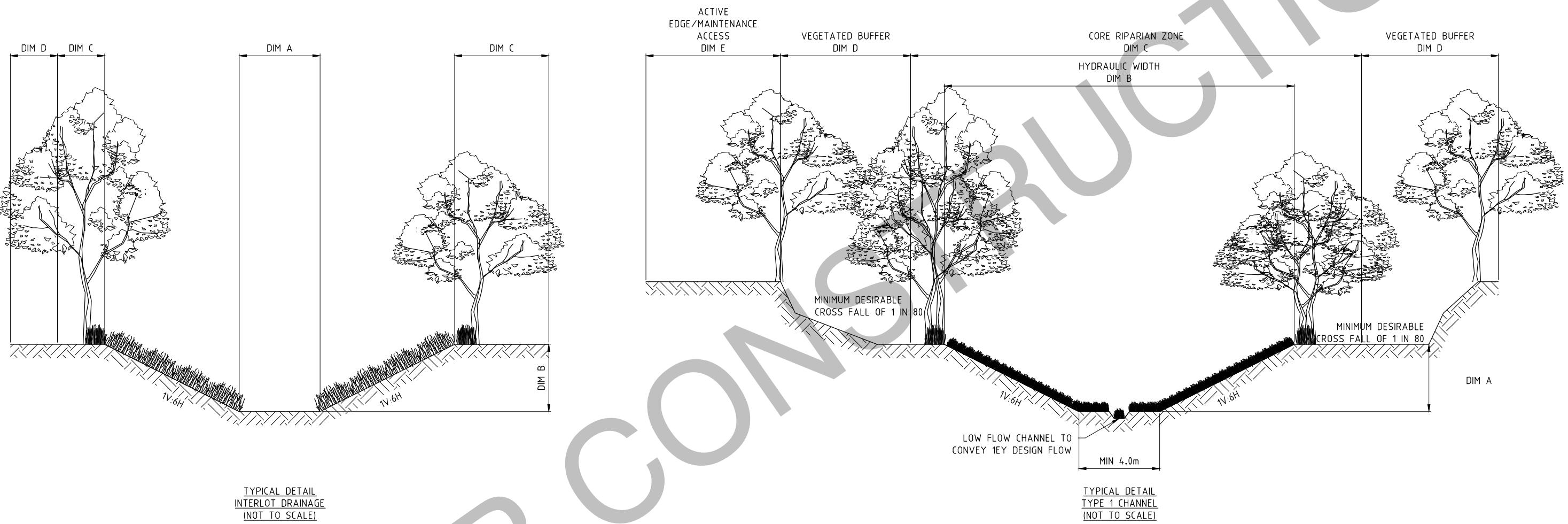




NOTE: AGRICULTURAL INDUSTRY LAND RECOMMENDED TO BE DEVELOPED AS SINGLE LARGE LANDHOLDERS PER CATCHMENT.

				SURVEY DATA		GEORGE BOURNE & ASSOCIATES		STORMWATER - STAGE 3				ACS Engineers			
				DATUM		67 ELM ST, BARCALDINE, QLD, 4725									
				MAP GRID		YAMALA ENTERPRISE AREA STORMWATER									
				MGA-55		MANAGEMENT MASTER PLAN									
				HEIGHT ORIGIN		BONNIE DOON RD, COMET, QLD, 4702		ENGINEERING CERTIFICATION (RPEC)							
				# FIELD		NAME		SIGNATURE		DATE					
C	FINAL DESIGN	JDM	3/18	15088		CIVIL		K. BRAND		06/03/18		JOB NUMBER			
B	ISSUED FOR REVIEW	JDM	1/18									170087			
A	INITIAL DESIGN	JDM	12/17	JDM	12/17							DRAWING NUMBER			
REVISION/DETAILS				DWN	DATE	DES	DATE	ACS-DWG-170087-MASTERPLAN							
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OF
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INTER LOT DRAINAGE		TYPE 1 DETAIL	
DIM	VALUE	DIM	VALUE
A	VARIABLES (MIN 4.00m)	A	MIN 1.0m
B	VARIABLES (MAX 2.50m, MIN 1.5m, CHANNEL BANKS TO BE VEGETATED)	B	5-25m. TO CONTAIN MIN 0.5EY DESIGN FLOW.
C	MIN 2.0m SETBACK BETWEEN CHANNEL AND PROPERTIES. ZONE TO BE VEGETATED.	C	20-60m. TO CONTAIN MIN 10% AEP DESIGN FLOW.
D	MIN 4.0m TO BE PROVIDED ON 1 SIDE OF CHANNEL	D	10m CAN INCLUDE PEDESTRIAN ACCESS.
		E	ACTIVE EDGE CAN INCLUDE ROAD OR MAINTENANCE ACCESS, MUST BE PROVIDED ON ONE CREST.
		TOTAL	VARIABLES BETWEEN 30-100m. WATERWAY CORRIDOR TO CONTAIN 5% AEP EVENT.

NOTE:
TYPE 2 WATERWAY CORRIDORS ARE EXISTING CHANNELS.
GENERAL CONFIGURATION/ TYPICAL DETAILS AS PER TYPE 1.

				SURVEY DATA	GEORGE BOURNE & ASSOCIATES	VEGETATED CHANNEL DETAILS				PO Box 554 Beaudesert QLD 4285 (07) 5541 3500 www.acsengineers.com.au	ACS Engineers	
						DATUM	FIELD	NAME	SIGNATURE	DATE		
				GDA94		MAP GRID						
				MGA-55		HEIGHT ORIGIN	-					
C	FINAL DESIGN	JDM	3/18			SURVEY BOOKS					JOB NUMBER	
B	ISSUED FOR REVIEW	JDM	1/18			-					170087	
A	INITIAL DESIGN	JDM	12/17	JDM	12/17						DRAWING NUMBER	
	REVISION/DETAILS	DWN	DATE	DES	DATE						ACS-DWG-170087-MASTERPLAN	