Stormwater Management Strategy

South Wurruk Development Plan

Clients
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Surveying
Asset Recording
Civil Engineering
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Town Planning
Urban Design
Landscape Architecture
Project Management

Revision Table

REV	DESCRIPTION	DATE	AUTHORISED
A	Draft	**28/04/2016**	**CC**
B	Updated to remove figures with proposed layouts as requested by Council	**04/07/2016**	**CC**
C	Updated subdivision layout plan	**09/08/2019**	**CC**
D	WLRB assets location shifted, RWT included - DRAFT	**16/04/2021**	**CC**
E	WLRB NE removed, rainwater tanks added, water balance model included	**29/04/2021**	**CC**
F	Addition of stormwater harvesting system and removal of wetlands	**30/09/2021**	**CC**

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Glossary of terms

Alphabetical list of terms and abbreviations used in report

AHD	Australian Height Datum A common national surface level datum approximately corresponding to mean sea level.
AEP	Annual Exceedance Probability. Probability of a flood event occurring in any year
Authorities	Organisations responsible for the supply and management of sewer, water, gas, electricity and telecommunications, roads and transport
BPEMG	Best Practice Environmental Management Guidelines
BWCo	Beveridge Williams & Co Pty Ltd
CMA	West Gippsland Catchment Management Authority
Client	Jelaryl Pty Ltd, Barry Hollands, Pak Ridge Investments Pty Ltd, Pearsondale Heights Pty Ltd, Martin Bailey
Council	Wellington Shire Council
IDM	Infrastructure Design Manual
LSIO	Land Subject to Inundation Overlay
NTWL	Normal Top Water Level
$Q_{20\%}$	Storm water flow generated from 20% AEP storm event
$Q_{1\%}$	Storm water flow generated from 1% AEP storm event
Q_{gap}	Flow difference between $Q_{20\%}$ and $Q_{1\%}$ storm event
SBRB	Sediment Basin/Retention Basin
WSUD	Water Sensitive Urban Design

1 INTRODUCTION

Beveridge Williams has been commissioned by a consortium of clients to prepare a Stormwater Management Strategy (SWMS) for a South Wurruk Development Plan, based on the **Sale, Wurruk and Longford Structure Plan** (August 2010). The total site area is approximately 146 ha and as stated in the Structure Plan, '*opportunity exists for establishment of urban residential and some rural residential development to form a complete neighbourhood that is integrated with the existing urban area and local facilities*'. It is intended to subdivide the land to form 1,256 lots.

This SWMS report is intended to provide a conceptual drainage strategy for the development plan. The strategy aims to retain post-development stormwater runoff to pre-development level, to meet stormwater quality Best Practice Environmental Management Guidelines (BPEMG) to the satisfaction of West Gippsland Catchment Management Authority (WGCMA), Wellington Shire Council (WSC) and other relevant authorities.

1.1 Site Overview

The proposed development plan is located in Wurruk, 1.3km west of Sale and predominantly bound by Settlement Road on the south east and Princes Highway on the north. There are currently two existing residential areas adjacent to the subject site, Sovereign Estate to the west and Park Ridge Estate on the eastern side. There is also an existing heritage site (Kilmany Park Heritage Estate) in the southern west corner of the development plan area. Refer to Figure 1 for the location plan and Figure 2 for the Site Analysis Plan.

The overall site is largely characterised by paddocks with scattered trees and plantings, and some flood prone land area to the south. There are some existing water bodies surrounding the site as shown in Figure 2.

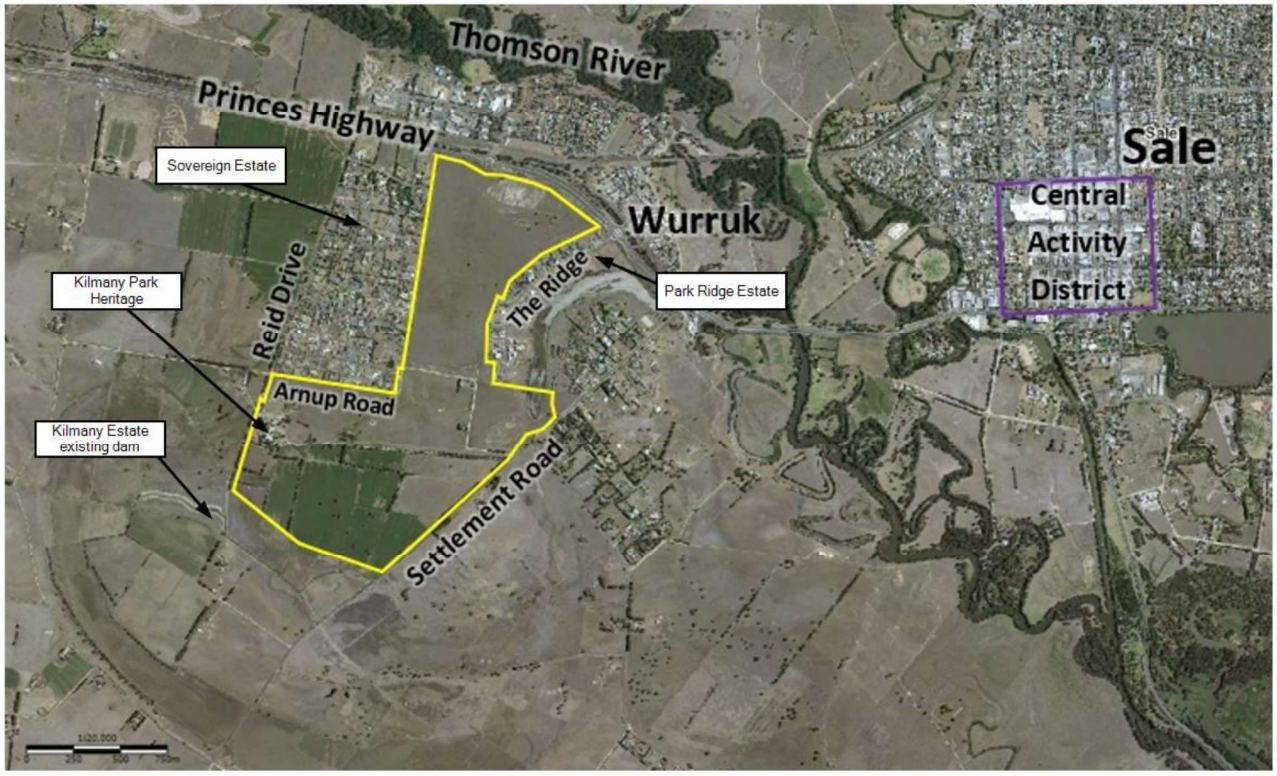


Figure 1: Site Aerial Plan (Not to Scale) (Source: NearMap)

The subject site is currently zoned Low Density Residential, however the Sale, Wurruk and Longford Structure Plan highlights for some higher density residential development to the northern half of the site.

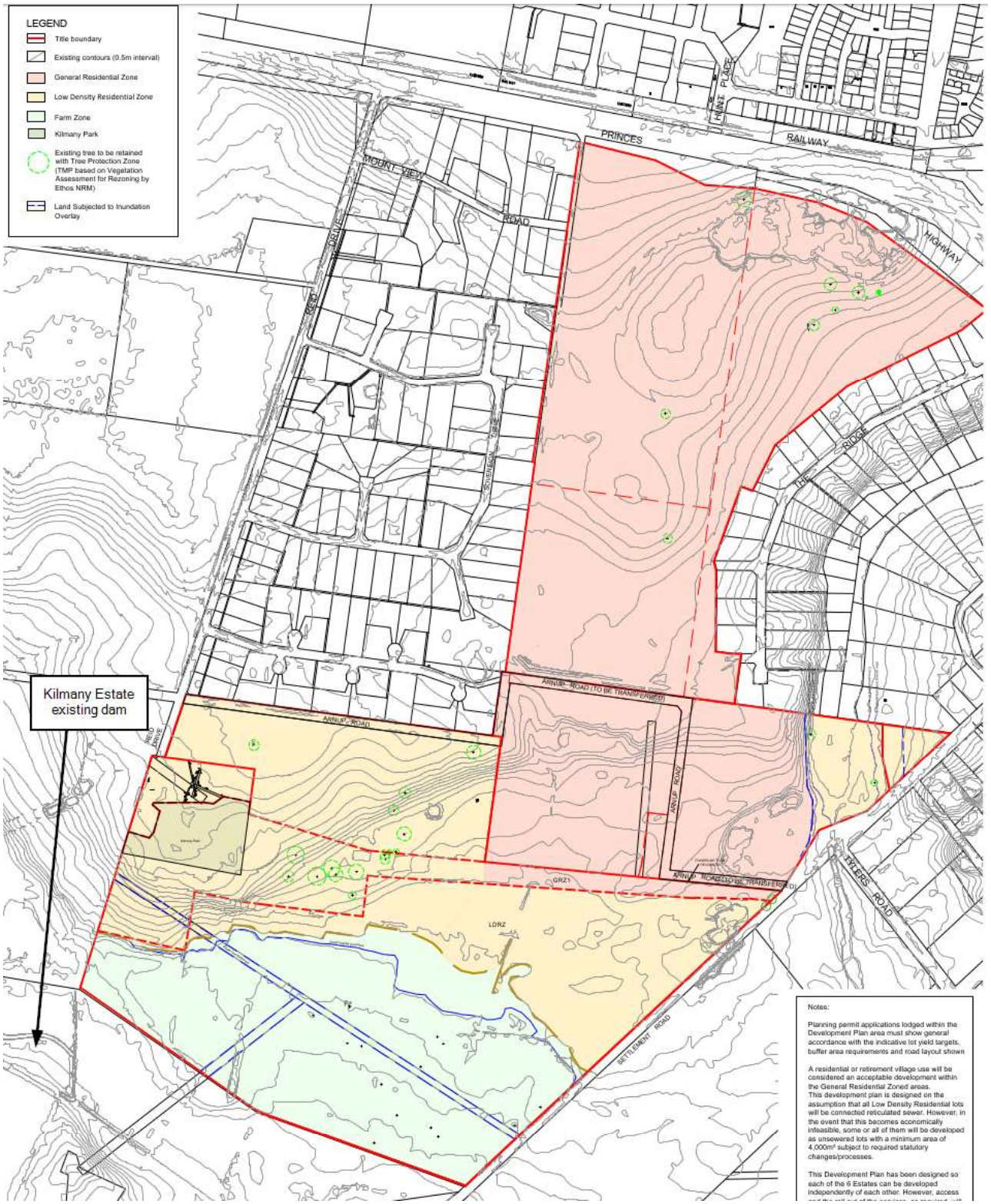


Figure 2: Site Analysis Plan (Not to Scale)

1.2 Topography

The overall subject site has varying topographical features throughout the area with plateaus and steep escarpments. The contours generally fall from north to south direction (Refer to Figure 3 below for Site Topography Plan).

On the northern part, a ridgeline extends through the centre of the site with several high points across the site. The land around this consists of undulating terrain, with areas of steep gradient as well as some flat open spaces further towards the middle section of the site.

The southern part of the site is much flatter with some low points and drainage basins, falling towards to the floodplains area further to the south, where the land is covered by a Land Subject to Inundation Overlay (LSIO).

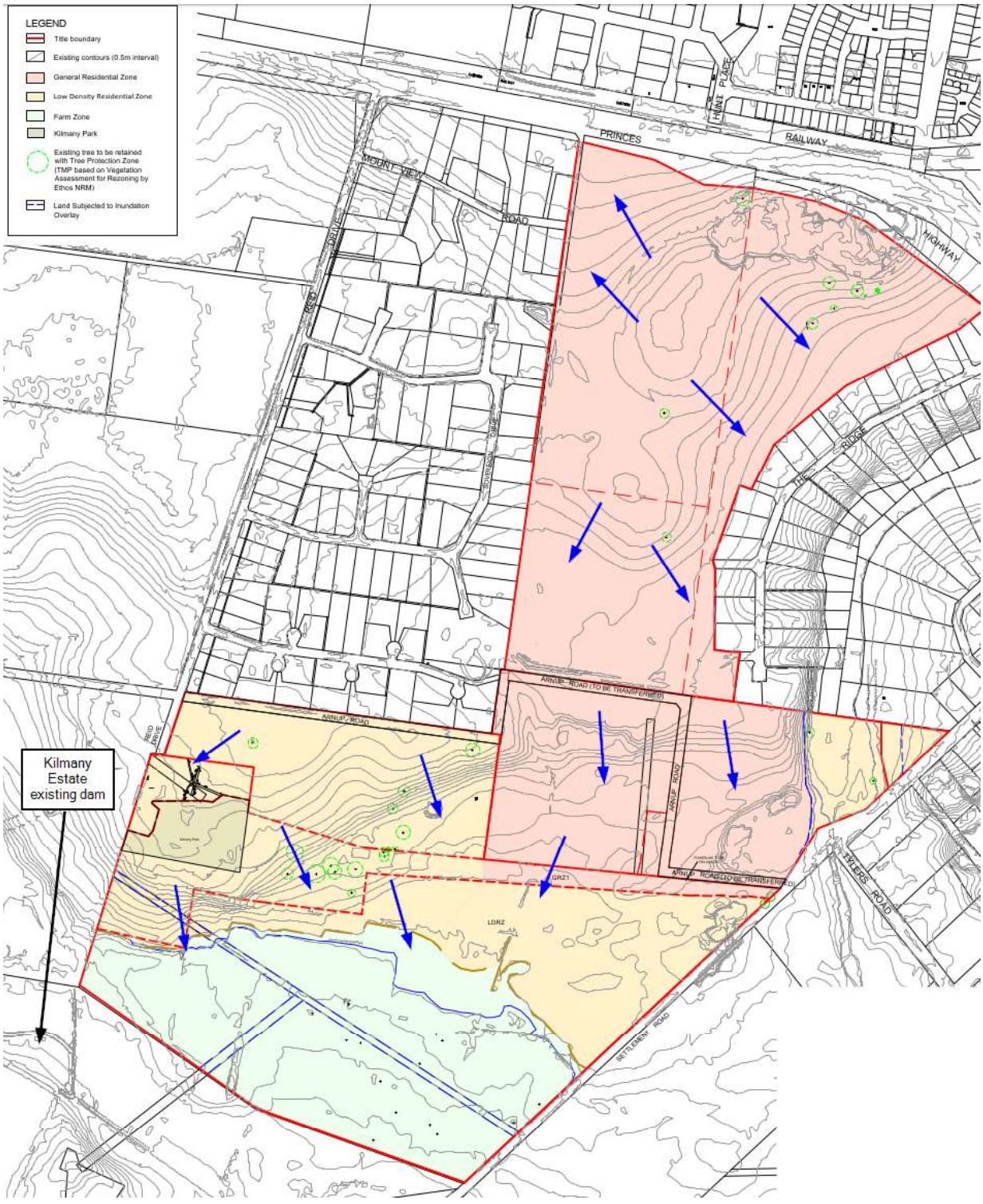


Figure 3: Site Topography Plan (Not to Scale)

1.3 Surface Water & Drainage

As previously mentioned, the site topographical map shows a series of highpoints that form a major ridge line through the middle of the northern part of the subject site. This resulting in two opposing drainage paths on either side of the ridge line. Surface drainage water on the western part of the ridgeline flows towards northwest direction while on the eastern part of the ridgeline flows towards east and south east directions (Refer to Figure 3 above).

Surface water on the middle part of the site generally flows in a southern direction where the low points are located. Drainage water on the southern part (south of Kilmany Park Mansion) generally runs towards to the south, where the floodplain (LSIO) area is located.

2 DESIGN INTENT

2.1 Proposed Development

The proposed indicative residential development plan, with total area of approximately 146 ha is to form 1,256 lots. This will comprise of standard (540m^2 net lot average), general (600-1,000m^2) and low (>2,000m^2) residential density lots (Refer to Figure 4 below and Appendix A). The standard and general lots are predominantly located on the northern and eastern half of the site. The low density lots are located in the south-western portion of the site.

This preliminary development layout will also include an oval and a few reserve and drainage reserve areas. The proposed road network will be designed to minimise traffic flow whilst maintaining simple and direct access for local residents.

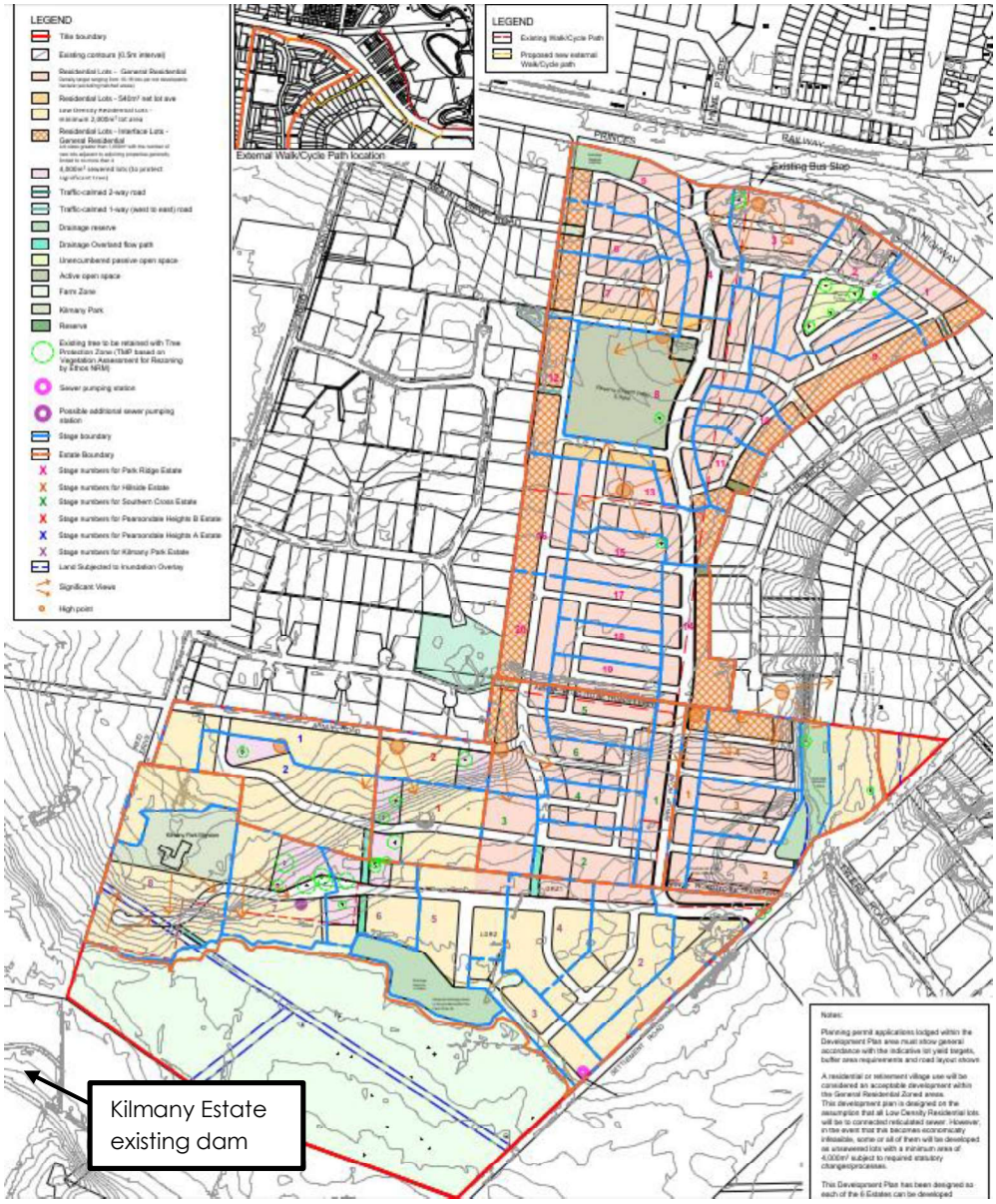


Figure 4: Indicative Subdivision Plan (Not to Scale)

2.2 Proposed Stormwater Management Strategy

The main objectives of this SWMS are to satisfy the requirements from Council and CMA, which include the following:

- Controlling the rate of the 1% AEP stormwater runoff for the post development peak flows to pre-development levels
- Providing stormwater treatment to meet the best practice management guidelines
- Ensuring there is no increased stormwater volume on the downstream lagoon and pumping costs, and a review of the proposed stormwater quality infrastructure to ensure the impacts of increase volume are addressed, as per the updated South Wurruk Stormwater Plan 2016

For stormwater quantity management, it is proposed to indicatively provide 3 stormwater detention basins throughout the subject site. Each of these basins will be located on the lowest point of each of the designated sub-catchment within the site.

For stormwater quality management, it is proposed to provide 3 sediment basins located within the stormwater retardation basins, rainwater storage tanks on each property, as well as benefits from the proposed stormwater harvesting scheme improving stormwater treatment results.

Details of both stormwater quantity and quality management are discussed in Sections 5 and 6.

Assessment of stormwater volume impact from the development was undertaken through a water balance model and this is further discussed in Section 7. A stormwater harvesting and re-use scheme is proposed for directing additional runoff volumes to neighbouring farm properties to reduce the impact on southern properties already experiencing flooding impacts.

3 HYDROLOGY

For the hydrology and overall catchment assessment of the proposed development sites, a runoff routing model was developed using the RORB program to determine the design flows for the pre-developed and post-developed scenarios. The internal flows of the site have been assessed for both the pre- and post-development conditions.

3.1 RORB Modelling

The pre-developed catchment of the site, including the contributing external catchment, was produced as shown in Figure 5. The corresponding catchments and fraction imperviousness are shown in Table 1. The post-developed catchment plan of the site, including the contributing external catchment, was produced as shown in Figure 6. The corresponding catchments and fraction imperviousness are as per Table 2.

Both pre- and post-developed catchments were updated from previous revisions to include the flow discharging from the lagoon. This was to produce a more accurate representation of the combined flows discharging from the lagoon and proposed development and ensure there were no negative impacts on downstream landowners.

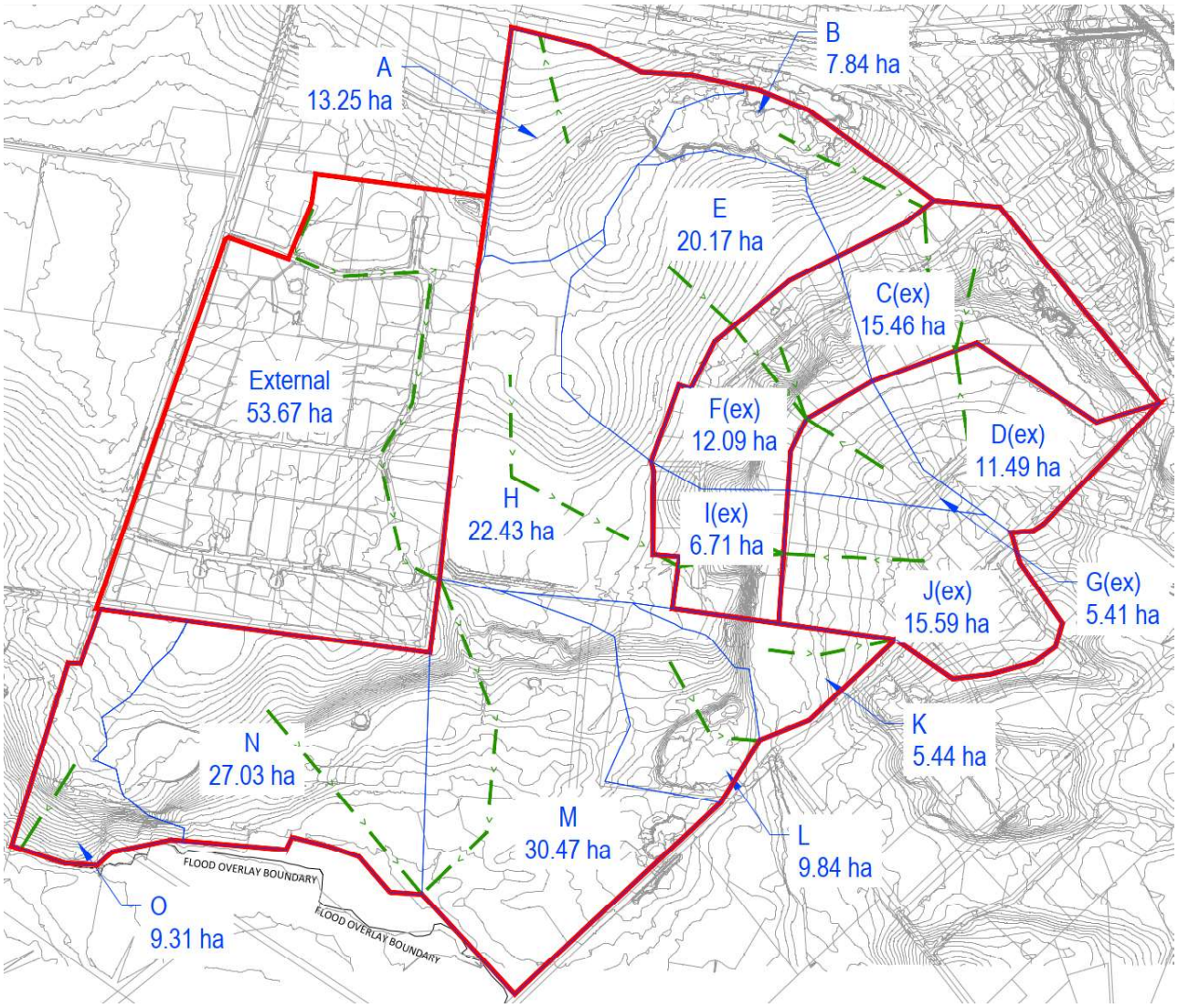


Figure 5: Pre-Developed Catchment Plan (Not to Scale)

Table 1: Pre-Developed Catchment Plan – Fraction Imperviousness

CATCHMENT	FRACTION IMPERVIOUSNESS
A – B	0.1
C(ex) – D(ex)	0.15
E	0.1
F(ex) – G(ex)	0.15
H	0.1
I(ex) – J(ex)	0.15
K – O	0.1
External	0.3

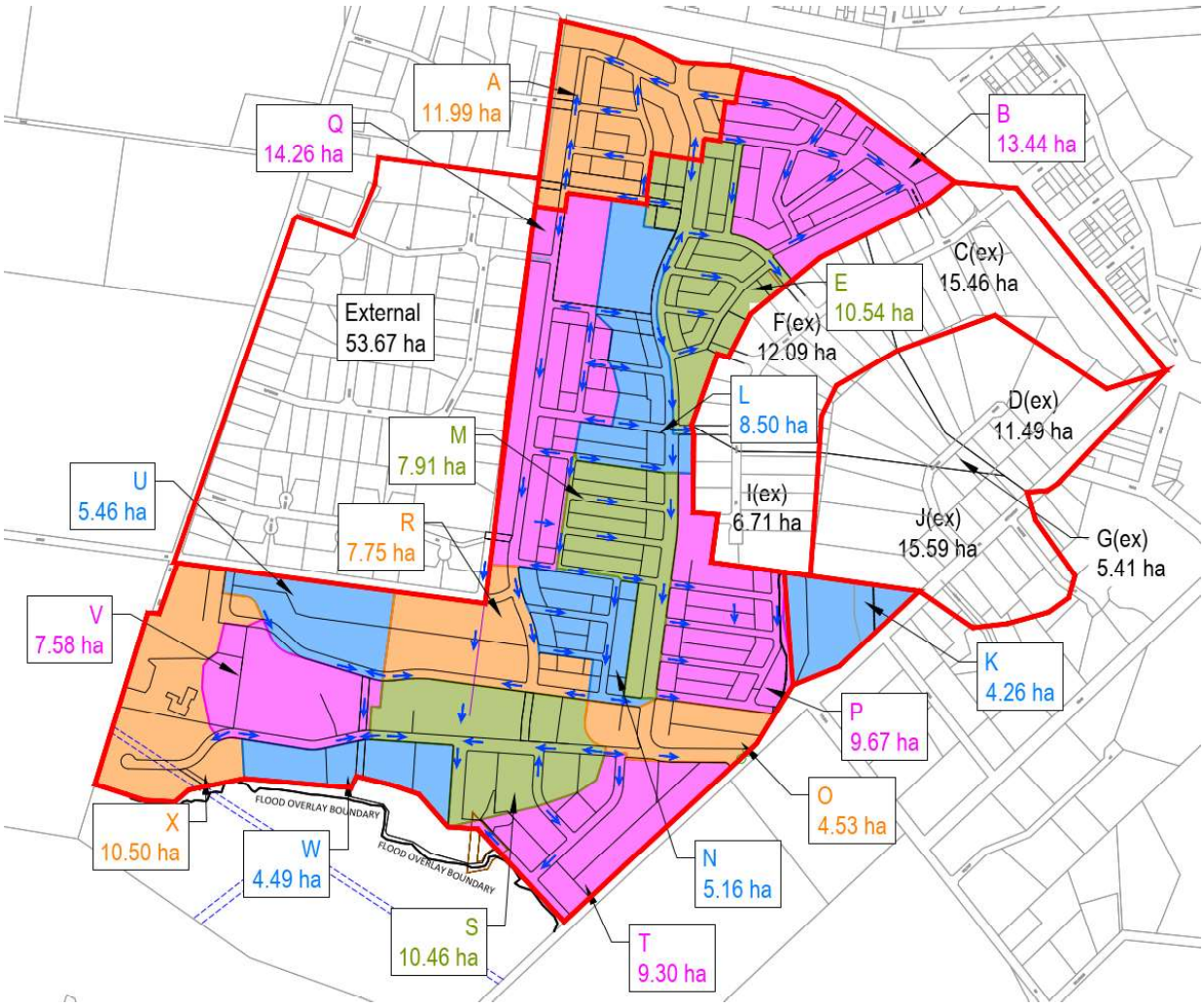


Figure 6: Post-Developed Catchment Plan (Not to Scale)

Table 2: Post-Developed Catchment Plan – Fraction Imperviousness

CATCHMENT	FRACTION IMPERVIOUSNESS
A – B	0.6
C(ex) – D(ex)	0.15
E	0.6
F(ex) – G(ex)	0.15
I(ex) – J(ex)	0.15
K	0.15
L – P	0.6
Q - R	0.6
S	0.5
T – X	0.3

The Rational Method was utilised to determine the existing flow conditions for the 1% AEP storm event. This is provided in Appendix B. This peak flow was then used to calibrate the RORB model using ARR2016, Ensemble Method. The temporal patterns, IFD data and losses were obtained from the ARR Data Hub website. The parameters for the RORB model are outlined in Table 2.

Table 3: RORB Input Parameters

PARAMETER	PRE-DEVELOPED	POST-DEVELOPED
k_c	2.14	2.72
d_{av}	0.92 km	1.17 km
m	0.8	0.8
IL	19.00 mm	19.00 mm
CL	3.00 mm/hr	3.00 mm/hr

The results of the 1% and 20% AEP pre-developed flow from the RORB model are shown in Table 3, and the results are provided in Appendix C.

Table 4: Pre-developed peak flows for varying AEP (m^3/s)

	OUTFALL NW (CATCH A)	OUTFALL LAGOON (CATCH B-G, I-K)	OUTFALL SE (CATCH B-L)	OUTFALL SOUTH (CATCH M-O, EXTERNAL)	TOTAL FLOW
18% AEP flow (6 hr storm event) (Temporal Pattern 8)	0.37 m^3/s	1.62 m^3/s	1.75 m^3/s	2.66 m^3/s	4.00 m^3/s
1% AEP flow (2hr storm event) (Temporal Pattern 25)	1.40 m^3/s	5.44 m^3/s	5.71 m^3/s	9.43 m^3/s	14.54 m^3/s

The results of the 1% and 20% AEP post-developed flow from the RORB model are shown in Table 4, and the results are provided in Appendix D.

Table 5: Post-developed peak flows for varying AEP - undetained (m^3/s)

	OUTFALL NW (CATCH A)	OUTFALL LAGOON (CATCH B-G, I-K)	OUTFALL RB SE (CATCH L-P)	OUTFALL SE (CATCH B-G, I-P)	OUTFALL SOUTH (CATCH Q-X, EXTERNAL)	TOTAL FLOW
18% AEP flow (1.5 hr storm event) (Temporal Pattern 9)	1.25 m^3/s	0.96 m^3/s	3.46 m^3/s	3.72 m^3/s	5.32 m^3/s	10.20 m^3/s
1% AEP flow (1 hr storm event) (Temporal Pattern 23)	2.62 m^3/s	3.66 m^3/s	7.56 m^3/s	8.42 m^3/s	15.87 m^3/s	26.31 m^3/s

3.2 Sub-surface Drainage (20% AEP)

The Legal Point of Discharges for the subject site will be to existing open channel on the east, existing floodplain area on the south and existing drainage system on the north-western corner (Refer to Figure 6).

The subsurface drainage networks for the development will convey all pipe flows to these discharge points, via the proposed water quality treatment facilities located within the proposed retarding basins throughout the site. The pipe networks will be adequately sized to convey the 20% AEP flows through the network.

3.3 Subject Site Overland Flow

The Q_{gap} post-developed overland flow from the proposed site will be discharged to the future development site to the east and south via the proposed subdivisional roads (Refer to Figure 7).

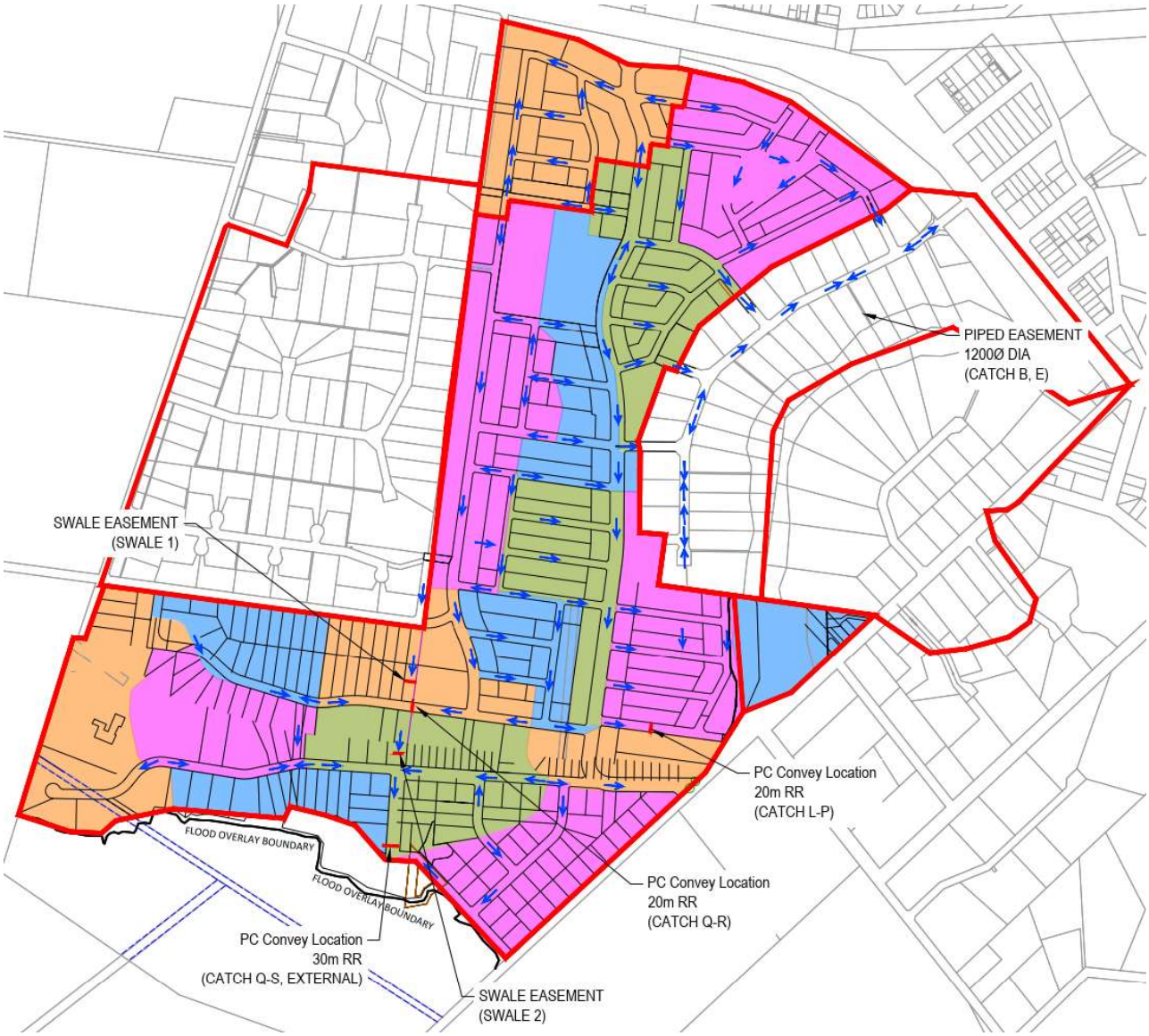


Figure 7: PC Convey Locations (Not to Scale)

Gap flow, which is the difference between the 1% AEP and 20% AEP post developed flows, was determined using the RORB calculations provided in Appendix D. The results are shown in Table 6.

Table 6: Peak flows within critical road reserves for varying AEP (m^3/s)

	20M RR (CATCH Q-R)	20M RR (CATCH L-P)	30M RR (CATCH Q-S, EXTERNAL)	SWALE 1 (CATCH EXTERNAL)	SWALE 2 (CATCH Q-R, EXTERNAL)
18% AEP flow (1.5 hr storm event) (Temporal Pattern 9)	1.78 m^3/s	2.05 m^3/s	3.72 m^3/s	4.89 m^3/s	4.53 m^3/s
1% AEP flow (1 hr storm event) (Temporal Pattern 23)	4.13 m^3/s	4.58 m^3/s	11.67 m^3/s	10.88 m^3/s	12.73 m^3/s
Gap Flow	2.35 m^3/s	2.53 m^3/s	7.95 m^3/s	5.99 m^3/s	8.20 m^3/s

The gap flow in the road reserve of 20m width, Catchment L-P (location shown in Figure 7), is expected to be 2.53 m^3/s.

The Q_{gap} overland flows through the site achieves 146mm freeboard with a minimum nature strip grade of 1 in 14. This is shown in a PC Convey check that was done for the site and is shown in Figure 8 and Appendix F. Therefore, a 5mm high batter is required at the front of lots.

The average velocity (V_{av}) of 0.94 m/s x average depth (D_{av}) of 0.20 m is 0.19 m^2/s, which is less than 0.35 m^2/s. The average depth of 0.20 m is less than 0.30 m. The gap flow is therefore within WGCMA flood safety criteria.

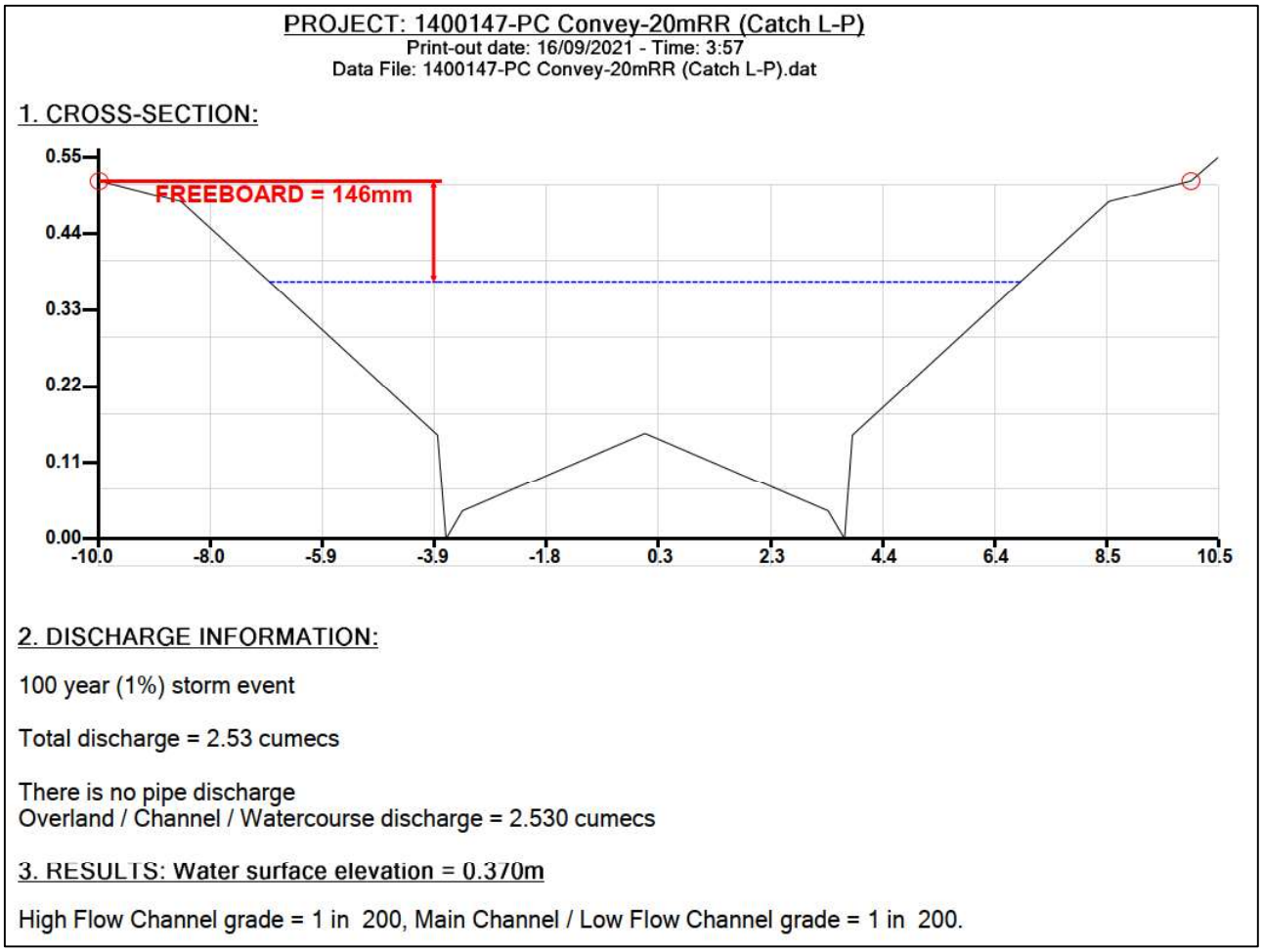


Figure 8: PC Convey Assessment for 20m Road Reserve (Not to Scale)

The flow in the road reserve of 30m width, Catchment Q-S, External (location shown in Figure 7), is conservatively assumed to be 11.67 m^3/s. This the 1% AEP flow. This is because the overland flow upstream is conveyed via swales, and it is not confirmed whether the piped network will discharge into the swales located upstream or continue to be piped. This will be confirmed at Functional Design.

Due to the large flows being conveyed within the road reserve, and the road reserve being located within the low-density development, a 12 m wide swale was included to ensure lots achieve freeboard. The swale was designed as per the swale properties outlined in Table 7, and the nature strip grade to achieve freeboard was 1 in 20. This is shown in a PC Convey check that was done for the site and is shown in Figure 9 and Appendix F. The location of the swale is not fixed and can be placed on either side of the road, or alternatively within a median splitting the road into a dual carriageway. The exact arrangement of the road reserve will be determined from further engineering design and considerations during the stage design.

The maximum depth within the road reserve component is 0.17 m, therefore the average depth is less than 0.30 m. The flow within the road reserve is therefore within WGCMA flood safety criteria.

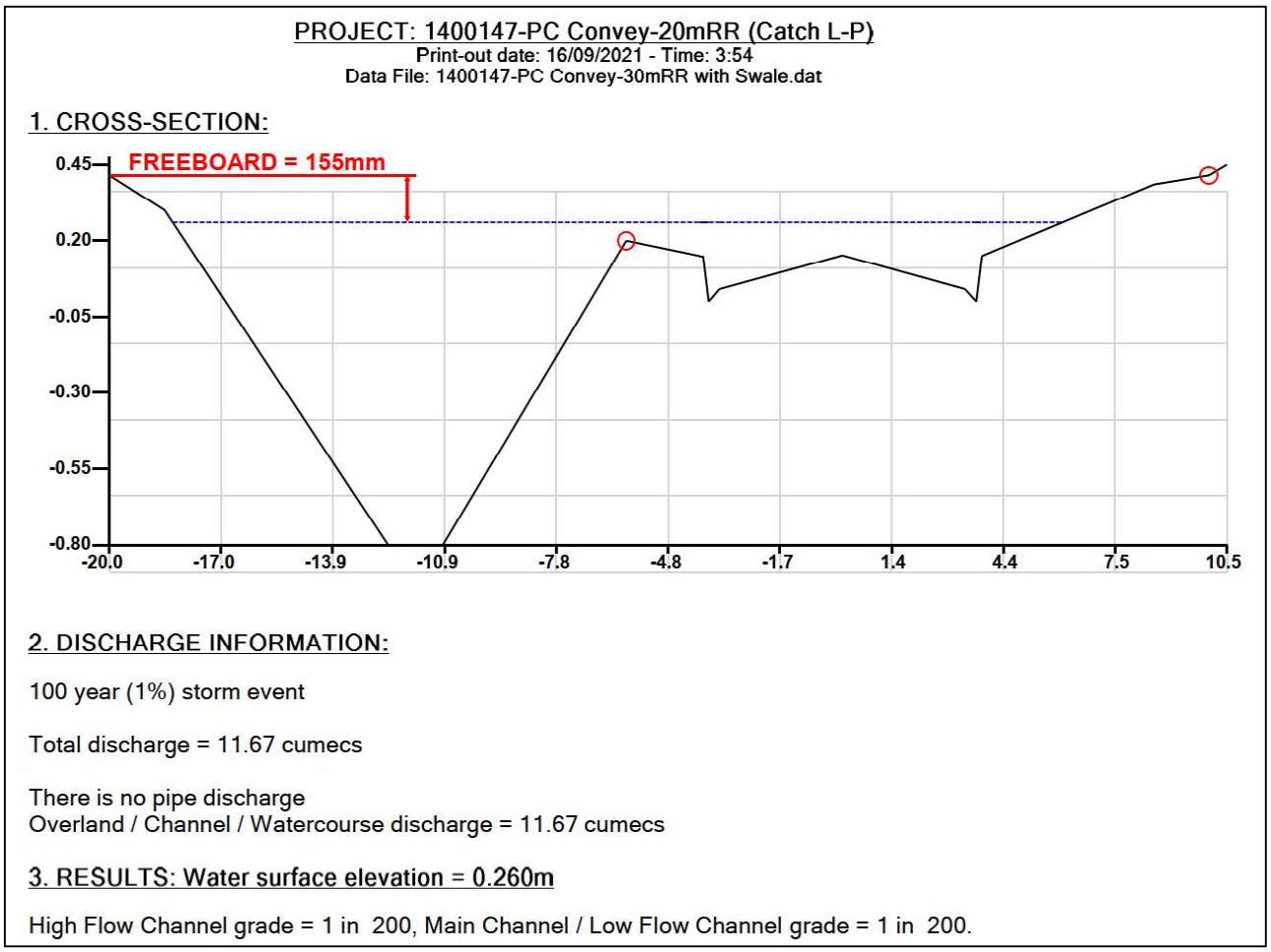


Figure 9: PC Convey Assessment for 30m Road Reserve (Not to Scale)

The flow in Swale 1 (External catchment – location shown in Figure 7), is conservatively assumed to be 10.88 m^3/s. This is the 1% AEP flow, as it is not confirmed whether the External catchment will discharge directly into the swales or low flow will be conveyed in the underground drainage network. This will be confirmed at Functional Design.

The overland flow achieves 300mm freeboard with a swale that has a depth of 1.3m and top width of 15m. The overall drainage reserve width is also 15m. This is shown in a PC Convey check that was done for the site and is shown in Figure 10 and Appendix F. The swale properties are provided in Table 7.

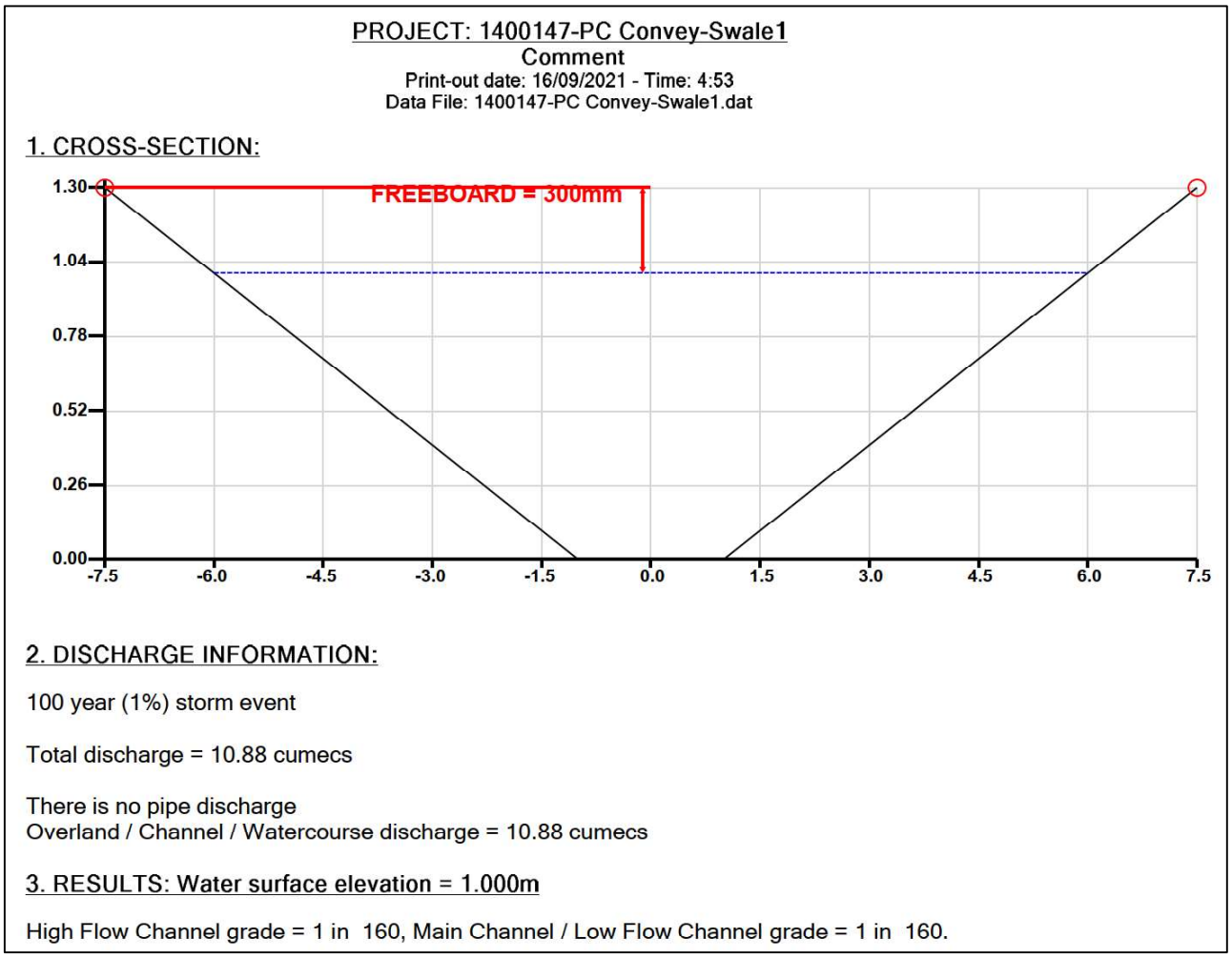


Figure 10: PC Convey Assessment for Swale 1 (Not to Scale)

The flow in Swale 2 (Catchment Q-R, External – location shown in Figure 7), is conservatively assumed to be 12.73 m^3/s. This is the 1% AEP flow, as it is not confirmed whether the External catchment will discharge directly into the swales or low flow will be conveyed in the underground drainage network. This will be confirmed at Functional Design.

The overland flow achieves 300mm freeboard with a swale that has a depth of 1.3m and top width of 15m. The overall drainage reserve width is also 15m. This is shown in a PC Convey check that was done for the site and is shown in Figure 11 and Appendix F. The swale properties are provided in Table 7.

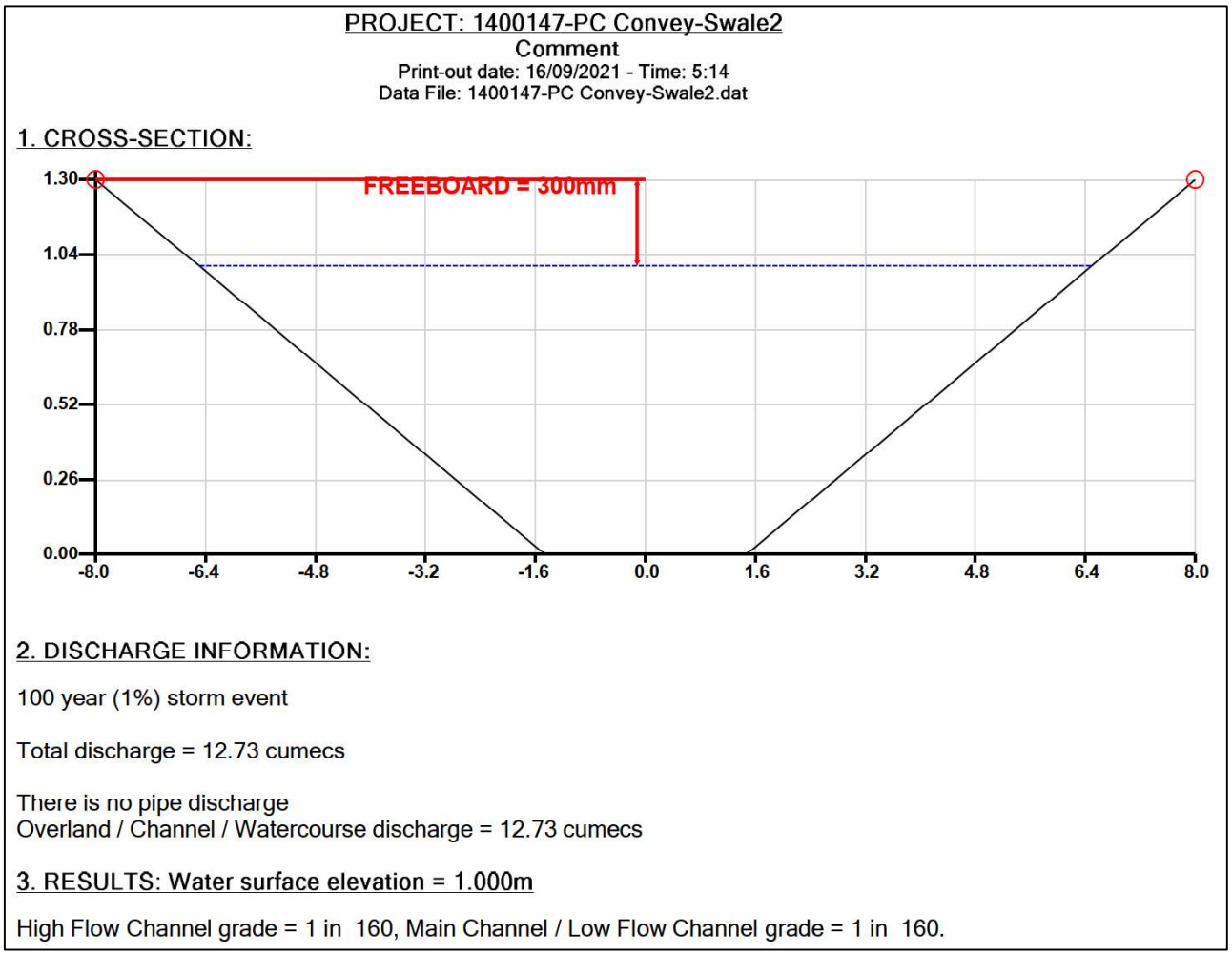


Figure 11: PC Convey Assessment for Swale 2 (Not to Scale)

The swales within drainage reserves / easements have been sized accordingly to convey the gap flow with 300mm freeboard. The swales within the road reserve have been sized to convey the gap flow with 150mm freeboard. Their properties are shown in Table 7.

Table 7: Swale properties

	DEPTH	SIDE SLOPE	CHANNEL BED SLOPE	TOP WIDTH	BASE WIDTH	FREEBOARD
30m RR Swale	1.0 m	1 in 5	1 in 200	11.5 m	1.5 m	0.15 m
Swale 1	1.3 m	1 in 5	1 in 160	15.0 m	2.0 m	0.30 m
Swale 2	1.3 m	1 in 5	1 in 160	15.9 m	2.90 m	0.30 m

Catchment B & E discharge through The Ridge Estate, which is located east of the proposed development. An easement is located within Lot 30 to convey the overland flow from The Ridge, which also includes the flow from Catchment B & E within the proposed development. The design plans and location of the easement are shown in Figure 12 and Figure 13, and the design plans are included in Appendix G.

The flow that is to be conveyed with the easement is combined flow from Catchment B and Catchment E, which is 4.66 m^3/s. This can be conveyed completely within a 1200 dia. drainage pipe with a grade of 1 in 30. 1 in 30 is the existing slope within Lot 30. Inlet pits at the low point (CH305.79) will be adequately sized to capture the gap flow.

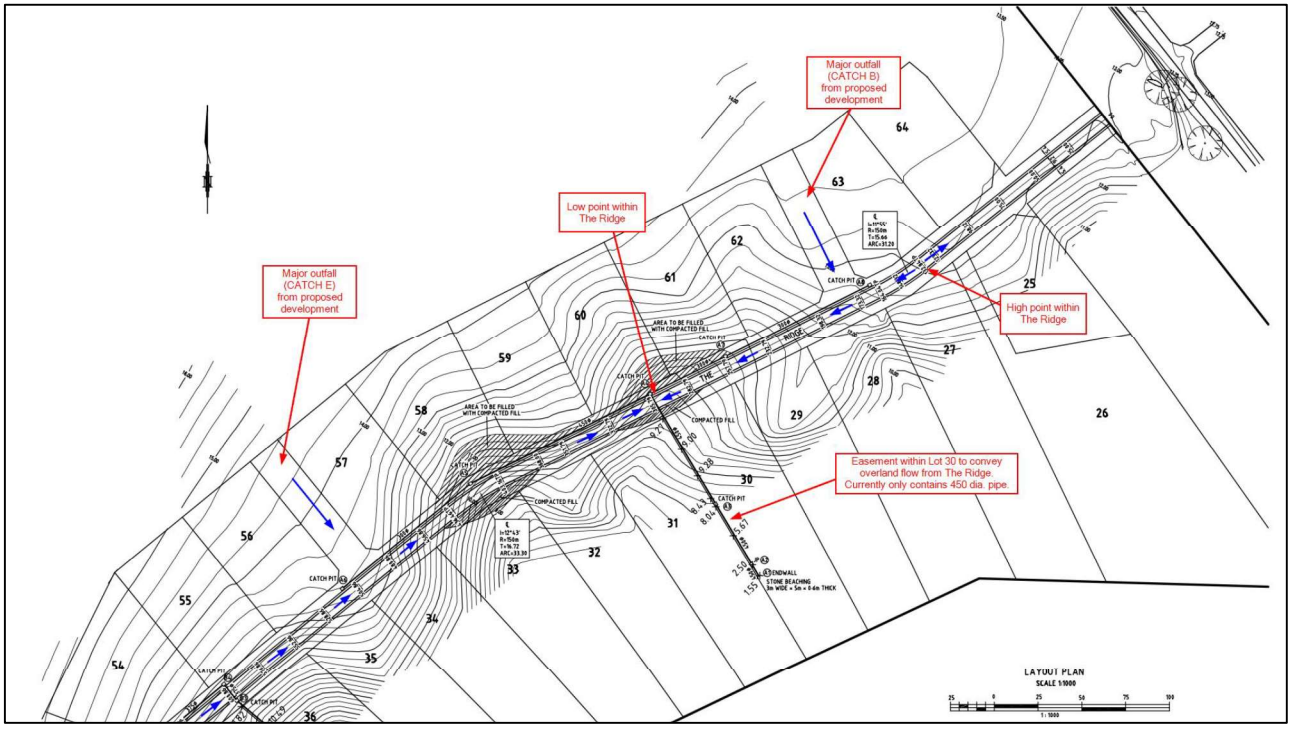


Figure 12: The Ridge Estate located east of proposed development (1 of 2) (Not to Scale)

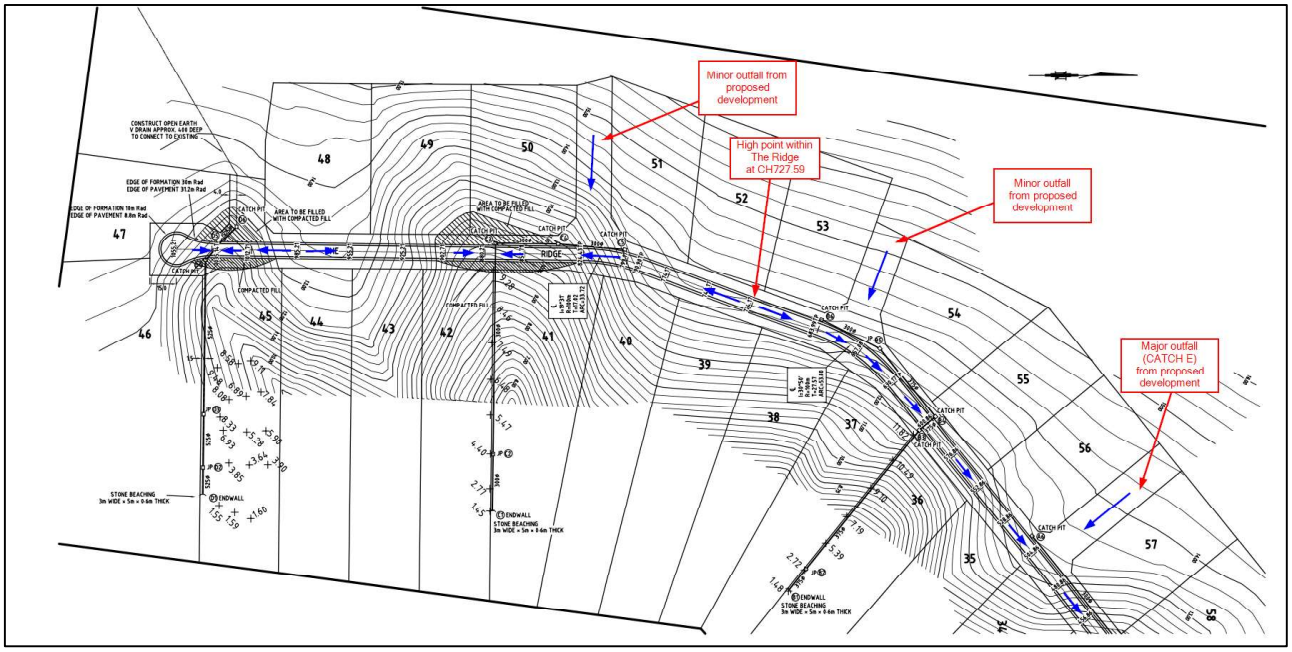


Figure 13: The Ridge Estate located east of proposed development (2 of 2) (Not to Scale)

3.4 Sizing of Detention Storages

The sizing of the sediment basin retarding basins (SBRB's) has been governed by the storage required to retard the flows back to predeveloped. Each of the SBRB's have been sized with 1 in 5 batter slopes to the NTWL. The detained peak flows are provided in Table 8, and the indicative retarding basin properties of the SBRB's have been provided in Table 9. The indicative locations are shown in Figure 14.

Table 8: Detained peak flows for varying AEP (m^3/s)

	OUTFALL NW (CATCH A)	OUTFALL LAGOON (CATCH B-G, I-K)	OUTFALL SE (CATCH B-G, I-P)	OUTFALL SOUTH (CATCH Q-X, EXTERNAL)	TOTAL FLOW
18% AEP flow (4.5 hr storm event) (Temporal Pattern 5)	0.27 m^3/s	1.34 m^3/s	1.89 m^3/s	1.96 m^3/s	3.99 m^3/s
1% AEP flow (2 hr storm event) (Temporal Pattern 28)	0.95 m^3/s	4.70 m^3/s	5.91 m^3/s	7.53 m^3/s	13.65 m^3/s

Table 9: Indicative Retarding Basin properties of SBRB's

LOCATION	STORAGE REQ'D (1% AEP FLOOD LEVEL)	SURFACE AREA (TOP OF BANK)	DEPTH (TOP OF BANK)	BATTER SLOPES	OUTFALL ARRANGEMENT
SBRB NW	2,670 m^3	3,510 m^2	1.2 m	1 in 5	2 x 525mm Ø pipe (subject to detail design)
SBRB SE	13,700 m^3	13,220 m^2	2.0 m	1 in 5	2 x 525mm Ø pipe (subject to detail design)
SBRB South	27,000 m^3	18,570 m^2	1.7 m	1 in 5	2 x 900mm (W) x 2100mm (H) BC (subject to detail design)
TOTAL	**43,370 m^3**				

The above peak flows and detention storage volumes results indicate that the 1% AEP post development peak flows can be detained to the pre-development level by providing a total detention storage of 43,370 m^3.

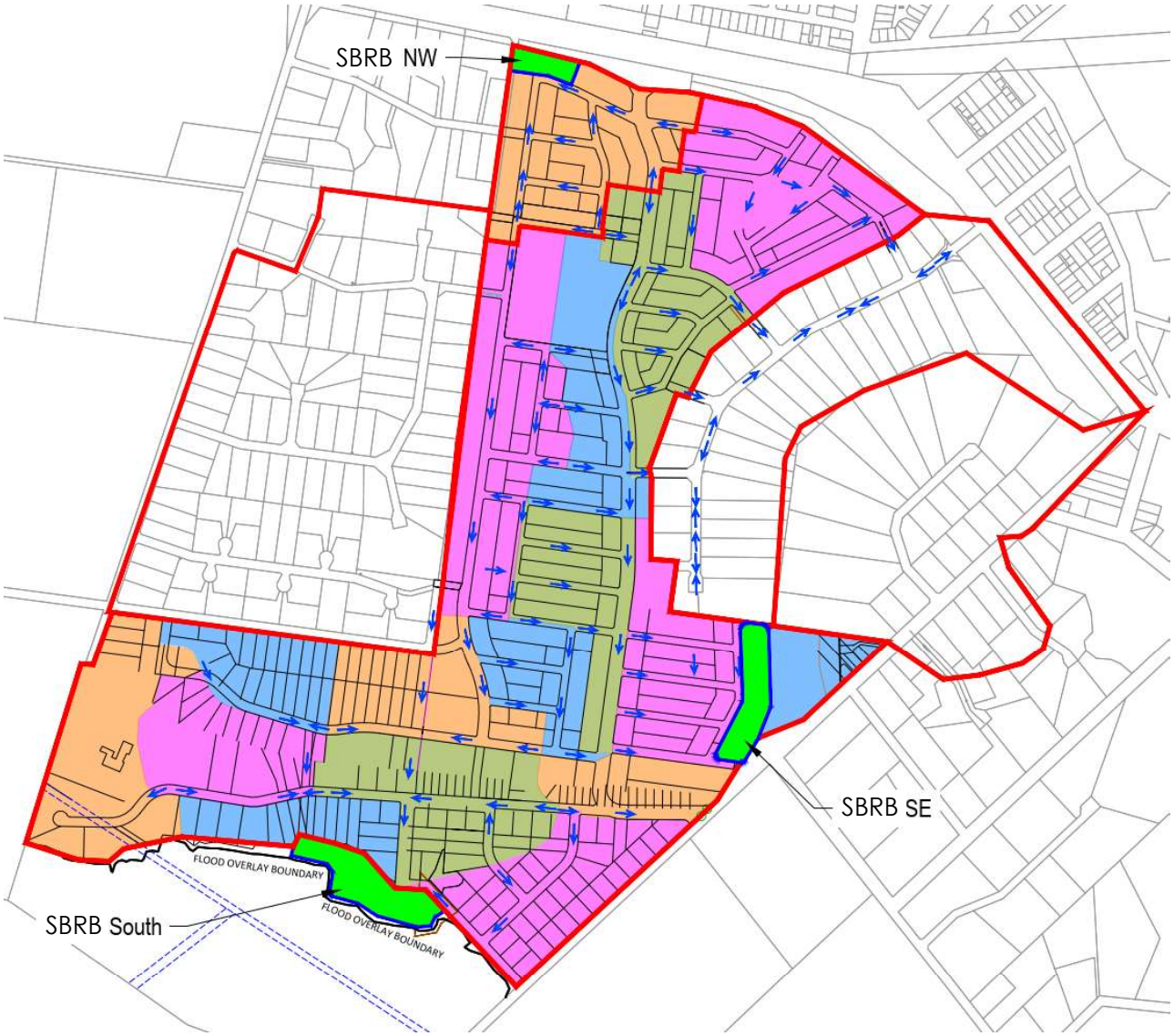


Figure 14: Indicative Location of SBRB's (Not to Scale)

4 STORMWATER QUALITY MANAGEMENT

Stormwater quality treatment objects requires all developments to provide minimum best-practice water quality treatment. The current standard according to the Urban Stormwater Best Practice Environmental Management Guidelines (BPEMG) are:

- 70% removal of the Total Gross Pollutant Load (Litter);
- 80% removal of Total Suspended Solids (TSS);
- 45% removal of Total Phosphorous (TP); and
- 45% removal of Total Nitrogen (TN).

Stormwater quality modelling was conducted using MUSIC (Model for Urban Stormwater Improvement Conceptualisation) for the proposed development site.

The layout of the MUSIC Model is shown in Figure 15 below and results of the MUSIC model are shown in Table 10. The proposed treatment will be 3 sedimentation basins located within the base of retarding basins, 2-kL rainwater tanks installed at each lot for re-use, as well as utilizing the existing 40 ML Kilmaney Park dam as part of a stormwater harvesting system to irrigate surrounding farm land. The proposed stormwater harvesting scheme (Section 5.2) will receive flows from the SBRB South and is included in the model to assess the benefit to the overall treatment train.

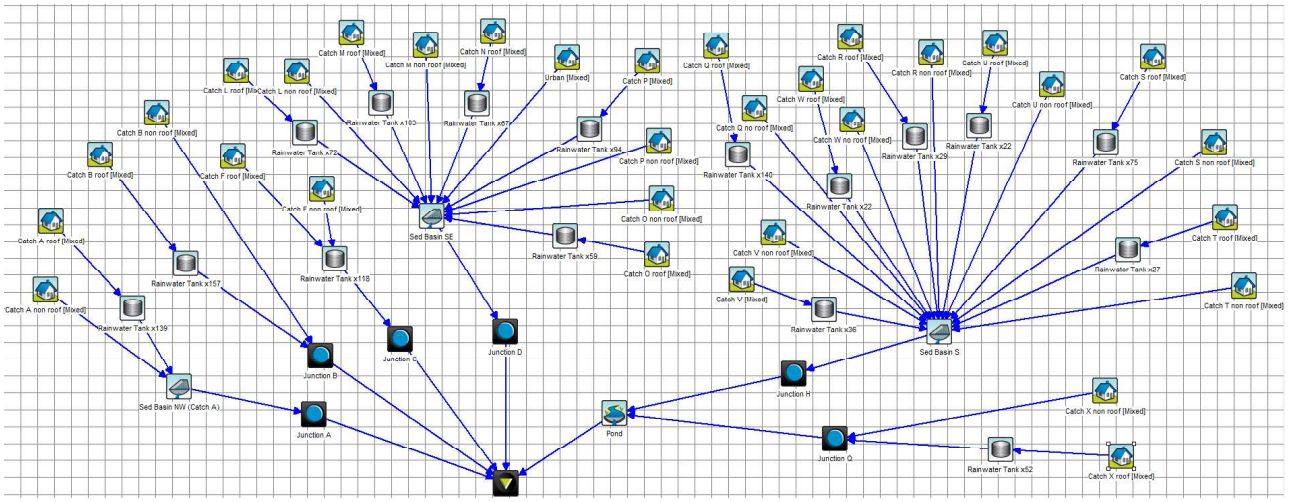


Figure 15: MUSIC Model Layout

Table 10: MUSIC Model Results

SITE TREATMENT	% REMOVAL	BPEMG TARGET % REMOVAL
Total Suspended Solids	86.2	80
Total Phosphorous	70.9	45
Total Nitrogen	49.5	45
Gross Pollutants	96.3	70

As shown in Table 10, the proposed treatment train can meet the best practice BPEMG standard. Details of the sedimentation basins are shown in Table 11. Location of the sediment basins are shown in the previous Figure 14.

Table 11: Indicative Sediment Basin Properties of SBRB's

LOCATION	SEDIMENTATION BASIN AREA	TOTAL DRAINAGE RESERVE AREA
SBRB NW	200 m^2	6,900 m^2
SBRB SE	400 m^2	16,070 m^2
SBRB South	200 m^2	24,330 m^2
TOTAL	800 m^2	47,300 m^2

A total drainage reserve area of approximately 47,300 m^2 for the proposed SBRB's, and 2-kL rainwater tanks for each Lot will be required to provide stormwater treatment for the development site, as well as the conversion of the existing dam to the south-west into a stormwater harvesting and irrigation treatment as supplementary treatment. Please note the drainage reserve area is dictated by the retarding basin storage volume required.

The design of the sedimentation basins will be in accordance with the specific technical details contained in the design and construction sections within the WSUD Technical Manual. The detailed designs of these WSUD assets have not yet been completed and these will be submitted to Council and CMA during the detailed design phase of the project.

5 STORMWATER VOLUME/WATER BALANCE ASSESSMENT

A Water Balance model was undertaken to assess the increase in the volume of runoff to the existing dam located to the external south of proposed SBRB south. This was to ensure that is no increase in the volume offsite as the downstream receiving waterway is constrained by a levee downstream of Bristows Lane.

5.1 Water Balance

A MUSIC model was created using the proposed development site (excluding Catchment A which discharges to the NW), and 2-kL rainwater tanks provided for each Lot within those catchments. Rainfall data for this catchment was available from 1954-2010. The period 1991-2000 was chosen as this was the period that had a 10-year average closest to the total average of 1954-2010 (ensuring that no excessively wet / dry period were selected).

The re-use requirements of the lots were:

- New residential (>735 m^2) = 0.275 kL/house/day
- New residential (350 – 735 m^2) = 0.22 kL/house/day

(Source: DELWP IWMS Preliminary Assessment Method_Oct 15)

The results of the flux files are shown in Table 12. The calculations are provided in Appendix H.

Table 12: Flux calculations for Development Site

LOCATION	PRE-DEVELOPED	POST-DEVELOPED
Rainfall	77.6 ML/year	328 ML/year
Water usage	-	66.3 ML/year
Volume discharging from site	77.6 ML/year	261.7 ML/year
Difference post-developed volume to pre-developed volume	**184.1 ML/year**	

As shown in Table 12, the increase in rainwater volume discharging to the south is 184.1 ML/year. In order to ensure no negative impacts on the downstream landowners, this excess volume will be potentially diverted to the existing dam located adjacent to the Kilmany Park Heritage site and be pumped and used for irrigation. The location of the existing dam is shown in Figure 16.

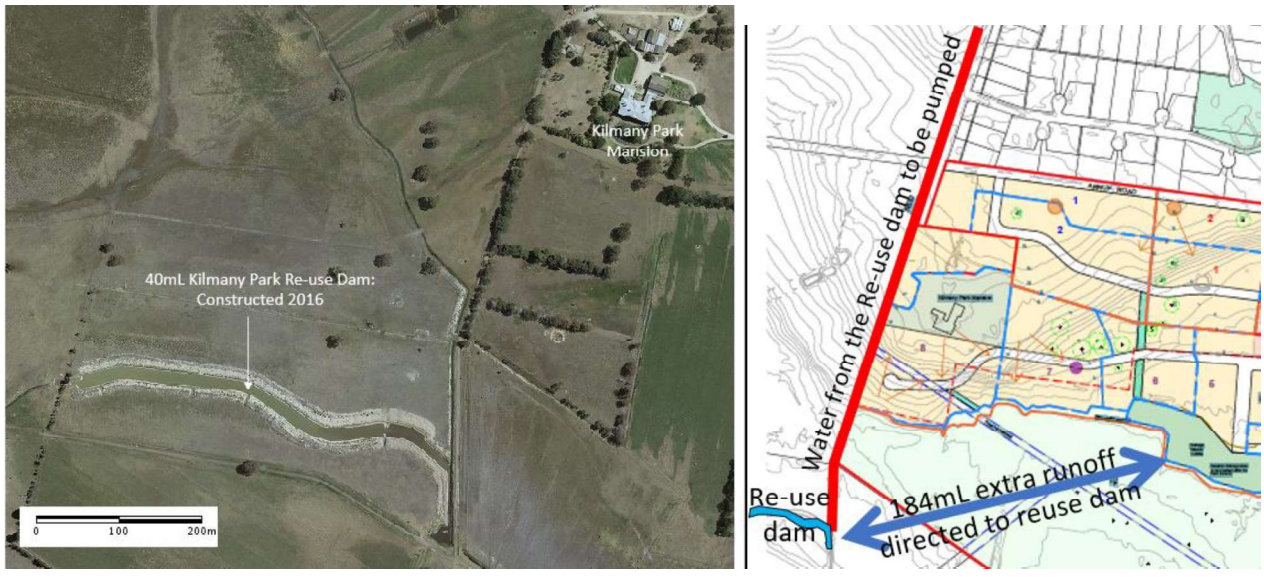


Figure 16: Existing dam located adjacent to Kilmany Park Heritage site

5.2 Stormwater Harvesting System

Kilmany Park is a working dairy farm that utilises significant amounts of water irrigating a 56 hectare laser graded area on the west side of Reid Drive and paddocks on the south side of the development plan area. It also supplies numerous cattle troughs spread across the overall farm. The proposed development plan will only lead the loss of a small part of the farm to residential lots.

The current sources of irrigation supply for the farm are:

- stormwater runoff from farmland within the development plan area the adjoining estates to its west. This stormwater is presently collected and directed to a 40ML reuse dam to the south of Kilmany Park via open channels in the southern portion of the farm adjacent to Settlement Road. The location and nature of this dam can be seen in ***Figures 16*** & ***17***;
- water taken from the Thomson River under a 555 ML/year right. This water is pumped to a dam at the southwest corner of Reid Drive and the Princes Highway via a 250mm pipe running through existing easements. This dam and the pumping station that feeds water to the series of irrigation channels running through the 56 hectares of laser graded paddocks can be seen in ***Figures 18*** & ***19***. The pumping station at the Thomson River that feeds the Kilmany Park Farm can be seen in ***Figure 20***; and,
- a 422.4 ML/year groundwater licence.

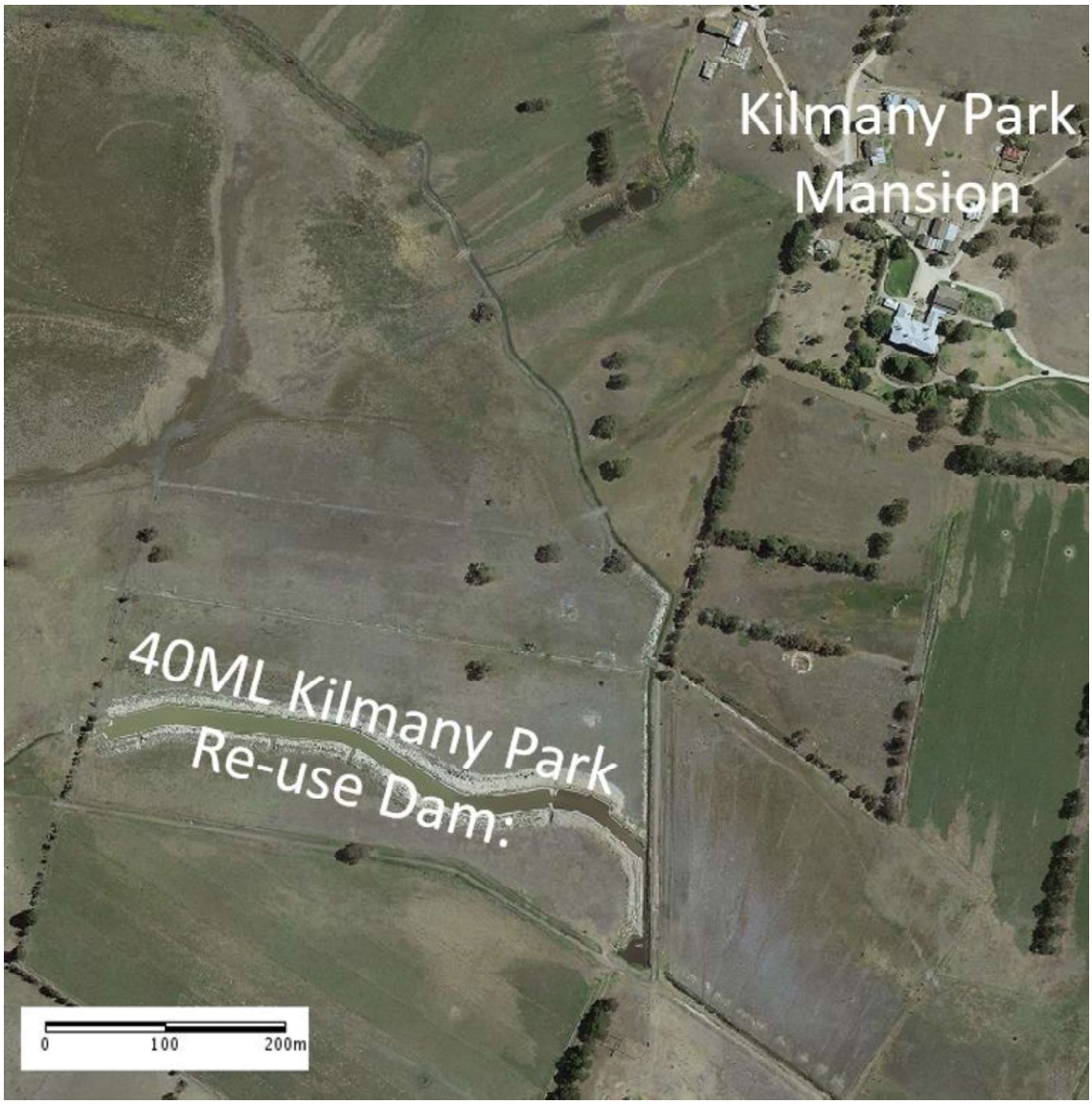


Figure 16: Aerial photo showing the location of the existing farm re-use dam located to the south of the Kilmany Park Mansion

Figure 17: Photo showing the existing southern Kilmany Park reuse dam to the south of the Kilmany Park Mansion and the pumping system that presently sends water to sprinkle irrigators in the southern portion of the farm

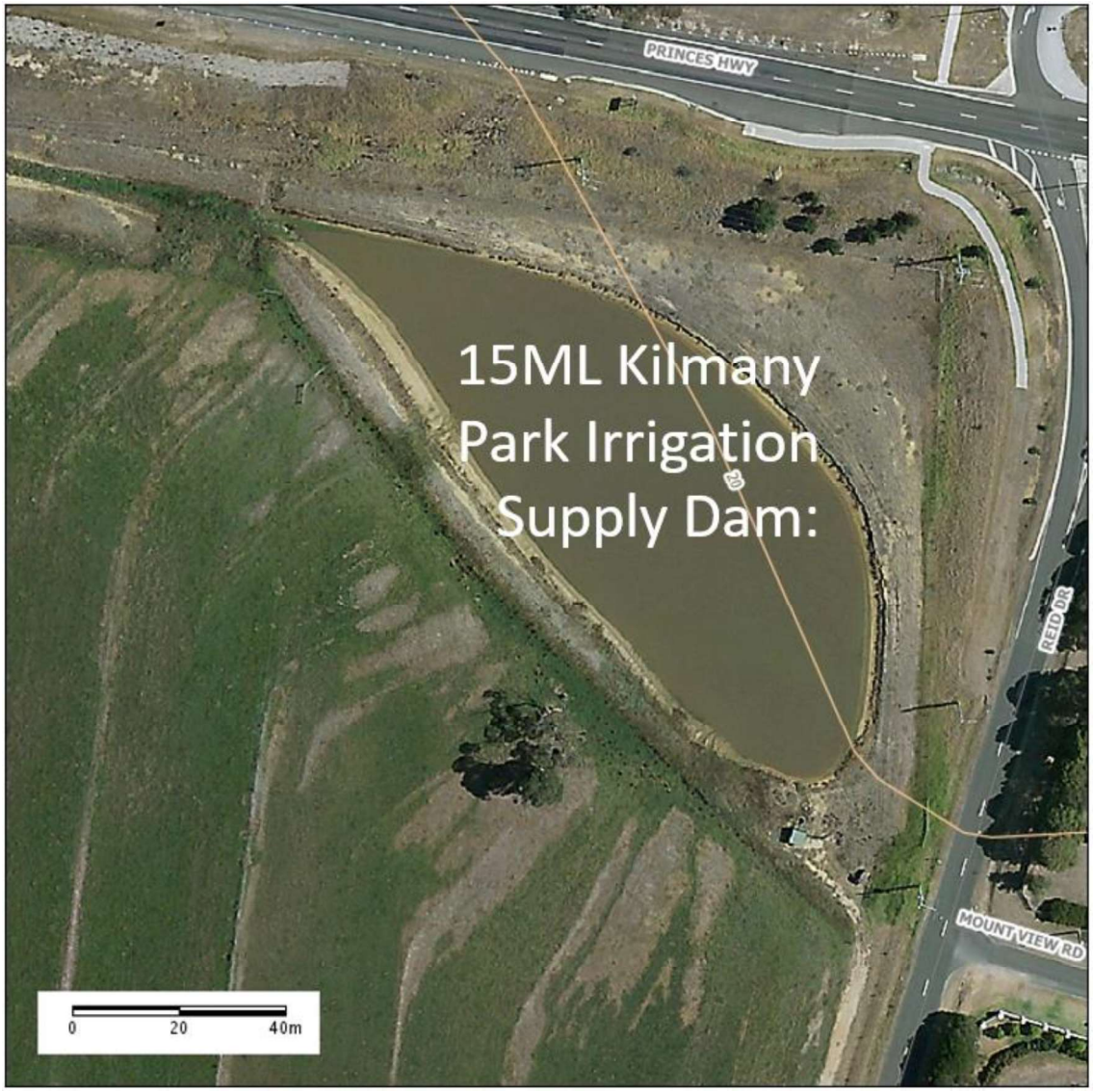


Figure 18: Aerial photo showing the location of the existing farm re-use dam located at the southwest corner of Reid Drive and the Princes Highway

Figure 19: Photo showing the the existing farm re-use dam located at the southwest corner of Reid Drive and the Princes Highway and the pumping station that sends water from it to the irrigation channels

Figure 20: Photo of the pumping station at the Thomson River via which the 550ML water right allows the pumping of water to Kilmany Park Farm via a 250mm underground pipe

Figure 21: Photo of the connection of the existing 250mm transfer pipe to the pumping station at the Thompson River

In order to ensure that there are no negative impacts on the downstream landowners as a result of the proposed development, the excess 184.1ML/year volume created by it will be diverted to the existing reuse dam located to the south of the Kilmany Park Homestead via existing channels in the southern portion of the farm. From there it will be pumped north to allow its use for irrigation across both the 56 hectare site on the west side of Reid Drive that is used for grazing as part of the Kilmany Park dairy farm and other parts of the farm.

This outcome has the potential to reduce the amount of water extracted from the Thomson River under the 555ML water license, allowing that water to be returned as environmental flow. It will also be feasible for excess water from the estate to be returned to the Thomson River through the irrigation pipe if there is excess by modifying it to allow water to flow back to the river via a gravity feed. The alignment along which water will be pumped between the southern reuse dam and the dam at the southwest corner of the Princes Highway and Reid Drive is shown in ***Figure 22***.

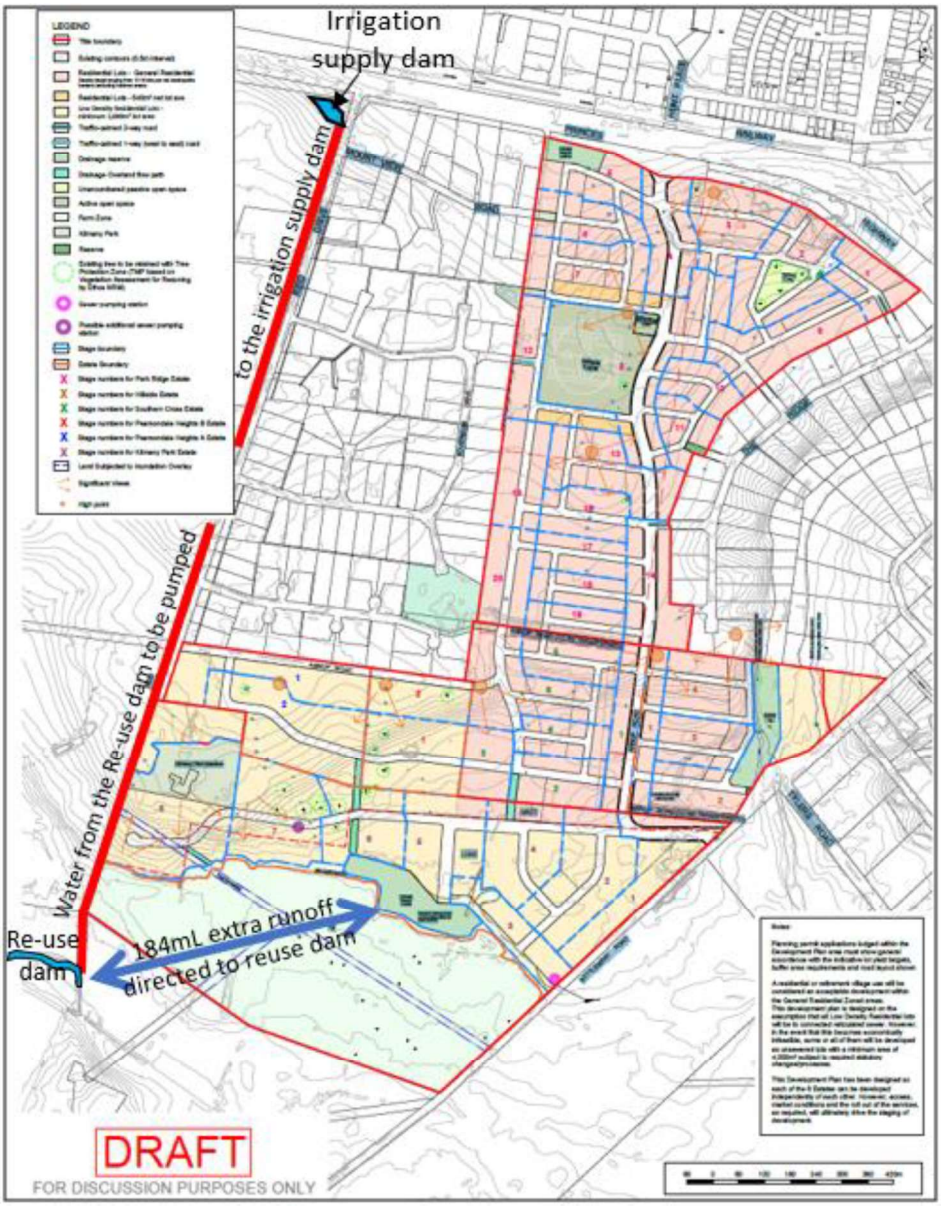


Figure 22: Map showing how stormwater will be directed from the southern retarding basin to the existing southern re-use dam and then pumped north to allow irrigation on the Kilmany Park dairy farm

Figure 23 shows how the full stormwater harvesting system will operate with respect to the location of floodplains, irrigated paddocks, adjoining developments and the existing infrastructure on the Thomson River.

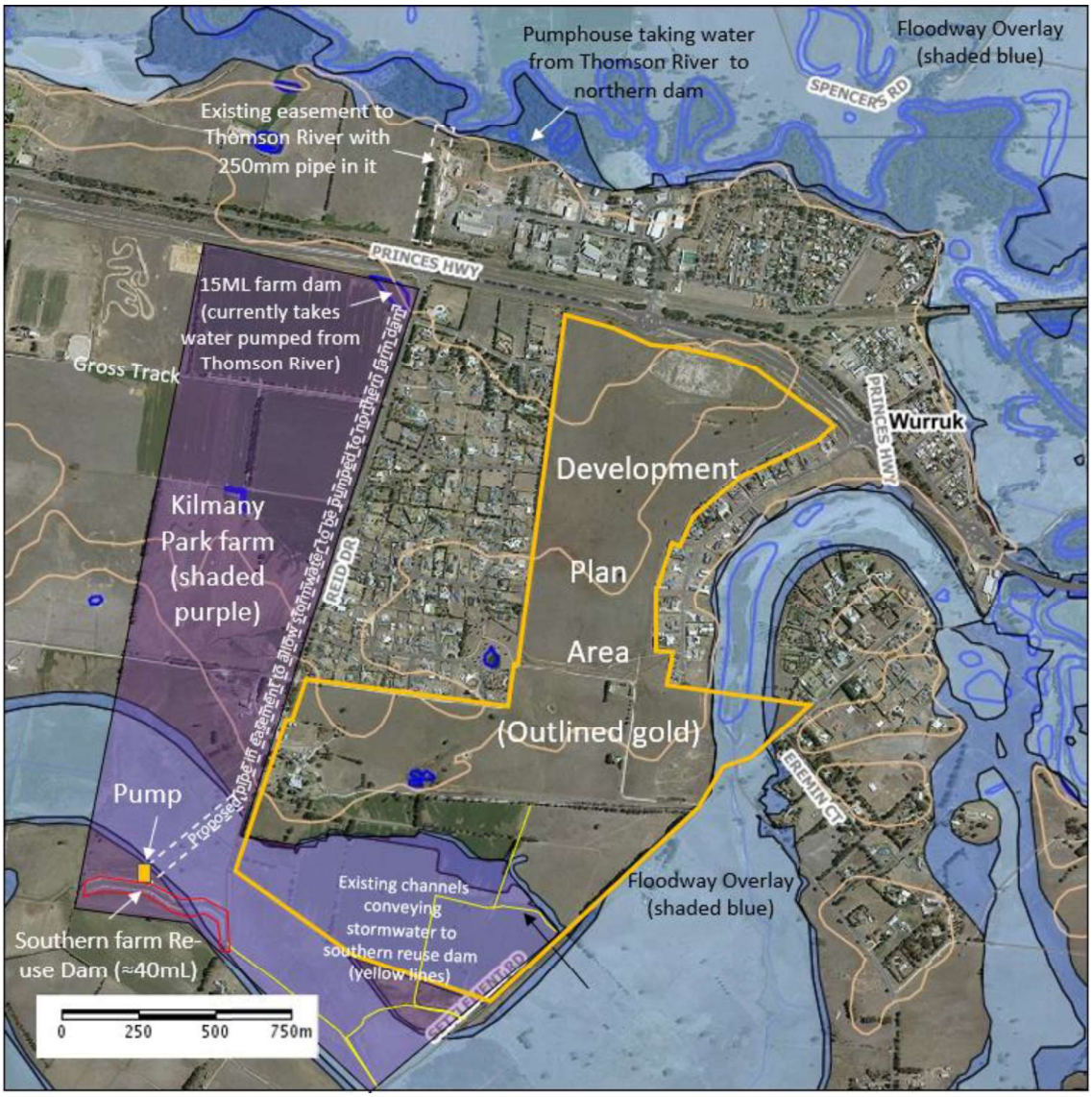


Figure 23: Map showing how the stormwater harvesting system will operate within the existing irrigation system on the Kilmany Park dairy farm

Discussions were also had with Council regarding the potential integrated water management benefits to the proposed sports fields if the harvested stormwater is used for irrigation there as well. However, Council expressed that they do not wish to implement a stormwater re-use scheme for the fields, and to exclude them from any stormwater harvesting scheme. Hence, all of the excess runoff will be used by the Kilmany Park farm.

The following works will be required to facilitate this stormwater harvesting system:

- The pump at the southern reuse dam be modified and relocated the location shown in **Figure 23**;
- 2 kilometres of pipe be laid along the alignment shown in ***Figure 23*** to allow water to be pumped between the 40ML reuse dam and the 15ML dam at the southwest corner of Reid Drive and Princes Highway;
- Modifications be made to the supply pipe from the Thomson River to allow it to also act as an outlet pipe to take excess flow back to the river when storage is at capacity on the Kilmany Park farm.

These materials and works will become an item in the Developer Contribution Plan to ensure fair distribution of costs amongst the estates benefitting from the capacity to harvest and reuse excess stormwater.

The result of the modifications to the irrigation system to allow the use of the excess runoff from the proposed development plan area will be:

- A reduction in the amount of water pumped from the Thomson River under licence by an average of 184 ML/year; and,
- Prevention of external properties to the south of the development plan area from being negatively impacted by additional stormwater outfall volumes from the proposed development; and,
- A reduction in the extent of stormwater treatment required in Council assets.

6 CONCLUSION

This report has provided a drainage management strategy for the proposed South Wurruk Development Plan. The strategy provides a methodology for the management of stormwater on the subject site, which would result in:

- Construction of drainage assets to meet the likely requirements of West Gippsland CMA and Council, including 1% AEP capacity road reserves and underground drainage for the 20% AEP storm event as required;
- Volumes of stormwater detention requirements of 45,780 m^3 will be required to detain the proposed development site. This volume will be contained within the proposed 3 retarding basins located throughout the site, to cater for the designated sub-catchment areas;
- Stormwater quality treatment system required to meet BPMEG standard will be 3 sedimentation basins, 2-kL rainwater tanks to service each Lot, and a stormwater harvesting scheme including a 40 ML storage to irrigate neighbouring farm land. The sediment basins will be located within the proposed retarding basins;
- Installation of a pump & irrigation to remove the excess volume that is discharged into the existing dam (located to the external south of proposed SBRB south), to negate any negative impacts to native flora and fauna and neihbouring properties with additional volume runoff generated by future development.

The above strategy can be implemented and all WGCMA and Council's development requirements can be achieved, with no net effect on the downstream properties.

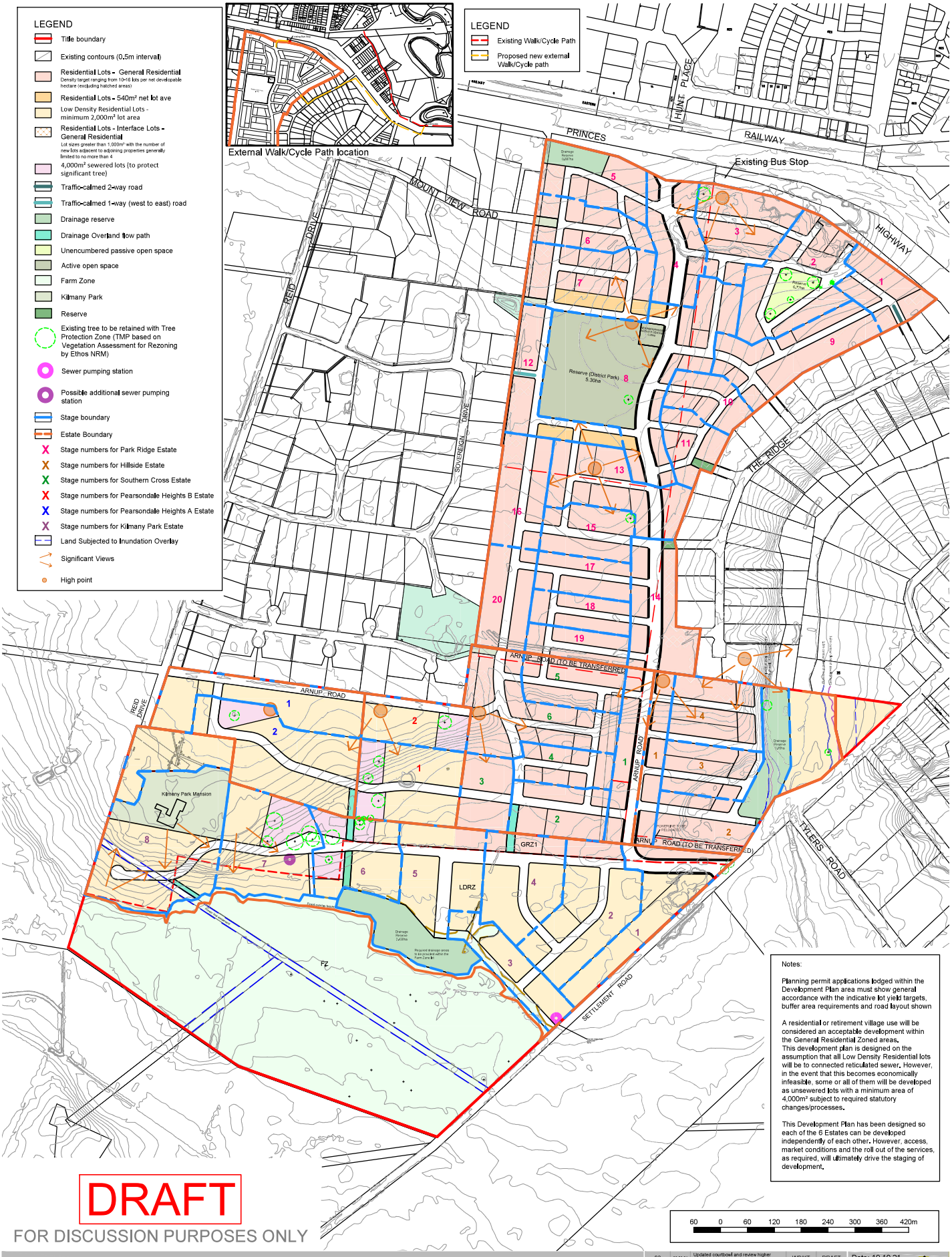
BEVERIDGE WILLIAMS & CO PTY LTD

Prepared by	Reviewed by
Jacqueline Woodlock *Water Resources Engineer*	*Lola Nurhalim* *Senior Water Resources Engineer*

Approved for issue by

Chris Curnow
Project Manager

APPENDIX A: INDICATIVE SUBDIVISION PLAN



DRAFT

FOR DISCUSSION PURPOSES ONLY

Development Plan

Wurruk Growth Area

Jelaryl, Barry Hollonds, Pearsonsdale Heights, and Park Ridge Investment

Beveridge Williams
development & environment consultants
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Version	Date	Description	Drafted	Approved
02	26.02.21	Updated courtbowl and review higher density sites	WB/KT	DRAFT
03	30.04.21	Amendments to include updated drainage reserves and staging	MJ	WEB
04	10.05.21	Amendments to include significant views	MJ	WEB
05	13.10.21	Amendments as per Council comments	MJ	WEB
06	19.10.21	Amendments as per Council comments	MJ	WEB

Date: 19.10.21
Version No: 06
Job No: 1400147
Scale (A1): 1:3750
(A3): 1:7500

K:\JOBS DATA\1400147 - WURRUK REZONING APPLICATION_LAN\00\CAD\1400147_UD_BASE01.DWG

APPENDIX B: RATIONAL METHOD CALCULATION

Pre-Developed Flow Calculations

Client:	Goldmate	**Date:**	10/02/2015
Project:	2175 Smiths Lane & 2125 Thompson Road, Clyde North (WEST)		
Subject:	PRE-DEVELOPMENT FLOW CALCULATIONS		
Job No:	1800297	**By:**	AH

Location : Sale

ARI Year : 100

Coefficients						
a	b	c	d	e	f	g
3.88505	-0.64157	-0.01684	0.00598	-0.00016	0.00020	-0.00007

INPUT 1 2 3 4A 5A 6

Catchment	Area	Catchment Category	Catchment Type (For Fp)	Calculated Tc	Manual Input Tc	Selected Tc	Selected f_p	Weighted f_p	Calculated C 100	Manual Input C	Selected C 100	Ae	SAe	I 100	Q 100
	ha			mins	mins	mins						ha	ha	mm/hr	m^3/s
Site Catchment	266.380	RURAL1	Rural - Environmental	66.17		66.17	0.15	0.150	0.331		0.331	88.28	88.284	45.70	11.207
TOTAL	266.380	RURAL1		66.17		66.17		0.150	0.331				88.284	45.70	11.207

Tc Calculated using :

$$t_c = 0.76 \times A^{0.38}$$

Equation 5.4 AR&R

Weighted Frac Imperv using :

$$f = \sum \left(f_{area\ 1} \times \frac{A_{area\ 1}}{A_{total}} \right) + \left(f_{area\ 2} \times \frac{A_{area\ 2}}{A_{total}} \right)$$

Go to Fraction Impervious Table

C10 Calculated using :

$$C_{10} = 0.1 + 0.0133\left(I_{10} - 25\right)$$
$$C_{10} = 0.9 \times f + C_{10} \times \left(1 - f\right)$$

Equation 14.11 and 14.12 AR&R

Q Calculated using :

$$Q = \frac{A_e \times i}{360}$$

Rational Method

Directions:

1 Enter longest length of Catchment
2 Enter average slope of Catchment (Metre/Metre)
3 Choose surface type of catchment from drop down list (See n value table)
4 Enter Area of Catchment (Ha)
5 Choose Catchment category to determine fraction impervious
6 Sum effective areas of catchments to determine Q

APPENDIX C: PRE-DEVELOPED RORB RESULTS

```
 RORBWin Batch Run Summary
 *************************

 Program version 6.45 (last updated 20th March 2019)
 Copyright Monash University and Hydrology and Risk Consulting

 Date run: 26 Apr 2021 10:32

 Catchment file   : K:\Jobs Data\1400147 - Wurruk rezoning application\_Wat\Models\RORB\Pre Dev\SWMS REV
E\1400147-RORB-PreDev_SWMS REV E.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 =     2.14    m = 0.80

 Loss parameters     Initial loss (mm)   Cont. loss (mm/h)
                           19.00              3.00

 Peak  Description
   01  Calculated hydrograph,  Catch B
   02  Calculated hydrograph,  Catch E
   03  Calculated hydrograph,  Catch H
   04  Calculated hydrograph,  Lagoon outfall (Catch B-K)
   05  Calculated hydrograph,  Catch L
   06  Calculated hydrograph,  SE corner site discharge
   07  Special storage :   Ex. U/S RB - Outflow
   08  Special storage :   Ex. U/S RB - Inflow
   09  Calculated hydrograph,  Catch M-N, External
   10  Calculated hydrograph,  Catch M-O,External (South)
   11  Calculated hydrograph,  Catch A
   12  Calculated hydrograph,  Entire Site

 Run        Duration            AEP   TPat  Rain(mm)     ARF  Peak0001  Peak0002  Peak0003  Peak0004  Peak0005
Peak0006  Peak0007  Peak0008  Peak0009  Peak0010  Peak0011  Peak0012
```

1	10	min	20%	1	11.60	0.94	0.0091	0.0596	0.0166	0.0697	0.0143
0.0724	0.7543	2.0702	0.2239	0.2334	0.0271	0.2819					
1	10	min	20%	2	11.60	0.94	0.0091	0.0596	0.0166	0.0697	0.0143
0.0724	0.7543	2.0702	0.2239	0.2334	0.0271	0.2819					
1	10	min	20%	3	11.60	0.94	0.0091	0.0596	0.0166	0.0697	0.0143
0.0724	0.7543	2.0702	0.2239	0.2334	0.0271	0.2819					
1	10	min	20%	4	11.60	0.94	0.0091	0.0596	0.0166	0.0697	0.0143
0.0724	0.7543	2.0702	0.2239	0.2334	0.0271	0.2819					
1	10	min	20%	5	11.60	0.94	0.0091	0.0596	0.0166	0.0697	0.0143
0.0724	0.7543	2.0702	0.2239	0.2334	0.0271	0.2819					
1	10	min	20%	6	11.60	0.94	0.0091	0.0596	0.0166	0.0697	0.0143
0.0724	0.7543	2.0702	0.2239	0.2334	0.0271	0.2819					
1	10	min	20%	7	11.60	0.94	0.0091	0.0596	0.0166	0.0697	0.0143
0.0724	0.7543	2.0702	0.2239	0.2334	0.0271	0.2819					
1	10	min	20%	8	11.60	0.94	0.0091	0.0596	0.0166	0.0697	0.0143
0.0724	0.7543	2.0702	0.2239	0.2334	0.0271	0.2819					
1	10	min	20%	9	11.60	0.94	0.0091	0.0596	0.0166	0.0697	0.0143
0.0724	0.7543	2.0702	0.2239	0.2334	0.0271	0.2819					
1	10	min	20%	10	11.60	0.94	0.0091	0.0596	0.0166	0.0697	0.0143
0.0724	0.7543	2.0702	0.2239	0.2334	0.0271	0.2819					
2	15	min	20%	1	14.30	0.95	0.0126	0.0827	0.0232	0.0956	0.0199
0.0994	1.1487	2.2360	0.2868	0.3007	0.0376	0.3670					
2	15	min	20%	2	14.30	0.95	0.0126	0.0827	0.0232	0.0956	0.0199
0.0994	1.1442	2.1761	0.2869	0.3008	0.0376	0.3671					
2	15	min	20%	3	14.30	0.95	0.0126	0.0827	0.0232	0.0956	0.0199
0.0994	1.1648	2.3723	0.2873	0.3012	0.0376	0.3676					
2	15	min	20%	4	14.30	0.95	0.0126	0.0827	0.0232	0.0956	0.0199
0.0994	1.2945	2.6761	0.3005	0.3144	0.0376	0.3807					
2	15	min	20%	5	14.30	0.95	0.0126	0.0827	0.0232	0.0956	0.0199
0.0994	1.1519	2.2501	0.2870	0.3009	0.0376	0.3672					
2	15	min	20%	6	14.30	0.95	0.0126	0.0827	0.0232	0.0956	0.0199
0.0994	1.1806	2.5377	0.2881	0.3020	0.0376	0.3683					
2	15	min	20%	7	14.30	0.95	0.0126	0.0827	0.0232	0.0956	0.0199
0.0994	1.2945	2.6761	0.3005	0.3144	0.0376	0.3807					
2	15	min	20%	8	14.30	0.95	0.0126	0.0827	0.0232	0.0956	0.0199
0.0994	1.2945	2.6761	0.3005	0.3144	0.0376	0.3807					
2	15	min	20%	9	14.30	0.95	0.0126	0.0827	0.0232	0.0956	0.0199
0.0994	1.2945	2.6761	0.3005	0.3144	0.0376	0.3807					

2	15	min	20%	10	14.30	0.95	0.0126	0.0827	0.0232	0.0956	0.0199	
0.0994	1.2945	2.6761	0.3005	0.3144	0.0376	0.3807						
3	20	min	20%	1	16.30	0.96	0.0155	0.1008	0.0284	0.1160	0.0243	
0.1207	1.4043	2.4376	0.3514	0.3696	0.0460	0.4494						
3	20	min	20%	2	16.30	0.96	0.0155	0.1008	0.0284	0.1160	0.0243	
0.1207	1.4341	2.4555	0.3413	0.3587	0.0460	0.4392						
3	20	min	20%	3	16.30	0.96	0.0155	0.1008	0.0284	0.1160	0.0243	
0.1207	1.4766	2.4826	0.3497	0.3676	0.0460	0.4476						
3	20	min	20%	4	16.30	0.96	0.0155	0.1008	0.0284	0.1160	0.0243	
0.1207	1.6233	3.0939	0.3517	0.3682	0.0460	0.4496						
3	20	min	20%	5	16.30	0.96	0.0155	0.1008	0.0284	0.1160	0.0243	
0.1207	1.4160	2.4037	0.3511	0.3693	0.0460	0.4491						
3	20	min	20%	6	16.30	0.96	0.0155	0.1008	0.0284	0.1160	0.0243	
0.1207	1.5373	2.8909	0.3433	0.3598	0.0460	0.4412						
3	20	min	20%	7	16.30	0.96	0.0155	0.1008	0.0284	0.1160	0.0243	
0.1207	1.6571	3.1385	0.3565	0.3732	0.0460	0.4544						
3	20	min	20%	8	16.30	0.96	0.0155	0.1008	0.0284	0.1160	0.0243	
0.1207	1.5320	2.8543	0.3434	0.3599	0.0460	0.4413						
3	20	min	20%	9	16.30	0.96	0.0155	0.1008	0.0284	0.1160	0.0243	
0.1207	1.5198	2.7909	0.3443	0.3610	0.0460	0.4422						
3	20	min	20%	10	16.30	0.96	0.0155	0.1008	0.0284	0.1160	0.0243	
0.1207	1.6571	3.1385	0.3565	0.3732	0.0460	0.4544						
4	25	min	20%	1	17.80	0.96	0.0176	0.1149	0.0325	0.1318	0.0277	
0.1372	1.7619	3.0142	0.3978	0.4183	0.0524	0.5094						
4	25	min	20%	2	17.80	0.96	0.0176	0.1149	0.0325	0.1207	0.0277	
0.1259	1.6206	2.9245	0.3982	0.4186	0.0524	0.5065						
4	25	min	20%	3	17.80	0.96	0.0176	0.1149	0.0325	0.1293	0.0277	
0.1346	1.5943	2.7701	0.4005	0.4209	0.0524	0.5111						
4	25	min	20%	4	17.80	0.96	0.0176	0.1149	0.0325	0.1318	0.0277	
0.1372	1.6877	2.7409	0.3997	0.4201	0.0524	0.5113						
4	25	min	20%	5	17.80	0.96	0.0176	0.1149	0.0325	0.1318	0.0277	
0.1372	1.6771	2.6958	0.4000	0.4204	0.0524	0.5116						
4	25	min	20%	6	17.80	0.96	0.0176	0.1149	0.0325	0.1318	0.0277	
0.1372	1.7187	2.8762	0.3986	0.4190	0.0524	0.5101						
4	25	min	20%	7	17.80	0.96	0.0176	0.1149	0.0325	0.1206	0.0277	
0.1258	1.6462	2.9468	0.3989	0.4193	0.0524	0.5076						
4	25	min	20%	8	17.80	0.96	0.0176	0.1149	0.0325	0.1270	0.0277	
0.1322	1.5889	2.7823	0.4004	0.4208	0.0524	0.5100						

```
   4          25 min             20%      9     17.80    0.96    0.0176    0.1149    0.0325    0.1318    0.0277
0.1372    1.8035    3.2925    0.3930    0.4134    0.0524    0.5045
   4          25 min             20%     10     17.80    0.96    0.0176    0.1149    0.0325    0.1318    0.0277
0.1372    1.6376    2.6645    0.4004    0.4208    0.0524    0.5119
   5          30 min             20%      1     19.10    0.97    0.0196    0.1272    0.0361    0.1459    0.0307
0.1518    1.9573    3.3086    0.4409    0.4632    0.0581    0.5645
   5          30 min             20%      2     19.10    0.97    0.0161    0.1040    0.0298    0.1276    0.0253
0.1326    1.7118    2.5262    0.4076    0.4283    0.0477    0.5161
   5          30 min             20%      3     19.10    0.97    0.0196    0.1272    0.0361    0.1350    0.0307
0.1407    1.6692    2.5567    0.4304    0.4542    0.0581    0.5511
   5          30 min             20%      4     19.10    0.97    0.0196    0.1272    0.0361    0.1459    0.0307
0.1518    1.8419    2.8579    0.4428    0.4657    0.0581    0.5665
   5          30 min             20%      5     19.10    0.97    0.0196    0.1272    0.0361    0.1459    0.0307
0.1518    1.8493    2.8792    0.4427    0.4654    0.0581    0.5663
   5          30 min             20%      6     19.10    0.97    0.0196    0.1272    0.0361    0.1347    0.0307
0.1405    1.8399    3.1230    0.4407    0.4648    0.0581    0.5621
   5          30 min             20%      7     19.10    0.97    0.0196    0.1272    0.0361    0.1459    0.0307
0.1518    1.8821    3.0046    0.4423    0.4647    0.0581    0.5660
   5          30 min             20%      8     19.10    0.97    0.0182    0.1183    0.0335    0.1314    0.0285
0.1370    1.9015    3.2773    0.4302    0.4529    0.0540    0.5471
   5          30 min             20%      9     19.10    0.97    0.0196    0.1272    0.0361    0.1459    0.0307
0.1518    2.0283    3.5505    0.4410    0.4634    0.0581    0.5647
   5          30 min             20%     10     19.10    0.97    0.0196    0.1272    0.0361    0.1459    0.0307
0.1518    2.0918    3.7170    0.4472    0.4695    0.0581    0.5708
   6          45 min             20%      1     22.00    0.97    0.0493    0.2834    0.0934    0.3264    0.0756
0.3410    2.4378    3.0175    0.8025    0.8770    0.1379    1.1451
   6          45 min             20%      2     22.00    0.97    0.0491    0.2811    0.0932    0.3253    0.0753
0.3398    2.5432    3.0898    0.8198    0.8959    0.1371    1.1630
   6          45 min             20%      3     22.00    0.97    0.0456    0.2643    0.0864    0.3048    0.0701
0.3184    1.9530    2.2846    0.7715    0.8430    0.1281    1.0975
   6          45 min             20%      4     22.00    0.97    0.0552    0.3383    0.1032    0.3391    0.0857
0.3545    2.6594    3.3752    0.8286    0.9065    0.1594    1.1940
   6          45 min             20%      5     22.00    0.97    0.0477    0.2761    0.0915    0.3267    0.0724
0.3413    2.7702    3.8054    0.8179    0.8907    0.1313    1.1552
   6          45 min             20%      6     22.00    0.97    0.0556    0.3443    0.1037    0.3479    0.0865
0.3635    2.9073    3.6387    0.8488    0.9276    0.1613    1.2162
   6          45 min             20%      7     22.00    0.97    0.0500    0.2946    0.0943    0.3264    0.0771
0.3409    2.7154    3.6105    0.8305    0.9018    0.1416    1.1736
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6	45 min	20%	8	22.00	0.97	0.0455	0.2628	0.0862	0.3048	0.0698	0.3184
2.0979	2.9718	0.7648	0.8342	0.1275	1.0870						
6	45 min	20%	9	22.00	0.97	0.0499	0.2927	0.0942	0.3265	0.0769	0.3410
3.0060	4.0810	0.8370	0.9086	0.1410	1.1795						
6	45 min	20%	10	22.00	0.97	0.0545	0.3268	0.1023	0.3345	0.0843	0.3497
2.7212	3.4870	0.8372	0.9133	0.1556	1.2019						
7	1 hour	20%	1	24.20	0.98	0.0747	0.3939	0.1458	0.4894	0.1119	0.5125
2.1584	2.3950	1.1232	1.2468	0.1965	1.7017						
7	1 hour	20%	2	24.20	0.98	0.0763	0.4259	0.1458	0.4791	0.1164	0.5018
2.4815	3.0080	1.1449	1.2661	0.2104	1.7109						
7	1 hour	20%	3	24.20	0.98	0.0758	0.4197	0.1472	0.4920	0.1140	0.5151
2.2771	2.4143	1.1291	1.2553	0.2041	1.7064						
7	1 hour	20%	4	24.20	0.98	0.0793	0.4162	0.1544	0.5153	0.1191	0.5394
2.8948	3.5704	1.2035	1.3354	0.2101	1.8050						
7	1 hour	20%	5	24.20	0.98	0.0837	0.4674	0.1598	0.5297	0.1277	0.5541
3.1575	3.3351	1.2358	1.3613	0.2308	1.8326						
7	1 hour	20%	6	24.20	0.98	0.0753	0.4060	0.1477	0.5120	0.1141	0.5356
3.1191	4.0055	1.1888	1.3099	0.2041	1.7706						
7	1 hour	20%	7	24.20	0.98	0.0811	0.4321	0.1567	0.5295	0.1226	0.5541
3.0492	3.6457	1.2379	1.3633	0.2185	1.8310						
7	1 hour	20%	8	24.20	0.98	0.0799	0.4349	0.1538	0.5102	0.1213	0.5340
2.3737	2.7624	1.1801	1.2986	0.2174	1.7627						
7	1 hour	20%	9	24.20	0.98	0.1041	0.6542	0.1935	0.6033	0.1624	0.6316
4.9928	7.2442	1.4335	1.5745	0.3040	2.0888						
7	1 hour	20%	10	24.20	0.98	0.0959	0.5691	0.1806	0.5780	0.1481	0.6042
4.3567	5.6634	1.3362	1.4829	0.2725	1.9802						
8	1.5 hour	20%	1	27.60	0.98	0.0890	0.4258	0.1894	0.7373	0.1293	0.7728
2.0941	2.5544	1.4403	1.5808	0.2241	2.2320						
8	1.5 hour	20%	2	27.60	0.98	0.1054	0.5221	0.2120	0.7335	0.1553	0.7695
2.4979	3.4933	1.3877	1.5319	0.2693	2.3000						
8	1.5 hour	20%	3	27.60	0.98	0.1090	0.5527	0.2150	0.7137	0.1625	0.7482
2.5012	3.1900	1.4923	1.6620	0.2846	2.3625						
8	1.5 hour	20%	4	27.60	0.98	0.1304	0.6452	0.2570	0.8521	0.1940	0.8926
2.9259	3.1186	1.8220	2.0307	0.3378	2.8462						
8	1.5 hour	20%	5	27.60	0.98	0.0877	0.3744	0.1884	0.7465	0.1223	0.7827
2.9302	3.4617	1.4077	1.5465	0.1942	2.2316						
8	1.5 hour	20%	6	27.60	0.98	0.1254	0.6150	0.2476	0.8176	0.1863	0.8569
2.6407	2.7284	1.7337	1.9338	0.3234	2.7241						

8	1.5 hour	20%	7	27.60	0.98	0.0934	0.3935	0.1936	0.7477	0.1339	0.7834
2.8707	3.7699	1.4543	1.6022	0.2211	2.2825						
8	1.5 hour	20%	8	27.60	0.98	0.1289	0.6354	0.2549	0.8446	0.1915	0.8847
2.6861	3.2560	1.7691	1.9748	0.3326	2.7842						
8	1.5 hour	20%	9	27.60	0.98	0.1435	0.7978	0.2769	0.9027	0.2171	0.9450
4.9097	5.3701	1.9647	2.2033	0.3869	3.0349						
8	1.5 hour	20%	10	27.60	0.98	0.1609	0.9606	0.3079	0.9567	0.2450	1.0014
6.3643	7.8327	2.1100	2.3546	0.4465	3.2456						
9	2 hour	20%	1	30.30	0.98	0.1104	0.4540	0.2339	0.8823	0.1562	0.9264
1.6906	2.3717	1.5952	1.7779	0.2543	2.6580						
9	2 hour	20%	2	30.30	0.98	0.0930	0.3414	0.2062	0.8393	0.1279	0.8812
1.6065	2.3165	1.4287	1.5698	0.2021	2.4128						
9	2 hour	20%	3	30.30	0.98	0.1068	0.4459	0.2271	0.9133	0.1506	0.9574
1.6982	1.7300	1.6467	1.8092	0.2473	2.6150						
9	2 hour	20%	4	30.30	0.98	0.1327	0.5814	0.2735	1.0158	0.1908	1.0653
2.3720	2.5257	1.9661	2.1727	0.3171	3.0778						
9	2 hour	20%	5	30.30	0.98	0.1663	0.8758	0.3303	1.1041	0.2461	1.1566
3.8263	4.4480	2.2577	2.5182	0.4381	3.5839						
9	2 hour	20%	6	30.30	0.98	0.1387	0.6709	0.2839	0.9893	0.2018	1.0380
2.6727	3.2279	1.8854	2.0984	0.3492	3.0712						
9	2 hour	20%	7	30.30	0.98	0.1240	0.5652	0.2580	1.0073	0.1791	1.0561
2.2774	2.6045	1.8733	2.0633	0.3033	2.9460						
9	2 hour	20%	8	30.30	0.98	0.1478	0.6912	0.2961	1.0429	0.2172	1.0933
2.7020	2.9273	2.0251	2.2692	0.3715	3.2032						
9	2 hour	20%	9	30.30	0.98	0.1394	0.6569	0.2928	1.0994	0.1998	1.1520
3.4199	3.5135	2.1418	2.3655	0.3343	3.3366						
9	2 hour	20%	10	30.30	0.98	0.1568	0.7081	0.3205	1.1268	0.2270	1.1808
3.4775	3.7113	2.2261	2.5001	0.3796	3.5454						
10	3 hour	20%	1	34.50	0.98	0.1162	0.4929	0.2560	1.0017	0.1608	1.0507
1.9385	2.3307	1.6536	1.8365	0.2613	2.8995						
10	3 hour	20%	2	34.50	0.98	0.0922	0.3285	0.2122	1.0133	0.1254	1.0850
1.6008	1.8818	1.4499	1.5791	0.1932	2.5667						
10	3 hour	20%	3	34.50	0.98	0.0917	0.4014	0.2210	1.0889	0.1285	1.1456
1.7553	2.1447	1.5132	1.6598	0.2171	2.7591						
10	3 hour	20%	4	34.50	0.98	0.1022	0.4709	0.2322	1.1201	0.1414	1.1863
2.2619	2.8440	1.6392	1.7971	0.2381	2.8075						
10	3 hour	20%	5	34.50	0.98	0.1287	0.5001	0.2793	1.2198	0.1807	1.2747
1.5879	1.6235	1.9087	2.0851	0.2905	3.2349						

10	3 hour	20%	6	34.50	0.98	0.1363	0.5323	0.2932	1.2228	0.1908	
1.2885	1.7663	1.8602	1.9321	2.1262	0.3068	3.3340					
10	3 hour	20%	7	34.50	0.98	0.1033	0.3436	0.2403	1.1093	0.1383	
1.1634	1.2083	1.5445	1.5715	1.7196	0.2096	2.9199					
10	3 hour	20%	8	34.50	0.98	0.1345	0.6941	0.2666	1.1857	0.2015	
1.2603	3.0490	3.5729	2.0185	2.2223	0.3551	3.0474					
10	3 hour	20%	9	34.50	0.98	0.1801	0.7508	0.3794	1.5084	0.2552	
1.5876	2.8809	2.8863	2.5125	2.8091	0.4133	4.0735					
10	3 hour	20%	10	34.50	0.98	0.1592	0.6386	0.3419	1.4239	0.2222	
1.4977	2.2693	2.4370	2.3555	2.6080	0.3533	3.8325					
11	4.5 hour	20%	1	39.70	0.99	0.0926	0.2953	0.2227	1.1560	0.1210	
1.2375	0.9540	1.2607	1.4169	1.5418	0.1822	2.8146					
11	4.5 hour	20%	2	39.70	0.99	0.1252	0.4323	0.2956	1.3345	0.1694	
1.4082	1.4164	1.6093	1.8264	1.9993	0.2619	3.4055					
11	4.5 hour	20%	3	39.70	0.99	0.1067	0.3833	0.2604	1.2858	0.1403	
1.3675	1.5868	1.7698	1.6083	1.7473	0.2220	3.1616					
11	4.5 hour	20%	4	39.70	0.99	0.1108	0.3887	0.2496	1.2483	0.1506	
1.3272	1.2874	1.5007	1.6118	1.7742	0.2337	3.0258					
11	4.5 hour	20%	5	39.70	0.99	0.1248	0.3883	0.3041	1.3766	0.1624	
1.4628	1.2892	1.6121	1.8260	1.9967	0.2409	3.6644					
11	4.5 hour	20%	6	39.70	0.99	0.1638	0.6542	0.3668	1.5192	0.2264	
1.5955	2.3896	2.6742	2.1779	2.3874	0.3648	4.0788					
11	4.5 hour	20%	7	39.70	0.99	0.1431	0.4613	0.3416	1.4806	0.1883	
1.5539	1.5389	1.7843	2.0590	2.2594	0.2824	3.9769					
11	4.5 hour	20%	8	39.70	0.99	0.1099	0.3197	0.2707	1.3322	0.1410	
1.4102	1.0022	1.0466	1.6537	1.7979	0.2044	3.3124					
11	4.5 hour	20%	9	39.70	0.99	0.1597	0.5485	0.3767	1.6937	0.2145	
1.7798	1.6786	1.7917	2.3634	2.5840	0.3314	4.3888					
11	4.5 hour	20%	10	39.70	0.99	0.1927	0.7453	0.4194	1.7349	0.2687	
1.8249	2.4314	2.6037	2.6557	2.9113	0.4304	4.6525					
12	6 hour	20%	1	44.00	0.99	0.1077	0.3860	0.2630	1.3177	0.1415	
1.3972	1.6011	1.8012	1.6209	1.7609	0.2238	3.1942					
12	6 hour	20%	2	44.00	0.99	0.1025	0.3943	0.2410	0.9714	0.1386	
1.0226	1.4100	1.6678	1.4589	1.6092	0.2236	2.6812					
12	6 hour	20%	3	44.00	0.99	0.0770	0.2280	0.2008	1.0130	0.0972	
1.1014	0.9363	1.0533	1.1495	1.2490	0.1408	2.4790					
12	6 hour	20%	4	44.00	0.99	0.1024	0.3485	0.2367	1.1450	0.1361	
1.2442	1.5933	1.8725	1.5406	1.6855	0.2095	2.7899					

12	6 hour	20%	5	44.00	0.99	0.0929	0.2897	0.2336	1.2638	0.1201	
1.3731	0.9510	1.2043	1.4116	1.5312	0.1765	2.9441					
12	6 hour	20%	6	44.00	0.99	0.1112	0.3511	0.2729	1.4724	0.1458	
1.5786	1.3230	1.5886	1.6845	1.8293	0.2156	3.3692					
12	6 hour	20%	7	44.00	0.99	0.1001	0.3523	0.2535	1.3700	0.1327	
1.4752	1.2148	1.2718	1.5062	1.6342	0.2097	3.1795					
12	6 hour	20%	8	44.00	0.99	0.1674	0.6634	0.3624	1.6175	0.2330	
1.7519	2.4331	2.7297	2.3955	2.6605	0.3705	3.9953					
12	6 hour	20%	9	44.00	0.99	0.1906	0.6528	0.4418	1.8403	0.2547	
1.9356	2.1290	2.4324	2.6927	2.9680	0.3877	4.9746					
12	6 hour	20%	10	44.00	0.99	0.2070	0.7939	0.4619	1.9370	0.2851	
2.0282	2.8184	2.9880	2.7962	3.0527	0.4541	5.1507					
13	9 hour	20%	1	51.10	0.99	0.0904	0.3926	0.2017	0.8677	0.1301	
0.9055	1.3532	1.4020	1.3384	1.4600	0.2169	2.2675					
13	9 hour	20%	2	51.10	0.99	0.0823	0.3487	0.2080	0.9066	0.1160	
0.9625	1.1940	1.3812	1.2111	1.3227	0.1934	2.3781					
13	9 hour	20%	3	51.10	0.99	0.0954	0.3096	0.2416	1.2164	0.1223	
1.3250	1.1168	1.3648	1.3604	1.4756	0.1852	2.9429					
13	9 hour	20%	4	51.10	0.99	0.1281	0.4217	0.3059	1.4653	0.1690	
1.5579	1.4830	1.6038	1.8558	2.0355	0.2534	3.5231					
13	9 hour	20%	5	51.10	0.99	0.1019	0.3260	0.2501	1.1700	0.1335	
1.2280	0.9931	1.0101	1.4611	1.6039	0.2011	2.8939					
13	9 hour	20%	6	51.10	0.99	0.1197	0.3689	0.3047	1.5530	0.1556	
1.6567	1.1177	1.1239	1.7827	1.9313	0.2307	3.7392					
13	9 hour	20%	7	51.10	0.99	0.1028	0.3953	0.2446	1.0790	0.1411	
1.1328	1.3551	1.4255	1.4856	1.6147	0.2256	2.8306					
13	9 hour	20%	8	51.10	0.99	0.1654	0.5218	0.4149	2.0885	0.2161	
2.2415	1.5509	1.6307	2.4715	2.6829	0.3250	5.0154					
13	9 hour	20%	9	51.10	0.99	0.1566	0.4820	0.3940	1.8486	0.2021	
1.9931	1.6999	1.7621	2.2359	2.4483	0.2996	4.6471					
13	9 hour	20%	10	51.10	0.99	0.1725	0.6013	0.4123	1.9099	0.2257	
1.9917	1.8811	1.9224	2.5059	2.7413	0.3490	4.6973					
14	12 hour	20%	1	57.00	0.99	0.0824	0.2877	0.1917	0.9800	0.1107	
1.0386	0.9291	0.9846	1.1547	1.2615	0.1710	2.2811					
14	12 hour	20%	2	57.00	0.99	0.1137	0.4935	0.2604	1.2734	0.1618	
1.3501	1.6313	1.6295	1.7855	1.9450	0.2710	3.0323					
14	12 hour	20%	3	57.00	0.99	0.0489	0.1915	0.1192	0.5142	0.0660	
0.5371	0.6450	0.7797	0.7888	0.8602	0.1063	1.3751					

14	12 hour	20%	4	57.00	0.99	0.0900	0.2918	0.2158	1.0615	0.1193	
1.1274	0.9034	0.9111	1.3255	1.4324	0.1802	2.6500					
14	12 hour	20%	5	57.00	0.99	0.1069	0.3436	0.2664	1.4600	0.1408	
1.5632	1.0901	1.1862	1.5810	1.7115	0.2114	3.3393					
14	12 hour	20%	6	57.00	0.99	0.0462	0.1431	0.1273	0.7245	0.0590	
0.7803	0.5454	0.5789	0.7499	0.8057	0.0894	1.6577					
14	12 hour	20%	7	57.00	0.99	0.1041	0.3395	0.2506	1.3896	0.1360	
1.4913	1.1765	1.2623	1.5583	1.7006	0.2011	3.1071					
14	12 hour	20%	8	57.00	0.99	0.1322	0.4225	0.3160	1.6821	0.1746	
1.8095	1.3513	1.4402	1.8797	2.0663	0.2629	3.8575					
14	12 hour	20%	9	57.00	0.99	0.1872	0.6105	0.4607	2.2099	0.2474	
2.3228	1.8996	2.0006	2.6634	2.8880	0.3736	5.5049					
14	12 hour	20%	10	57.00	0.99	0.1499	0.4965	0.3586	1.4801	0.1993	
1.5363	1.7366	1.9622	2.1164	2.3326	0.3040	4.0264					
15	18 hour	20%	1	66.50	1.00	0.0534	0.1798	0.1355	0.7599	0.0686	
0.8221	0.5612	0.6520	0.8734	0.9428	0.1047	1.8024					
15	18 hour	20%	2	66.50	1.00	0.1095	0.3917	0.2448	1.2068	0.1497	
1.3047	1.2968	1.2998	1.6769	1.8439	0.2341	2.9833					
15	18 hour	20%	3	66.50	1.00	0.0512	0.1690	0.1210	0.6025	0.0673	
0.6312	0.9139	0.9366	0.9664	1.0365	0.0994	1.6582					
15	18 hour	20%	4	66.50	1.00	0.0542	0.1659	0.1432	0.8143	0.0694	
0.8699	0.5504	0.6024	0.8594	0.9238	0.1010	1.8503					
15	18 hour	20%	5	66.50	1.00	0.0608	0.2119	0.1463	0.7247	0.0829	
0.7557	0.7804	1.0427	0.9864	1.0781	0.1286	1.7455					
15	18 hour	20%	6	66.50	1.00	0.0466	0.1623	0.1116	0.6022	0.0633	
0.6321	0.5406	0.5922	0.7457	0.8065	0.0980	1.4549					
15	18 hour	20%	7	66.50	1.00	0.0417	0.1183	0.1100	0.6005	0.0522	
0.6425	0.4092	0.4249	0.6671	0.7202	0.0752	1.4219					
15	18 hour	20%	8	66.50	1.00	0.0818	0.2591	0.2199	1.0986	0.1051	
1.2000	0.8385	0.9031	1.2748	1.3744	0.1581	2.7165					
15	18 hour	20%	9	66.50	1.00	0.0559	0.1528	0.1544	0.8214	0.0691	
0.8905	0.5012	0.5174	0.8717	0.9411	0.0984	1.9300					
15	18 hour	20%	10	66.50	1.00	0.1703	0.5957	0.3903	2.0724	0.2309	
2.1683	1.6944	1.7210	2.3691	2.6244	0.3581	4.8454					
16	24 hour	20%	1	73.90	1.00	0.0485	0.1639	0.1227	0.6017	0.0637	
0.6504	0.5745	0.6936	0.7657	0.8320	0.0948	1.5186					
16	24 hour	20%	2	73.90	1.00	0.0461	0.1649	0.1172	0.6997	0.0615	
0.7511	0.5711	0.6480	0.7768	0.8349	0.0973	1.5643					

```
  16         24 hour             20%       3     73.90    1.00    0.0767    0.2380    0.1846    0.7634    0.1013
0.7930    0.7559    1.0385    1.1124    1.2199    0.1517    2.0439
  16         24 hour             20%       4     73.90    1.00    0.0409    0.1372    0.1011    0.5062    0.0538
0.5452    0.4712    0.5173    0.6028    0.6613    0.0821    1.2431
  16         24 hour             20%       5     73.90    1.00    0.0256    0.0818    0.0626    0.3498    0.0337
0.3667    0.3116    0.3206    0.4344    0.4703    0.0506    0.8660
  16         24 hour             20%       6     73.90    1.00    0.0224    0.0656    0.0587    0.3294    0.0287
0.3539    0.2764    0.3488    0.4054    0.4320    0.0418    0.8239
  16         24 hour             20%       7     73.90    1.00    0.0952    0.3099    0.2247    1.0567    0.1267
1.1278    0.8586    0.9886    1.3194    1.4559    0.1922    2.4903
  16         24 hour             20%       8     73.90    1.00    0.0843    0.2669    0.2123    1.0900    0.1074
1.1551    0.8615    0.9081    1.2698    1.3785    0.1560    2.5134
  16         24 hour             20%       9     73.90    1.00    0.0967    0.2743    0.2535    1.3469    0.1219
1.4403    0.9079    0.9384    1.4372    1.5611    0.1756    3.0875
  16         24 hour             20%      10     73.90    1.00    0.0525    0.1596    0.1406    0.7529    0.0666
0.7962    0.5316    0.5821    0.8383    0.9025    0.0985    1.7862
  17         30 hour             20%       1     79.80    1.00    0.0527    0.1729    0.1378    0.7234    0.0650
0.7566    0.6257    0.7189    0.8194    0.8817    0.0978    1.6927
  17         30 hour             20%       2     79.80    1.00    0.0520    0.1572    0.1265    0.7631    0.0676
0.8131    0.4690    0.4690    0.7988    0.8694    0.0999    1.6387
  17         30 hour             20%       3     79.80    1.00    0.0602    0.1973    0.1487    0.8880    0.0798
0.9508    0.6278    0.6695    0.8943    0.9802    0.1209    1.9641
  17         30 hour             20%       4     79.80    1.00    0.0180    0.0508    0.0475    0.2849    0.0225
0.3013    0.2430    0.2606    0.3483    0.3706    0.0318    0.6806
  17         30 hour             20%       5     79.80    1.00    0.0669    0.2483    0.1826    0.9921    0.0916
1.0724    0.8895    0.9360    1.0772    1.1513    0.1446    2.3305
  17         30 hour             20%       6     79.80    1.00    0.0272    0.0796    0.0695    0.3800    0.0347
0.4012    0.3127    0.3258    0.4639    0.4997    0.0506    0.9212
  17         30 hour             20%       7     79.80    1.00    0.0544    0.1788    0.1432    0.6892    0.0669
0.7561    0.6298    0.7280    0.8411    0.9052    0.1014    1.7536
  17         30 hour             20%       8     79.80    1.00    0.0432    0.1186    0.1181    0.6629    0.0529
0.7125    0.4029    0.4150    0.7044    0.7561    0.0752    1.5424
  17         30 hour             20%       9     79.80    1.00    0.0318    0.0921    0.0813    0.5068    0.0399
0.5401    0.3776    0.4219    0.5425    0.5819    0.0562    1.1045
  17         30 hour             20%      10     79.80    1.00    0.0622    0.1838    0.1529    0.8268    0.0804
0.8686    0.5393    0.5404    0.9424    1.0256    0.1179    1.8419
 Run,    Representative hydrograph
  1     dur10min_aep20tp2.out
```

```
 Run,    Representative hydrograph
  2     dur15min_aep20tp7.out
 Run,    Representative hydrograph
  3     dur20min_aep20tp5.out
 Run,    Representative hydrograph
  4     dur25min_aep20tp6.out
 Run,    Representative hydrograph
  5     dur30min_aep20tp9.out
 Run,    Representative hydrograph
  6     dur45min_aep20tp7.out
 Run,    Representative hydrograph
  7     dur1hour_aep20tp4.out
 Run,    Representative hydrograph
  8     dur1_5hour_aep20tp6.out
 Run,    Representative hydrograph
  9     dur2hour_aep20tp4.out
 Run,    Representative hydrograph
 10     dur3hour_aep20tp8.out
 Run,    Representative hydrograph
 11     dur4_5hour_aep20tp5.out
 Run,    Representative hydrograph
 12     dur6hour_aep20tp1.out
 Run,    Representative hydrograph
 13     dur9hour_aep20tp4.out
 Run,    Representative hydrograph
 14     dur12hour_aep20tp7.out
 Run,    Representative hydrograph
 15     dur18hour_aep20tp4.out
 Run,    Representative hydrograph
 16     dur24hour_aep20tp10.out
 Run,    Representative hydrograph
 17     dur30hour_aep20tp1.out

Elapsed Run Time (hh:mm:ss) = 00:00:04
```

```
 RORBWin Batch Run Summary
 *************************

 Program version 6.45 (last updated 20th March 2019)
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 Date run: 26 Apr 2021 10:21

 Catchment file   : K:\Jobs Data\1400147 - Wurruk rezoning application\_Wat\Models\RORB\Pre Dev\SWMS REV
E\1400147-RORB-PreDev_SWMS REV E.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 =     2.14    m = 0.80

 Loss parameters     Initial loss (mm)   Cont. loss (mm/h)
                           19.00              3.00

 Peak  Description
   01  Calculated hydrograph,  Catch B
   02  Calculated hydrograph,  Catch E
   03  Calculated hydrograph,  Catch H
   04  Calculated hydrograph,  Lagoon outfall (Catch B-K)
   05  Calculated hydrograph,  Catch L
   06  Calculated hydrograph,  SE corner site discharge
   07  Special storage :   Ex. U/S RB - Outflow
   08  Special storage :   Ex. U/S RB - Inflow
   09  Calculated hydrograph,  Catch M-N, External
   10  Calculated hydrograph,  Catch M-O,External (South)
   11  Calculated hydrograph,  Catch A
   12  Calculated hydrograph,  Entire Site
```

Run	Duration		AEP	TPat	Rain(mm)	ARF	Peak0001	Peak0002	Peak0003	Peak0004	Peak0005	Peak0006
Peak0007	Peak0008	Peak0009	Peak0010	Peak0011	Peak0012							
1	10 min		1%	21	25.10	0.94	0.1025	0.6441	0.1904	0.5946	0.1599	0.6224
4.9898	7.5393	1.3892	1.5282	0.2993	2.0308							
1	10 min		1%	22	25.10	0.94	0.1025	0.6441	0.1904	0.5946	0.1599	0.6224
4.9500	6.9791	1.3676	1.5066	0.2993	2.0138							
1	10 min		1%	23	25.10	0.94	0.1025	0.6441	0.1904	0.5946	0.1599	0.6224
5.0194	7.5707	1.3933	1.5323	0.2993	2.0349							
1	10 min		1%	24	25.10	0.94	0.1025	0.6441	0.1904	0.5946	0.1599	0.6224
5.0194	7.5707	1.3933	1.5323	0.2993	2.0349							
1	10 min		1%	25	25.10	0.94	0.1025	0.6441	0.1904	0.5946	0.1599	0.6224
4.9015	7.3433	1.3735	1.5125	0.2993	2.0161							
1	10 min		1%	26	25.10	0.94	0.1025	0.6441	0.1904	0.5946	0.1599	0.6224
5.0194	7.5707	1.3933	1.5323	0.2993	2.0349							
1	10 min		1%	27	25.10	0.94	0.1025	0.6441	0.1904	0.5946	0.1599	0.6224
4.9311	7.1792	1.4156	1.5546	0.2993	2.0598							
1	10 min		1%	28	25.10	0.94	0.1025	0.6441	0.1904	0.5946	0.1599	0.6224
5.0194	7.5707	1.3933	1.5323	0.2993	2.0349							
1	10 min		1%	29	25.10	0.94	0.1025	0.6441	0.1904	0.5946	0.1599	0.6224
5.0194	7.5707	1.3933	1.5323	0.2993	2.0349							
1	10 min		1%	30	25.10	0.94	0.1025	0.6441	0.1904	0.5946	0.1599	0.6224
5.0194	7.5707	1.3933	1.5323	0.2993	2.0349							
2	15 min		1%	21	30.80	0.95	0.2119	1.2161	0.4022	1.2345	0.3249	1.2932
7.4725	9.5587	2.6953	2.9991	0.5920	4.1525							
2	15 min		1%	22	30.80	0.95	0.2120	1.2179	0.4023	1.2345	0.3251	1.2932
7.9536	10.5836	2.7134	3.0175	0.5926	4.1596							
2	15 min		1%	23	30.80	0.95	0.2151	1.2654	0.4057	1.2348	0.3315	1.2938
8.1489	10.0031	2.7198	3.0319	0.6084	4.1732							
2	15 min		1%	24	30.80	0.95	0.2147	1.2604	0.4053	1.2347	0.3309	1.2937
8.4057	10.5101	2.7515	3.0627	0.6068	4.2012							
2	15 min		1%	25	30.80	0.95	0.2191	1.3253	0.4109	1.2355	0.3393	1.2938
8.7068	9.8853	2.7572	3.0791	0.6280	4.2063							
2	15 min		1%	26	30.80	0.95	0.2144	1.2531	0.4048	1.2346	0.3299	1.2937
8.3660	10.5758	2.7512	3.0612	0.6044	4.2002							
2	15 min		1%	27	30.80	0.95	0.2144	1.2531	0.4048	1.2346	0.3299	1.2937
8.3660	10.5758	2.7512	3.0612	0.6044	4.2002							

2	15 min		1%	28	30.80	0.95	0.2153	1.2692	0.4060	1.2349	0.3318	1.2938
8.3970	10.4295	2.7487	3.0614	0.6097	4.1991							
2	15 min		1%	29	30.80	0.95	0.2271	1.4000	0.4242	1.2661	0.3530	1.3258
9.2039	11.8427	2.7422	3.0782	0.6571	4.1993							
2	15 min		1%	30	30.80	0.95	0.2271	1.4000	0.4242	1.2661	0.3530	1.3258
9.3679	12.2858	2.7632	3.0993	0.6571	4.2203							
3	20 min		1%	21	35.00	0.95	0.2908	1.5499	0.5616	1.7531	0.4397	1.8359
9.4527	10.1912	3.7676	4.2397	0.7834	5.8958							
3	20 min		1%	22	35.00	0.95	0.2880	1.5153	0.5583	1.7521	0.4341	1.8354
8.9427	10.1341	3.7384	4.2027	0.7704	5.8685							
3	20 min		1%	23	35.00	0.95	0.2895	1.5309	0.5599	1.7528	0.4370	1.8359
9.4419	10.1265	3.7654	4.2335	0.7770	5.8917							
3	20 min		1%	24	35.00	0.95	0.3160	1.8597	0.5965	1.7838	0.4868	1.8696
10.8902	12.2710	3.8598	4.3055	0.8935	5.9974							
3	20 min		1%	25	35.00	0.95	0.3065	1.7196	0.5850	1.7847	0.4680	1.8682
9.8494	13.0347	3.7960	4.2635	0.8469	5.9355							
3	20 min		1%	26	35.00	0.95	0.2951	1.6588	0.5673	1.7552	0.4477	1.8371
10.2615	12.3979	3.7886	4.2721	0.8022	5.9088							
3	20 min		1%	27	35.00	0.95	0.3066	1.7207	0.5851	1.7847	0.4681	1.8682
9.8250	12.9599	3.7963	4.2642	0.8472	5.9367							
3	20 min		1%	28	35.00	0.95	0.3058	1.7086	0.5841	1.7849	0.4665	1.8682
9.9395	13.4593	3.7964	4.2649	0.8432	5.9317							
3	20 min		1%	29	35.00	0.95	0.3133	1.8218	0.5928	1.7844	0.4818	1.8696
11.0491	13.4601	3.8819	4.3216	0.8811	6.0125							
3	20 min		1%	30	35.00	0.95	0.3132	1.8206	0.5927	1.7844	0.4817	1.8696
11.0413	13.4698	3.8812	4.3207	0.8807	6.0118							
4	25 min		1%	21	38.40	0.96	0.3655	1.9391	0.7101	2.2238	0.5496	2.3274
10.7197	11.4728	4.6696	5.2492	0.9714	7.4003							
4	25 min		1%	22	38.40	0.96	0.3433	1.7708	0.6786	2.1882	0.5094	2.2938
9.1990	9.9523	4.5794	5.1293	0.8825	7.2581							
4	25 min		1%	23	38.40	0.96	0.3728	1.9992	0.7194	2.2224	0.5641	2.3277
10.6119	11.8477	4.6767	5.2777	1.0067	7.4099							
4	25 min		1%	24	38.40	0.96	0.3542	1.8106	0.6924	2.1883	0.5308	2.2915
8.6100	9.3813	4.5771	5.1344	0.9333	7.2734							
4	25 min		1%	25	38.40	0.96	0.3601	1.8783	0.6999	2.1894	0.5417	2.2916
9.4206	10.3815	4.6022	5.1749	0.9590	7.3101							

4	25 min		1%	26	38.40	0.96	0.3583	1.9480	0.7017	2.2054	0.5358	2.3096
10.5995	11.7538	4.6624	5.2221	0.9474	7.3798							
4	25 min		1%	27	38.40	0.96	0.3450	1.8988	0.6815	2.1903	0.5197	2.2957
10.0943	12.3903	4.6247	5.1852	0.9386	7.3103							
4	25 min		1%	28	38.40	0.96	0.3621	1.9702	0.7062	2.2075	0.5430	2.3110
10.8035	11.2890	4.6754	5.2455	0.9551	7.3970							
4	25 min		1%	29	38.40	0.96	0.3886	2.1622	0.7432	2.2557	0.5923	2.3647
12.3918	16.8372	4.7788	5.3854	1.0692	7.4872							
4	25 min		1%	30	38.40	0.96	0.3840	2.1486	0.7336	2.2221	0.5859	2.3302
11.3391	13.9378	4.7278	5.3398	1.0593	7.4480							
5	30 min		1%	21	41.20	0.96	0.4085	2.1030	0.8071	2.5898	0.6063	2.7128
10.2443	10.6875	5.3719	6.0122	1.0502	8.5472							
5	30 min		1%	22	41.20	0.96	0.3854	1.9265	0.7778	2.5697	0.5698	2.6934
10.3932	12.3961	5.2574	5.9436	0.9992	8.3160							
5	30 min		1%	23	41.20	0.96	0.3778	1.8841	0.7645	2.5536	0.5605	2.6772
9.7211	11.4891	5.2252	5.8954	0.9806	8.2386							
5	30 min		1%	24	41.20	0.96	0.3881	1.9920	0.7778	2.5658	0.5821	2.6890
9.9537	11.2316	5.2521	5.9425	1.0259	8.3217							
5	30 min		1%	25	41.20	0.96	0.4053	2.1323	0.8032	2.5913	0.6000	2.7133
10.4818	11.6625	5.3811	6.0508	1.0631	8.5548							
5	30 min		1%	26	41.20	0.96	0.4146	2.1852	0.8151	2.5902	0.6177	2.7148
11.0433	11.3910	5.4130	6.0514	1.0766	8.6006							
5	30 min		1%	27	41.20	0.96	0.3952	2.0334	0.7905	2.5898	0.5819	2.7120
10.1579	10.9843	5.2529	5.9644	1.0327	8.4035							
5	30 min		1%	28	41.20	0.96	0.3975	2.0826	0.7855	2.5903	0.5985	2.7135
10.7946	12.0852	5.2882	5.9929	1.0601	8.3980							
5	30 min		1%	29	41.20	0.96	0.4325	2.2422	0.8416	2.6245	0.6498	2.7521
12.7888	13.4601	5.5226	6.2024	1.1470	8.7443							
5	30 min		1%	30	41.20	0.96	0.4414	2.3602	0.8528	2.6259	0.6679	2.7515
12.0524	13.9041	5.4944	6.2003	1.1907	8.7388							
6	45 min		1%	21	47.60	0.96	0.5202	2.5901	1.0354	3.4757	0.7752	3.6431
11.6645	12.3357	6.9873	7.8753	1.3521	11.0425							
6	45 min		1%	22	47.60	0.96	0.5025	2.5086	1.0122	3.5109	0.7345	3.6778
12.6276	13.4172	6.9055	7.7022	1.2925	10.7567							
6	45 min		1%	23	47.60	0.96	0.4944	2.1793	1.0179	3.4765	0.7119	3.6486
8.2853	8.7810	6.6125	7.4643	1.1825	10.7174							

6	45 min		1%	24	47.60	0.96	0.4830	2.2962	0.9950	3.4031	0.7027	3.5722
8.8154	9.7961	6.4429	7.2761	1.2111	10.4753							
6	45 min		1%	25	47.60	0.96	0.4662	2.0425	0.9531	3.4107	0.6751	3.5744
7.9690	9.5657	6.4154	7.1522	1.1300	10.2120							
6	45 min		1%	26	47.60	0.96	0.5175	2.5559	1.0466	3.4719	0.7545	3.6364
10.0382	10.4962	6.8099	7.7309	1.3189	10.9893							
6	45 min		1%	27	47.60	0.96	0.4839	2.2183	1.0015	3.4605	0.7037	3.6292
8.9126	9.2418	6.6836	7.5037	1.1989	10.6352							
6	45 min		1%	28	47.60	0.96	0.4976	2.3010	0.9996	3.4363	0.7295	3.6021
8.5578	8.7881	6.6869	7.4818	1.2432	10.5464							
6	45 min		1%	29	47.60	0.96	0.5299	2.7120	1.0621	3.5163	0.7943	3.6821
12.7891	13.3426	7.1196	8.0531	1.3983	11.2980							
6	45 min		1%	30	47.60	0.96	0.5466	2.7688	1.0849	3.4762	0.8090	3.6453
12.1864	13.5674	7.0234	7.8804	1.3969	11.3028							
7	1 hour		1%	21	52.30	0.97	0.6247	3.1500	1.2536	4.1751	0.9166	4.3763
13.4186	14.0523	8.2593	9.2358	1.5992	13.1292							
7	1 hour		1%	22	52.30	0.97	0.4562	1.8925	1.0022	3.9668	0.6331	4.1666
8.5171	9.1816	6.5698	7.2450	1.0327	10.8633							
7	1 hour		1%	23	52.30	0.97	0.5503	2.6707	1.0940	4.1062	0.8153	4.3094
10.9041	11.5891	7.4841	8.3118	1.4104	11.7511							
7	1 hour		1%	24	52.30	0.97	0.5170	2.1618	1.0866	3.9957	0.7332	4.1911
7.8166	8.5555	7.1139	7.9329	1.1959	11.5123							
7	1 hour		1%	25	52.30	0.97	0.5202	2.2886	1.1011	3.9328	0.7497	4.1304
8.8153	9.8399	7.1760	8.0299	1.2555	11.7470							
7	1 hour		1%	26	52.30	0.97	0.5395	2.3392	1.1273	3.9243	0.7715	4.1198
9.1690	11.2821	6.9167	7.7941	1.2773	11.7502							
7	1 hour		1%	27	52.30	0.97	0.5224	2.4115	1.0902	4.0758	0.7660	4.2773
9.4302	10.1330	7.3511	8.1589	1.3046	11.6609							
7	1 hour		1%	28	52.30	0.97	0.5741	2.5919	1.1848	4.0916	0.8248	4.2868
8.9281	9.6167	7.6591	8.6415	1.3890	12.3859							
7	1 hour		1%	29	52.30	0.97	0.5494	2.3906	1.1556	4.0892	0.7871	4.2930
8.2063	8.4546	7.5257	8.4313	1.3191	12.1825							
7	1 hour		1%	30	52.30	0.97	0.6168	3.0739	1.2392	4.2092	0.9044	4.4113
13.1128	14.1225	8.3038	9.2628	1.5664	13.0071							
8	1.5 hour		1%	21	59.30	0.97	0.4855	2.2491	1.1229	4.8193	0.6889	5.0653
9.0241	9.5726	6.9510	7.6267	1.1677	12.4142							

8	1.5 hour		1%	22	59.30	0.97	0.6288	2.5036	1.3377	5.0099	0.8887	5.2581
7.7467	7.8940	8.6139	9.5618	1.4412	14.2478							
8	1.5 hour		1%	23	59.30	0.97	0.5193	1.9523	1.1367	4.7804	0.7159	5.0220
7.0377	7.2896	7.2391	8.0389	1.1424	12.2377							
8	1.5 hour		1%	24	59.30	0.97	0.5709	2.3375	1.2276	4.6652	0.8044	4.8976
8.3633	8.6443	7.6713	8.5348	1.3116	13.3052							
8	1.5 hour		1%	25	59.30	0.97	0.4386	2.2271	0.9357	4.4785	0.6436	4.7336
9.5667	9.8472	6.0923	6.7730	1.1352	11.0023							
8	1.5 hour		1%	26	59.30	0.97	0.5852	2.4182	1.2638	5.0206	0.8277	5.2762
8.2259	8.5000	8.2764	9.1549	1.3655	13.5625							
8	1.5 hour		1%	27	59.30	0.97	0.5928	2.2960	1.2845	4.9552	0.8231	5.2059
7.4275	7.8665	8.2171	9.1470	1.3224	13.7076							
8	1.5 hour		1%	28	59.30	0.97	0.5977	2.3662	1.2796	4.9029	0.8381	5.1415
7.7280	9.0502	8.1197	8.9784	1.3471	13.5995							
8	1.5 hour		1%	29	59.30	0.97	0.5854	2.8127	1.2089	5.0556	0.8601	5.3091
11.5349	11.6884	8.1158	9.0119	1.4687	13.2314							
8	1.5 hour		1%	30	59.30	0.97	0.6990	3.1593	1.4311	5.0132	1.0180	5.2566
12.8205	14.0871	9.3942	10.5182	1.7199	15.0714							
9	2 hour		1%	21	64.70	0.97	0.4815	2.2456	1.1167	5.2028	0.6905	5.5060
8.8528	9.3913	6.8998	7.5664	1.1665	12.5626							
9	2 hour		1%	22	64.70	0.97	0.5440	2.1760	1.1950	5.3200	0.7567	5.6328
9.6068	10.4801	7.7623	8.5555	1.2181	12.9751							
9	2 hour		1%	23	64.70	0.97	0.4709	2.4180	1.1176	4.6497	0.7063	4.9277
12.2826	12.8208	6.2582	7.0749	1.2446	12.7093							
9	2 hour		1%	24	64.70	0.97	0.5399	2.1226	1.2017	5.1653	0.7500	5.4648
8.4199	9.6300	7.2857	8.1127	1.2062	12.9963							
9	2 hour		1%	25	64.70	0.97	0.6099	2.4697	1.3357	5.4398	0.8532	5.7118
8.3217	8.6865	8.5344	9.4320	1.3952	14.5443							
9	2 hour		1%	26	64.70	0.97	0.4795	1.5739	1.1179	5.0720	0.6379	5.3547
5.7467	6.3944	6.7758	7.4505	0.9704	12.6703							
9	2 hour		1%	27	64.70	0.97	0.5921	2.0666	1.3282	5.4143	0.8051	5.6978
7.0243	7.2454	8.1960	9.0827	1.2452	14.5698							
9	2 hour		1%	28	64.70	0.97	0.5119	2.6216	1.1667	5.4227	0.7620	5.7106
11.9050	14.1067	7.3013	8.0528	1.3404	13.4350							
9	2 hour		1%	29	64.70	0.97	0.6141	2.4143	1.3465	5.6141	0.8591	5.8920
7.4707	7.6881	8.6495	9.5444	1.3925	14.7965							

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 9          2 hour              1%     30     64.70    0.97    0.7044    2.7527    1.5136    5.6517    0.9838    5.9381
 8.5533    8.7069    9.5070   10.6291    1.5695   15.8154
10          3 hour              1%     21     73.00    0.97    0.6994    2.6237    1.5226    6.4079    0.9710    6.7543
 7.7355    7.8151    9.2970   10.4009    1.5430   16.5786
10          3 hour              1%     22     73.00    0.97    0.4651    1.5775    1.0545    4.6739    0.6283    4.9473
 5.1398    5.3321    6.5088    7.1950    0.9646   11.6204
10          3 hour              1%     23     73.00    0.97    0.3747    1.1903    0.9519    4.4488    0.4804    4.7325
 4.6140    5.0064    5.3874    5.8807    0.7226   11.2070
10          3 hour              1%     24     73.00    0.97    0.4360    1.5208    0.9937    4.7098    0.5927    5.0186
 4.5111    4.5570    6.1183    6.6842    0.9175   11.4226
10          3 hour              1%     25     73.00    0.97    0.4760    1.5847    1.1473    5.2702    0.6265    5.6406
 5.2533    5.9710    6.4249    7.1007    0.9496   13.1993
10          3 hour              1%     26     73.00    0.97    0.5277    2.1409    1.2248    6.0361    0.7291    6.4362
 7.3227    7.3722    7.4626    8.2789    1.1613   14.4501
10          3 hour              1%     27     73.00    0.97    0.4603    1.5271    1.1235    5.2438    0.6062    5.5130
 5.1498    5.5913    6.5108    7.0923    0.9175   13.3341
10          3 hour              1%     28     73.00    0.97    0.4965    1.7061    1.1866    5.8290    0.6585    6.2186
 5.0690    5.3867    7.1259    7.8232    1.0185   13.8253
10          3 hour              1%     29     73.00    0.97    0.4826    1.6936    1.1459    5.0284    0.6432    5.2894
 5.6466    5.7886    6.4332    7.1420    0.9928   13.0376
10          3 hour              1%     30     73.00    0.97    0.6422    2.5764    1.4479    6.6516    0.8902    7.0159
 9.1427   10.0632    9.2160   10.1518    1.4630   16.4677
11        4.5 hour              1%     21     82.50    0.98    0.2790    0.9434    0.7517    3.7497    0.3541    4.1003
 3.8946    3.9879    3.9291    4.2909    0.5433    8.9024
11        4.5 hour              1%     22     82.50    0.98    0.4466    1.4407    1.1052    5.3079    0.5801    5.6824
 5.2270    5.8967    6.0213    6.6391    0.8694   12.8871
11        4.5 hour              1%     23     82.50    0.98    0.3191    1.3921    0.7465    4.0481    0.4612    4.3581
 5.3381    5.7961    4.6069    5.0666    0.7713    9.0340
11        4.5 hour              1%     24     82.50    0.98    0.4364    1.6853    0.9351    4.0282    0.6118    4.2594
 5.2791    5.7249    6.0330    6.7369    0.9820   10.0511
11        4.5 hour              1%     25     82.50    0.98    0.3131    0.9887    0.8404    4.5616    0.3996    4.9046
 3.1880    3.2788    4.5217    4.9268    0.5949   10.3387
11        4.5 hour              1%     26     82.50    0.98    0.4223    1.6087    1.0039    5.5575    0.5892    5.9865
 4.8393    5.1566    6.0677    6.6541    0.9409   12.4214
11        4.5 hour              1%     27     82.50    0.98    0.4855    1.6324    1.1715    5.3378    0.6420    5.5991
 5.3922    5.3988    6.7860    7.4795    0.9755   13.5161
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11	4.5 hour		1%	28	82.50	0.98	0.3973	1.4721	0.9423	5.1428	0.5381	5.5569
4.8918	4.9779	5.7253	6.2791	0.8504	11.4081							
11	4.5 hour		1%	29	82.50	0.98	0.6126	2.0464	1.4750	6.6784	0.7992	7.0884
6.2786	6.5533	8.7146	9.5495	1.2263	16.8451							
11	4.5 hour		1%	30	82.50	0.98	0.5486	1.8246	1.3542	6.4817	0.7081	6.9402
5.7371	6.3146	7.5441	8.2835	1.0443	15.8401							
12	6 hour		1%	21	90.10	0.98	0.6746	2.4305	1.5658	7.1250	0.9016	7.5044
7.3909	7.8016	9.4465	10.4172	1.3981	17.1356							
12	6 hour		1%	22	90.10	0.98	0.4203	1.5079	0.9991	4.6822	0.5678	4.9455
5.0071	5.3219	6.0767	6.6544	0.8877	11.3933							
12	6 hour		1%	23	90.10	0.98	0.4568	1.6582	1.1001	4.4714	0.6134	4.6930
5.4460	5.5407	6.0290	6.7165	0.9608	12.1076							
12	6 hour		1%	24	90.10	0.98	0.3554	1.2395	0.7954	3.4854	0.4841	3.6995
4.0858	4.0985	4.9714	5.5060	0.7504	8.6641							
12	6 hour		1%	25	90.10	0.98	0.3689	1.1890	0.8560	3.8961	0.4910	4.1130
3.6451	4.0355	5.2274	5.7531	0.7410	9.6397							
12	6 hour		1%	26	90.10	0.98	0.4559	2.0642	1.0301	3.9076	0.6625	4.1164
7.4250	8.0922	6.0460	6.7506	1.1191	10.7094							
12	6 hour		1%	27	90.10	0.98	0.2912	0.8675	0.7672	4.2150	0.3697	4.5282
2.6331	2.6677	4.1890	4.5670	0.5389	9.3565							
12	6 hour		1%	28	90.10	0.98	0.3745	1.1276	0.9018	4.6585	0.4871	4.9923
3.4636	3.6125	5.2907	5.7970	0.7164	10.5352							
12	6 hour		1%	29	90.10	0.98	0.2995	0.9278	0.7323	3.9886	0.3857	4.3110
2.8140	2.8792	4.3368	4.7316	0.5603	8.8246							
12	6 hour		1%	30	90.10	0.98	0.4449	1.4358	1.0991	5.9784	0.5869	6.4057
4.0789	4.2409	6.4183	7.0080	0.8881	13.2983							
13	9 hour		1%	21	102.00	0.99	0.2148	0.6232	0.5966	3.1426	0.2660	3.4086
2.1896	2.3630	3.0861	3.3550	0.3810	7.1445							
13	9 hour		1%	22	102.00	0.99	0.2549	0.8565	0.5865	3.1702	0.3425	3.3886
2.4792	2.4998	3.6034	3.9759	0.5238	7.0874							
13	9 hour		1%	23	102.00	0.99	0.4672	1.9399	1.1156	5.0960	0.6641	5.4180
6.0260	6.1526	6.9853	7.5970	1.0902	12.7140							
13	9 hour		1%	24	102.00	0.99	0.3061	0.9403	0.7258	4.1206	0.4021	4.4367
2.7067	2.7435	4.3740	4.7965	0.5970	9.0291							
13	9 hour		1%	25	102.00	0.99	0.4628	1.8291	0.9892	4.4413	0.6511	4.6561
5.6715	6.1612	6.4202	7.1758	1.0529	10.6995							

13	9 hour		1%	26	102.00	0.99	0.2312	0.7416	0.6218	3.2762	0.2978	3.4907
2.2739	2.3687	3.3840	3.6777	0.4505	7.4824							
13	9 hour		1%	27	102.00	0.99	0.3610	1.1209	0.8998	4.1138	0.4701	4.4435
3.1219	3.1716	5.0502	5.5471	0.7009	10.1646							
13	9 hour		1%	28	102.00	0.99	0.3360	0.9588	0.8873	4.4167	0.4235	4.7261
2.9282	3.0683	4.8212	5.2532	0.6124	10.4969							
13	9 hour		1%	29	102.00	0.99	0.3955	1.3057	1.0224	5.5397	0.5231	5.9189
3.8244	3.8757	5.7346	6.2283	0.7948	12.4758							
13	9 hour		1%	30	102.00	0.99	0.5601	2.0427	1.3150	6.1385	0.7573	6.3940
6.3114	6.4695	7.5192	8.3696	1.1886	14.9625							
14	12 hour		1%	21	112.00	0.99	0.4159	1.2391	1.0414	5.2318	0.5320	5.6526
3.6781	3.7480	5.9381	6.4817	0.7708	12.1084							
14	12 hour		1%	22	112.00	0.99	0.3318	1.0189	0.8490	3.9302	0.4253	4.1931
3.5005	3.6860	4.7856	5.2259	0.6235	9.7959							
14	12 hour		1%	23	112.00	0.99	0.2061	0.6872	0.5133	2.8683	0.2705	3.0679
2.4484	2.6200	3.0306	3.3126	0.4065	6.3432							
14	12 hour		1%	24	112.00	0.99	0.2728	0.8570	0.6617	3.7214	0.3572	4.0039
2.5244	2.5490	3.9415	4.3142	0.5274	8.2340							
14	12 hour		1%	25	112.00	0.99	0.5476	1.9424	1.2960	5.9008	0.7365	6.1357
5.7081	5.7754	7.4063	8.2249	1.1461	14.3148							
14	12 hour		1%	26	112.00	0.99	0.2144	0.6008	0.5932	3.1557	0.2660	3.4163
1.8126	1.8743	3.1340	3.3913	0.3812	7.1737							
14	12 hour		1%	27	112.00	0.99	0.2936	0.8426	0.7322	3.7500	0.3754	4.0690
2.4108	2.4417	4.2156	4.5991	0.5438	8.7311							
14	12 hour		1%	28	112.00	0.99	0.4458	1.4882	1.0698	5.7472	0.5826	6.1181
4.5151	4.5964	6.3841	6.9903	0.8591	12.9430							
14	12 hour		1%	29	112.00	0.99	0.2416	0.6928	0.6295	3.4403	0.3058	3.6914
1.9856	2.0020	3.4646	3.7769	0.4424	7.6964							
14	12 hour		1%	30	112.00	0.99	0.3259	1.0549	0.7483	3.4216	0.4363	3.6259
3.4619	3.5823	4.6325	5.1015	0.6609	8.5534							
15	18 hour		1%	21	127.00	0.99	0.1227	0.3766	0.3287	1.7891	0.1586	1.9195
1.3336	1.3770	1.8563	2.0244	0.2374	3.9449							
15	18 hour		1%	22	127.00	0.99	0.1746	0.4971	0.4457	2.4668	0.2241	2.6658
1.4669	1.5021	2.5315	2.7601	0.3243	5.5721							
15	18 hour		1%	23	127.00	0.99	0.1827	0.5341	0.4737	2.6014	0.2324	2.8064
1.5408	1.5561	2.6316	2.8710	0.3388	5.8230							

15	18 hour		1%	24	127.00	0.99	0.2533	0.7903	0.6780	3.6474	0.3305	3.8656
2.2024	2.2272	3.7207	4.0228	0.4944	8.2632							
15	18 hour		1%	25	127.00	0.99	0.2814	0.8344	0.7107	3.7446	0.3614	4.0014
2.2711	2.2800	3.9991	4.3737	0.5299	8.2636							
15	18 hour		1%	26	127.00	0.99	0.1366	0.4746	0.3478	2.0096	0.1854	2.1499
1.3282	1.4177	2.0742	2.2455	0.2871	4.2715							
15	18 hour		1%	27	127.00	0.99	0.2546	0.7144	0.6912	3.8114	0.3227	4.1204
1.9819	2.0093	3.7066	4.0128	0.4617	8.5571							
15	18 hour		1%	28	127.00	0.99	0.2336	0.7002	0.5822	2.5380	0.3013	2.6661
2.7454	2.9053	3.4467	3.7551	0.4378	6.5990							
15	18 hour		1%	29	127.00	0.99	0.1962	0.5889	0.4719	2.4648	0.2560	2.6640
1.7642	1.8661	2.8064	3.0734	0.3777	5.5456							
15	18 hour		1%	30	127.00	0.99	0.1777	0.4770	0.4805	2.6417	0.2203	2.8339
1.3725	1.3913	2.6053	2.8247	0.3119	5.8151							
16	24 hour		1%	21	139.00	1.00	0.1862	0.5112	0.5091	2.8030	0.2291	3.0022
1.4618	1.4707	2.7406	2.9661	0.3276	6.2049							
16	24 hour		1%	22	139.00	1.00	0.1234	0.3739	0.3419	1.8428	0.1550	1.9939
1.2308	1.2778	1.8490	1.9969	0.2248	4.2015							
16	24 hour		1%	23	139.00	1.00	0.2205	0.7248	0.5712	2.9615	0.2802	3.1094
2.2315	2.3168	3.2715	3.5403	0.4340	6.8817							
16	24 hour		1%	24	139.00	1.00	0.2013	0.6697	0.4993	2.5697	0.2684	2.7971
1.9380	1.9777	2.8053	3.0877	0.4093	6.1286							
16	24 hour		1%	25	139.00	1.00	0.2436	0.7593	0.6205	3.0123	0.3086	3.1360
2.5957	2.7150	3.5856	3.8942	0.4391	7.2724							
16	24 hour		1%	26	139.00	1.00	0.2091	0.5972	0.5419	2.8798	0.2635	3.0612
1.8825	1.9571	3.0602	3.3242	0.3753	6.4425							
16	24 hour		1%	27	139.00	1.00	0.2207	0.7870	0.5555	3.0767	0.2994	3.2564
2.4029	2.4915	3.1743	3.4197	0.4670	6.7477							
16	24 hour		1%	28	139.00	1.00	0.1063	0.3502	0.2869	1.6015	0.1428	1.7197
1.3680	1.4508	1.6679	1.8224	0.2175	3.4918							
16	24 hour		1%	29	139.00	1.00	0.2038	0.6917	0.5178	2.6545	0.2678	2.8820
2.2872	2.4095	2.8458	3.0825	0.4098	6.2539							
16	24 hour		1%	30	139.00	1.00	0.2155	0.7599	0.5378	2.7122	0.2923	2.8866
2.3221	2.4113	2.9917	3.3157	0.4542	6.4642							
17	30 hour		1%	21	148.00	1.00	0.1188	0.3362	0.3302	1.8137	0.1446	1.9584
1.0372	1.0554	1.7966	1.9364	0.2096	4.0945							

```
 17         30 hour              1%     22    148.00    1.00    0.2171    0.6387    0.5499    3.3041    0.2779    3.5281
  1.8081    1.8314    3.1112    3.3980    0.4059    6.8797
 17         30 hour              1%     23    148.00    1.00    0.1492    0.4921    0.3577    2.0544    0.1975    2.1778
  1.5446    1.5834    2.0873    2.3004    0.2998    4.1919
 17         30 hour              1%     24    148.00    1.00    0.1407    0.4340    0.3751    2.1958    0.1826    2.3532
  1.2605    1.2804    2.0033    2.1956    0.2713    4.7146
 17         30 hour              1%     25    148.00    1.00    0.2480    0.7556    0.6125    3.2050    0.3214    3.3565
  2.1888    2.2190    3.6848    4.0212    0.4752    7.3237
 17         30 hour              1%     26    148.00    1.00    0.1050    0.3066    0.2818    1.5432    0.1286    1.6367
  1.1167    1.1406    1.6467    1.7707    0.1821    3.5760
 17         30 hour              1%     27    148.00    1.00    0.0913    0.2603    0.2497    1.2999    0.1129    1.4128
  0.9015    0.9347    1.3686    1.4811    0.1599    3.0537
 17         30 hour              1%     28    148.00    1.00    0.0941    0.2576    0.2513    1.4325    0.1179    1.5295
  0.7475    0.7502    1.4024    1.5208    0.1682    3.0360
 17         30 hour              1%     29    148.00    1.00    0.1568    0.4025    0.4278    2.2569    0.1926    2.4422
  1.2181    1.2435    2.3253    2.5139    0.2689    5.2251
 17         30 hour              1%     30    148.00    1.00    0.0984    0.2768    0.2678    1.4685    0.1231    1.5684
  0.8161    0.8209    1.4645    1.5895    0.1772    3.2182
Run,    Representative hydrograph
 1     dur10min_aep1tp26.out
Run,    Representative hydrograph
 2     dur15min_aep1tp26.out
Run,    Representative hydrograph
 3     dur20min_aep1tp25.out
Run,    Representative hydrograph
 4     dur25min_aep1tp28.out
Run,    Representative hydrograph
 5     dur30min_aep1tp21.out
Run,    Representative hydrograph
 6     dur45min_aep1tp22.out
Run,    Representative hydrograph
 7     dur1hour_aep1tp23.out
Run,    Representative hydrograph
 8     dur1_5hour_aep1tp26.out
Run,    Representative hydrograph
 9     dur2hour_aep1tp28.out
```

```
 Run,    Representative hydrograph
 10     dur3hour_aep1tp27.out
 Run,    Representative hydrograph
 11     dur4_5hour_aep1tp26.out
 Run,    Representative hydrograph
 12     dur6hour_aep1tp26.out
 Run,    Representative hydrograph
 13     dur9hour_aep1tp28.out
 Run,    Representative hydrograph
 14     dur12hour_aep1tp27.out
 Run,    Representative hydrograph
 15     dur18hour_aep1tp23.out
 Run,    Representative hydrograph
 16     dur24hour_aep1tp26.out
 Run,    Representative hydrograph
 17     dur30hour_aep1tp23.out

Elapsed Run Time (hh:mm:ss) = 00:00:06
```

APPENDIX D: POST-DEVELOPED RORB RESULTS (NO RB)

```
 RORBWin Batch Run Summary
 *************************

 Program version 6.45 (last updated 20th March 2019)
 Copyright Monash University and Hydrology and Risk Consulting

 Date run: 26 Apr 2021 17:51

 Catchment file   : K:\Jobs Data\1400147 - Wurruk rezoning application\_Wat\Models\RORB\Post Dev\SWMS REV E\No
RB\1400147-RORB-PostDev-NoRB_SWMS REV E.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 =     2.63    m = 0.80

 Loss parameters     Initial loss (mm)   Cont. loss (mm/h)
                           19.00               3.00

 Peak  Description
   01  Special storage :   Ex. U/S RB - Outflow
   02  Special storage :   Ex. U/S RB - Inflow
   03  Calculated hydrograph,  External
   04  Calculated hydrograph,  20m RR PC Convey (Catch R)
   05  Calculated hydrograph,  OverlandFlowEasement(CatchS)
   06  Calculated hydrograph,  30m RR PC Convey (Catch S)
   07  Calculated hydrograph,  Catch Q-W, External
   08  Calculated hydrograph,  Catch X
   09  Calculated hydrograph,  Outfall S(Catch Q-X,External
   10  Calculated hydrograph,  Catch B
   11  Calculated hydrograph,  Catch E
   12  Calculated hydrograph,  OutfallLagoon(Catch B-G,I-K)
   13  Calculated hydrograph,  20m RR PC Convey (Catch P)
   14  Calculated hydrograph,  Outfall RB SE(Catch L-P)
   15  Calculated hydrograph,  Outfall SE (Catch B-G, I-P)
```

16 Calculated hydrograph, Outfall NW - Catch A
17 Calculated hydrograph, Entire Catchment

Run	Duration	AEP	TPat	Rain(mm)	ARF	Peak0001	Peak0002	Peak0003	Peak0004	Peak0005	Peak0006	Peak0007	Peak0008	Peak0009	Peak0010	Peak0011	Peak0012	Peak0013	Peak0014	Peak0015	Peak0016	Peak0017
1	10 min	20%	1	11.60	0.94	0.7472	2.0507	0.7472	1.2450	1.3453	1.1163	1.7280	0.5733	2.2672	0.5579	0.8009	0.1481	1.4672	2.4089	2.4402	0.9171	5.6245
1	10 min	20%	2	11.60	0.94	0.7472	2.0507	0.7472	1.2195	1.3076	1.1024	1.7343	0.5733	2.2735	0.5420	0.7445	0.1482	1.3948	2.3239	2.3553	0.8515	5.4803
1	10 min	20%	3	11.60	0.94	0.7472	2.0507	0.7472	1.2179	1.3043	1.1012	1.7348	0.5733	2.2739	0.5406	0.7397	0.1482	1.3889	2.3170	2.3484	0.8461	5.4684
1	10 min	20%	4	11.60	0.94	0.7472	2.0507	0.7472	1.1918	1.2492	1.0801	1.7420	0.5733	2.2812	0.5171	0.7187	0.1483	1.2859	2.1923	2.2237	0.8261	5.2594
1	10 min	20%	5	11.60	0.94	0.7472	2.0507	0.7472	1.2249	1.3190	1.1067	1.7327	0.5733	2.2719	0.5465	0.7611	0.1481	1.4163	2.3492	2.3806	0.8709	5.5234
1	10 min	20%	6	11.60	0.94	0.7472	2.0507	0.7472	1.1917	1.2490	1.0800	1.7420	0.5733	2.2812	0.5170	0.7189	0.1483	1.2856	2.1919	2.2233	0.8262	5.2587
1	10 min	20%	7	11.60	0.94	0.7472	2.0507	0.7472	1.3080	1.4264	1.1433	1.7097	0.5733	2.2489	0.5936	0.9066	0.1500	1.6084	2.5804	2.6117	1.0396	5.9002
1	10 min	20%	8	11.60	0.94	0.7472	2.0507	0.7472	1.1919	1.2494	1.0802	1.7420	0.5733	2.2811	0.5172	0.7186	0.1483	1.2864	2.1930	2.2243	0.8259	5.2605
1	10 min	20%	9	11.60	0.94	0.7472	2.0507	0.7472	1.2679	1.3738	1.1268	1.7236	0.5733	2.2627	0.5698	0.8432	0.1481	1.5213	2.4713	2.5026	0.9662	5.7315
1	10 min	20%	10	11.60	0.94	0.7472	2.0507	0.7472	1.2802	1.3887	1.1292	1.7134	0.5733	2.2525	0.5761	0.8663	0.1481	1.5500	2.5029	2.5343	0.9930	5.7798
2	15 min	20%	1	14.30	0.95	1.1384	2.2232	1.1384	1.6384	1.5524	1.4174	2.1425	0.7191	2.6129	0.6115	0.9266	0.1973	1.6133	2.5345	2.5542	1.0633	5.9290

2	15 min	20%	2	14.30	0.95	1.1328	2.1632	1.1328	1.6100	1.5222		
1.3959	2.1160	0.7180	2.5541	0.5885	0.8426	0.1974	1.5145	2.4323	2.4520	0.9655	5.7763	
2	15 min	20%	3	14.30	0.95	1.1499	2.3555	1.1499	1.6367	1.5139		
1.3843	2.1642	0.7186	2.7077	0.5964	0.7869	0.1974	1.4186	2.3088	2.3512	0.9017	5.8165	
2	15 min	20%	4	14.30	0.95	1.2785	2.6548	1.2785	1.8480	1.6927		
1.5010	2.2938	0.7397	2.9694	0.6807	0.9128	0.1989	1.6829	2.8638	2.9062	1.0498	6.8630	
2	15 min	20%	5	14.30	0.95	1.1395	2.2358	1.1395	1.6572	1.5930		
1.4377	2.1532	0.7192	2.6304	0.6323	1.0024	0.1992	1.7137	2.6551	2.6748	1.1513	6.1114	
2	15 min	20%	6	14.30	0.95	1.1666	2.5174	1.1666	1.7078	1.5882		
1.4371	2.2385	0.7056	2.8801	0.6541	0.9629	0.1990	1.6244	2.7166	2.7590	1.1066	6.5272	
2	15 min	20%	7	14.30	0.95	1.2785	2.6548	1.2785	1.8634	1.7170		
1.5148	2.2910	0.7397	2.9666	0.6948	0.9111	0.1988	1.7446	2.9411	2.9836	1.0400	6.9902	
2	15 min	20%	8	14.30	0.95	1.2785	2.6548	1.2785	1.8351	1.6722		
1.4895	2.2966	0.7397	2.9722	0.6683	0.9362	0.1989	1.6298	2.7961	2.8385	1.0762	6.7524	
2	15 min	20%	9	14.30	0.95	1.2785	2.6548	1.2785	1.8927	1.7632		
1.5401	2.2827	0.7397	2.9583	0.7218	1.0027	0.1986	1.8648	3.0888	3.1312	1.1473	7.2368	
2	15 min	20%	10	14.30	0.95	1.2785	2.6548	1.2785	1.9261	1.8315		
1.5629	2.2576	0.7397	2.9332	0.7528	1.1105	0.1987	2.0045	3.2545	3.2968	1.2724	7.5025	
3	20 min	20%	1	16.30	0.96	1.3974	2.4115	1.3974	1.9629	1.9052		
1.7061	2.4071	0.8247	2.9769	0.6724	0.8855	0.2355	1.6811	2.7940	2.8178	1.0122	6.8069	
3	20 min	20%	2	16.30	0.96	1.4244	2.4422	1.4244	1.9249	1.7914		
1.6337	2.4464	0.8218	2.9169	0.6390	0.7754	0.2376	1.5069	2.5325	2.5563	0.8902	6.2466	
3	20 min	20%	3	16.30	0.96	1.4673	2.4697	1.4673	1.9741	1.8642		
1.6807	2.4777	0.8396	2.9423	0.6461	0.8073	0.2376	1.5524	2.5925	2.6163	0.9221	6.3954	
3	20 min	20%	4	16.30	0.96	1.6088	3.0699	1.6088	2.2181	1.9511		

1.7529 2.7011 0.8540 3.4681 0.7502 1.0253 0.2366 1.7663 3.0316 3.0826 1.1780 7.5561

3 20 min 20% 5 16.30 0.96 1.4090 2.3786 1.4090 2.0626 2.0180
1.8008 2.4814 0.8278 2.9124 0.7786 1.2221 0.2391 2.1289 3.3525 3.3762 1.4025 7.6911

3 20 min 20% 6 16.30 0.96 1.5239 2.8698 1.5239 2.1401 1.9336
1.7456 2.6340 0.8425 3.3124 0.7614 1.1423 0.2387 1.9433 3.1243 3.1753 1.3122 7.4858

3 20 min 20% 7 16.30 0.96 1.6433 3.1142 1.6433 2.2808 2.0182
1.7963 2.7218 0.8662 3.4984 0.7804 1.0952 0.2377 1.8827 3.2397 3.2907 1.2588 7.8680

3 20 min 20% 8 16.30 0.96 1.5187 2.8340 1.5187 2.1046 1.8856
1.7142 2.6195 0.8440 3.2776 0.7272 1.0141 0.2368 1.7791 2.8848 2.9358 1.1634 7.1482

3 20 min 20% 9 16.30 0.96 1.5093 2.7720 1.5093 2.1172 1.9357
1.7483 2.6061 0.8453 3.2298 0.7537 1.1553 0.2388 1.9733 3.0814 3.1324 1.3270 7.3325

3 20 min 20% 10 16.30 0.96 1.6433 3.1142 1.6433 2.2960 2.0429
1.8133 2.7257 0.8662 3.5023 0.7962 1.0807 0.2385 1.9437 3.3234 3.3744 1.2417 8.0036

4 25 min 20% 1 17.80 0.96 1.7509 2.9956 1.7509 2.3217 2.1627
1.9174 2.8370 0.9408 3.4716 0.7265 0.8815 0.2660 1.6240 2.6674 2.7251 1.0088 7.0741

4 25 min 20% 2 17.80 0.96 1.6167 2.8972 1.6167 2.3557 2.1468
1.8980 2.5809 0.8908 3.4662 0.7161 0.8448 0.2541 1.6553 2.7481 2.7776 0.9640 7.2078

4 25 min 20% 3 17.80 0.96 1.5891 2.7425 1.5891 2.3278 2.1791
1.9281 2.6757 0.9100 3.3787 0.7166 0.8844 0.2635 1.7084 2.8323 2.8586 1.0099 7.2472

4 25 min 20% 4 17.80 0.96 1.6791 2.7275 1.6791 2.2702 2.2247
1.9684 2.8012 0.9320 3.3004 0.7333 1.0032 0.2660 1.8539 3.0158 3.0427 1.1479 7.3874

4 25 min 20% 5 17.80 0.96 1.6688 2.6833 1.6688 2.3153 2.2552
1.9975 2.8158 0.9298 3.2925 0.7646 1.0714 0.2679 1.9695 3.2078 3.2347 1.2265 7.6845

4 25 min 20% 6 17.80 0.96 1.7089 2.8602 1.7089 2.2520 2.1449
1.9019 2.7935 0.9375 3.3587 0.6987 0.8044 0.2662 1.5494 2.5491 2.5760 0.9187 6.6747

4	25 min	20%	7	17.80	0.96	1.6129	2.9195	1.6129	2.3982	2.1868		
1.9459	2.6282	0.8878	3.5027	0.7750	1.0301	0.2559	1.8636	3.1766	3.2071	1.1832	7.7856	
4	25 min	20%	8	17.80	0.96	1.5838	2.7547	1.5838	2.3707	2.2170		
1.9643	2.7029	0.9087	3.3864	0.7595	0.9621	0.2628	1.8611	3.1281	3.1537	1.0987	7.6387	
4	25 min	20%	9	17.80	0.96	1.7901	3.2682	1.7901	2.4557	2.2479		
2.0012	2.9840	0.9346	3.7676	0.8325	1.1781	0.2674	2.0336	3.3515	3.4092	1.3525	8.2635	
4	25 min	20%	10	17.80	0.96	1.6303	2.6367	1.6303	2.4238	2.3168		
2.0470	2.8017	0.9210	3.2639	0.8353	1.2689	0.2679	2.2460	3.5766	3.6034	1.4552	8.3225	
5	30 min	20%	1	19.10	0.97	1.9464	3.2883	1.9464	2.5598	2.4391		
2.1296	3.0958	1.0245	3.7915	0.7828	0.9853	0.2912	1.7501	2.9391	3.0029	1.1291	7.7622	
5	30 min	20%	2	19.10	0.97	1.7010	2.5130	1.7010	2.3613	2.2105		
2.0034	2.6787	0.7154	3.2079	0.7095	0.8877	0.2792	1.6867	2.8509	2.8622	1.0196	6.6315	
5	30 min	20%	3	19.10	0.97	1.6251	2.5358	1.6251	2.3617	2.1820		
1.9457	2.7423	0.7289	3.2163	0.6658	0.7114	0.2801	1.4223	2.3606	2.3875	0.8107	6.4145	
5	30 min	20%	4	19.10	0.97	1.8345	2.8385	1.8345	2.6085	2.4695		
2.1674	3.0268	1.0058	3.5731	0.7778	1.0034	0.2934	1.8981	3.1108	3.1405	1.1470	7.8605	
5	30 min	20%	5	19.10	0.97	1.8414	2.8662	1.8414	2.6311	2.4991		
2.1940	3.0557	1.0076	3.5544	0.8022	1.0928	0.2932	2.0152	3.2577	3.2874	1.2507	8.0926	
5	30 min	20%	6	19.10	0.97	1.8192	3.0933	1.8192	2.6395	2.4017		
2.1103	2.8706	0.9756	3.7454	0.7723	0.9090	0.2813	1.7825	2.9628	2.9920	1.0372	7.7746	
5	30 min	20%	7	19.10	0.97	1.8731	2.9901	1.8731	2.5874	2.4912		
2.1861	3.0804	1.0142	3.6276	0.7928	1.0547	0.2931	1.9655	3.2052	3.2349	1.2065	7.9342	
5	30 min	20%	8	19.10	0.97	1.8824	3.2481	1.8824	2.6803	2.3891		
2.1039	2.8741	0.9533	3.8274	0.8062	0.9929	0.2788	1.8998	3.1223	3.1594	1.1343	8.1211	
5	30 min	20%	9	19.10	0.97	2.0148	3.5253	2.0148	2.7060	2.5278		
2.2269	3.2661	1.0216	4.0883	0.8783	1.1594	0.2947	2.0647	3.4062	3.4697	1.3301	8.6717	

5	30 min	20%	10	19.10	0.97	2.0787	3.6892	2.0787	2.8107	2.6137	2.2857	3.3336
1.0243	4.2314	0.9222	1.3015	0.2944	2.2298	3.7355	3.7990	1.4947	9.2455			
6	45 min	20%	1	22.00	0.97	2.4231	3.0006	2.4231	3.2352	3.1440	2.7843	3.6066
0.7241	4.0892	0.7134	0.7247	0.4715	1.4064	2.3118	2.3824	0.8311	7.0413			
6	45 min	20%	2	22.00	0.97	2.5239	3.0759	2.5239	3.3343	3.2176	2.8652	3.7001
0.8718	4.1561	0.7345	0.7927	0.4702	1.5231	2.4898	2.5629	0.9052	7.1495			
6	45 min	20%	3	22.00	0.97	1.9489	2.2628	1.9489	2.6050	2.7369	2.6274	3.4074
0.7057	3.8376	0.6838	0.8332	0.4579	1.5540	2.6183	2.6290	0.9544	6.4687			
6	45 min	20%	4	22.00	0.97	2.6448	3.3558	2.6448	3.4036	3.2104	2.7472	3.6613
0.8675	4.2424	0.7147	0.7314	0.4747	1.4135	2.2858	2.3821	0.8346	7.4591			
6	45 min	20%	5	22.00	0.97	2.7600	3.7860	2.7600	3.6123	3.5447	3.0869	3.8674
1.1229	4.5023	0.9052	1.0879	0.4697	2.0387	3.3235	3.3731	1.2440	8.9460			
6	45 min	20%	6	22.00	0.97	2.8894	3.6168	2.8894	3.7377	3.4426	2.9281	3.9115
0.9408	4.4637	0.7809	0.8127	0.4882	1.5854	2.5717	2.6666	0.9270	8.0573			
6	45 min	20%	7	22.00	0.97	2.6841	3.5810	2.6841	3.7047	3.6307	3.1102	3.9519
1.0037	4.4075	0.8749	0.9983	0.4749	1.9753	3.3012	3.3591	1.1427	8.7715			
6	45 min	20%	8	22.00	0.97	2.0926	2.9495	2.0926	2.8222	2.9634	2.7822	3.5951
0.7505	3.9300	0.8137	1.0770	0.4591	1.9439	3.1299	3.1604	1.2339	7.8023			
6	45 min	20%	9	22.00	0.97	2.9738	4.0438	2.9738	4.1676	3.8930	3.3083	4.1858
1.2321	4.7028	1.0319	1.3862	0.4761	2.6020	4.2987	4.3578	1.5853	10.6460			
6	45 min	20%	10	22.00	0.97	2.7140	3.4750	2.7140	3.5515	3.6344	3.1064	4.0292
1.0412	4.4087	0.8967	1.1735	0.4747	2.1176	3.6121	3.6555	1.3475	8.9846			
7	1 hour	20%	1	24.20	0.98	2.1520	2.3855	2.1520	2.8040	2.9794	2.9017	3.7581
0.6158	4.0590	0.6355	0.8125	0.6194	1.5569	2.5936	2.5936	0.9282	6.3520			
7	1 hour	20%	2	24.20	0.98	2.4419	2.9986	2.4419	3.1979	3.2601		

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3.0051    3.8866    0.7752    4.4983    0.6588    0.7252    0.6084    1.3898    2.3362    2.3364    0.8313    7.3643

   7         1 hour            20%      3     24.20    0.98    2.2737    2.4097    2.2737    2.9359    3.1214
3.0100    4.0017    0.5545    4.4409    0.6075    0.7987    0.6246    1.4738    2.4148    2.4148    0.9142    6.8380

   7         1 hour            20%      4     24.20    0.98    2.8869    3.5375    2.8869    3.7628    3.8173
3.6162    4.6595    1.0820    5.0427    0.8579    1.0278    0.6417    2.0014    3.3210    3.3632    1.1731    8.7265

   7         1 hour            20%      5     24.20    0.98    3.1469    3.3312    3.1469    4.0558    3.9995
3.6110    4.7475    0.7293    5.2664    0.7914    0.7229    0.6532    1.4495    2.4105    2.5392    0.8238    8.6015

   7         1 hour            20%      6     24.20    0.98    3.1142    3.9683    3.1142    4.1902    4.2077
3.6972    4.6918    1.2392    4.9254    0.9234    1.0667    0.6390    2.0565    3.3738    3.4351    1.2180    9.2964

   7         1 hour            20%      7     24.20    0.98    3.0278    3.6231    3.0278    4.0400    4.2171
3.8345    4.8385    0.8858    5.2755    0.8874    1.0313    0.6563    1.9533    3.2355    3.3074    1.1789    8.7748

   7         1 hour            20%      8     24.20    0.98    2.3716    2.7423    2.3716    3.1010    3.3983
3.3455    4.3602    0.6929    4.7572    0.7302    0.8375    0.6399    1.5958    2.6341    2.6596    0.9570    7.2676

   7         1 hour            20%      9     24.20    0.98    4.9470    7.2011    4.9470    6.5980    6.0786
4.7375    6.0267    2.0741    7.5545    1.2872    1.5616    0.6988    2.9991    5.0023    5.2260    1.7837   14.5642

   7         1 hour            20%     10     24.20    0.98    4.3412    5.6282    4.3412    5.5312    5.4369
4.4124    5.6232    1.3438    6.4348    1.1588    1.3351    0.6854    2.6284    4.3875    4.5521    1.5231   12.5100

   8       1.5 hour            20%      1     27.60    0.98    2.0877    2.5366    2.0877    2.7592    2.8938
2.9734    3.8471    0.6401    4.1884    0.7023    0.8005    0.8494    1.5524    2.5935    2.5972    0.9140    6.5718

   8       1.5 hour            20%      2     27.60    0.98    2.4788    3.4733    2.4788    3.3156    3.1973
2.7778    3.5990    0.9338    4.2236    0.8649    1.0301    0.8427    1.9477    3.2091    3.2327    1.1776    8.4519

   8       1.5 hour            20%      3     27.60    0.98    2.4899    3.1723    2.4899    3.0943    3.0471
2.6516    3.5109    0.8545    4.1879    0.7272    0.8654    0.8310    1.6618    2.7332    2.7544    0.9883    7.1939

   8       1.5 hour            20%      4     27.60    0.98    2.9232    3.1152    2.9232    3.7415    3.9965
4.0508    5.3615    0.6736    6.0350    0.7322    0.6398    0.9360    1.2775    2.0960    2.3459    0.7288    9.1097
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8	1.5 hour	20%	5	27.60	0.98	2.9153	3.4452	2.9153	3.8681	3.8190		
3.5437	4.4770	0.9703	4.7615	0.8747	1.0581	0.8620	2.0330	3.3945	3.4218	1.2088	8.4528	
8	1.5 hour	20%	6	27.60	0.98	2.6379	2.7205	2.6379	3.3533	3.6039		
3.6111	4.6903	0.6242	5.2551	0.6375	0.5722	0.9043	1.1333	1.8681	2.1177	0.6543	8.0115	
8	1.5 hour	20%	7	27.60	0.98	2.8556	3.7480	2.8556	3.7227	3.5042		
3.2113	4.0191	1.0047	4.4103	0.8454	0.8839	0.8635	1.7710	2.9530	3.0410	1.0072	8.4585	
8	1.5 hour	20%	8	27.60	0.98	2.6832	3.2435	2.6832	3.3826	3.5571		
3.6717	5.0588	0.9274	5.8961	0.7988	0.9037	0.9223	1.7871	2.9858	3.0330	1.0307	8.9370	
8	1.5 hour	20%	9	27.60	0.98	4.8907	5.3396	4.8907	6.1074	5.8307		
5.0515	6.5279	1.3311	7.0280	1.0118	1.0890	0.9626	2.0532	3.4608	3.7217	1.2456	11.9079	
8	1.5 hour	20%	10	27.60	0.98	6.3120	7.7979	6.3120	7.9488	7.3551		
5.7594	7.0838	2.2043	8.3462	1.2691	1.5652	0.9953	2.9701	4.9263	5.2383	1.7888	15.3734	
9	2 hour	20%	1	30.30	0.98	1.6810	2.3477	1.6810	2.2867	2.2646		
2.2153	2.9655	0.7918	3.3911	0.6585	0.7719	0.9801	1.5064	2.4957	2.5108	0.8808	6.4341	
9	2 hour	20%	2	30.30	0.98	1.6002	2.2971	1.6002	2.1690	2.2053		
2.0718	2.6347	0.6528	3.0184	0.6875	0.8302	0.9463	1.5738	2.6185	2.6185	0.9482	6.3777	
9	2 hour	20%	3	30.30	0.98	1.6980	1.7296	1.6980	2.1806	2.4135		
2.6208	3.4098	0.4041	3.7113	0.5845	0.7908	1.0093	1.4871	2.4702	2.4702	0.9044	5.5774	
9	2 hour	20%	4	30.30	0.98	2.3683	2.5208	2.3683	3.0040	3.2243		
3.3663	4.3288	0.6455	4.6709	0.5720	0.7811	1.0986	1.4214	2.3102	2.3102	0.8946	7.0877	
9	2 hour	20%	5	30.30	0.98	3.8098	4.4325	3.8098	4.8189	4.6810		
4.2936	5.7818	1.0548	6.7405	0.8436	0.8974	1.1533	1.7166	2.8175	3.2037	1.0249	10.9691	
9	2 hour	20%	6	30.30	0.98	2.6556	3.2168	2.6556	3.3927	3.3683		
3.0332	4.0651	0.7393	4.7589	0.6160	0.6591	1.0547	1.2649	2.0793	2.5502	0.7527	8.0619	
9	2 hour	20%	7	30.30	0.98	2.2720	2.5865	2.2720	2.9077	3.0813		
3.1447	4.0928	0.7577	4.6625	0.5787	0.6285	1.0808	1.2148	2.0192	2.0527	0.7175	7.0505	

9	2 hour	20%	8	30.30	0.98	2.6986	2.9235	2.6986	3.4398	3.6536		
3.7617	4.9212	0.6392	5.5604	0.6466	0.6006	1.0909	1.1907	1.9508	2.2981	0.6845	8.5429	
9	2 hour	20%	9	30.30	0.98	3.4163	3.5118	3.4163	4.3666	4.6685		
4.4909	5.8433	0.8150	6.4114	0.8422	0.7939	1.1584	1.5612	2.5849	2.6662	0.9054	9.9017	
9	2 hour	20%	10	30.30	0.98	3.4669	3.6979	3.4669	4.4745	4.4499		
4.1657	5.4385	0.7924	6.1212	0.8738	0.9604	1.1769	1.7608	2.9755	3.0296	1.0997	9.3864	
10	3 hour	20%	1	34.50	0.98	1.9310	2.3244	1.9310	2.4825	2.3321		
2.4292	2.9730	0.4808	3.4047	0.5826	0.6389	1.0437	1.2590	2.0913	2.2627	0.7286	6.2190	
10	3 hour	20%	2	34.50	0.98	1.5945	1.8785	1.5945	2.1109	2.3573		
2.4192	3.1472	0.3750	3.3779	0.4670	0.4041	1.0945	0.7901	1.2956	1.4238	0.4614	4.9994	
10	3 hour	20%	3	34.50	0.98	1.7466	2.1401	1.7466	2.6432	2.7103		
2.9647	3.7756	0.4182	4.0354	0.7430	0.7287	1.1584	1.5008	2.5442	2.6096	0.8291	7.0718	
10	3 hour	20%	4	34.50	0.98	2.2643	2.8315	2.2643	2.8962	3.3693		
3.3314	4.3636	0.6683	4.6271	0.6588	0.6003	1.1776	1.2310	2.0468	2.1312	0.6830	6.9519	
10	3 hour	20%	5	34.50	0.98	1.5884	1.6220	1.5884	2.0397	2.2855		
2.5051	3.2785	0.3645	3.5549	0.4180	0.3539	1.2510	0.7144	1.1912	1.8254	0.4031	5.7620	
10	3 hour	20%	6	34.50	0.98	1.7646	1.8595	1.7646	2.2622	2.4431		
2.4429	3.3227	0.4255	3.6452	0.4462	0.3915	1.2545	0.7944	1.3343	2.1178	0.4458	6.2088	
10	3 hour	20%	7	34.50	0.98	1.2093	1.5414	1.2093	1.5689	1.7789		
2.0146	2.6691	0.3289	2.9742	0.4028	0.3685	1.1599	0.7441	1.2304	1.6563	0.4196	4.4117	
10	3 hour	20%	8	34.50	0.98	3.0522	3.5540	3.0522	3.9118	4.4826		
4.3429	5.7825	0.9082	6.1707	0.8111	0.8565	1.2150	1.6793	2.7561	2.8657	0.9769	9.2944	
10	3 hour	20%	9	34.50	0.98	2.8810	2.8890	2.8810	3.6542	4.0862		
4.0342	5.2291	0.6530	5.7386	0.6782	0.5933	1.4669	1.2288	2.0588	2.4736	0.6746	8.8869	
10	3 hour	20%	10	34.50	0.98	2.2709	2.4348	2.2709	2.8905	3.2385		

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3.5648    4.6203    0.5078    4.9811    0.5637    0.5046    1.4301    1.0108    1.6696    1.9913    0.5749    7.4708

  11        4.5 hour            20%       1     39.70    0.99    0.9543    1.2557    0.9543    1.2394    1.3852
1.5349    1.9708    0.2753    2.1418    0.3384    0.2941    1.1449    0.5939    0.9790    1.6088    0.3348    3.8938

  11        4.5 hour            20%       2     39.70    0.99    1.4162    1.6023    1.4162    1.8058    1.9198
2.1457    2.7927    0.3736    3.0482    0.3542    0.3423    1.2450    0.6446    1.0510    1.8502    0.3913    5.2223

  11        4.5 hour            20%       3     39.70    0.99    1.5848    1.7586    1.5848    2.0980    2.1287
2.0786    2.8335    0.4803    3.0476    0.5878    0.6166    1.2665    1.2263    2.0360    2.0748    0.7028    5.4658

  11        4.5 hour            20%       4     39.70    0.99    1.2845    1.4962    1.2845    1.6661    1.8574
1.9815    2.5548    0.3599    2.7678    0.3837    0.3791    1.2297    0.7556    1.2481    1.7508    0.4321    4.8091

  11        4.5 hour            20%       5     39.70    0.99    1.2849    1.6060    1.2849    1.6783    1.8017
1.9033    2.4360    0.3789    2.7109    0.4664    0.4277    1.3412    0.8786    1.4758    2.2729    0.4888    5.3759

  11        4.5 hour            20%       6     39.70    0.99    2.3839    2.6706    2.3839    3.0403    3.0156
2.7730    3.7733    0.5229    4.2751    0.5516    0.5509    1.3847    1.0995    1.8336    2.9450    0.6278    7.8478

  11        4.5 hour            20%       7     39.70    0.99    1.5355    1.7794    1.5355    1.9832    2.0629
2.2638    2.8755    0.4329    3.2699    0.3920    0.3767    1.4031    0.7278    1.1769    2.3077    0.4299    6.0075

  11        4.5 hour            20%       8     39.70    0.99    1.0028    1.0463    1.0028    1.3025    1.4799
1.6193    2.0858    0.2197    2.2792    0.2829    0.2719    1.2926    0.5305    0.8754    1.9219    0.3103    4.3790

  11        4.5 hour            20%       9     39.70    0.99    1.6788    1.7898    1.6788    2.1576    2.3936
2.6174    3.4659    0.3511    3.8142    0.4408    0.3780    1.6004    0.7556    1.2522    2.3159    0.4306    6.5425

  11        4.5 hour            20%      10     39.70    0.99    2.4285    2.6018    2.4285    3.1036    3.3329
3.3137    4.5566    0.5020    5.0586    0.5984    0.5373    1.5967    1.0811    1.7969    2.7531    0.6119    8.4237

  12          6 hour            20%       1     44.00    0.99    1.5995    1.7900    1.5995    2.1152    2.1507
2.1016    2.8617    0.4857    3.0754    0.5910    0.6195    1.2831    1.2324    2.0461    2.0861    0.7062    5.5173

  12          6 hour            20%       2     44.00    0.99    1.4035    1.6660    1.4035    1.9010    1.9771
2.0920    2.6709    0.3838    2.9249    0.4790    0.4898    0.9036    0.9788    1.6234    1.6437    0.5582    4.8541
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12	6 hour	20%	3	44.00	0.99	0.9369	1.0501	0.9369	1.2237	1.3798		
1.5012	1.9375	0.2187	2.1319	0.2793	0.2344	0.9606	0.4775	0.7962	1.5300	0.2667	3.3861	
12	6 hour	20%	4	44.00	0.99	1.5872	1.8694	1.5872	2.0581	2.2010		
2.2490	2.9001	0.3605	3.0866	0.4021	0.3938	1.0966	0.7834	1.3061	1.8189	0.4488	4.6614	
12	6 hour	20%	5	44.00	0.99	0.9507	1.2002	0.9507	1.2401	1.3519		
1.5062	1.9902	0.2489	2.1931	0.3380	0.3451	1.1988	0.6849	1.1323	1.8630	0.3934	3.9846	
12	6 hour	20%	6	44.00	0.99	1.3235	1.5832	1.3235	1.7015	1.8519		
1.8443	2.3704	0.3544	2.5549	0.3467	0.3385	1.3702	0.6651	1.0939	1.8622	0.3860	4.3671	
12	6 hour	20%	7	44.00	0.99	1.2140	1.2712	1.2140	1.5682	1.7091		
1.8788	2.4011	0.2575	2.6200	0.3190	0.2762	1.2746	0.5570	0.9213	1.8527	0.3144	4.3069	
12	6 hour	20%	8	44.00	0.99	2.4273	2.7255	2.4273	3.0989	3.1794		
3.3757	4.2251	0.5205	4.6384	0.5750	0.5617	1.5029	1.1175	1.8629	2.4614	0.6402	7.7400	
12	6 hour	20%	9	44.00	0.99	2.1254	2.4267	2.1254	2.7328	2.8339		
3.1549	4.0303	0.5711	4.6014	0.5330	0.5035	1.6753	0.9782	1.5889	2.7283	0.5744	7.9041	
12	6 hour	20%	10	44.00	0.99	2.8134	2.9855	2.8134	3.5629	3.7344		
3.3940	4.7877	0.6238	5.3257	0.6470	0.6125	1.7231	1.2339	2.0658	3.3399	0.6977	9.3633	
13	9 hour	20%	1	51.10	0.99	1.3529	1.4025	1.3529	1.7475	1.8824		
1.8792	2.5646	0.2601	2.8213	0.3528	0.3013	0.8829	0.6168	1.0265	1.4151	0.3428	4.5792	
13	9 hour	20%	2	51.10	0.99	1.1962	1.3755	1.1962	1.5566	1.7901		
1.8905	2.4763	0.3404	2.6369	0.3353	0.2749	0.9293	0.5525	0.9390	1.3502	0.3137	4.1825	
13	9 hour	20%	3	51.10	0.99	1.1111	1.3613	1.1111	1.4586	1.4698		
1.7379	2.1556	0.2969	2.2523	0.3105	0.3211	1.0950	0.6186	1.0088	1.7982	0.3666	4.1137	
13	9 hour	20%	4	51.10	0.99	1.4803	1.6007	1.4803	1.9002	1.9852		
2.1520	2.7201	0.3624	3.0825	0.3699	0.3414	1.3128	0.6729	1.0976	1.8930	0.3892	5.3647	
13	9 hour	20%	5	51.10	0.99	0.9936	1.0095	0.9936	1.2941	1.4799		
1.6719	2.1675	0.2041	2.3550	0.2807	0.2248	1.0487	0.4548	0.7560	1.6612	0.2559	4.2671	

13	9 hour	20%	6	51.10	0.99	1.1180	1.1243	1.1180	1.4510	1.6511		
1.8398	2.4020	0.2205	2.6225	0.3096	0.2470	1.4034	0.5066	0.8408	2.0143	0.2809	4.9177	
13	9 hour	20%	7	51.10	0.99	1.3540	1.4248	1.3540	1.7461	1.8619		
1.8493	2.5396	0.2764	2.8160	0.3488	0.3060	0.9576	0.6206	1.0303	1.6639	0.3484	4.8282	
13	9 hour	20%	8	51.10	0.99	1.5520	1.6291	1.5520	1.9891	2.2709		
2.5907	3.3372	0.3255	3.6104	0.4113	0.3463	1.8596	0.6972	1.1570	2.5696	0.3944	6.3600	
13	9 hour	20%	9	51.10	0.99	1.7001	1.7638	1.7001	2.1919	2.3547		
2.4396	3.1209	0.3630	3.3978	0.4303	0.3762	1.6111	0.7818	1.3156	2.5268	0.4277	6.1972	
13	9 hour	20%	10	51.10	0.99	1.8814	1.9234	1.8814	2.4197	2.7437		
2.9473	3.9001	0.3621	4.2608	0.4889	0.4038	1.6545	0.8304	1.3826	2.2651	0.4592	6.9835	
14	12 hour	20%	1	57.00	0.99	0.9303	0.9813	0.9303	1.2159	1.3582		
1.4296	1.8930	0.2252	2.0449	0.2626	0.2209	0.9342	0.4356	0.7317	1.4578	0.2521	3.7373	
14	12 hour	20%	2	57.00	0.99	1.6330	1.6323	1.6330	2.1083	2.4462		
2.6610	3.4760	0.3748	3.7519	0.4362	0.3489	1.2548	0.7277	1.2227	1.6587	0.3966	5.8071	
14	12 hour	20%	3	57.00	0.99	0.6441	0.7793	0.6441	0.8737	0.9599		
0.9705	1.3473	0.1594	1.5013	0.2837	0.2684	0.5762	0.5451	0.9101	0.9571	0.3056	2.6625	
14	12 hour	20%	4	57.00	0.99	0.9037	0.9113	0.9037	1.1789	1.3251		
1.4938	1.9479	0.1832	2.1311	0.2568	0.2053	1.0024	0.4180	0.6914	1.4730	0.2336	3.8378	
14	12 hour	20%	5	57.00	0.99	1.0905	1.1834	1.0905	1.4159	1.5515		
1.6295	2.1766	0.2554	2.3747	0.2972	0.2626	1.3091	0.5113	0.8445	1.8672	0.2996	4.4375	
14	12 hour	20%	6	57.00	0.99	0.5457	0.5788	0.5457	0.7265	0.8251		
0.9345	1.2030	0.1221	1.2991	0.1698	0.1417	0.6940	0.2840	0.4663	1.0600	0.1613	2.2428	
14	12 hour	20%	7	57.00	0.99	1.1751	1.2610	1.1751	1.5185	1.6013		
1.7217	2.1933	0.2585	2.4519	0.3046	0.2741	1.2616	0.5501	0.9116	1.8286	0.3122	4.4729	
14	12 hour	20%	8	57.00	0.99	1.3498	1.4384	1.3498	1.7381	1.8590		

```
2.1618    2.7511    0.3202    2.9336    0.3465    0.3094    1.4703    0.6139    1.0037    2.1505    0.3525    5.1751

  14         12 hour             20%       9     57.00    0.99    1.8981    1.9986    1.8981    2.4319    2.6115
2.7708    3.7470    0.4357    4.1827    0.4843    0.4191    1.8699    0.8350    1.3679    2.7466    0.4775    7.4069

  14         12 hour             20%      10     57.00    0.99    1.7316    1.9561    1.7316    2.2118    2.2250
2.5507    3.1695    0.4755    3.4382    0.4094    0.4121    1.2792    0.7927    1.2825    2.1013    0.4705    6.0100

  15         18 hour             20%       1     66.50    1.00    0.5608    0.6520    0.5608    0.7445    0.8651
1.0205    1.2894    0.1264    1.3880    0.1771    0.1383    0.7899    0.2844    0.4733    1.1594    0.1574    2.4139

  15         18 hour             20%       2     66.50    1.00    1.2996    1.3032    1.2996    1.6554    1.9339
2.2930    2.9579    0.2939    3.1723    0.3780    0.3376    1.2508    0.6804    1.1255    1.5779    0.3844    5.0246

  15         18 hour             20%       3     66.50    1.00    0.9148    0.9379    0.9148    1.1790    1.3158
1.4672    1.9350    0.1677    2.1027    0.2534    0.2123    0.7260    0.4288    0.7102    0.9200    0.2417    3.2296

  15         18 hour             20%       4     66.50    1.00    0.5505    0.6031    0.5505    0.7442    0.8446
0.9181    1.2171    0.1138    1.3254    0.1779    0.1419    0.7658    0.2956    0.4939    1.1250    0.1613    2.5164

  15         18 hour             20%       5     66.50    1.00    0.7819    1.0394    0.7819    1.0515    1.2798
1.5245    1.9181    0.2445    2.0189    0.2559    0.2074    0.7566    0.4008    0.6817    1.1458    0.2368    3.3764

  15         18 hour             20%       6     66.50    1.00    0.5405    0.5921    0.5405    0.7262    0.8116
0.8826    1.1700    0.1144    1.2844    0.1704    0.1410    0.6209    0.2880    0.4792    0.8929    0.1604    2.3377

  15         18 hour             20%       7     66.50    1.00    0.4093    0.4253    0.4093    0.5574    0.6394
0.7156    0.9273    0.0801    1.0074    0.1505    0.1151    0.5931    0.2438    0.4110    0.9596    0.1306    2.0933

  15         18 hour             20%       8     66.50    1.00    0.8373    0.9022    0.8373    1.0990    1.1971
1.2907    1.7295    0.1927    1.9222    0.2390    0.2041    0.9940    0.4079    0.6711    1.4601    0.2325    3.6148

  15         18 hour             20%       9     66.50    1.00    0.5014    0.5175    0.5014    0.6721    0.7608
0.8584    1.1143    0.1012    1.2155    0.1596    0.1280    0.7550    0.2610    0.4332    1.1882    0.1457    2.5494

  15         18 hour             20%      10     66.50    1.00    1.6966    1.7237    1.6966    2.1975    2.5432
2.9163    3.7852    0.3146    4.0940    0.4685    0.3600    1.7544    0.7510    1.2552    2.2768    0.4091    6.7742
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  16         24 hour             20%       1     73.90    1.00    0.5738    0.6928    0.5738    0.7850    0.8606
0.9109    1.1964    0.1462    1.3351    0.1845    0.1757    0.5962    0.3474    0.5741    1.0475    0.2003    2.5698

  16         24 hour             20%       2     73.90    1.00    0.5719    0.6466    0.5719    0.7921    0.9037
1.0069    1.2901    0.1435    1.4279    0.2771    0.2185    0.7570    0.4562    0.7643    1.0631    0.2483    2.5310

  16         24 hour             20%       3     73.90    1.00    0.7535    1.0353    0.7535    1.0060    1.1275
1.3738    1.6362    0.2436    1.6750    0.2263    0.2241    0.8106    0.4347    0.7137    1.3053    0.2559    3.1717

  16         24 hour             20%       4     73.90    1.00    0.4712    0.5178    0.4712    0.6420    0.7306
0.7915    1.0466    0.0933    1.1399    0.1563    0.1271    0.5108    0.2623    0.4382    0.8714    0.1445    2.1558

  16         24 hour             20%       5     73.90    1.00    0.3117    0.3208    0.3117    0.4322    0.4964
0.5655    0.7257    0.0739    0.7872    0.1294    0.1033    0.3920    0.2111    0.3494    0.6292    0.1175    1.5179

  16         24 hour             20%       6     73.90    1.00    0.2759    0.3484    0.2759    0.4056    0.4512
0.5336    0.6584    0.0728    0.7195    0.1203    0.0972    0.3821    0.1979    0.3278    0.6199    0.1105    1.3900

  16         24 hour             20%       7     73.90    1.00    0.8604    0.9871    0.8604    1.1347    1.3274
1.5844    2.0203    0.2115    2.1660    0.2638    0.2267    0.9585    0.4490    0.7375    1.3557    0.2585    3.7361

  16         24 hour             20%       8     73.90    1.00    0.8618    0.9090    0.8618    1.1413    1.2834
1.3768    1.8271    0.1669    1.9940    0.2536    0.2086    0.9579    0.4309    0.7187    1.2646    0.2371    3.3641

  16         24 hour             20%       9     73.90    1.00    0.9067    0.9369    0.9067    1.1733    1.2636
1.3504    1.8026    0.2071    2.0097    0.2442    0.2112    1.1730    0.4175    0.6837    1.7794    0.2407    4.0298

  16         24 hour             20%      10     73.90    1.00    0.5315    0.5820    0.5315    0.7159    0.8039
0.8756    1.1614    0.1158    1.2772    0.1691    0.1403    0.7061    0.2855    0.4733    1.0592    0.1597    2.4961

  17         30 hour             20%       1     79.80    1.00    0.6248    0.7178    0.6248    0.8483    0.9220
0.9577    1.3014    0.1546    1.4560    0.2019    0.1744    0.6741    0.3505    0.5774    0.9248    0.1986    2.4973

  17         30 hour             20%       2     79.80    1.00    0.4697    0.4698    0.4697    0.6098    0.7013
0.8264    1.0656    0.0982    1.1510    0.1811    0.1393    0.7579    0.2885    0.4808    1.0956    0.1583    2.2073

  17         30 hour             20%       3     79.80    1.00    0.6279    0.6697    0.6279    0.8441    0.9546
1.0642    1.3954    0.1312    1.5266    0.1985    0.1627    0.8338    0.3325    0.5523    1.1497    0.1851    2.8614
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```
  17         30 hour             20%      4     79.80    1.00    0.2430    0.2606    0.2430    0.3402    0.3872
0.4344    0.5620    0.0506    0.6126    0.0971    0.0710    0.3354    0.1493    0.2501    0.5532    0.0808    1.1911

  17         30 hour             20%      5     79.80    1.00    0.8886    0.9354    0.8886    1.1640    1.2698
1.3292    1.7838    0.1934    1.9772    0.2483    0.2137    0.8999    0.4313    0.7128    1.1289    0.2433    3.3495

  17         30 hour             20%      6     79.80    1.00    0.3127    0.3257    0.3127    0.4328    0.4909
0.5465    0.7062    0.0649    0.7711    0.1113    0.0912    0.4081    0.1851    0.3068    0.7001    0.1039    1.5751

  17         30 hour             20%      7     79.80    1.00    0.6287    0.7268    0.6287    0.8338    0.8948
0.8708    1.2177    0.1581    1.3758    0.1772    0.1690    0.6213    0.3335    0.5470    0.8361    0.1927    2.3786

  17         30 hour             20%      8     79.80    1.00    0.4030    0.4151    0.4030    0.5493    0.6256
0.7141    0.9203    0.0833    1.0036    0.1367    0.1092    0.6454    0.2230    0.3696    0.9800    0.1243    2.0388

  17         30 hour             20%      9     79.80    1.00    0.3774    0.4218    0.3774    0.5185    0.5793
0.6313    0.8372    0.0856    0.9228    0.1299    0.1062    0.5189    0.2157    0.3566    0.8004    0.1208    1.6014

  17         30 hour             20%     10     79.80    1.00    0.5401    0.5415    0.5401    0.7272    0.8535
1.0132    1.2894    0.1142    1.3854    0.1782    0.1336    0.7743    0.2788    0.4668    1.1134    0.1518    2.6507

 Run,    Representative hydrograph
  1     dur10min_aep20tp5.out
 Run,    Representative hydrograph
  2     dur15min_aep20tp8.out
 Run,    Representative hydrograph
  3     dur20min_aep20tp6.out
 Run,    Representative hydrograph
  4     dur25min_aep20tp8.out
 Run,    Representative hydrograph
  5     dur30min_aep20tp7.out
 Run,    Representative hydrograph
  6     dur45min_aep20tp6.out
 Run,    Representative hydrograph
  7     dur1hour_aep20tp4.out
 Run,    Representative hydrograph
  8     dur1_5hour_aep20tp7.out
```

```
 Run,    Representative hydrograph
  9     dur2hour_aep20tp6.out
 Run,    Representative hydrograph
 10     dur3hour_aep20tp4.out
 Run,    Representative hydrograph
 11     dur4_5hour_aep20tp3.out
 Run,    Representative hydrograph
 12     dur6hour_aep20tp2.out
 Run,    Representative hydrograph
 13     dur9hour_aep20tp6.out
 Run,    Representative hydrograph
 14     dur12hour_aep20tp7.out
 Run,    Representative hydrograph
 15     dur18hour_aep20tp3.out
 Run,    Representative hydrograph
 16     dur24hour_aep20tp1.out
 Run,    Representative hydrograph
 17     dur30hour_aep20tp7.out

Elapsed Run Time (hh:mm:ss) = 00:00:05
```

```
 RORBWin Batch Run Summary
 *************************

 Program version 6.45 (last updated 20th March 2019)
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 Date run: 26 Apr 2021 17:50

 Catchment file   : K:\Jobs Data\1400147 - Wurruk rezoning application\_Wat\Models\RORB\Post Dev\SWMS REV E\No
RB\1400147-RORB-PostDev-NoRB_SWMS REV E.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 =     2.63    m = 0.80

 Loss parameters     Initial loss (mm)   Cont. loss (mm/h)
                           19.00              3.00

 Peak  Description
   01  Special storage :   Ex. U/S RB - Outflow
   02  Special storage :   Ex. U/S RB - Inflow
   03  Calculated hydrograph,  External
   04  Calculated hydrograph,  20m RR PC Convey (Catch R)
   05  Calculated hydrograph,  OverlandFlowEasement(CatchS)
   06  Calculated hydrograph,  30m RR PC Convey (Catch S)
   07  Calculated hydrograph,  Catch Q-W, External
   08  Calculated hydrograph,  Catch X
   09  Calculated hydrograph,  Outfall S(Catch Q-X,External
   10  Calculated hydrograph,  Catch B
   11  Calculated hydrograph,  Catch E
   12  Calculated hydrograph,  OutfallLagoon(Catch B-G,I-K)
   13  Calculated hydrograph,  20m RR PC Convey (Catch P)
```

14 Calculated hydrograph, Outfall RB SE(Catch L-P)
15 Calculated hydrograph, Outfall SE (Catch B-G, I-P)
16 Calculated hydrograph, Outfall NW - Catch A
17 Calculated hydrograph, Entire Catchment

Run	Duration		AEP	TPat	Rain(mm)	ARF	Peak0001	Peak0002	Peak0003	Peak0004	Peak0005	Peak0006
Peak0007	Peak0008	Peak0009	Peak0010	Peak0011	Peak0012	Peak0013	Peak0014	Peak0015	Peak0016	Peak0017		
1	10 min		1%	21	25.10	0.94	4.9273	7.4912	4.9273	6.9035	6.1745	4.8994
6.4102	2.0698	8.0729	1.5124	1.9370	0.7031	3.6130	6.1753	6.3951	2.2263	16.5475		
1	10 min		1%	22	25.10	0.94	4.8939	6.9400	4.8939	6.7998	5.9968	4.7927
6.2227	2.0552	7.6449	1.4730	1.9942	0.7035	3.4493	5.9503	6.1701	2.2909	15.7611		
1	10 min		1%	23	25.10	0.94	4.9572	7.5224	4.9572	6.9857	6.2425	4.9452
6.4285	2.0784	8.0972	1.5404	1.9070	0.7026	3.7311	6.3366	6.5563	2.1773	16.8308		
1	10 min		1%	24	25.10	0.94	4.9572	7.5224	4.9572	7.1768	6.4052	5.0575
6.4287	2.0784	8.0975	1.6434	2.2292	0.7015	4.1785	6.9309	7.1505	2.5496	17.7976		
1	10 min		1%	25	25.10	0.94	4.8410	7.2974	4.8410	6.7966	6.0714	4.8354
6.3267	2.0501	7.9226	1.5011	1.9552	0.7033	3.5659	6.1104	6.3301	2.2456	16.2930		
1	10 min		1%	26	25.10	0.94	4.9572	7.5224	4.9572	7.0888	6.3306	5.0054
6.4267	2.0784	8.0955	1.5960	2.0798	0.7017	3.9716	6.6579	6.8776	2.3767	17.3497		
1	10 min		1%	27	25.10	0.94	4.9038	7.1364	4.9038	6.8072	6.2748	4.9694
6.2784	2.0561	7.7939	1.4877	1.9726	0.7033	3.5122	6.0370	6.2568	2.2665	16.0479		
1	10 min		1%	28	25.10	0.94	4.9572	7.5224	4.9572	7.1578	6.3891	5.0446
6.4230	2.0784	8.0918	1.6331	2.1967	0.7016	4.1332	6.8708	7.0904	2.5120	17.6942		
1	10 min		1%	29	25.10	0.94	4.9572	7.5224	4.9572	7.2909	6.5020	5.1059
6.3683	2.0784	8.0371	1.7077	2.4156	0.7033	4.4365	7.2673	7.4869	2.7655	18.2895		
1	10 min		1%	30	25.10	0.94	4.9572	7.5224	4.9572	7.1923	6.4183	5.0629
6.4171	2.0784	8.0859	1.6517	2.2558	0.7014	4.2147	6.9784	7.1981	2.5804	17.8644		
2	15 min		1%	21	30.80	0.95	7.4524	9.4974	7.4524	9.3887	9.7034	7.7386
9.7326	2.3505	10.6494	1.8190	2.2196	1.2544	4.3272	7.2499	7.5810	2.5338	20.7641		
2	15 min		1%	22	30.80	0.95	7.9263	10.5033	7.9263	9.9407	9.9829	7.8902
9.7806	2.8245	11.3447	1.8909	2.4423	1.2533	4.6411	7.6828	8.0126	2.7919	22.1491		
2	15 min		1%	23	30.80	0.95	8.1134	9.9223	8.1134	10.2374	9.8105	7.8094
9.8683	2.8498	10.8318	1.7885	2.3362	1.2547	4.4061	7.2412	7.5404	2.6709	21.0432		
2	15 min		1%	24	30.80	0.95	8.3057	10.4228	8.3057	10.5524	10.1962	8.0674
10.0703	3.0263	11.2304	1.9353	2.7664	1.2526	5.0159	8.0824	8.3848	3.1688	22.7841		
2	15 min		1%	25	30.80	0.95	8.6497	9.7807	8.6497	11.0424	9.8689	7.9021

10.1478	3.1721	11.4466	1.9193	2.5525	1.2539	4.5917	7.3314	7.5897	2.9248	21.2769	
2	15 min		1%	26	30.80	0.95	8.3301	10.4891	8.3301	10.6434	10.3796	8.1749
10.1126	3.0095	11.2291	2.0401	3.0494	1.2544	5.4214	8.6360	8.9431	3.4962	23.6684	
2	15 min		1%	27	30.80	0.95	8.3301	10.4891	8.3301	10.5019	10.1480	8.0281
9.9999	3.0095	11.2906	1.8937	2.6006	1.2535	4.8010	7.8143	8.1216	2.9764	22.3885	
2	15 min		1%	28	30.80	0.95	8.3597	10.3416	8.3597	10.6167	10.1486	8.0416
10.0757	3.0466	11.1576	1.9044	2.7108	1.2529	4.9224	7.9332	8.2298	3.1049	22.4923	
2	15 min		1%	29	30.80	0.95	9.1212	11.7800	9.1212	11.9888	10.2229	8.0734
10.3988	3.3500	12.7771	2.1987	2.6719	1.2732	5.2301	8.9091	9.3510	3.0711	25.1479	
2	15 min		1%	30	30.80	0.95	9.2748	12.2171	9.2748	12.2529	10.4753	8.2144
10.5161	3.3729	13.0604	2.2497	2.8714	1.2691	5.4869	9.1461	9.5880	3.2808	25.9292	
3	20 min		1%	21	35.00	0.95	9.4009	10.1661	9.4009	11.9970	11.5472	9.7325
12.8360	2.8222	13.4882	2.0816	2.4928	1.6925	4.5934	7.6047	8.0793	2.8533	23.8297	
3	20 min		1%	22	35.00	0.95	8.9046	10.0599	8.9046	11.2917	10.9848	9.6375
12.7671	2.5939	13.6060	1.9551	2.4479	1.6920	4.6286	7.6651	7.9730	2.7985	22.0393	
3	20 min		1%	23	35.00	0.95	9.3930	10.0446	9.3930	12.0104	11.4490	9.7848
12.8706	2.8410	13.5078	2.1005	2.6839	1.6912	4.8918	7.9160	8.2184	3.0736	23.9224	
3	20 min		1%	24	35.00	0.95	10.8324	12.1556	10.8324	13.6011	12.9766	10.3270
13.1883	3.6371	14.7434	2.2545	2.7512	1.7131	5.0972	8.2453	8.6379	3.1480	25.9389	
3	20 min		1%	25	35.00	0.95	9.8270	12.9505	9.8270	12.3129	12.9761	10.3170
12.9368	3.2034	14.2810	2.3018	2.8946	1.7138	5.5561	9.2318	9.7098	3.3066	27.2974	
3	20 min		1%	26	35.00	0.95	10.1878	12.3423	10.1878	13.2319	12.5140	10.1815
12.9302	3.1843	14.4934	2.3597	2.8220	1.6948	5.4736	9.2955	9.8083	3.2396	27.4315	
3	20 min		1%	27	35.00	0.95	9.8028	12.8767	9.8028	12.2831	12.9536	10.3075
12.9402	3.1778	14.2355	2.2957	2.8791	1.7139	5.5321	9.1956	9.6730	3.2887	27.1972	
3	20 min		1%	28	35.00	0.95	9.9228	13.3702	9.9228	12.5730	13.0968	10.3589
12.8966	3.3279	14.5663	2.3207	2.9535	1.7105	5.6288	9.3072	9.7918	3.3750	27.7332	
3	20 min		1%	29	35.00	0.95	11.0118	13.3482	11.0118	13.7888	13.4289	10.6020
13.2871	3.9291	14.4613	2.2736	3.1080	1.7144	5.6948	9.2023	9.6185	3.5582	27.4598	
3	20 min		1%	30	35.00	0.95	10.9969	13.3580	10.9969	13.8042	13.4820	10.6419
13.3251	3.9264	14.4915	2.2923	3.2120	1.7137	5.8424	9.4061	9.8230	3.6786	27.7971	
4	25 min		1%	21	38.40	0.96	10.6686	11.4437	10.6686	13.5163	13.0489	11.4528
14.9046	2.7807	15.9537	2.3145	2.4484	2.0840	4.8243	8.0443	8.6456	2.7966	27.3011	
4	25 min		1%	22	38.40	0.96	9.1414	9.9230	9.1414	11.7392	12.5391	11.2531
14.0852	2.8263	15.4632	2.0730	2.6360	2.0598	4.7562	7.7461	8.2019	3.0202	24.1391	
4	25 min		1%	23	38.40	0.96	10.5497	11.8077	10.5497	13.3087	13.6287	11.4216

15.2210	2.8497	16.3290	2.2094	2.4065	2.0819	4.7691	7.9380	8.4976	2.7438	26.3825	
4	25 min		1%	24	38.40	0.96	8.5865	9.3610	8.5865	10.9610	11.4309	10.7631
14.0850	2.1419	15.4389	1.9880	2.0870	2.0602	3.9146	6.4564	6.8544	2.3868	24.4775	
4	25 min		1%	25	38.40	0.96	9.3832	10.3528	9.3832	11.9570	12.1110	10.9805
14.5026	2.2747	15.5693	2.1152	2.1350	2.0601	4.2845	7.0275	7.5882	2.4320	25.5894	
4	25 min		1%	26	38.40	0.96	10.5616	11.6781	10.5616	13.3032	13.5116	11.6233
14.7105	2.8236	15.7911	2.2715	2.6357	2.0645	5.1203	8.5532	8.9867	3.0092	26.5262	
4	25 min		1%	27	38.40	0.96	10.0699	12.3258	10.0699	12.9800	13.7320	11.7139
14.4778	2.9945	15.6042	2.3341	2.7444	2.0635	5.4392	9.1971	9.6995	3.1302	27.2225	
4	25 min		1%	28	38.40	0.96	10.7568	11.2106	10.7568	13.5705	13.3570	11.5520
14.7891	2.8718	16.0034	2.3031	2.5243	2.0645	4.8475	8.0137	8.5543	2.8834	27.1803	
4	25 min		1%	29	38.40	0.96	12.3614	16.7081	12.3614	15.3264	16.2275	12.7575
15.8070	4.3734	17.8164	2.7759	3.7439	2.1046	6.9621	11.3791	11.9693	4.2834	34.0691	
4	25 min		1%	30	38.40	0.96	11.3119	13.8541	11.3119	14.0516	14.9846	12.1151
15.6293	3.3378	16.8257	2.4059	2.9227	2.0859	5.5914	9.1378	9.6917	3.3388	29.0611	
5	30 min		1%	21	41.20	0.96	10.2296	10.6587	10.2296	12.8742	13.9087	12.6069
15.8984	2.7943	17.8114	2.2492	2.3614	2.3938	4.5487	7.6272	8.1240	2.7007	27.9002	
5	30 min		1%	22	41.20	0.96	10.3664	12.3231	10.3664	13.0056	13.5874	12.0134
15.5536	2.9230	16.5489	2.2565	2.7611	2.3737	5.3657	8.9691	9.4364	3.1521	26.4960	
5	30 min		1%	23	41.20	0.96	9.7047	11.4369	9.7047	12.1991	13.1555	11.8766
15.3095	2.7655	16.3331	2.1921	2.5326	2.3692	5.0349	8.4894	8.9592	2.8922	25.4755	
5	30 min		1%	24	41.20	0.96	9.9289	11.1730	9.9289	12.5086	13.0423	11.8871
15.6903	2.6196	16.9170	2.1631	2.5267	2.3733	4.9929	8.4287	8.8630	2.8823	25.1817	
5	30 min		1%	25	41.20	0.96	10.4326	11.6367	10.4326	13.3523	14.4413	12.8715
16.2980	3.0466	17.9363	2.3182	2.7685	2.3926	5.1251	8.6881	9.2244	3.1722	28.1322	
5	30 min		1%	26	41.20	0.96	11.0158	11.3424	11.0158	13.8687	14.4510	12.8774
16.2816	2.5762	18.1221	2.3837	2.4379	2.3961	4.8237	8.0237	8.5189	2.7801	29.2321	
5	30 min		1%	27	41.20	0.96	10.1196	10.9117	10.1196	12.7802	13.1884	12.1056
15.7465	2.7547	17.1175	2.1864	2.4997	2.3932	4.8208	8.0263	8.4122	2.8548	25.8298	
5	30 min		1%	28	41.20	0.96	10.7524	11.9977	10.7524	13.5292	13.7810	12.3667
16.3341	3.1132	17.7440	2.2766	2.7293	2.3933	5.1874	8.5935	8.9920	3.1193	26.6892	
5	30 min		1%	29	41.20	0.96	12.7301	13.4345	12.7301	16.0150	15.3012	13.4029
17.5709	3.6953	18.4373	2.6467	2.9914	2.4195	5.6420	9.4992	10.1916	3.4221	31.3735	
5	30 min		1%	30	41.20	0.96	11.9867	13.8537	11.9867	15.1964	15.6663	13.1377
17.5023	3.0262	18.6751	2.5495	2.8393	2.4183	5.5802	9.1984	9.8596	3.2386	30.8850	
6	45 min		1%	21	47.60	0.96	11.6323	12.3161	11.6323	14.5908	14.9075	14.2889

18.8446	2.9229	20.1255	2.4691	2.4585	3.1404	4.9077	8.1730	8.9800	2.8015	31.4641	
6	45 min		1%	22	47.60	0.96	12.5846	13.3331	12.5846	15.7784	15.8205	14.6305
19.0158	3.2853	20.3201	2.6203	2.8856	3.1539	5.5001	9.0388	9.7817	3.2979	31.5988	
6	45 min		1%	23	47.60	0.96	8.2692	8.7394	8.2692	10.3929	11.3065	11.5247
15.1208	2.4503	16.6011	1.8717	2.2736	3.1354	4.3189	7.2176	7.4722	2.5988	24.7450	
6	45 min		1%	24	47.60	0.96	8.7880	9.7720	8.7880	11.0998	10.9306	10.9104
14.6612	2.5272	16.6321	1.9977	2.2336	3.0847	4.2614	7.0811	7.3599	2.5519	26.2053	
6	45 min		1%	25	47.60	0.96	7.9403	9.4992	7.9403	10.0137	9.9172	10.7767
14.3670	2.3674	16.1230	1.8084	2.2097	3.0827	4.2592	7.1072	7.4103	2.5242	23.9231	
6	45 min		1%	26	47.60	0.96	10.0270	10.4872	10.0270	12.6394	13.4702	13.2428
17.7473	2.1556	19.8691	2.2639	2.0871	3.1345	4.1844	6.9200	7.8796	2.3779	30.1266	
6	45 min		1%	27	47.60	0.96	8.9031	9.1738	8.9031	11.2428	12.2676	12.5307
16.2359	2.4245	17.5826	2.0094	2.1527	3.1213	4.1229	6.8396	7.1237	2.4593	25.5211	
6	45 min		1%	28	47.60	0.96	8.5565	8.7867	8.5565	10.8533	11.9764	12.5562
16.3142	1.8942	17.9646	2.0313	1.8500	3.1029	3.6425	6.0468	6.7072	2.1103	26.6721	
6	45 min		1%	29	47.60	0.96	12.7501	13.2700	12.7501	15.9334	16.3554	15.1360
20.1838	3.1061	21.7607	2.6235	2.7593	3.1623	5.3365	8.9512	9.7294	3.1533	32.5053	
6	45 min		1%	30	47.60	0.96	12.1470	13.5328	12.1470	15.2724	15.1862	14.5055
18.6405	2.8676	21.4021	2.5941	2.6891	3.1427	5.2472	8.6328	9.5651	3.0680	34.0351	
7	1 hour		1%	21	52.30	0.97	13.3928	13.9983	13.3928	16.7121	17.7070	16.6915
21.4980	3.2415	23.8460	2.8308	2.7928	3.7206	5.4161	9.0945	10.1840	3.1889	37.0517	
7	1 hour		1%	22	52.30	0.97	8.4713	9.1059	8.4713	10.7823	11.3021	11.0320
14.1917	2.5400	15.4255	1.8788	2.1739	3.5505	4.1361	6.8451	7.1134	2.4844	22.3598	
7	1 hour		1%	23	52.30	0.97	10.8804	11.5704	10.8804	13.6777	14.4062	14.2787
18.8587	2.3962	20.2629	2.3633	2.3025	3.6591	4.5824	7.5601	8.4218	2.6239	31.0742	
7	1 hour		1%	24	52.30	0.97	7.8081	8.5310	7.8081	9.7633	10.6344	11.0227
14.5121	2.0529	15.8238	1.7440	1.8994	3.5791	3.5612	5.8675	6.2714	2.1723	23.4712	
7	1 hour		1%	25	52.30	0.97	8.7780	9.8096	8.7780	10.9976	11.8133	11.2465
14.5178	2.4031	15.6664	1.8612	1.9518	3.5289	3.7799	6.2603	7.4909	2.2280	24.8188	
7	1 hour		1%	26	52.30	0.97	9.1234	11.2269	9.1234	11.4995	11.9502	10.3663
13.9324	2.6797	15.7984	1.9454	2.2826	3.5172	4.1559	6.7275	8.2901	2.6186	26.6372	
7	1 hour		1%	27	52.30	0.97	9.4186	10.1183	9.4186	11.9533	12.7565	13.1581
17.1364	2.1850	19.3214	2.2028	2.0189	3.6248	4.0193	6.5939	7.4767	2.3002	29.0982	
7	1 hour		1%	28	52.30	0.97	8.9203	9.6039	8.9203	11.3355	12.1258	12.7804
17.4083	2.3502	19.4717	2.1432	1.9118	3.6421	3.7958	6.2315	7.4145	2.1784	29.0647	
7	1 hour		1%	29	52.30	0.97	8.1872	8.4438	8.1872	10.3212	10.9553	11.8033

15.7983	1.8076	17.5557	1.9168	1.6948	3.6497	3.4292	5.6956	6.6708	1.9296	26.0828	
7	1 hour		1%	30	52.30	0.97	13.1269	14.0789	13.1269	16.4103	17.7741	16.8569
21.7208	3.2700	23.8386	2.8292	2.8261	3.7410	5.5307	9.0121	9.9269	3.2235	36.6526	
8	1.5 hour		1%	21	59.30	0.97	9.0212	9.5583	9.0212	11.3181	12.4873	12.3504
16.0809	2.0335	17.6105	2.0201	1.9115	4.2459	3.8088	6.2657	6.9103	2.1782	26.4989	
8	1.5 hour		1%	22	59.30	0.97	7.7478	7.8914	7.7478	9.7914	10.8236	11.7670
15.5632	1.6090	17.0132	1.8718	1.5752	4.3920	3.1758	5.2449	7.2884	1.7935	26.0478	
8	1.5 hour		1%	23	59.30	0.97	7.0231	7.2651	7.0231	8.8922	9.8063	9.9321
12.8898	1.6462	13.8776	1.6384	1.5545	4.2123	3.1350	5.1926	5.8687	1.7705	20.7513	
8	1.5 hour		1%	24	59.30	0.97	8.3532	8.6230	8.3532	10.4380	11.1858	10.7041
14.2414	1.9245	15.7656	1.8081	1.7187	4.1118	3.3911	5.6716	8.1047	1.9611	25.7683	
8	1.5 hour		1%	25	59.30	0.97	9.5647	9.8369	9.5647	12.0508	13.3210	12.6875
16.7223	2.5186	18.4254	2.1746	2.2052	3.9647	4.1764	7.0464	7.4432	2.5254	27.8012	
8	1.5 hour		1%	26	59.30	0.97	8.2224	8.4968	8.2224	10.4167	11.2505	12.2287
16.0845	1.9156	17.7762	1.9726	1.6945	4.4109	3.4159	5.6580	6.8797	1.9294	26.5852	
8	1.5 hour		1%	27	59.30	0.97	7.4203	7.8586	7.4203	9.3974	10.2535	10.9256
14.3371	1.6391	15.8144	1.7692	1.5687	4.3618	3.1265	5.1520	6.7697	1.7873	24.3126	
8	1.5 hour		1%	28	59.30	0.97	7.7077	9.0218	7.7077	9.8182	10.5075	10.6108
14.0397	2.0703	16.1099	1.8442	1.7968	4.3198	3.4370	5.5946	7.4536	2.0516	25.6152	
8	1.5 hour		1%	29	59.30	0.97	11.5254	11.6863	11.5254	14.4263	15.7358	15.1811
19.3976	2.6666	21.7679	2.4712	2.3212	4.4299	4.7125	7.7854	8.7749	2.6424	33.1852	
8	1.5 hour		1%	30	59.30	0.97	12.8055	14.0381	12.8055	15.8540	17.1276	16.4196
21.3106	3.0429	22.8308	2.5682	2.7810	4.4022	5.3234	8.7591	9.9179	3.1766	34.7519	
9	2 hour		1%	21	64.70	0.97	8.8491	9.3764	8.8491	11.1059	12.2656	12.2012
15.9578	1.9929	17.4564	1.9919	1.8738	4.5483	3.7356	6.1453	6.8055	2.1351	26.2040	
9	2 hour		1%	22	64.70	0.97	9.5901	10.4411	9.5901	12.0223	12.9282	12.5731
16.1657	2.2904	17.4156	2.0835	2.1557	4.6503	4.2582	6.9979	7.4947	2.4579	25.7436	
9	2 hour		1%	23	64.70	0.97	12.2398	12.7376	12.2398	15.3367	15.2798	13.8387
18.2963	3.1784	19.4913	2.5372	2.7244	4.0587	5.2247	8.7785	9.4917	3.1134	30.7699	
9	2 hour		1%	24	64.70	0.97	8.3841	9.5600	8.3841	10.5983	10.3245	9.5787
12.3069	2.6396	13.5195	1.8298	2.2128	4.5128	4.2213	6.9414	8.0624	2.5283	23.6632	
9	2 hour		1%	25	64.70	0.97	8.3153	8.6697	8.3153	10.4309	11.3271	11.5726
15.3035	1.9164	16.7671	1.8786	1.7277	4.7411	3.3968	5.6168	7.7417	1.9701	26.3712	
9	2 hour		1%	26	64.70	0.97	5.7424	6.3778	5.7424	7.2461	7.8726	7.7336
10.3482	1.3912	11.2712	1.3377	1.2797	4.4239	2.4902	4.0822	6.1358	1.4600	17.5969	
9	2 hour		1%	27	64.70	0.97	7.0113	7.2380	7.0113	8.8028	9.4149	9.8921

12.7788	1.6319	13.8415	1.5715	1.4470	4.7134	2.9025	4.8313	6.9871	1.6484	22.1035	
9	2 hour		1%	28	64.70	0.97	11.8623	13.9987	11.8623	14.5217	14.5705	12.2792
15.3871	3.9908	16.7125	2.2022	2.7647	4.7029	4.8495	7.9234	9.0441	3.1710	28.2697	
9	2 hour		1%	29	64.70	0.97	7.4702	7.6858	7.4702	9.4669	10.4568	11.5396
15.1210	1.5772	16.5886	1.7983	1.5348	4.8897	3.1033	5.1196	7.0025	1.7472	25.0816	
9	2 hour		1%	30	64.70	0.97	8.5510	8.7055	8.5510	10.8185	11.8232	12.8285
17.0868	1.7738	18.7985	2.0472	1.7349	4.9057	3.5196	5.8362	7.9591	1.9747	28.7323	
10	3 hour		1%	21	73.00	0.97	7.7402	7.8116	7.7402	9.8187	10.9974	12.2719
16.1104	1.6155	17.5544	1.9054	1.5595	5.4913	3.1746	5.2904	8.2898	1.7758	27.5979	
10	3 hour		1%	22	73.00	0.97	5.1421	5.3068	5.1421	6.5633	7.6358	7.5926
10.0820	1.3244	10.8797	1.3038	1.4354	4.1034	2.7851	4.5812	5.9411	1.6384	16.8411	
10	3 hour		1%	23	73.00	0.97	4.6035	4.9985	4.6035	6.2397	6.3107	7.0753
9.0436	0.9387	9.7080	1.3530	1.3487	3.7891	2.7462	4.6262	5.8599	1.5354	14.8108	
10	3 hour		1%	24	73.00	0.97	4.5119	4.5587	4.5119	5.7319	6.3443	6.9324
9.1966	0.9121	10.1087	1.1626	1.1186	4.0829	2.3063	3.9007	5.7652	1.2726	16.7141	
10	3 hour		1%	25	73.00	0.97	5.2471	5.9359	5.2471	6.6167	7.3216	7.2496
9.4546	1.6015	9.9268	1.1918	1.2987	4.4988	2.4798	4.0116	7.8318	1.4834	18.9249	
10	3 hour		1%	26	73.00	0.97	7.3251	7.3783	7.3251	9.2736	10.5319	10.8356
14.4989	1.4818	15.8992	1.7435	1.4767	5.2090	3.0393	5.0657	6.9760	1.6795	23.8123	
10	3 hour		1%	27	73.00	0.97	5.1394	5.5807	5.1394	6.4786	6.6744	6.5908
8.7873	1.1850	9.9723	1.1603	1.1219	4.4630	2.2089	3.6338	7.5123	1.2793	18.7640	
10	3 hour		1%	28	73.00	0.97	5.0694	5.3782	5.0694	6.4368	7.2095	7.6539
10.1652	1.1081	11.0862	1.2617	1.0652	5.0379	2.1556	3.5917	6.4893	1.2129	18.0516	
10	3 hour		1%	29	73.00	0.97	5.6443	5.7913	5.6443	7.1244	7.9098	7.4701
10.2487	1.3063	11.2282	1.2932	1.1627	4.2813	2.3942	4.0256	7.8155	1.3228	20.3664	
10	3 hour		1%	30	73.00	0.97	9.1199	10.0401	9.1199	11.4321	11.7060	13.3419
16.9736	2.1822	17.9792	1.9250	1.9970	5.7085	3.8942	6.3947	7.3140	2.2785	26.5962	
11	4.5 hour		1%	21	82.50	0.98	3.8925	3.9891	3.8925	4.9595	5.4432	5.5069
7.0041	0.8412	7.7275	0.9586	0.8327	3.1962	1.6636	2.7535	4.8823	0.9488	11.7145	
11	4.5 hour		1%	22	82.50	0.98	5.2104	5.8770	5.2104	6.5604	6.7691	7.4775
9.5089	1.4444	9.9583	1.1415	1.1826	4.4669	2.2370	3.5776	7.6684	1.3511	17.6916	
11	4.5 hour		1%	23	82.50	0.98	5.3211	5.7862	5.3211	6.7316	6.8330	7.6949
9.8115	1.1921	10.4352	1.2132	1.1443	3.5401	2.2812	3.7535	5.0810	1.3039	15.2437	
11	4.5 hour		1%	24	82.50	0.98	5.2743	5.7124	5.2743	6.6770	7.6338	8.2107
10.5999	1.3903	11.3078	1.2693	1.1694	3.5943	2.3267	3.8794	5.2248	1.3330	17.6223	
11	4.5 hour		1%	25	82.50	0.98	3.1890	3.2646	3.1890	4.0673	4.5608	4.6071

5.8771	0.7717	6.4653	0.7986	0.7197	3.8458	1.4480	2.3947	5.4869	0.8198	11.4271	
11	4.5 hour		1%	26	82.50	0.98	4.8432	5.1467	4.8432	6.1516	7.0378	7.5971
9.9710	1.1370	10.7882	1.2005	1.0368	4.6881	2.0327	3.3816	6.5130	1.1824	17.0357	
11	4.5 hour		1%	27	82.50	0.98	5.3846	5.3879	5.3846	6.8124	7.7741	7.9306
10.2971	1.3493	11.1561	1.2584	1.0837	4.4174	2.2630	3.8263	6.8658	1.2377	19.2537	
11	4.5 hour		1%	28	82.50	0.98	4.8905	4.9808	4.8905	6.1841	6.9162	6.6874
9.0929	1.1219	9.9520	1.1358	1.0038	4.2911	2.0705	3.4776	6.1165	1.1419	16.9405	
11	4.5 hour		1%	29	82.50	0.98	6.2739	6.5474	6.2739	7.9398	8.4943	8.9522
12.1353	1.3851	13.5205	1.5005	1.3115	5.6439	2.6167	4.3034	8.0665	1.4941	23.0810	
11	4.5 hour		1%	30	82.50	0.98	5.7432	6.2932	5.7432	7.2823	8.4676	8.8080
11.5897	1.4882	12.4653	1.3861	1.2621	5.4488	2.4134	4.0459	8.6637	1.4414	20.8501	
12	6 hour		1%	21	90.10	0.98	7.3975	7.7933	7.3975	9.3838	10.6443	11.7808
15.4809	1.5046	16.8864	1.8016	1.5554	5.8440	3.1125	5.1753	7.7963	1.7722	26.3437	
12	6 hour		1%	22	90.10	0.98	4.9998	5.3161	4.9998	6.3115	6.6890	6.5843
8.8397	1.0225	9.8622	1.1489	1.0698	4.0169	2.1401	3.5611	6.0426	1.2190	17.1238	
12	6 hour		1%	23	90.10	0.98	5.4535	5.5573	5.4535	6.8877	7.6924	7.3838
10.0220	1.3927	10.8816	1.2580	1.1192	3.6359	2.3126	3.9220	7.0922	1.2727	19.2465	
12	6 hour		1%	24	90.10	0.98	4.0858	4.1035	4.0858	5.2370	5.9061	5.7301
7.7109	1.0602	8.3648	1.0555	1.1863	3.0882	2.3020	3.7892	4.8308	1.3541	13.1690	
12	6 hour		1%	25	90.10	0.98	3.6321	4.0275	3.6321	4.9067	4.8142	5.4433
7.1225	0.9884	7.7949	1.0617	1.0387	3.4593	2.1223	3.5712	4.8715	1.1822	13.3752	
12	6 hour		1%	26	90.10	0.98	7.4070	8.0800	7.4070	9.2717	10.3158	9.6936
13.0831	2.0391	14.0367	1.6418	1.6107	3.1683	3.1875	5.2903	6.8441	1.8365	22.1646	
12	6 hour		1%	27	90.10	0.98	2.6331	2.6684	2.6331	3.3553	3.6976	4.0185
5.2181	0.5447	5.7294	0.6817	0.7218	3.4766	1.3578	2.2025	4.8910	0.8252	11.0050	
12	6 hour		1%	28	90.10	0.98	3.4613	3.6094	3.4613	4.3991	4.7251	5.3501
6.9113	0.7754	7.5582	0.8482	0.7350	3.9636	1.4676	2.4089	5.3313	0.8373	13.2226	
12	6 hour		1%	29	90.10	0.98	2.8154	2.8750	2.8154	3.5895	4.0427	4.3810
5.7739	0.6367	6.2859	0.7162	0.5976	3.3738	1.1907	1.9857	4.9751	0.6820	10.4520	
12	6 hour		1%	30	90.10	0.98	4.0824	4.2383	4.0824	5.1896	5.8219	6.6119
8.6605	0.8378	9.4982	1.0396	0.8583	4.9467	1.7287	2.8702	6.5652	0.9775	16.3097	
13	9 hour		1%	21	102.00	0.99	2.1876	2.3619	2.1876	2.8071	2.9166	3.3955
4.3031	0.4522	4.6171	0.5667	0.4558	2.5725	0.9447	1.5735	3.9164	0.5182	8.4020	
13	9 hour		1%	22	102.00	0.99	2.4821	2.5026	2.4821	3.1818	3.6398	3.9688
5.2158	0.5151	5.6705	0.6473	0.5189	2.7484	1.0692	1.7802	3.7469	0.5901	9.8361	
13	9 hour		1%	23	102.00	0.99	6.0290	6.1568	6.0290	7.6510	8.6843	9.3363

12.3825	1.1593	13.5417	1.4769	1.2168	4.4895	2.4964	4.1521	5.7906	1.3842	20.7165	
13	9 hour		1%	24	102.00	0.99	2.7062	2.7426	2.7062	3.4547	3.7969	4.3139
5.5853	0.5955	6.1681	0.6917	0.5835	3.4696	1.1581	1.8959	4.9242	0.6648	10.8154	
13	9 hour		1%	25	102.00	0.99	5.6845	6.1412	5.6845	7.2790	8.7349	9.8563
12.7268	1.4362	13.5813	1.4804	1.2365	3.8910	2.3880	4.0533	5.7380	1.4120	20.5788	
13	9 hour		1%	26	102.00	0.99	2.2733	2.3683	2.2733	2.9096	3.1768	3.3861
4.5365	0.4559	4.9924	0.5777	0.4913	2.6910	0.9949	1.6549	3.8346	0.5592	9.0872	
13	9 hour		1%	27	102.00	0.99	3.1245	3.1711	3.1245	3.9966	4.4855	5.1855
6.7435	0.6574	7.3214	0.8185	0.6492	3.3996	1.3170	2.1956	5.0737	0.7391	13.1212	
13	9 hour		1%	28	102.00	0.99	2.9241	3.0638	2.9241	3.7006	3.9109	4.6004
5.8843	0.6495	6.3066	0.7022	0.6283	3.6134	1.2442	2.0456	5.3109	0.7161	12.2054	
13	9 hour		1%	29	102.00	0.99	3.8258	3.8775	3.8258	4.8756	5.4374	6.0350
7.9616	0.7600	8.7216	0.9657	0.7875	4.5008	1.6094	2.6703	6.2841	0.8959	15.1785	
13	9 hour		1%	30	102.00	0.99	6.3154	6.4755	6.3154	8.0288	9.0598	9.5951
12.7907	1.1843	13.9749	1.5319	1.2948	4.9815	2.6753	4.4609	7.9627	1.4724	23.4100	
14	12 hour		1%	21	112.00	0.99	3.6777	3.7477	3.6777	4.6767	5.1406	5.5990
7.4477	0.7603	8.2080	0.9161	0.7620	4.3292	1.5432	2.5499	5.8069	0.8674	14.1112	
14	12 hour		1%	22	112.00	0.99	3.4952	3.6802	3.4952	4.4134	4.6206	4.8674
6.3110	0.8145	7.1255	0.8023	0.7492	3.2521	1.4786	2.4186	4.8554	0.8541	12.8350	
14	12 hour		1%	23	112.00	0.99	2.4470	2.6199	2.4470	3.1021	3.2374	3.6286
4.5668	0.4884	4.9411	0.6079	0.4977	2.5195	0.9911	1.6386	3.4113	0.5672	7.6322	
14	12 hour		1%	24	112.00	0.99	2.5250	2.5491	2.5250	3.2318	3.5420	4.0241
5.2985	0.5351	5.8335	0.6555	0.5436	3.1590	1.0879	1.7884	4.5264	0.6192	9.4827	
14	12 hour		1%	25	112.00	0.99	5.7151	5.7846	5.7151	7.2975	8.4123	9.2455
12.1398	1.1564	13.1553	1.4387	1.1606	4.7801	2.4241	4.0609	7.5669	1.3189	22.0411	
14	12 hour		1%	26	112.00	0.99	1.8125	1.8745	1.8125	2.3278	2.5948	2.7334
3.6448	0.3652	3.9914	0.4709	0.3944	2.6018	0.8045	1.3441	3.8993	0.4488	8.3395	
14	12 hour		1%	27	112.00	0.99	2.4119	2.4432	2.4119	3.0899	3.4898	3.8925
5.0459	0.4678	5.5105	0.6290	0.5080	3.2547	1.0369	1.7189	4.4742	0.5780	10.5086	
14	12 hour		1%	28	112.00	0.99	4.5176	4.6020	4.5176	5.7664	6.6360	7.1230
9.4083	0.8843	10.2251	1.1277	0.9288	4.7489	1.9285	3.2286	6.2135	1.0559	16.4160	
14	12 hour		1%	29	112.00	0.99	1.9866	2.0032	1.9866	2.5506	2.8632	3.2027
4.1972	0.3935	4.5772	0.5259	0.4195	2.8656	0.8606	1.4310	3.9839	0.4772	9.0307	
14	12 hour		1%	30	112.00	0.99	3.4596	3.5800	3.4596	4.3912	4.7951	5.0553
6.7371	0.7603	7.4974	0.8333	0.7304	2.9532	1.4643	2.4095	4.2359	0.8319	11.7416	
15	18 hour		1%	21	127.00	0.99	1.3344	1.3781	1.3344	1.7282	1.9169	2.1016

2.7837	0.2573	3.0410	0.3700	0.2862	1.5706	0.5920	0.9853	2.2324	0.3254	4.7676		
15	18 hour		1%	22	127.00	0.99	1.4677	1.5031	1.4677	1.8536	2.0563	2.3620
3.0446	0.2876	3.3242	0.3918	0.3166	2.1758	0.6457	1.0719	2.9550	0.3602	6.4253		
15	18 hour		1%	23	127.00	0.99	1.5416	1.5570	1.5416	1.9897	2.2341	2.5393
3.3172	0.3061	3.6233	0.4189	0.3320	2.1780	0.6792	1.1239	2.9620	0.3777	6.9606		
15	18 hour		1%	24	127.00	0.99	2.2038	2.2288	2.2038	2.8355	3.2129	3.6870
4.8050	0.4340	5.2390	0.5917	0.4664	2.9867	0.9559	1.5883	4.0914	0.5305	9.2038		
15	18 hour		1%	25	127.00	0.99	2.2735	2.2827	2.2735	2.9276	3.3379	3.8713
5.0213	0.4506	5.4475	0.6174	0.4757	3.0960	0.9820	1.6360	4.1856	0.5409	10.1740		
15	18 hour		1%	26	127.00	0.99	1.3263	1.4158	1.3263	1.8142	1.9657	2.3273
2.9605	0.3007	3.1756	0.4431	0.3666	1.7966	0.7536	1.2541	2.4107	0.4170	5.1329		
15	18 hour		1%	27	127.00	0.99	1.9835	2.0111	1.9835	2.5625	2.9256	3.3539
4.3629	0.3839	4.7468	0.5395	0.4273	3.2040	0.8797	1.4642	4.4864	0.4859	9.1137		
15	18 hour		1%	28	127.00	0.99	2.7376	2.8978	2.7376	3.4197	3.4515	4.1368
5.1865	0.6615	5.5062	0.6660	0.5901	2.2997	1.1439	1.8645	2.9954	0.6735	9.0171		
15	18 hour		1%	29	127.00	0.99	1.7630	1.8645	1.7630	2.2616	2.4115	2.8797
3.6472	0.3839	3.9100	0.4435	0.3960	2.0491	0.7962	1.3149	2.9408	0.4509	6.9139		
15	18 hour		1%	30	127.00	0.99	1.3730	1.3918	1.3730	1.7738	1.9805	2.2658
2.9365	0.2709	3.1968	0.3734	0.2982	2.1902	0.6123	1.0187	3.0478	0.3392	6.5734		
16	24 hour		1%	21	139.00	1.00	1.4630	1.4720	1.4630	1.8909	2.1382	2.4311
3.1664	0.2813	3.4438	0.4013	0.3152	2.3129	0.6489	1.0797	3.2293	0.3585	6.7868		
16	24 hour		1%	22	139.00	1.00	1.2305	1.2777	1.2305	1.5893	1.7374	1.8129
2.4358	0.2509	2.6867	0.3886	0.3087	1.5667	0.6425	1.0740	2.2694	0.3509	5.0368		
16	24 hour		1%	23	139.00	1.00	2.2309	2.3163	2.2309	2.8554	3.1329	3.3687
4.5045	0.4671	4.9717	0.5675	0.4804	2.4727	0.9698	1.6045	3.3152	0.5470	8.4440		
16	24 hour		1%	24	139.00	1.00	1.9390	1.9788	1.9390	2.4948	2.8131	3.1875
4.1741	0.4359	4.5601	0.5178	0.4110	2.1952	0.8448	1.4016	2.9476	0.4674	7.7851		
16	24 hour		1%	25	139.00	1.00	2.5917	2.7116	2.5917	3.2839	3.4684	3.4679
4.7702	0.5820	5.3522	0.6120	0.5567	2.4968	1.1064	1.8156	3.3240	0.6344	8.8927		
16	24 hour		1%	26	139.00	1.00	1.8813	1.9557	1.8813	2.4092	2.6192	2.8001
3.7581	0.4194	4.1775	0.4785	0.4109	2.3985	0.8221	1.3510	3.1991	0.4680	7.3020		
16	24 hour		1%	27	139.00	1.00	2.4030	2.4917	2.4030	3.0784	3.4144	3.6860
4.9124	0.4911	5.4035	0.6133	0.5165	2.5497	1.0505	1.7431	3.3081	0.5879	9.0679		
16	24 hour		1%	28	139.00	1.00	1.3666	1.4494	1.3666	1.7998	1.9345	1.9943
2.6911	0.3005	2.9916	0.3935	0.3297	1.3664	0.6713	1.1113	1.9526	0.3752	4.7236		
16	24 hour		1%	29	139.00	1.00	2.2853	2.4075	2.2853	2.9136	3.1234	3.1519

```
  4.3135    0.4948    4.8083    0.5574    0.4992    2.2133    1.0011    1.6504    3.3773    0.5686    8.7543
 16         24 hour              1%     30    139.00    1.00    2.3222    2.4125    2.3222    3.0012    3.3689    3.5698
  4.7542    0.4725    5.2026    0.6062    0.5251    2.2346    1.0740    1.7936    3.4562    0.5975    9.0814
 17         30 hour              1%     21    148.00    1.00    1.0372    1.0555    1.0372    1.3463    1.4883    1.6603
  2.1836    0.2137    2.3974    0.2872    0.2323    1.5559    0.4731    0.7825    2.1863    0.2644    4.5068
 17         30 hour              1%     22    148.00    1.00    1.8092    1.8326    1.8092    2.3326    2.6312    2.9826
  3.8977    0.3543    4.2519    0.4900    0.3875    2.7177    0.7963    1.3226    3.5231    0.4408    8.0990
 17         30 hour              1%     23    148.00    1.00    1.5448    1.5836    1.5448    1.9921    2.2016    2.3901
  3.1706    0.3125    3.4831    0.4087    0.3400    1.7362    0.6923    1.1475    2.3105    0.3869    6.1805
 17         30 hour              1%     24    148.00    1.00    1.2610    1.2809    1.2610    1.6340    1.8194    2.0622
  2.7028    0.2552    2.9581    0.3497    0.2780    1.8583    0.5664    0.9379    2.4809    0.3163    5.4754
 17         30 hour              1%     25    148.00    1.00    2.1910    2.2213    2.1910    2.8608    3.2691    3.8278
  4.9450    0.4196    5.3647    0.6398    0.4793    2.7555    0.9959    1.6604    3.9402    0.5447    9.8496
 17         30 hour              1%     26    148.00    1.00    1.1171    1.1411    1.1171    1.4777    1.6607    1.8761
  2.4432    0.2223    2.6655    0.3388    0.2628    1.4462    0.5424    0.9025    1.8980    0.2989    4.5905
 17         30 hour              1%     27    148.00    1.00    0.9006    0.9339    0.9006    1.1718    1.2615    1.3356
  1.7893    0.1957    1.9850    0.2446    0.2123    1.1365    0.4261    0.7025    1.7299    0.2418    3.7008
 17         30 hour              1%     28    148.00    1.00    0.7481    0.7508    0.7481    0.9849    1.1216    1.3105
  1.6876    0.1468    1.8308    0.2258    0.1730    1.2333    0.3535    0.5879    1.7089    0.1970    3.7068
 17         30 hour              1%     29    148.00    1.00    1.2185    1.2441    1.2185    1.5794    1.7611    1.9628
  2.5808    0.2442    2.8250    0.3344    0.2684    1.9081    0.5494    0.9106    2.7362    0.3053    5.7027
 17         30 hour              1%     30    148.00    1.00    0.8170    0.8219    0.8170    1.0745    1.2277    1.4180
  1.8314    0.1551    1.9865    0.2425    0.1885    1.2552    0.3876    0.6439    1.7956    0.2144    3.9964
Run,    Representative hydrograph
 1     dur10min_aep1tp26.out
Run,    Representative hydrograph
 2     dur15min_aep1tp28.out
Run,    Representative hydrograph
 3     dur20min_aep1tp25.out
Run,    Representative hydrograph
 4     dur25min_aep1tp28.out
Run,    Representative hydrograph
 5     dur30min_aep1tp21.out
Run,    Representative hydrograph
 6     dur45min_aep1tp26.out
Run,    Representative hydrograph
```

```
  7     dur1hour_aep1tp28.out
 Run,    Representative hydrograph
  8     dur1_5hour_aep1tp21.out
 Run,    Representative hydrograph
  9     dur2hour_aep1tp21.out
 Run,    Representative hydrograph
 10     dur3hour_aep1tp25.out
 Run,    Representative hydrograph
 11     dur4_5hour_aep1tp24.out
 Run,    Representative hydrograph
 12     dur6hour_aep1tp30.out
 Run,    Representative hydrograph
 13     dur9hour_aep1tp27.out
 Run,    Representative hydrograph
 14     dur12hour_aep1tp30.out
 Run,    Representative hydrograph
 15     dur18hour_aep1tp23.out
 Run,    Representative hydrograph
 16     dur24hour_aep1tp23.out
 Run,    Representative hydrograph
 17     dur30hour_aep1tp24.out

Elapsed Run Time (hh:mm:ss) = 00:00:04
```

APPENDIX E: POST-DEVELOPED RORB RESULTS (WITH RB)

```
 RORBWin Batch Run Summary
 *************************

 Program version 6.45 (last updated 20th March 2019)
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 Date run: 26 Apr 2021 17:51

 Catchment file   : K:\Jobs Data\1400147 - Wurruk rezoning application\_Wat\Models\RORB\Post Dev\SWMS REV
E\RB\1400147-RORB-PostDev-RB_SWMS REV E.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 =     2.63    m = 0.80

 Loss parameters     Initial loss (mm)   Cont. loss (mm/h)
                           19.00               3.00

 Peak  Description
   01  Calculated hydrograph,  Catch B
   02  Calculated hydrograph,  Outfall lagoon (Catch B-C,I)
   03  Calculated hydrograph,  OutfallLagoon(Catch B-G,I-K)
   04  Calculated hydrograph,  20m RR PC Convey (Catch P)
   05  Special storage :   RB SE - Outflow
   06  Special storage :   RB SE - Inflow
   07  Calculated hydrograph,  Outfall SE (Catch B-G, I-P)
   08  Special storage :   Ex. U/S RB - Outflow
   09  Special storage :   Ex. U/S RB - Inflow
   10  Special storage :   RB South - Outflow
   11  Special storage :   RB South - Inflow
   12  Calculated hydrograph,  Outfall S(Catch Q-X,External
   13  Special storage :   RB NW - Outflow
   14  Special storage :   RB NW - Inflow
   15  Calculated hydrograph,  Entire Catchment
```

Run	Duration		AEP	TPat	Rain(mm)	ARF	Peak0001	Peak0002	Peak0003	Peak0004	Peak0005
Peak0006	Peak0007	Peak0008	Peak0009	Peak0010	Peak0011	Peak0012	Peak0013	Peak0014	Peak0015		
1	10 min		20%	1	11.60	0.94	0.5579	0.2028	0.1481	1.4672	0.1047
2.4089	0.2143	0.7472	2.0507	0.1466	1.7280	0.5766	0.1446	0.9171	0.6690		
1	10 min		20%	2	11.60	0.94	0.5420	0.2038	0.1482	1.3948	0.1047
2.3239	0.2144	0.7472	2.0507	0.1465	1.7343	0.5770	0.1448	0.8515	0.6771		
1	10 min		20%	3	11.60	0.94	0.5406	0.2039	0.1482	1.3889	0.1048
2.3170	0.2144	0.7472	2.0507	0.1465	1.7348	0.5770	0.1448	0.8461	0.6780		
1	10 min		20%	4	11.60	0.94	0.5171	0.2052	0.1483	1.2859	0.1047
2.1923	0.2145	0.7472	2.0507	0.1464	1.7420	0.5777	0.1451	0.8261	0.6939		
1	10 min		20%	5	11.60	0.94	0.5465	0.2034	0.1481	1.4163	0.1047
2.3492	0.2143	0.7472	2.0507	0.1465	1.7327	0.5769	0.1447	0.8709	0.6743		
1	10 min		20%	6	11.60	0.94	0.5170	0.2052	0.1483	1.2856	0.1047
2.1919	0.2145	0.7472	2.0507	0.1464	1.7420	0.5777	0.1451	0.8262	0.6940		
1	10 min		20%	7	11.60	0.94	0.5936	0.2039	0.1500	1.6084	0.1080
2.5804	0.2174	0.7472	2.0507	0.1483	1.7097	0.5765	0.1483	1.0396	0.6600		
1	10 min		20%	8	11.60	0.94	0.5172	0.2052	0.1483	1.2864	0.1047
2.1930	0.2145	0.7472	2.0507	0.1464	1.7420	0.5777	0.1451	0.8259	0.6938		
1	10 min		20%	9	11.60	0.94	0.5698	0.2022	0.1481	1.5213	0.1049
2.4713	0.2144	0.7472	2.0507	0.1473	1.7236	0.5765	0.1445	0.9662	0.6640		
1	10 min		20%	10	11.60	0.94	0.5761	0.2019	0.1481	1.5500	0.1049
2.5029	0.2145	0.7472	2.0507	0.1473	1.7134	0.5765	0.1448	0.9930	0.6612		
2	15 min		20%	1	14.30	0.95	0.6115	0.2782	0.1973	1.6133	0.1515
2.5345	0.2888	1.1384	2.2232	0.2024	2.1425	0.7274	0.2020	1.0633	0.8189		
2	15 min		20%	2	14.30	0.95	0.5885	0.2801	0.1974	1.5145	0.1514
2.4323	0.2888	1.1328	2.1632	0.2014	2.1160	0.7274	0.2005	0.9655	0.8320		
2	15 min		20%	3	14.30	0.95	0.5964	0.2791	0.1974	1.4186	0.1514
2.3088	0.2889	1.1499	2.3555	0.2016	2.1642	0.7269	0.2005	0.9017	0.8285		
2	15 min		20%	4	14.30	0.95	0.6807	0.2751	0.1989	1.6829	0.1546
2.8638	0.2924	1.2785	2.6548	0.2138	2.2938	0.7453	0.2080	1.0498	0.9059		
2	15 min		20%	5	14.30	0.95	0.6323	0.2799	0.1992	1.7137	0.1548
2.6551	0.2926	1.1395	2.2358	0.2040	2.1532	0.7272	0.2070	1.1513	0.8131		
2	15 min		20%	6	14.30	0.95	0.6541	0.2777	0.1990	1.6244	0.1547
2.7166	0.2924	1.1666	2.5174	0.2049	2.2385	0.7118	0.2077	1.1066	0.8901		
2	15 min		20%	7	14.30	0.95	0.6948	0.2738	0.1988	1.7446	0.1546
2.9411	0.2923	1.2785	2.6548	0.2139	2.2910	0.7449	0.2080	1.0400	0.8957		
2	15 min		20%	8	14.30	0.95	0.6683	0.2762	0.1989	1.6298	0.1545

2.7961	0.2923	1.2785	2.6548	0.2138	2.2966	0.7456	0.2077	1.0762	0.9144		
2	15 min		20%	9	14.30	0.95	0.7218	0.2720	0.1986	1.8648	0.1542
3.0888	0.2919	1.2785	2.6548	0.2141	2.2827	0.7442	0.2083	1.1473	0.8756		
2	15 min		20%	10	14.30	0.95	0.7528	0.2706	0.1987	2.0045	0.1547
3.2545	0.2924	1.2785	2.6548	0.2152	2.2576	0.7439	0.2090	1.2724	0.8543		
3	20 min		20%	1	16.30	0.96	0.6724	0.3408	0.2355	1.6811	0.1889
2.7940	0.3487	1.3974	2.4115	0.2581	2.4071	0.8397	0.2430	1.0122	1.0180		
3	20 min		20%	2	16.30	0.96	0.6390	0.3425	0.2376	1.5069	0.1926
2.5325	0.3526	1.4244	2.4422	0.2535	2.4464	0.8359	0.2448	0.8902	1.0208		
3	20 min		20%	3	16.30	0.96	0.6461	0.3417	0.2376	1.5524	0.1926
2.5925	0.3526	1.4673	2.4697	0.2590	2.4777	0.8536	0.2452	0.9221	1.0319		
3	20 min		20%	4	16.30	0.96	0.7502	0.3315	0.2366	1.7663	0.1930
3.0316	0.3519	1.6088	3.0699	0.2637	2.7011	0.8616	0.2510	1.1780	1.0768		
3	20 min		20%	5	16.30	0.96	0.7786	0.3389	0.2391	2.1289	0.1973
3.3525	0.3562	1.4090	2.3786	0.2624	2.4814	0.8400	0.2541	1.4025	0.9605		
3	20 min		20%	6	16.30	0.96	0.7614	0.3344	0.2387	1.9433	0.1973
3.1243	0.3560	1.5239	2.8698	0.2594	2.6340	0.8506	0.2561	1.3122	0.9980		
3	20 min		20%	7	16.30	0.96	0.7804	0.3310	0.2377	1.8827	0.1956
3.2397	0.3542	1.6433	3.1142	0.2677	2.7218	0.8732	0.2550	1.2588	1.0768		
3	20 min		20%	8	16.30	0.96	0.7272	0.3334	0.2368	1.7791	0.1933
2.8848	0.3522	1.5187	2.8340	0.2576	2.6195	0.8528	0.2499	1.1634	0.9831		
3	20 min		20%	9	16.30	0.96	0.7537	0.3351	0.2388	1.9733	0.1974
3.0814	0.3561	1.5093	2.7720	0.2594	2.6061	0.8540	0.2558	1.3270	0.9560		
3	20 min		20%	10	16.30	0.96	0.7962	0.3310	0.2385	1.9437	0.1974
3.3234	0.3559	1.6433	3.1142	0.2684	2.7257	0.8729	0.2573	1.2417	1.0711		
4	25 min		20%	1	17.80	0.96	0.7265	0.3809	0.2660	1.6240	0.2223
2.6674	0.3970	1.7509	2.9956	0.3107	2.8370	0.9546	0.2753	1.0088	1.1422		
4	25 min		20%	2	17.80	0.96	0.7161	0.3685	0.2541	1.6553	0.2223
2.7481	0.3834	1.6167	2.8972	0.3105	2.5809	0.9126	0.2769	0.9640	1.1774		
4	25 min		20%	3	17.80	0.96	0.7166	0.3851	0.2635	1.7084	0.2225
2.8323	0.3938	1.5891	2.7425	0.3131	2.6757	0.9289	0.2778	1.0099	1.1644		
4	25 min		20%	4	17.80	0.96	0.7333	0.3811	0.2660	1.8539	0.2227
3.0158	0.3968	1.6791	2.7275	0.3135	2.8012	0.9463	0.2790	1.1479	1.1310		
4	25 min		20%	5	17.80	0.96	0.7646	0.3827	0.2679	1.9695	0.2266
3.2078	0.4004	1.6688	2.6833	0.3165	2.8158	0.9438	0.2836	1.2265	1.1248		
4	25 min		20%	6	17.80	0.96	0.6987	0.3851	0.2662	1.5494	0.2221
2.5491	0.3969	1.7089	2.8602	0.3123	2.7935	0.9533	0.2751	0.9187	1.1672		
4	25 min		20%	7	17.80	0.96	0.7750	0.3674	0.2559	1.8636	0.2267

3.1766	0.3872	1.6129	2.9195	0.3141	2.6282	0.9083	0.2836	1.1832	1.1646		
4	25 min		20%	8	17.80	0.96	0.7595	0.3808	0.2628	1.8611	0.2266
3.1281	0.3946	1.5838	2.7547	0.3158	2.7029	0.9267	0.2836	1.0987	1.1541		
4	25 min		20%	9	17.80	0.96	0.8325	0.3751	0.2674	2.0336	0.2269
3.3515	0.4001	1.7901	3.2682	0.3140	2.9840	0.9435	0.2836	1.3525	1.1550		
4	25 min		20%	10	17.80	0.96	0.8353	0.3804	0.2679	2.2460	0.2270
3.5766	0.4004	1.6303	2.6367	0.3184	2.8017	0.9347	0.2836	1.4552	1.0892		
5	30 min		20%	1	19.10	0.97	0.7828	0.4167	0.2912	1.7501	0.2474
2.9391	0.4353	1.9464	3.2883	0.3702	3.0958	1.0396	0.2836	1.1291	1.2393		
5	30 min		20%	2	19.10	0.97	0.7095	0.4082	0.2792	1.6867	0.2467
2.8509	0.4216	1.7010	2.5130	0.3529	2.6787	0.7308	0.2836	1.0196	0.9559		
5	30 min		20%	3	19.10	0.97	0.6658	0.4144	0.2801	1.4223	0.2463
2.3606	0.4219	1.6251	2.5358	0.3516	2.7423	0.7561	0.2836	0.8107	1.0785		
5	30 min		20%	4	19.10	0.97	0.7778	0.4255	0.2934	1.8981	0.2517
3.1108	0.4387	1.8345	2.8385	0.3765	3.0268	1.0238	0.2836	1.1470	1.2622		
5	30 min		20%	5	19.10	0.97	0.8022	0.4224	0.2932	2.0152	0.2519
3.2577	0.4387	1.8414	2.8662	0.3766	3.0557	1.0242	0.2836	1.2507	1.2434		
5	30 min		20%	6	19.10	0.97	0.7723	0.4101	0.2813	1.7825	0.2514
2.9628	0.4252	1.8192	3.0933	0.3729	2.8706	0.9985	0.2836	1.0372	1.2896		
5	30 min		20%	7	19.10	0.97	0.7928	0.4214	0.2931	1.9655	0.2518
3.2052	0.4386	1.8731	2.9901	0.3764	3.0804	1.0302	0.2836	1.2065	1.2470		
5	30 min		20%	8	19.10	0.97	0.8062	0.4012	0.2788	1.8998	0.2478
3.1223	0.4212	1.8824	3.2481	0.3681	2.8741	0.9774	0.2836	1.1343	1.2716		
5	30 min		20%	9	19.10	0.97	0.8783	0.4152	0.2947	2.0647	0.2558
3.4062	0.4422	2.0148	3.5253	0.3790	3.2661	1.0323	0.2836	1.3301	1.2629		
5	30 min		20%	10	19.10	0.97	0.9222	0.4123	0.2944	2.2298	0.2563
3.7355	0.4423	2.0787	3.6892	0.3877	3.3336	1.0335	0.2836	1.4947	1.3143		
6	45 min		20%	1	22.00	0.97	0.7134	0.7189	0.4715	1.4064	0.2836
2.3118	0.6875	2.4231	3.0006	0.6664	3.6066	0.7779	0.2836	0.8311	1.4107		
6	45 min		20%	2	22.00	0.97	0.7345	0.7137	0.4702	1.5231	0.2836
2.4898	0.6864	2.5239	3.0759	0.6853	3.7001	0.8954	0.2836	0.9052	1.4275		
6	45 min		20%	3	22.00	0.97	0.6838	0.6894	0.4579	1.5540	0.2836
2.6183	0.6708	1.9489	2.2628	0.6585	3.4074	0.7254	0.2836	0.9544	1.3840		
6	45 min		20%	4	22.00	0.97	0.7147	0.7586	0.4747	1.4135	0.2836
2.2858	0.6874	2.6448	3.3558	0.6647	3.6613	0.9391	0.2836	0.8346	1.4964		
6	45 min		20%	5	22.00	0.97	0.9052	0.6940	0.4697	2.0387	0.2836
3.3235	0.6879	2.7600	3.7860	0.6895	3.8674	1.1418	0.2870	1.2440	1.4362		
6	45 min		20%	6	22.00	0.97	0.7809	0.7818	0.4882	1.5854	0.2836

2.5717	0.7097	2.8894	3.6168	0.6918	3.9115	1.0013	0.2836	0.9270	1.5461		
6	45 min		20%	7	22.00	0.97	0.8749	0.7257	0.4749	1.9753	0.2836
3.3012	0.6998	2.6841	3.5810	0.7005	3.9519	1.0334	0.3009	1.1427	1.4522		
6	45 min		20%	8	22.00	0.97	0.8137	0.6888	0.4591	1.9439	0.2836
3.1299	0.6768	2.0926	2.9495	0.6596	3.5951	0.7780	0.2836	1.2339	1.3938		
6	45 min		20%	9	22.00	0.97	1.0319	0.7167	0.4761	2.6020	0.2836
4.2987	0.7060	2.9738	4.0438	0.7187	4.1858	1.2559	0.3248	1.5853	1.5750		
6	45 min		20%	10	22.00	0.97	0.8967	0.7326	0.4747	2.1176	0.2836
3.6121	0.7003	2.7140	3.4750	0.6946	4.0292	1.0653	0.3085	1.3475	1.4460		
7	1 hour		20%	1	24.20	0.98	0.6355	0.8538	0.6194	1.5569	0.2836
2.5936	0.9018	2.1520	2.3855	0.9244	3.7581	0.9245	0.2836	0.9282	1.8100		
7	1 hour		20%	2	24.20	0.98	0.6588	0.8864	0.6084	1.3898	0.2848
2.3362	0.8906	2.4419	2.9986	0.9301	3.8866	0.9303	0.2836	0.8313	1.8014		
7	1 hour		20%	3	24.20	0.98	0.6075	0.8888	0.6246	1.4738	0.2914
2.4148	0.9067	2.2737	2.4097	0.9345	4.0017	0.9345	0.2858	0.9142	1.8298		
7	1 hour		20%	4	24.20	0.98	0.8579	0.9182	0.6417	2.0014	0.3159
3.3210	0.9253	2.8869	3.5375	1.0107	4.6595	1.1071	0.3584	1.1731	1.9342		
7	1 hour		20%	5	24.20	0.98	0.7914	0.9902	0.6532	1.4495	0.3058
2.4105	0.9368	3.1469	3.3312	1.0167	4.7475	1.0168	0.3456	0.8238	1.9433		
7	1 hour		20%	6	24.20	0.98	0.9234	0.9064	0.6390	2.0565	0.3123
3.3738	0.9226	3.1142	3.9683	0.9924	4.6918	1.2674	0.3594	1.2180	1.9141		
7	1 hour		20%	7	24.20	0.98	0.8874	0.9649	0.6563	1.9533	0.3198
3.2355	0.9399	3.0278	3.6231	1.0342	4.8385	1.0342	0.3711	1.1789	1.9703		
7	1 hour		20%	8	24.20	0.98	0.7302	0.9411	0.6399	1.5958	0.3053
2.6341	0.9235	2.3716	2.7423	0.9858	4.3602	0.9858	0.3286	0.9570	1.9035		
7	1 hour		20%	9	24.20	0.98	1.2872	1.1546	0.6988	2.9991	0.3252
5.0023	0.9824	4.9470	7.2011	1.1347	6.0267	2.0973	0.4134	1.7837	2.4297		
7	1 hour		20%	10	24.20	0.98	1.1588	1.0980	0.6854	2.6284	0.3294
4.3875	0.9690	4.3412	5.6282	1.0882	5.6232	1.4072	0.4195	1.5231	2.0600		
8	1.5 hour		20%	1	27.60	0.98	0.7023	0.9374	0.8494	1.5524	0.3943
2.5935	1.1330	2.0877	2.5366	1.3121	3.8471	1.3130	0.3168	0.9140	2.5735		
8	1.5 hour		20%	2	27.60	0.98	0.8649	0.9742	0.8427	1.9477	0.3599
3.2091	1.1263	2.4788	3.4733	1.2503	3.5990	1.5605	0.2836	1.1776	2.4496		
8	1.5 hour		20%	3	27.60	0.98	0.7272	1.0412	0.8310	1.6618	0.3738
2.7332	1.1146	2.4899	3.1723	1.3117	3.5109	1.3664	0.2836	0.9883	2.4734		
8	1.5 hour		20%	4	27.60	0.98	0.7322	1.2663	0.9360	1.2775	0.4413
2.0960	1.2196	2.9232	3.1152	1.5224	5.3615	1.5225	0.4057	0.7288	2.8435		
8	1.5 hour		20%	5	27.60	0.98	0.8747	0.8886	0.8620	2.0330	0.3963

3.3945	1.1456	2.9153	3.4452	1.3085	4.4770	1.3722	0.3452	1.2088	2.6023		
8	1.5 hour		20%	6	27.60	0.98	0.6375	1.1880	0.9043	1.1333	0.4131
1.8681	1.1879	2.6379	2.7205	1.4410	4.6903	1.4410	0.3447	0.6543	2.7138		
8	1.5 hour		20%	7	27.60	0.98	0.8454	0.9059	0.8635	1.7710	0.4009
2.9530	1.1471	2.8556	3.7480	1.3273	4.0191	1.3277	0.3036	1.0072	2.6136		
8	1.5 hour		20%	8	27.60	0.98	0.7988	1.2407	0.9223	1.7871	0.4308
2.9858	1.2059	2.6832	3.2435	1.4944	5.0588	1.4945	0.4041	1.0307	2.8050		
8	1.5 hour		20%	9	27.60	0.98	1.0118	1.4056	0.9626	2.0532	0.4533
3.4608	1.2462	4.8907	5.3396	1.5791	6.5279	1.5793	0.4608	1.2456	2.9068		
8	1.5 hour		20%	10	27.60	0.98	1.2691	1.5410	0.9953	2.9701	0.4599
4.9263	1.2789	6.3120	7.7979	1.6527	7.0838	2.2618	0.4899	1.7888	3.0041		
9	2 hour		20%	1	30.30	0.98	0.6585	0.9106	0.9801	1.5064	0.4283
2.4957	1.2929	1.6810	2.3477	1.4897	2.9655	1.5310	0.2836	0.8808	2.9104		
9	2 hour		20%	2	30.30	0.98	0.6875	0.7585	0.9463	1.5738	0.4163
2.6185	1.2644	1.6002	2.2971	1.3783	2.6347	1.4546	0.2836	0.9482	2.7815		
9	2 hour		20%	3	30.30	0.98	0.5845	0.9524	1.0093	1.4871	0.4517
2.4702	1.3405	1.6980	1.7296	1.5414	3.4098	1.5556	0.2836	0.9044	3.0505		
9	2 hour		20%	4	30.30	0.98	0.5720	1.1680	1.0986	1.4214	0.4944
2.3102	1.4420	2.3683	2.5208	1.7530	4.3288	1.7539	0.3507	0.8946	3.3286		
9	2 hour		20%	5	30.30	0.98	0.8436	1.5109	1.1533	1.7166	0.5101
2.8175	1.4945	3.8098	4.4325	1.9017	5.7818	1.9019	0.4189	1.0249	3.4840		
9	2 hour		20%	6	30.30	0.98	0.6160	1.1915	1.0547	1.2649	0.4604
2.0793	1.3736	2.6556	3.2168	1.6455	4.0651	1.6457	0.2836	0.7527	3.1668		
9	2 hour		20%	7	30.30	0.98	0.5787	1.1210	1.0808	1.2148	0.4811
2.0192	1.4252	2.2720	2.5865	1.7091	4.0928	1.7115	0.3395	0.7175	3.2824		
9	2 hour		20%	8	30.30	0.98	0.6466	1.2777	1.0909	1.1907	0.4753
1.9508	1.4158	2.6986	2.9235	1.6843	4.9212	1.6850	0.3563	0.6845	3.2352		
9	2 hour		20%	9	30.30	0.98	0.8422	1.2901	1.1584	1.5612	0.5269
2.5849	1.5228	3.4163	3.5118	1.9015	5.8433	1.9024	0.4490	0.9054	3.5116		
9	2 hour		20%	10	30.30	0.98	0.8738	1.3933	1.1769	1.7608	0.5397
2.9755	1.5433	3.4669	3.6979	1.9573	5.4385	1.9576	0.4652	1.0997	3.5792		
10	3 hour		20%	1	34.50	0.98	0.5826	0.8637	1.0437	1.2590	0.4447
2.0913	1.3903	1.9310	2.3244	1.5896	2.9730	1.5896	0.2836	0.7286	3.1645		
10	3 hour		20%	2	34.50	0.98	0.4670	0.7821	1.0945	0.7901	0.4372
1.2956	1.4867	1.5945	1.8785	1.4654	3.1472	1.5530	0.2836	0.4614	3.1160		
10	3 hour		20%	3	34.50	0.98	0.7430	0.9274	1.1584	1.5008	0.4731
2.5442	1.5973	1.7466	2.1401	1.5849	3.7756	1.7365	0.3226	0.8291	3.5126		
10	3 hour		20%	4	34.50	0.98	0.6588	0.9711	1.1776	1.2310	0.4773

2.0468	1.6206	2.2643	2.8315	1.6485	4.3636	1.7519	0.3278	0.6830	3.5733		
10	3 hour		20%	5	34.50	0.98	0.4180	1.0049	1.2510	0.7144	0.5073
1.1912	1.6676	1.5884	1.6220	1.8648	3.2785	1.9158	0.2836	0.4031	3.7798		
10	3 hour		20%	6	34.50	0.98	0.4462	1.0330	1.2545	0.7944	0.5229
1.3343	1.6764	1.7646	1.8595	1.8646	3.3227	1.8646	0.2836	0.4458	3.7410		
10	3 hour		20%	7	34.50	0.98	0.4028	0.7674	1.1599	0.7441	0.4773
1.2304	1.5744	1.2093	1.5414	1.6204	2.6691	1.7651	0.2836	0.4196	3.4428		
10	3 hour		20%	8	34.50	0.98	0.8111	1.2934	1.2150	1.6793	0.5033
2.7561	1.6350	3.0522	3.5540	1.8565	5.7825	2.0049	0.4362	0.9769	3.5730		
10	3 hour		20%	9	34.50	0.98	0.6782	1.3743	1.4669	1.2288	0.5803
2.0588	1.8976	2.8810	2.8890	2.2285	5.2291	2.2534	0.4133	0.6746	4.2826		
10	3 hour		20%	10	34.50	0.98	0.5637	1.2428	1.4301	1.0108	0.5851
1.6696	1.8872	2.2709	2.4348	2.1927	4.6203	2.2557	0.3844	0.5749	4.2360		
11	4.5 hour		20%	1	39.70	0.99	0.3384	0.6361	1.1449	0.5939	0.4509
0.9790	1.5857	0.9543	1.2557	1.5237	1.9708	1.6398	0.2224	0.3348	3.4103		
11	4.5 hour		20%	2	39.70	0.99	0.3542	0.8429	1.2450	0.6446	0.4876
1.0510	1.6840	1.4162	1.6023	1.8506	2.7927	1.9312	0.2784	0.3913	3.7797		
11	4.5 hour		20%	3	39.70	0.99	0.5878	0.7677	1.2665	1.2263	0.5015
2.0360	1.7486	1.5848	1.7586	1.7053	2.8335	1.8354	0.2836	0.7028	3.7318		
11	4.5 hour		20%	4	39.70	0.99	0.3837	0.7894	1.2297	0.7556	0.4837
1.2481	1.7033	1.2845	1.4962	1.6913	2.5548	1.8316	0.2685	0.4321	3.6627		
11	4.5 hour		20%	5	39.70	0.99	0.4664	0.7995	1.3412	0.8786	0.5462
1.4758	1.8606	1.2849	1.6060	1.8324	2.4360	1.9951	0.2672	0.4888	4.0159		
11	4.5 hour		20%	6	39.70	0.99	0.5516	1.1168	1.3847	1.0995	0.5849
1.8336	1.8833	2.3839	2.6706	2.0772	3.7733	2.0772	0.2836	0.6278	4.2265		
11	4.5 hour		20%	7	39.70	0.99	0.3920	0.9205	1.4031	0.7278	0.5728
1.1769	1.9157	1.5355	1.7794	2.0070	2.8755	2.0849	0.2836	0.4299	4.1938		
11	4.5 hour		20%	8	39.70	0.99	0.2829	0.7028	1.2926	0.5305	0.5126
0.8754	1.7965	1.0028	1.0463	1.7327	2.0858	1.8822	0.2404	0.3103	3.8449		
11	4.5 hour		20%	9	39.70	0.99	0.4408	1.0936	1.6004	0.7556	0.6202
1.2522	2.1673	1.6788	1.7898	2.3180	3.4659	2.4251	0.2935	0.4306	4.7243		
11	4.5 hour		20%	10	39.70	0.99	0.5984	1.3360	1.5967	1.0811	0.6252
1.7969	2.1132	2.4285	2.6018	2.4736	4.5566	2.4736	0.3528	0.6119	4.7813		
12	6 hour		20%	1	44.00	0.99	0.5910	0.7725	1.2831	1.2324	0.5054
2.0461	1.7740	1.5995	1.7900	1.7181	2.8617	1.8516	0.2836	0.7062	3.7618		
12	6 hour		20%	2	44.00	0.99	0.4790	0.7235	0.9036	0.9788	0.3944
1.6234	1.2232	1.4035	1.6660	1.4746	2.6709	1.4816	0.2836	0.5582	2.8604		
12	6 hour		20%	3	44.00	0.99	0.2793	0.5414	0.9606	0.4775	0.4303

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0.7962    1.3909    0.9369    1.0501    1.2870    1.9375    1.4181    0.2147    0.2667    2.9674
  12          6 hour              20%       4     44.00    0.99    0.4021    0.7470    1.0966    0.7834    0.4628
1.3061    1.5341    1.5872    1.8694    1.4602    2.9001    1.5080    0.2740    0.4488    3.1588
  12          6 hour              20%       5     44.00    0.99    0.3380    0.6390    1.1988    0.6849    0.4738
1.1323    1.6649    0.9507    1.2002    1.5066    1.9902    1.6462    0.2250    0.3934    3.4870
  12          6 hour              20%       6     44.00    0.99    0.3467    0.7466    1.3702    0.6651    0.5129
1.0939    1.8749    1.3235    1.5832    1.7640    2.3704    1.9102    0.2588    0.3860    3.9145
  12          6 hour              20%       7     44.00    0.99    0.3190    0.7274    1.2746    0.5570    0.4958
0.9213    1.7695    1.2140    1.2712    1.6124    2.4011    1.7814    0.2532    0.3144    3.7451
  12          6 hour              20%       8     44.00    0.99    0.5750    1.2074    1.5029    1.1175    0.5647
1.8629    1.9925    2.4273    2.7255    2.2152    4.2251    2.2556    0.3342    0.6402    4.2525
  12          6 hour              20%       9     44.00    0.99    0.5330    1.2271    1.6753    0.9782    0.6634
1.5889    2.2645    2.1254    2.4267    2.6018    4.0303    2.6155    0.3381    0.5744    5.0704
  12          6 hour              20%      10     44.00    0.99    0.6470    1.3914    1.7231    1.2339    0.6808
2.0658    2.3202    2.8134    2.9855    2.6976    4.7877    2.6976    0.3558    0.6977    5.2540
  13          9 hour              20%       1     51.10    0.99    0.3528    0.7293    0.8829    0.6168    0.3297
1.0265    1.1665    1.3529    1.4025    1.1705    2.5646    1.1786    0.2411    0.3428    2.4691
  13          9 hour              20%       2     51.10    0.99    0.3353    0.7316    0.9293    0.5525    0.3460
0.9390    1.2706    1.1962    1.3755    1.2140    2.4763    1.2544    0.2591    0.3137    2.5696
  13          9 hour              20%       3     51.10    0.99    0.3105    0.6107    1.0950    0.6186    0.4679
1.0088    1.5629    1.1111    1.3613    1.5051    2.1556    1.6013    0.2128    0.3666    3.3002
  13          9 hour              20%       4     51.10    0.99    0.3699    0.8301    1.3128    0.6729    0.5090
1.0976    1.7808    1.4803    1.6007    1.8621    2.7201    1.9366    0.2836    0.3892    3.8371
  13          9 hour              20%       5     51.10    0.99    0.2807    0.6686    1.0487    0.4548    0.4601
0.7560    1.4941    0.9936    1.0095    1.5754    2.1675    1.6567    0.2288    0.2559    3.2737
  13          9 hour              20%       6     51.10    0.99    0.3096    0.7627    1.4034    0.5066    0.5564
0.8408    1.9329    1.1180    1.1243    1.9044    2.4020    2.0449    0.2559    0.2809    4.2045
  13          9 hour              20%       7     51.10    0.99    0.3488    0.7262    0.9576    0.6206    0.4062
1.0303    1.3061    1.3540    1.4248    1.5404    2.5396    1.5671    0.2349    0.3484    3.0241
  13          9 hour              20%       8     51.10    0.99    0.4113    1.0456    1.8596    0.6972    0.6582
1.1570    2.5177    1.5520    1.6291    2.5418    3.3372    2.7638    0.2887    0.3944    5.4004
  13          9 hour              20%       9     51.10    0.99    0.4303    0.9641    1.6111    0.7818    0.6426
1.3156    2.2537    1.7001    1.7638    2.2457    3.1209    2.3999    0.2836    0.4277    4.8215
  13          9 hour              20%      10     51.10    0.99    0.4889    1.0916    1.6545    0.8304    0.6304
1.3826    2.2775    1.8814    1.9234    2.4761    3.9001    2.6842    0.3127    0.4592    5.0455
  14         12 hour              20%       1     57.00    0.99    0.2626    0.5804    0.9342    0.4356    0.3430
0.7317    1.2772    0.9303    0.9813    1.2299    1.8930    1.3296    0.2005    0.2521    2.7518
  14         12 hour              20%       2     57.00    0.99    0.4362    0.9525    1.2548    0.7277    0.4517
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1.2227 1.6720 1.6330 1.6323 1.6783 3.4760 1.7708 0.2836 0.3966 3.5987
14 12 hour 20% 3 57.00 0.99 0.2837 0.4062 0.5762 0.5451 0.2836
0.9101 0.8354 0.6441 0.7793 0.7960 1.3473 0.8177 0.1642 0.3056 1.7026
14 12 hour 20% 4 57.00 0.99 0.2568 0.6083 1.0024 0.4180 0.4095
0.6914 1.3877 0.9037 0.9113 1.4523 1.9479 1.5304 0.2103 0.2336 3.0813
14 12 hour 20% 5 57.00 0.99 0.2972 0.7047 1.3091 0.5113 0.4940
0.8445 1.8030 1.0905 1.1834 1.6864 2.1766 1.8535 0.2352 0.2996 3.8331
14 12 hour 20% 6 57.00 0.99 0.1698 0.3548 0.6940 0.2840 0.3036
0.4663 0.9776 0.5457 0.5788 0.9183 1.2030 0.9953 0.1368 0.1613 2.0929
14 12 hour 20% 7 57.00 0.99 0.3046 0.6810 1.2616 0.5501 0.4909
0.9116 1.7465 1.1751 1.2610 1.6462 2.1933 1.7612 0.2386 0.3122 3.6543
14 12 hour 20% 8 57.00 0.99 0.3465 0.8529 1.4703 0.6139 0.5564
1.0037 2.0268 1.3498 1.4384 1.9991 2.7511 2.1304 0.2836 0.3525 4.3792
14 12 hour 20% 9 57.00 0.99 0.4843 1.1718 1.8699 0.8350 0.6890
1.3679 2.4982 1.8981 1.9986 2.7725 3.7470 2.8625 0.3071 0.4775 5.6355
14 12 hour 20% 10 57.00 0.99 0.4094 0.9612 1.2792 0.7927 0.5594
1.2825 1.7858 1.7316 1.9561 1.9976 3.1695 2.1046 0.2836 0.4705 4.0329
15 18 hour 20% 1 66.50 1.00 0.1771 0.4142 0.7899 0.2844 0.2836
0.4733 1.0734 0.5608 0.6520 0.9865 1.2894 1.0633 0.1518 0.1574 2.2659
15 18 hour 20% 2 66.50 1.00 0.3780 0.8928 1.2508 0.6804 0.4874
1.1255 1.7381 1.2996 1.3032 1.7159 2.9579 1.7358 0.2836 0.3844 3.6601
15 18 hour 20% 3 66.50 1.00 0.2534 0.4846 0.7260 0.4288 0.2836
0.7102 1.0096 0.9148 0.9379 1.0638 1.9350 1.1015 0.2066 0.2417 2.1465
15 18 hour 20% 4 66.50 1.00 0.1779 0.3734 0.7658 0.2956 0.3002
0.4939 1.0660 0.5505 0.6031 1.0015 1.2171 1.0692 0.1398 0.1613 2.2437
15 18 hour 20% 5 66.50 1.00 0.2559 0.5352 0.7566 0.4008 0.2836
0.6817 1.0402 0.7819 1.0394 1.0472 1.9181 1.0821 0.2052 0.2368 2.2497
15 18 hour 20% 6 66.50 1.00 0.1704 0.3684 0.6209 0.2880 0.2836
0.4792 0.9045 0.5405 0.5921 0.8623 1.1700 0.9014 0.1375 0.1604 1.9103
15 18 hour 20% 7 66.50 1.00 0.1505 0.2948 0.5931 0.2438 0.2836
0.4110 0.8767 0.4093 0.4253 0.8040 0.9273 0.8785 0.1170 0.1306 1.8659
15 18 hour 20% 8 66.50 1.00 0.2390 0.5394 0.9940 0.4079 0.4447
0.6711 1.4386 0.8373 0.9022 1.4423 1.7295 1.5160 0.1882 0.2325 3.1425
15 18 hour 20% 9 66.50 1.00 0.1596 0.3659 0.7550 0.2610 0.3716
0.4332 1.1266 0.5014 0.5175 1.0339 1.1143 1.1352 0.1378 0.1457 2.3996
15 18 hour 20% 10 66.50 1.00 0.4685 1.1261 1.7544 0.7510 0.6549
1.2552 2.4093 1.6966 1.7237 2.4767 3.7852 2.5857 0.2836 0.4091 5.2785
16 24 hour 20% 1 73.90 1.00 0.1845 0.3592 0.5962 0.3474 0.2836

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0.5741    0.8617    0.5738    0.6928    0.8766    1.1964    0.9004    0.1364    0.2003    1.8613
  16         24 hour              20%       2     73.90    1.00    0.2771    0.4625    0.7570    0.4562    0.2926
0.7643    1.0406    0.5719    0.6466    0.8508    1.2901    0.9317    0.1842    0.2483    2.0710
  16         24 hour              20%       3     73.90    1.00    0.2263    0.5037    0.8106    0.4347    0.3048
0.7137    1.1154    0.7535    1.0353    1.0872    1.6362    1.1957    0.1791    0.2559    2.3758
  16         24 hour              20%       4     73.90    1.00    0.1563    0.3086    0.5108    0.2623    0.2836
0.4382    0.7944    0.4712    0.5178    0.7777    1.0466    0.8069    0.1195    0.1445    1.7047
  16         24 hour              20%       5     73.90    1.00    0.1294    0.2212    0.3920    0.2111    0.2469
0.3494    0.6385    0.3117    0.3208    0.6035    0.7257    0.6382    0.0950    0.1175    1.3636
  16         24 hour              20%       6     73.90    1.00    0.1203    0.2025    0.3821    0.1979    0.2373
0.3278    0.6193    0.2759    0.3484    0.5607    0.6584    0.6009    0.0903    0.1105    1.3048
  16         24 hour              20%       7     73.90    1.00    0.2638    0.6403    0.9585    0.4490    0.3419
0.7375    1.3004    0.8604    0.9871    1.2727    2.0203    1.4183    0.2148    0.2585    2.6898
  16         24 hour              20%       8     73.90    1.00    0.2536    0.5332    0.9579    0.4309    0.3447
0.7187    1.3026    0.8618    0.9090    1.3270    1.8271    1.4434    0.1848    0.2371    2.7300
  16         24 hour              20%       9     73.90    1.00    0.2442    0.5962    1.1730    0.4175    0.4722
0.6837    1.6452    0.9067    0.9369    1.5469    1.8026    1.7540    0.2075    0.2407    3.5265
  16         24 hour              20%      10     73.90    1.00    0.1691    0.3627    0.7061    0.2855    0.2836
0.4733    0.9897    0.5315    0.5820    0.9939    1.1614    1.0600    0.1372    0.1597    2.1767
  17         30 hour              20%       1     79.80    1.00    0.2019    0.3678    0.6741    0.3505    0.2836
0.5774    0.9577    0.6248    0.7178    0.8139    1.3014    0.8268    0.1500    0.1986    1.8890
  17         30 hour              20%       2     79.80    1.00    0.1811    0.3812    0.7579    0.2885    0.2836
0.4808    1.0415    0.4697    0.4698    0.8751    1.0656    0.9380    0.1384    0.1583    2.0943
  17         30 hour              20%       3     79.80    1.00    0.1985    0.4265    0.8338    0.3325    0.3326
0.5523    1.1664    0.6279    0.6697    1.0374    1.3954    1.0858    0.1574    0.1851    2.3712
  17         30 hour              20%       4     79.80    1.00    0.0971    0.1644    0.3354    0.1493    0.2207
0.2501    0.5499    0.2430    0.2606    0.4939    0.5620    0.5293    0.0781    0.0808    1.1508
  17         30 hour              20%       5     79.80    1.00    0.2483    0.4944    0.8999    0.4313    0.2999
0.7128    1.1997    0.8886    0.9354    1.1198    1.7838    1.1315    0.1818    0.2433    2.4328
  17         30 hour              20%       6     79.80    1.00    0.1113    0.2203    0.4081    0.1851    0.2489
0.3068    0.6422    0.3127    0.3257    0.6024    0.7062    0.6673    0.0964    0.1039    1.4059
  17         30 hour              20%       7     79.80    1.00    0.1772    0.3286    0.6213    0.3335    0.2836
0.5470    0.9049    0.6287    0.7268    0.8684    1.2177    0.8824    0.1250    0.1927    1.8856
  17         30 hour              20%       8     79.80    1.00    0.1367    0.2944    0.6454    0.2230    0.2836
0.3696    0.9290    0.4030    0.4151    0.8494    0.9203    0.9189    0.1164    0.1243    1.9630
  17         30 hour              20%       9     79.80    1.00    0.1299    0.2412    0.5189    0.2157    0.2629
0.3566    0.7819    0.3774    0.4218    0.6475    0.8372    0.7149    0.0956    0.1208    1.5905
  17         30 hour              20%      10     79.80    1.00    0.1782    0.4244    0.7743    0.2788    0.2843
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0.4668    1.0585    0.5401    0.5415    0.9883    1.2894    1.0843    0.1483    0.1518    2.1629
 Run,    Representative hydrograph
  1     dur10min_aep20tp2.out
 Run,    Representative hydrograph
  2     dur15min_aep20tp9.out
 Run,    Representative hydrograph
  3     dur20min_aep20tp2.out
 Run,    Representative hydrograph
  4     dur25min_aep20tp9.out
 Run,    Representative hydrograph
  5     dur30min_aep20tp4.out
 Run,    Representative hydrograph
  6     dur45min_aep20tp10.out
 Run,    Representative hydrograph
  7     dur1hour_aep20tp4.out
 Run,    Representative hydrograph
  8     dur1_5hour_aep20tp6.out
 Run,    Representative hydrograph
  9     dur2hour_aep20tp7.out
 Run,    Representative hydrograph
 10     dur3hour_aep20tp4.out
 Run,    Representative hydrograph
 11     dur4_5hour_aep20tp5.out
 Run,    Representative hydrograph
 12     dur6hour_aep20tp1.out
 Run,    Representative hydrograph
 13     dur9hour_aep20tp4.out
 Run,    Representative hydrograph
 14     dur12hour_aep20tp7.out
 Run,    Representative hydrograph
 15     dur18hour_aep20tp1.out
 Run,    Representative hydrograph
 16     dur24hour_aep20tp10.out
 Run,    Representative hydrograph
 17     dur30hour_aep20tp8.out

Elapsed Run Time (hh:mm:ss) = 00:00:04
```

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 RORBWin Batch Run Summary
 *************************

 Program version 6.45 (last updated 20th March 2019)
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 Date run: 26 Apr 2021 18:33

 Catchment file   : K:\Jobs Data\1400147 - Wurruk rezoning application\_Wat\Models\RORB\Post Dev\SWMS REV
E\RB\1400147-RORB-PostDev-RB_SWMS REV E.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 =     2.63    m = 0.80

 Loss parameters     Initial loss (mm)   Cont. loss (mm/h)
                           19.00              3.00

 Peak  Description
   01  Calculated hydrograph,  Catch B
   02  Calculated hydrograph,  OutfallLagoon(Catch B-G,I-K)
   03  Calculated hydrograph,  20m RR PC Convey (Catch P)
   04  Special storage :   RB SE - Outflow
   05  Special storage :   RB SE - Inflow
   06  Calculated hydrograph,  Outfall SE (Catch B-G, I-P)
   07  Special storage :   Ex. U/S RB - Outflow
   08  Special storage :   Ex. U/S RB - Inflow
   09  Special storage :   RB South - Outflow
   10  Special storage :   RB South - Inflow
   11  Calculated hydrograph,  Outfall S(Catch Q-X,External
   12  Special storage :   RB NW - Outflow
   13  Special storage :   RB NW - Inflow
```

14 Calculated hydrograph, Entire Catchment

Run	Duration		AEP	TPat	Rain(mm)	ARF	Peak0001	Peak0002	Peak0003	Peak0004	Peak0005	Peak0006
Peak0007	Peak0008	Peak0009	Peak0010	Peak0011	Peak0012	Peak0013	Peak0014					
1	10 min		1%	21	25.10	0.94	1.5124	0.7031	3.6130	0.3988	6.1753	0.9866
4.9273	7.4912	1.1398	6.4102	2.0848	0.4615	2.2263	2.4244					
1	10 min		1%	22	25.10	0.94	1.4730	0.7035	3.4493	0.3986	5.9503	0.9871
4.8939	6.9400	1.1170	6.2227	2.0725	0.4596	2.2909	2.3478					
1	10 min		1%	23	25.10	0.94	1.5404	0.7026	3.7311	0.3981	6.3366	0.9862
4.9572	7.5224	1.1448	6.4285	2.0927	0.4627	2.1773	2.4178					
1	10 min		1%	24	25.10	0.94	1.6434	0.7015	4.1785	0.3984	6.9309	0.9851
4.9572	7.5224	1.1477	6.4287	2.0905	0.4670	2.5496	2.3761					
1	10 min		1%	25	25.10	0.94	1.5011	0.7033	3.5659	0.3989	6.1104	0.9869
4.8410	7.2974	1.1226	6.3267	2.0654	0.4611	2.2456	2.3625					
1	10 min		1%	26	25.10	0.94	1.5960	0.7017	3.9716	0.3978	6.6579	0.9853
4.9572	7.5224	1.1452	6.4267	2.0914	0.4642	2.3767	2.3936					
1	10 min		1%	27	25.10	0.94	1.4877	0.7033	3.5122	0.3987	6.0370	0.9869
4.9038	7.1364	1.1513	6.2784	2.0723	0.4606	2.2665	2.3376					
1	10 min		1%	28	25.10	0.94	1.6331	0.7016	4.1332	0.3981	6.8708	0.9852
4.9572	7.5224	1.1456	6.4230	2.0906	0.4665	2.5120	2.3794					
1	10 min		1%	29	25.10	0.94	1.7077	0.7033	4.4365	0.4045	7.2673	0.9869
4.9572	7.5224	1.1518	6.3683	2.0901	0.4733	2.7655	2.3598					
1	10 min		1%	30	25.10	0.94	1.6517	0.7014	4.2147	0.3986	6.9784	0.9850
4.9572	7.5224	1.1477	6.4171	2.0904	0.4666	2.5804	2.3733					
2	15 min		1%	21	30.80	0.95	1.8190	1.2544	4.3272	0.6540	7.2499	1.6705
7.4524	9.4974	2.2213	9.7326	2.4468	0.6790	2.5338	3.9032					
2	15 min		1%	22	30.80	0.95	1.8909	1.2533	4.6411	0.6550	7.6828	1.6707
7.9263	10.5033	2.2375	9.7806	2.9070	0.6829	2.7919	3.9231					
2	15 min		1%	23	30.80	0.95	1.7885	1.2547	4.4061	0.6547	7.2412	1.6721
8.1134	9.9223	2.2366	9.8683	2.9230	0.6817	2.6709	3.9181					
2	15 min		1%	24	30.80	0.95	1.9353	1.2526	5.0159	0.6551	8.0824	1.6707
8.3057	10.4228	2.2712	10.0703	3.0915	0.6874	3.1688	3.9574					
2	15 min		1%	25	30.80	0.95	1.9193	1.2539	4.5917	0.6544	7.3314	1.6712
8.6497	9.7807	2.2710	10.1478	3.2237	0.6846	2.9248	3.9537					
2	15 min		1%	26	30.80	0.95	2.0401	1.2544	5.4214	0.6603	8.6360	1.6773
8.3301	10.4891	2.2823	10.1126	3.0738	0.6941	3.4962	3.9795					

2	15 min		1%	27	30.80	0.95	1.8937	1.2535	4.8010	0.6553	7.8143	1.6717
8.3301	10.4891	2.2736	9.9999	3.0797	0.6856	2.9764	3.9594					
2	15 min		1%	28	30.80	0.95	1.9044	1.2529	4.9224	0.6548	7.9332	1.6708
8.3597	10.3416	2.2714	10.0757	3.1104	0.6865	3.1049	3.9560					
2	15 min		1%	29	30.80	0.95	2.1987	1.2732	5.2301	0.6602	8.9091	1.6969
9.1212	11.7800	2.2560	10.3988	3.3741	0.6921	3.0711	3.9810					
2	15 min		1%	30	30.80	0.95	2.2497	1.2691	5.4869	0.6562	9.1461	1.6901
9.2748	12.2171	2.2786	10.5161	3.3946	0.6891	3.2808	3.9989					
3	20 min		1%	21	35.00	0.95	2.0816	1.6925	4.5934	0.7958	7.6047	2.2645
9.4009	10.1661	3.1899	12.8360	3.1899	0.7916	2.8533	5.4279					
3	20 min		1%	22	35.00	0.95	1.9551	1.6920	4.6286	0.7945	7.6651	2.2634
8.9046	10.0599	3.1761	12.7671	3.1761	0.7854	2.7985	5.4175					
3	20 min		1%	23	35.00	0.95	2.1005	1.6912	4.8918	0.7959	7.9160	2.2632
9.3930	10.0446	3.1901	12.8706	3.1901	0.7926	3.0736	5.4302					
3	20 min		1%	24	35.00	0.95	2.2545	1.7131	5.0972	0.8004	8.2453	2.2881
10.8324	12.1556	3.1952	13.1883	3.7273	0.8085	3.1480	5.4673					
3	20 min		1%	25	35.00	0.95	2.3018	1.7138	5.5561	0.8038	9.2318	2.2936
9.8270	12.9505	3.1768	12.9368	3.3365	0.8120	3.3066	5.4509					
3	20 min		1%	26	35.00	0.95	2.3597	1.6948	5.4736	0.8033	9.2955	2.2733
10.1878	12.3423	3.1989	12.9302	3.2217	0.8101	3.2396	5.4475					
3	20 min		1%	27	35.00	0.95	2.2957	1.7139	5.5321	0.8037	9.1956	2.2936
9.8028	12.8767	3.1767	12.9402	3.3115	0.8118	3.2887	5.4504					
3	20 min		1%	28	35.00	0.95	2.3207	1.7105	5.6288	0.8001	9.3072	2.2867
9.9228	13.3702	3.1776	12.8966	3.4598	0.8093	3.3750	5.4455					
3	20 min		1%	29	35.00	0.95	2.2736	1.7144	5.6948	0.8052	9.2023	2.2938
11.0118	13.3482	3.2328	13.2871	4.0184	0.8172	3.5582	5.5195					
3	20 min		1%	30	35.00	0.95	2.2923	1.7137	5.8424	0.8052	9.4061	2.2930
10.9969	13.3580	3.2339	13.3251	4.0141	0.8182	3.6786	5.5214					
4	25 min		1%	21	38.40	0.96	2.3145	2.0840	4.8243	0.8940	8.0443	2.7727
10.6686	11.4437	3.9126	14.9046	3.9126	0.8744	2.7966	6.6380					
4	25 min		1%	22	38.40	0.96	2.0730	2.0598	4.7562	0.8870	7.7461	2.7415
9.1414	9.9230	3.9318	14.0852	3.9318	0.8494	3.0202	6.6306					
4	25 min		1%	23	38.40	0.96	2.2094	2.0819	4.7691	0.8911	7.9380	2.7659
10.5497	11.8077	3.9337	15.2210	3.9337	0.8703	2.7438	6.6328					
4	25 min		1%	24	38.40	0.96	1.9880	2.0602	3.9146	0.8850	6.4564	2.7424
8.5865	9.3610	3.8876	14.0850	3.8876	0.8500	2.3868	6.5990					

4	25 min		1%	25	38.40	0.96	2.1152	2.0601	4.2845	0.8877	7.0275	2.7432
9.3832	10.3528	3.8891	14.5026	3.8891	0.8599	2.4320	6.5889					
4	25 min		1%	26	38.40	0.96	2.2715	2.0645	5.1203	0.8939	8.5532	2.7518
10.5616	11.6781	3.9163	14.7105	3.9163	0.8692	3.0092	6.6277					
4	25 min		1%	27	38.40	0.96	2.3341	2.0635	5.4392	0.8947	9.1971	2.7501
10.0699	12.3258	3.9329	14.4778	3.9329	0.8705	3.1302	6.6376					
4	25 min		1%	28	38.40	0.96	2.3031	2.0645	4.8475	0.8903	8.0137	2.7486
10.7568	11.2106	3.9101	14.7891	3.9101	0.8696	2.8834	6.6188					
4	25 min		1%	29	38.40	0.96	2.7759	2.1046	6.9621	0.9046	11.3791	2.7971
12.3614	16.7081	4.0360	15.8070	4.5172	0.9080	4.2834	6.7760					
4	25 min		1%	30	38.40	0.96	2.4059	2.0859	5.5914	0.8986	9.1378	2.7721
11.3119	13.8541	3.9942	15.6293	3.9942	0.8898	3.3388	6.6985					
5	30 min		1%	21	41.20	0.96	2.2492	2.3938	4.5487	0.9585	7.6272	3.1636
10.2296	10.6587	4.6132	15.8984	4.6132	0.9159	2.7007	7.6844					
5	30 min		1%	22	41.20	0.96	2.2565	2.3737	5.3657	0.9557	8.9691	3.1420
10.3664	12.3231	4.5038	15.5536	4.5038	0.9083	3.1521	7.5675					
5	30 min		1%	23	41.20	0.96	2.1921	2.3692	5.0349	0.9514	8.4894	3.1342
9.7047	11.4369	4.4977	15.3095	4.4977	0.9004	2.8922	7.5659					
5	30 min		1%	24	41.20	0.96	2.1631	2.3733	4.9929	0.9558	8.4287	3.1414
9.9289	11.1730	4.5136	15.6903	4.5136	0.9094	2.8823	7.5736					
5	30 min		1%	25	41.20	0.96	2.3182	2.3926	5.1251	0.9600	8.6881	3.1627
10.4326	11.6367	4.6267	16.2980	4.6267	0.9210	3.1722	7.6965					
5	30 min		1%	26	41.20	0.96	2.3837	2.3961	4.8237	0.9597	8.0237	3.1658
11.0158	11.3424	4.6245	16.2816	4.6245	0.9249	2.7801	7.6940					
5	30 min		1%	27	41.20	0.96	2.1864	2.3932	4.8208	0.9570	8.0263	3.1626
10.1196	10.9117	4.5343	15.7465	4.5343	0.9106	2.8548	7.6111					
5	30 min		1%	28	41.20	0.96	2.2766	2.3933	5.1874	0.9589	8.5935	3.1640
10.7524	11.9977	4.5495	16.3341	4.5497	0.9208	3.1193	7.6267					
5	30 min		1%	29	41.20	0.96	2.6467	2.4195	5.6420	0.9672	9.4992	3.1956
12.7301	13.4345	4.6740	17.5709	4.6740	0.9462	3.4221	7.7779					
5	30 min		1%	30	41.20	0.96	2.5495	2.4183	5.5802	0.9639	9.1984	3.1898
11.9867	13.8537	4.6362	17.5023	4.6362	0.9424	3.2386	7.7292					
6	45 min		1%	21	47.60	0.96	2.4691	3.1404	4.9077	1.0981	8.1730	4.0682
11.6323	12.3161	6.0610	18.8446	6.0610	1.0135	2.8015	9.9480					
6	45 min		1%	22	47.60	0.96	2.6203	3.1539	5.5001	1.0958	9.0388	4.0912
12.5846	13.3331	6.0051	19.0158	6.0051	1.0128	3.2979	9.9257					

6	45 min		1%	23	47.60	0.96	1.8717	3.1354	4.3189	1.0808	7.2176	4.0643
8.2692	8.7394	5.9125	15.1208	5.9125	0.9514	2.5988	9.8699					
6	45 min		1%	24	47.60	0.96	1.9977	3.0847	4.2614	1.0736	7.0811	4.0070
8.7880	9.7720	5.7462	14.6612	5.7462	0.9424	2.5519	9.6684					
6	45 min		1%	25	47.60	0.96	1.8084	3.0827	4.2592	1.0692	7.1072	4.0018
7.9403	9.4992	5.7057	14.3670	5.7057	0.9421	2.5242	9.6263					
6	45 min		1%	26	47.60	0.96	2.2639	3.1345	4.1844	1.0889	6.9200	4.0592
10.0270	10.4872	5.9409	17.7473	5.9409	0.9852	2.3779	9.8422					
6	45 min		1%	27	47.60	0.96	2.0094	3.1213	4.1229	1.0841	6.8396	4.0505
8.9031	9.1738	5.8800	16.2359	5.8800	0.9753	2.4593	9.7974					
6	45 min		1%	28	47.60	0.96	2.0313	3.1029	3.6425	1.0834	6.0468	4.0321
8.5565	8.7867	5.8766	16.3142	5.8771	0.9777	2.1103	9.7682					
6	45 min		1%	29	47.60	0.96	2.6235	3.1623	5.3365	1.1045	8.9512	4.0973
12.7501	13.2700	6.1431	20.1838	6.1431	1.0318	3.1533	10.0401					
6	45 min		1%	30	47.60	0.96	2.5941	3.1427	5.2472	1.0982	8.6328	4.0755
12.1470	13.5328	6.0740	18.6405	6.0740	1.0175	3.0680	9.9508					
7	1 hour		1%	21	52.30	0.97	2.8308	3.7206	5.4161	1.1881	9.0945	4.7525
13.3928	13.9983	7.2421	21.4980	7.2443	1.1759	3.1889	11.7010					
7	1 hour		1%	22	52.30	0.97	1.8788	3.5505	4.1361	1.1315	6.8451	4.5634
8.4713	9.1059	6.2171	14.1917	6.4499	0.9305	2.4844	10.8076					
7	1 hour		1%	23	52.30	0.97	2.3633	3.6591	4.5824	1.1593	7.5601	4.6787
10.8804	11.5704	6.7738	18.8587	6.8480	1.0236	2.6239	11.3098					
7	1 hour		1%	24	52.30	0.97	1.7440	3.5791	3.5612	1.1451	5.8675	4.5861
7.8081	8.5310	6.5340	14.5121	6.5346	0.9651	2.1723	11.0680					
7	1 hour		1%	25	52.30	0.97	1.8612	3.5289	3.7799	1.1382	6.2603	4.5328
8.7780	9.8096	6.4490	14.5178	6.4490	0.9529	2.2280	10.9550					
7	1 hour		1%	26	52.30	0.97	1.9454	3.5172	4.1559	1.1323	6.7275	4.5134
9.1234	11.2269	6.2736	13.9324	6.2956	0.9372	2.6186	10.8384					
7	1 hour		1%	27	52.30	0.97	2.2028	3.6248	4.0193	1.1560	6.5939	4.6467
9.4186	10.1183	6.6925	17.1364	6.6956	1.0066	2.3002	11.2068					
7	1 hour		1%	28	52.30	0.97	2.1432	3.6421	3.7958	1.1660	6.2315	4.6673
8.9203	9.6039	6.8410	17.4083	6.8432	1.0251	2.1784	11.3468					
7	1 hour		1%	29	52.30	0.97	1.9168	3.6497	3.4292	1.1602	5.6956	4.6684
8.1872	8.4438	6.7110	15.7983	6.7110	1.0047	1.9296	11.2786					
7	1 hour		1%	30	52.30	0.97	2.8292	3.7410	5.5307	1.1917	9.0121	4.7788
13.1269	14.0789	7.3009	21.7208	7.3012	1.2049	3.2235	11.7880					

8	1.5 hour		1%	21	59.30	0.97	2.0201	4.2459	3.8088	1.2135	6.2657	5.3841
9.0212	9.5583	6.8289	16.0809	7.4713	0.9602	2.1782	12.5760					
8	1.5 hour		1%	22	59.30	0.97	1.8718	4.3920	3.1758	1.2561	5.2449	5.5419
7.7478	7.8914	8.2421	15.5632	8.2421	1.0465	1.7935	13.5987					
8	1.5 hour		1%	23	59.30	0.97	1.6384	4.2123	3.1350	1.2037	5.1926	5.3498
7.0231	7.2651	6.9359	12.8898	7.3360	0.9538	1.7705	12.7035					
8	1.5 hour		1%	24	59.30	0.97	1.8081	4.1118	3.3911	1.2081	5.6716	5.2188
8.3532	8.6230	7.0083	14.2414	7.0083	0.9491	1.9611	12.4370					
8	1.5 hour		1%	25	59.30	0.97	2.1746	3.9647	4.1764	1.1574	7.0464	5.0808
9.5647	9.8369	5.8478	16.7223	6.4496	0.9477	2.5254	11.5688					
8	1.5 hour		1%	26	59.30	0.97	1.9726	4.4109	3.4159	1.2507	5.6580	5.5582
8.2224	8.4968	8.1276	16.0845	8.2727	1.0416	1.9294	13.5271					
8	1.5 hour		1%	27	59.30	0.97	1.7692	4.3618	3.1265	1.2455	5.1520	5.4980
7.4203	7.8586	7.9333	14.3371	7.9333	1.0141	1.7873	13.4014					
8	1.5 hour		1%	28	59.30	0.97	1.8442	4.3198	3.4370	1.2423	5.5946	5.4604
7.7077	9.0218	7.7974	14.0397	7.8052	1.0113	2.0516	13.1860					
8	1.5 hour		1%	29	59.30	0.97	2.4712	4.4299	4.7125	1.2427	7.7854	5.5791
11.5254	11.6863	7.8286	19.3976	8.4880	1.0509	2.6424	13.5915					
8	1.5 hour		1%	30	59.30	0.97	2.5682	4.4022	5.3234	1.2689	8.7591	5.5472
12.8055	14.0381	8.8594	21.3106	8.8594	1.2058	3.1766	14.0655					
9	2 hour		1%	21	64.70	0.97	1.9919	4.5483	3.7356	1.2273	6.1453	5.7532
8.8491	9.3764	6.8396	15.9578	7.4407	0.9589	2.1351	13.1418					
9	2 hour		1%	22	64.70	0.97	2.0835	4.6503	4.2582	1.2526	6.9979	5.8673
9.5901	10.4411	7.6638	16.1657	8.1047	1.0146	2.4579	13.6613					
9	2 hour		1%	23	64.70	0.97	2.5372	4.0587	5.2247	1.2053	8.7785	5.2172
12.2398	12.7376	5.7444	18.2963	6.3910	0.9788	3.1134	11.8493					
9	2 hour		1%	24	64.70	0.97	1.8298	4.5128	4.2213	1.2335	6.9414	5.7030
8.3841	9.5600	7.0564	12.3069	7.4963	0.9314	2.5283	13.2601					
9	2 hour		1%	25	64.70	0.97	1.8786	4.7411	3.3968	1.2890	5.6168	5.9492
8.3153	8.6697	8.6145	15.3035	8.8455	1.0167	1.9701	14.5521					
9	2 hour		1%	26	64.70	0.97	1.3377	4.4239	2.4902	1.2283	4.0822	5.6078
5.7424	6.3778	6.6724	10.3482	7.2704	0.8571	1.4600	13.1637					
9	2 hour		1%	27	64.70	0.97	1.5715	4.7134	2.9025	1.2819	4.8313	5.9079
7.0113	7.2380	8.1939	12.7788	8.2887	0.9743	1.6484	14.2587					
9	2 hour		1%	28	64.70	0.97	2.2022	4.7029	4.8495	1.2600	7.9234	5.9184
11.8623	13.9987	7.3161	15.3871	7.8926	0.9466	3.1710	13.9718					

9	2 hour		1%	29	64.70	0.97	1.7983	4.8897	3.1033	1.3028	5.1196	6.1108
7.4702	7.6858	8.8491	15.1210	9.2639	1.0315	1.7472	15.0279					
9	2 hour		1%	30	64.70	0.97	2.0472	4.9057	3.5196	1.3146	5.8362	6.1156
8.5510	8.7055	9.4588	17.0868	9.4614	1.1025	1.9747	15.3984					
10	3 hour		1%	21	73.00	0.97	1.9054	5.4913	3.1746	1.3645	5.2904	6.7900
7.7402	7.8116	9.9991	16.1104	10.1299	1.0531	1.7758	16.7307					
10	3 hour		1%	22	73.00	0.97	1.3038	4.1034	2.7851	1.1792	4.5812	5.2233
5.1421	5.3068	6.3204	10.0820	6.4128	0.8493	1.6384	11.7150					
10	3 hour		1%	23	73.00	0.97	1.3530	3.7891	2.7462	1.1756	4.6262	4.9646
4.6035	4.9985	5.3327	9.0436	5.8192	0.7185	1.5354	11.3125					
10	3 hour		1%	24	73.00	0.97	1.1626	4.0829	2.3063	1.1615	3.9007	5.1860
4.5119	4.5587	6.1012	9.1966	6.3592	0.8008	1.2726	11.5980					
10	3 hour		1%	25	73.00	0.97	1.1918	4.4988	2.4798	1.2521	4.0116	5.7388
5.2471	5.9359	6.3732	9.4546	6.5989	0.7653	1.4834	12.7645					
10	3 hour		1%	26	73.00	0.97	1.7435	5.2090	3.0393	1.3175	5.0657	6.5217
7.3251	7.3783	7.4250	14.4989	8.3682	0.9686	1.6795	14.8465					
10	3 hour		1%	27	73.00	0.97	1.1603	4.4630	2.2089	1.2575	3.6338	5.7137
5.1394	5.5807	6.3943	8.7873	6.7718	0.7935	1.2793	12.9225					
10	3 hour		1%	28	73.00	0.97	1.2617	5.0379	2.1556	1.2979	3.5917	6.3277
5.0694	5.3782	7.3028	10.1652	7.9109	0.8912	1.2129	14.3469					
10	3 hour		1%	29	73.00	0.97	1.2932	4.2813	2.3942	1.2561	4.0256	5.5092
5.6443	5.7913	6.4083	10.2487	6.4444	0.7879	1.3228	12.5212					
10	3 hour		1%	30	73.00	0.97	1.9250	5.7085	3.8942	1.3762	6.3947	7.0419
9.1199	10.0401	9.7102	16.9736	10.2980	1.0730	2.2785	17.2184					
11	4.5 hour		1%	21	82.50	0.98	0.9586	3.1962	1.6636	1.1068	2.7535	4.2157
3.8925	3.9891	4.0368	7.0041	4.3532	0.6000	0.9488	9.0449					
11	4.5 hour		1%	22	82.50	0.98	1.1415	4.4669	2.2370	1.2468	3.5776	5.7092
5.2104	5.8770	5.9741	9.5089	6.2660	0.7196	1.3511	12.4738					
11	4.5 hour		1%	23	82.50	0.98	1.2132	3.5401	2.2812	1.1231	3.7535	4.5855
5.3211	5.7862	4.5331	9.8115	5.0218	0.7365	1.3039	9.6606					
11	4.5 hour		1%	24	82.50	0.98	1.2693	3.5943	2.3267	1.1058	3.8794	4.6154
5.2743	5.7124	5.8444	10.5999	5.9059	0.8500	1.3330	10.6819					
11	4.5 hour		1%	25	82.50	0.98	0.7986	3.8458	1.4480	1.1598	2.3947	4.9933
3.1890	3.2646	4.7090	5.8771	5.2174	0.6048	0.8198	10.6413					
11	4.5 hour		1%	26	82.50	0.98	1.2005	4.6881	2.0327	1.2655	3.3816	5.9535
4.8432	5.1467	6.0631	9.9710	6.5981	0.8036	1.1824	12.8220					

11	4.5 hour		1%	27	82.50	0.98	1.2584	4.4174	2.2630	1.2797	3.8263	5.6330	
5.3846	5.3879	6.8841	10.2971	7.2598	0.8335	1.2377	13.4620						
11	4.5 hour		1%	28	82.50	0.98	1.1358	4.2911	2.0705	1.2201	3.4776	5.5070	
4.8905	4.9808	5.7590	9.0929	6.1944	0.7514	1.1419	11.6302						
11	4.5 hour		1%	29	82.50	0.98	1.5005	5.6439	2.6167	1.3966	4.3034	7.0098	
6.2739	6.5474	8.9156	12.1353	9.5212	0.9784	1.4941	16.6236						
11	4.5 hour		1%	30	82.50	0.98	1.3861	5.4488	2.4134	1.3821	4.0459	6.8171	
5.7432	6.2932	7.7893	11.5897	8.3640	0.8693	1.4414	15.5508						
12	6 hour		1%	21	90.10	0.98	1.8016	5.8440	3.1125	1.4159	5.1753	7.2277	
7.3975	7.7933	9.9732	15.4809	10.3392	1.0307	1.7722	17.7117						
12	6 hour		1%	22	90.10	0.98	1.1489	4.0169	2.1401	1.1515	3.5611	5.1292	
4.9998	5.3161	5.9669	8.8397	6.2464	0.7757	1.2190	11.7524						
12	6 hour		1%	23	90.10	0.98	1.2580	3.6359	2.3126	1.2099	3.9220	4.7921	
5.4535	5.5573	5.8512	10.0220	5.8512	0.7498	1.2727	11.1522						
12	6 hour		1%	24	90.10	0.98	1.0555	3.0882	2.3020	1.0636	3.7892	4.0126	
4.0858	4.1035	4.7949	7.7109	4.8217	0.7084	1.3541	8.8763						
12	6 hour		1%	25	90.10	0.98	1.0617	3.4593	2.1223	1.0734	3.5712	4.4626	
3.6321	4.0275	5.1928	7.1225	5.5443	0.7012	1.1822	10.0309						
12	6 hour		1%	26	90.10	0.98	1.6418	3.1683	3.1875	1.1237	5.2903	4.1732	
7.4070	8.0800	5.6879	13.0831	5.7487	0.8490	1.8365	10.0466						
12	6 hour		1%	27	90.10	0.98	0.6817	3.4766	1.3578	1.1217	2.2025	4.5966	
2.6331	2.6684	4.3704	5.2181	4.8045	0.5386	0.8252	9.7334						
12	6 hour		1%	28	90.10	0.98	0.8482	3.9636	1.4676	1.1306	2.4089	5.0813	
3.4613	3.6094	5.3313	6.9113	5.8067	0.6699	0.8373	10.8181						
12	6 hour		1%	29	90.10	0.98	0.7162	3.3738	1.1907	1.0680	1.9857	4.4187	
2.8154	2.8750	4.4436	5.7739	4.8086	0.5696	0.6820	9.3518						
12	6 hour		1%	30	90.10	0.98	1.0396	4.9467	1.7287	1.3035	2.8702	6.2478	
4.0824	4.2383	6.5700	8.6605	7.1571	0.7837	0.9775	13.6344						
13	9 hour		1%	21	102.00	0.99	0.5667	2.5725	0.9447	0.9832	1.5735	3.5424	
2.1876	2.3619	3.2173	4.3031	3.6045	0.4007	0.5182	7.5328						
13	9 hour		1%	22	102.00	0.99	0.6473	2.7484	1.0692	0.9129	1.7802	3.6421	
2.4821	2.5026	3.7682	5.2158	3.9394	0.5085	0.5901	7.7362						
13	9 hour		1%	23	102.00	0.99	1.4769	4.4895	2.4964	1.2189	4.1521	5.6839	
6.0290	6.1568	7.1035	12.3825	7.3406	0.8757	1.3842	12.8186						
13	9 hour		1%	24	102.00	0.99	0.6917	3.4696	1.1581	1.0793	1.8959	4.5465	
2.7062	2.7426	4.3925	5.5853	4.6344	0.5890	0.6648	9.5947						

13	9 hour		1%	25	102.00	0.99	1.4804	3.8910	2.3880	1.1476	4.0533	4.9344
5.6845	6.1412	6.4643	12.7268	6.4643	0.8761	1.4120	11.4973					
13	9 hour		1%	26	102.00	0.99	0.5777	2.6910	0.9949	0.9584	1.6549	3.6386
2.2733	2.3683	3.5823	4.5365	3.9645	0.4238	0.5592	7.9798					
13	9 hour		1%	27	102.00	0.99	0.8185	3.3996	1.3170	1.1230	2.1956	4.5226
3.1245	3.1711	4.8658	6.7435	5.4428	0.6377	0.7391	10.0439					
13	9 hour		1%	28	102.00	0.99	0.7022	3.6134	1.2442	1.1661	2.0456	4.7794
2.9241	3.0638	4.8387	5.8843	5.2609	0.5985	0.7161	10.4752					
13	9 hour		1%	29	102.00	0.99	0.9657	4.5008	1.6094	1.2733	2.6703	5.7741
3.8258	3.8775	5.9636	7.9616	6.4313	0.6936	0.8959	12.8205					
13	9 hour		1%	30	102.00	0.99	1.5319	4.9815	2.6753	1.3684	4.4609	6.2779
6.3154	6.4755	8.1728	12.7907	8.2438	0.8777	1.4724	15.1664					
14	12 hour		1%	21	112.00	0.99	0.9161	4.3292	1.5432	1.2210	2.5499	5.5502
3.6777	3.7477	5.9236	7.4477	6.4544	0.7223	0.8674	12.3104					
14	12 hour		1%	22	112.00	0.99	0.8023	3.2521	1.4786	1.0907	2.4186	4.3382
3.4952	3.6802	4.7418	6.3110	5.0340	0.6142	0.8541	9.6926					
14	12 hour		1%	23	112.00	0.99	0.6079	2.5195	0.9911	0.8568	1.6386	3.3747
2.4470	2.6199	3.1788	4.5668	3.4202	0.4470	0.5672	7.0241					
14	12 hour		1%	24	112.00	0.99	0.6555	3.1590	1.0879	1.0109	1.7884	4.1671
2.5250	2.5491	3.9558	5.2985	4.2254	0.5346	0.6192	8.7847					
14	12 hour		1%	25	112.00	0.99	1.4387	4.7801	2.4241	1.3472	4.0609	6.0411
5.7151	5.7846	7.5428	12.1398	7.5842	0.8705	1.3189	14.3273					
14	12 hour		1%	26	112.00	0.99	0.4709	2.6018	0.8045	0.9621	1.3441	3.5638
1.8125	1.8745	3.3369	3.6448	3.6033	0.3884	0.4488	7.5547					
14	12 hour		1%	27	112.00	0.99	0.6290	3.2547	1.0369	1.0258	1.7189	4.2805
2.4119	2.4432	4.2671	5.0459	4.6727	0.5391	0.5780	9.2382					
14	12 hour		1%	28	112.00	0.99	1.1277	4.7489	1.9285	1.2582	3.2286	6.0071
4.5176	4.6020	6.4298	9.4083	6.8987	0.7792	1.0559	13.3014					
14	12 hour		1%	29	112.00	0.99	0.5259	2.8656	0.8606	0.9983	1.4310	3.8321
1.9866	2.0032	3.6815	4.1972	3.9523	0.4441	0.4772	8.1127					
14	12 hour		1%	30	112.00	0.99	0.8333	2.9532	1.4643	1.0422	2.4095	3.8185
3.4596	3.5800	4.2663	6.7371	4.6253	0.6307	0.8319	8.5856					
15	18 hour		1%	21	127.00	0.99	0.3700	1.5706	0.5920	0.6422	0.9853	2.1833
1.3344	1.3781	1.9755	2.7837	2.1513	0.2836	0.3254	4.5705					
15	18 hour		1%	22	127.00	0.99	0.3918	2.1758	0.6457	0.7816	1.0719	2.9574
1.4677	1.5031	2.6454	3.0446	2.8480	0.3141	0.3602	6.0966					

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15          18 hour             1%     23    127.00    0.99    0.4189    2.1780    0.6792    0.8357    1.1239    3.0137
 1.5416    1.5570    2.7917    3.3172    3.0154    0.2935    0.3777    6.2777
15          18 hour             1%     24    127.00    0.99    0.5917    2.9867    0.9559    0.9672    1.5883    3.9536
 2.2038    2.2288    3.9168    4.8050    4.2104    0.4630    0.5305    8.5443
15          18 hour             1%     25    127.00    0.99    0.6174    3.0960    0.9820    1.0169    1.6360    4.1129
 2.2735    2.2827    3.9858    5.0213    4.4119    0.5041    0.5409    8.4334
15          18 hour             1%     26    127.00    0.99    0.4431    1.7966    0.7536    0.6814    1.2541    2.4598
 1.3263    1.4158    2.2482    2.9605    2.4291    0.2836    0.4170    5.0011
15          18 hour             1%     27    127.00    0.99    0.5395    3.2040    0.8797    1.0126    1.4642    4.2166
 1.9835    2.0111    3.9083    4.3629    4.2430    0.4586    0.4859    8.8986
15          18 hour             1%     28    127.00    0.99    0.6660    2.2997    1.1439    0.8340    1.8645    3.1304
 2.7376    2.8978    3.3993    5.1865    3.5044    0.5147    0.6735    6.5753
15          18 hour             1%     29    127.00    0.99    0.4435    2.0491    0.7962    0.8181    1.3149    2.8672
 1.7630    1.8645    2.6219    3.6472    2.8846    0.3529    0.4509    5.9964
15          18 hour             1%     30    127.00    0.99    0.3734    2.1902    0.6123    0.8344    1.0187    3.0246
 1.3730    1.3918    2.7740    2.9365    3.0343    0.2963    0.3392    6.2159
16          24 hour             1%     21    139.00    1.00    0.4013    2.3129    0.6489    0.8677    1.0797    3.1806
 1.4630    1.4720    2.9371    3.1664    3.2039    0.3320    0.3585    6.6417
16          24 hour             1%     22    139.00    1.00    0.3886    1.5667    0.6425    0.6664    1.0740    2.2331
 1.2305    1.2777    2.0450    2.4358    2.2128    0.2699    0.3509    4.6869
16          24 hour             1%     23    139.00    1.00    0.5675    2.4727    0.9698    0.8598    1.6045    3.2761
 2.2309    2.3163    3.3956    4.5045    3.5876    0.3799    0.5470    7.1845
16          24 hour             1%     24    139.00    1.00    0.5178    2.1952    0.8448    0.8041    1.4016    2.9992
 1.9390    1.9788    3.0442    4.1741    3.1953    0.3639    0.4674    6.5133
16          24 hour             1%     25    139.00    1.00    0.6120    2.4968    1.1064    0.8980    1.8156    3.3050
 2.5917    2.7116    3.6733    4.7702    3.8489    0.4195    0.6344    7.4066
16          24 hour             1%     26    139.00    1.00    0.4785    2.3985    0.8221    0.8610    1.3510    3.2526
 1.8813    1.9557    3.1911    3.7581    3.4154    0.3728    0.4680    6.7754
16          24 hour             1%     27    139.00    1.00    0.6133    2.5497    1.0505    0.8666    1.7431    3.3846
 2.4030    2.4917    3.4426    4.9124    3.5670    0.4071    0.5879    7.1851
16          24 hour             1%     28    139.00    1.00    0.3935    1.3664    0.6713    0.5898    1.1113    1.9546
 1.3666    1.4494    1.7533    2.6911    1.9187    0.2774    0.3752    4.0071
16          24 hour             1%     29    139.00    1.00    0.5574    2.2133    1.0011    0.8770    1.6504    3.0903
 2.2853    2.4075    3.0912    4.3135    3.1802    0.3296    0.5686    6.5070
16          24 hour             1%     30    139.00    1.00    0.6062    2.2346    1.0740    0.8706    1.7936    3.0922
 2.3222    2.4125    3.2103    4.7542    3.3404    0.3954    0.5975    6.7660
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 17         30 hour              1%     21    148.00    1.00    0.2872    1.5559    0.4731    0.6470    0.7825    2.2028
  1.0372    1.0555    1.9547    2.1836    2.0982    0.2361    0.2644    4.5369
 17         30 hour              1%     22    148.00    1.00    0.4900    2.7177    0.7963    0.9298    1.3226    3.6475
  1.8092    1.8326    3.1508    3.8977    3.5051    0.3897    0.4408    7.1583
 17         30 hour              1%     23    148.00    1.00    0.4087    1.7362    0.6923    0.5998    1.1475    2.3283
  1.5448    1.5836    2.1001    3.1706    2.4126    0.2836    0.3869    4.4469
 17         30 hour              1%     24    148.00    1.00    0.3497    1.8583    0.5664    0.7126    0.9379    2.5709
  1.2610    1.2809    2.1568    2.7028    2.3327    0.2836    0.3163    5.1019
 17         30 hour              1%     25    148.00    1.00    0.6398    2.7555    0.9959    0.9562    1.6604    3.6466
  2.1910    2.2213    3.8855    4.9450    4.3051    0.5132    0.5447    8.0545
 17         30 hour              1%     26    148.00    1.00    0.3388    1.4462    0.5424    0.5702    0.9025    2.0164
  1.1171    1.1411    1.7739    2.4432    1.8738    0.2674    0.2989    4.0745
 17         30 hour              1%     27    148.00    1.00    0.2446    1.1365    0.4261    0.5358    0.7025    1.6722
  0.9006    0.9339    1.5244    1.7893    1.6596    0.1962    0.2418    3.5240
 17         30 hour              1%     28    148.00    1.00    0.2258    1.2333    0.3535    0.5355    0.5879    1.7661
  0.7481    0.7508    1.5389    1.6876    1.6820    0.1943    0.1970    3.5153
 17         30 hour              1%     29    148.00    1.00    0.3344    1.9081    0.5494    0.7529    0.9106    2.6609
  1.2185    1.2441    2.4479    2.5808    2.6588    0.2836    0.3053    5.6034
 17         30 hour              1%     30    148.00    1.00    0.2425    1.2552    0.3876    0.5604    0.6439    1.7966
  0.8170    0.8219    1.6195    1.8314    1.7745    0.2062    0.2144    3.6928
Run,    Representative hydrograph
 1     dur10min_aep1tp24.out
Run,    Representative hydrograph
 2     dur15min_aep1tp24.out
Run,    Representative hydrograph
 3     dur20min_aep1tp27.out
Run,    Representative hydrograph
 4     dur25min_aep1tp23.out
Run,    Representative hydrograph
 5     dur30min_aep1tp21.out
Run,    Representative hydrograph
 6     dur45min_aep1tp23.out
Run,    Representative hydrograph
 7     dur1hour_aep1tp29.out
Run,    Representative hydrograph
 8     dur1_5hour_aep1tp27.out
```

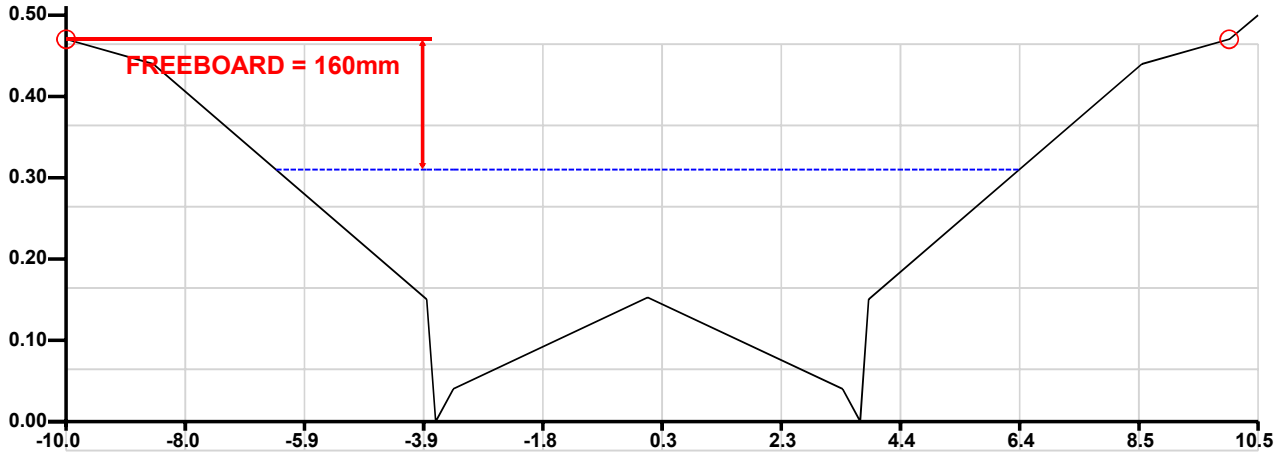
```
 Run,    Representative hydrograph
  9     dur2hour_aep1tp28.out
 Run,    Representative hydrograph
 10     dur3hour_aep1tp27.out
 Run,    Representative hydrograph
 11     dur4_5hour_aep1tp22.out
 Run,    Representative hydrograph
 12     dur6hour_aep1tp28.out
 Run,    Representative hydrograph
 13     dur9hour_aep1tp28.out
 Run,    Representative hydrograph
 14     dur12hour_aep1tp27.out
 Run,    Representative hydrograph
 15     dur18hour_aep1tp23.out
 Run,    Representative hydrograph
 16     dur24hour_aep1tp30.out
 Run,    Representative hydrograph
 17     dur30hour_aep1tp21.out

Elapsed Run Time (hh:mm:ss) = 00:00:04
```

APPENDIX F: POST-DEVELOPED RORB RESULTS (WITH RB)

PROJECT: 1400147-PC Convey-20mRR (Catch P)
Print-out date: 26/04/2021 - Time: 5:22
Data File: 1400147-PC Convey-20mRR (Catch P).dat

1. CROSS-SECTION:



2. DISCHARGE INFORMATION:

100 year (1%) storm event

Total discharge = 2.13 cumecs

There is no pipe discharge
Overland / Channel / Watercourse discharge = 2.130 cumecs

3. RESULTS: Water surface elevation = 0.310m

High Flow Channel grade = 1 in 200, Main Channel / Low Flow Channel grade = 1 in 200.

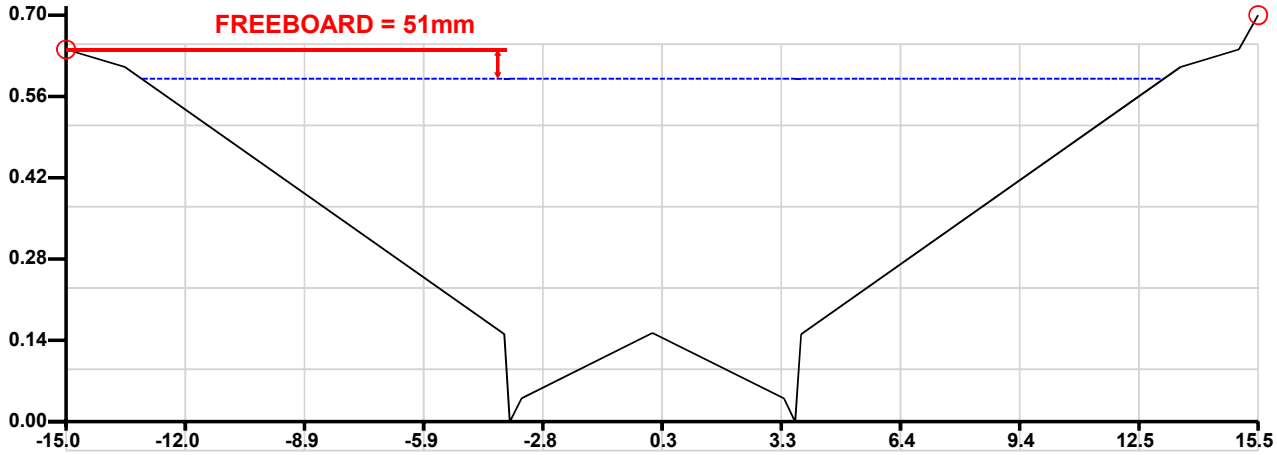
	LEFT OVERBANK	MAIN CHANNEL	RIGHT OVERBANK	TOTAL CROSS-SECTION
Discharge (cumecs):	0.00	2.13	0.00	2.13
D(Max) = Max. Depth (m):	0.00	0.31	0.00	0.31
D(Ave) = Ave. Depth (m):	0.00	0.16	0.00	0.16
V = Ave. Velocity (m/s):	0.00	1.02	0.00	1.02
D(Max) x V (cumecs/m):	0.00	0.31	0.00	0.31
D(Ave) x V (cumecs/m):	0.00	0.17	0.00	0.17
Froude Number:	0.00	0.80	0.00	0.80
Area (m^2):	0.00	2.09	0.00	2.09
Wetted Perimeter (m):	0.00	12.93	0.00	12.93
Flow Width (m):	0.00	12.79	0.00	12.79
Hydraulic Radius (m):	0.00	0.16	0.00	0.16
Composite Manning's n:	0.000	0.021	0.000	0.021
Split Flow?	-	-	-	No

4. CROSS-SECTION DATA:

	LEFT HAND POINT		RIGHT HAND POINT		
SEGMENT NO.	CHAINAGE (m)	R.L. (m)	CHAINAGE (m)	R.L. (m)	MANNING'S N
1	-10.000	0.470	-8.500	0.440	0.013
2	-8.500	0.440	-3.800	0.150	0.035
3	-3.800	0.150	-3.650	0.000	0.013
4	-3.650	0.000	-3.350	0.040	0.013
5	-3.350	0.040	0.000	0.152	0.015
6	0.000	0.152	3.350	0.040	0.015
7	3.350	0.040	3.650	0.000	0.013
8	3.650	0.000	3.800	0.150	0.035
9	3.800	0.150	8.500	0.440	0.013
10	8.500	0.440	10.000	0.470	0.035
11	10.000	0.470	10.500	0.500	0.035

PROJECT: 1400147-PC Convey-30mRR (Catch S)
Print-out date: 26/04/2021 - Time: 5:24
Data File: 1400147-PC Convey-30mRR (Catch S).dat

1. CROSS-SECTION:



2. DISCHARGE INFORMATION:

100 year (1%) storm event

Total discharge = 8.19 cumecs

There is no pipe discharge
Overland / Channel / Watercourse discharge = 8.190 cumecs

3. RESULTS: Water surface elevation = 0.590m

High Flow Channel grade = 1 in 200, Main Channel / Low Flow Channel grade = 1 in 200.

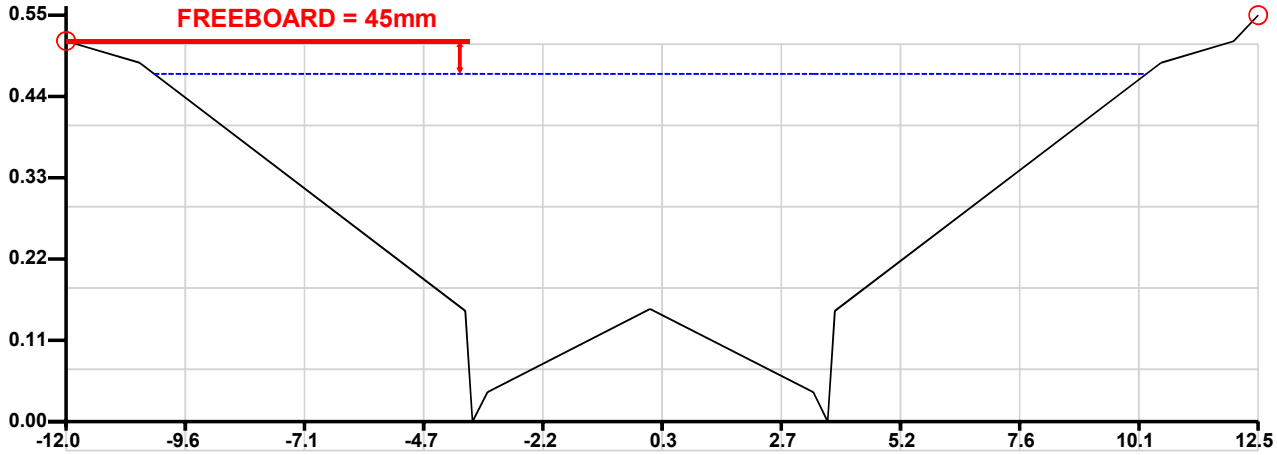
	LEFT OVERBANK	MAIN CHANNEL	RIGHT OVERBANK	TOTAL CROSS-SECTION
Discharge (cumecs):	0.00	8.19	0.00	8.19
D(Max) = Max. Depth (m):	0.00	0.59	0.00	0.59
D(Ave) = Ave. Depth (m):	0.00	0.30	0.00	0.30
V = Ave. Velocity (m/s):	0.00	1.04	0.00	1.04
D(Max) x V (cumecs/m):	0.00	0.61	0.00	0.61
D(Ave) x V (cumecs/m):	0.00	0.31	0.00	0.31
Froude Number:	0.00	0.60	0.00	0.60
Area (m^2):	0.00	7.88	0.00	7.88
Wetted Perimeter (m):	0.00	26.27	0.00	26.27
Flow Width (m):	0.00	26.12	0.00	26.12
Hydraulic Radius (m):	0.00	0.30	0.00	0.30
Composite Manning's n:	0.000	0.030	0.000	0.030
Split Flow?	-	-	-	No

4. CROSS-SECTION DATA:

	LEFT HAND POINT		RIGHT HAND POINT		
SEGMENT NO.	CHAINAGE (m)	R.L. (m)	CHAINAGE (m)	R.L. (m)	MANNING'S N
1	-15.000	0.641	-13.500	0.611	0.013
2	-13.500	0.611	-3.800	0.150	0.035
3	-3.800	0.150	-3.650	0.000	0.013
4	-3.650	0.000	-3.350	0.040	0.013
5	-3.350	0.040	0.000	0.152	0.015
6	0.000	0.152	3.350	0.040	0.015
7	3.350	0.040	3.650	0.000	0.013
8	3.650	0.000	3.800	0.150	0.013
9	3.800	0.150	13.500	0.611	0.035
10	13.500	0.611	15.000	0.641	0.013
11	15.000	0.641	15.500	0.700	0.035

PROJECT: 1400147-PC Convey-24mRR (Catch R)
Print-out date: 26/04/2021 - Time: 5:35
Data File: 1400147-PC Convey-24mRR (Catch R).dat

1. CROSS-SECTION:



2. DISCHARGE INFORMATION:

100 year (1%) storm event

Total discharge = 6.53 cumecs

There is no pipe discharge
Overland / Channel / Watercourse discharge = 6.530 cumecs

3. RESULTS: Water surface elevation = 0.470m

High Flow Channel grade = 1 in 100, Main Channel / Low Flow Channel grade = 1 in 100.

	LEFT OVERBANK	MAIN CHANNEL	RIGHT OVERBANK	TOTAL CROSS-SECTION
Discharge (cumecs):	0.00	6.57	0.00	6.57
D(Max) = Max. Depth (m):	0.00	0.47	0.00	0.47
D(Ave) = Ave. Depth (m):	0.00	0.24	0.00	0.24
V = Ave. Velocity (m/s):	0.00	1.33	0.00	1.33
D(Max) x V (cumecs/m):	0.00	0.62	0.00	0.62
D(Ave) x V (cumecs/m):	0.00	0.32	0.00	0.32
Froude Number:	0.00	0.86	0.00	0.86
Area (m^2):	0.00	4.94	0.00	4.94
Wetted Perimeter (m):	0.00	20.55	0.00	20.55
Flow Width (m):	0.00	20.40	0.00	20.40
Hydraulic Radius (m):	0.00	0.24	0.00	0.24
Composite Manning's n:	0.000	0.029	0.000	0.029
Split Flow?	-	-	-	No

4. CROSS-SECTION DATA:

	LEFT HAND POINT		RIGHT HAND POINT		
SEGMENT NO.	CHAINAGE (m)	R.L. (m)	CHAINAGE (m)	R.L. (m)	MANNING'S N
1	-12.000	0.515	-10.500	0.485	0.013
2	-10.500	0.485	-3.800	0.150	0.035
3	-3.800	0.150	-3.650	0.000	0.013
4	-3.650	0.000	-3.350	0.040	0.013
5	-3.350	0.040	0.000	0.152	0.015
6	0.000	0.152	3.350	0.040	0.015
7	3.350	0.040	3.650	0.000	0.013
8	3.650	0.000	3.800	0.150	0.013
9	3.800	0.150	10.500	0.485	0.035
10	10.500	0.485	12.000	0.515	0.013
11	12.000	0.515	12.500	0.550	0.035

APPENDIX G: FLUX FILE RESULTS

	Jan-91	Jan-92	Jan-93	Jan-94	Jan-95	Jan-96	Jan-97	Jan-98	Jan-99	Jan-00	**Average for Jan [ML/yr]**
Total [ML/yr]	7.010	3.918	7.607	7.607	7.138	7.199	5.421	2.890	7.169	7.328	**6.329**
	Feb-91	Feb-92	Feb-93	Feb-94	Feb-95	Feb-96	Feb-97	Feb-98	Feb-99	Feb-00	**Average for Feb [ML/yr]**
Total [ML/yr]	5.115	6.085	6.871	6.871	5.149	4.847	3.283	5.789	6.871	1.186	**5.207**
	Mar-91	Mar-92	Mar-93	Mar-94	Mar-95	Mar-96	Mar-97	Mar-98	Mar-99	Mar-00	**Average for Mar [ML/yr]**
Total [ML/yr]	5.853	6.225	7.386	7.607	5.872	6.134	5.755	2.208	5.593	0.004	**5.264**
	Apr-91	Apr-92	Apr-93	Apr-94	Apr-95	Apr-96	Apr-97	Apr-98	Apr-99	Apr-00	**Average for Apr [ML/yr]**
Total [ML/yr]	6.300	5.861	4.436	6.897	6.894	7.361	2.029	5.178	4.863	4.457	**5.428**
	May-91	May-92	May-93	May-94	May-95	May-96	May-97	May-98	May-99	May-00	**Average for May [ML/yr]**
Total [ML/yr]	6.519	7.446	5.412	5.867	7.353	5.858	6.812	3.319	5.584	4.614	**5.878**
	Jun-91	Jun-92	Jun-93	Jun-94	Jun-95	Jun-96	Jun-97	Jun-98	Jun-99	Jun-00	**Average for Jun [ML/yr]**
Total [ML/yr]	6.871	7.361	6.066	4.833	7.361	4.769	5.287	6.490	5.424	4.440	**5.890**
	Jul-91	Jul-92	Jul-93	Jul-94	Jul-95	Jul-96	Jul-97	Jul-98	Jul-99	Jul-00	**Average for Jul [ML/yr]**
Total [ML/yr]	7.607	7.361	6.949	2.995	7.607	7.607	4.846	7.607	3.505	6.239	**6.232**
	Aug-91	Aug-92	Aug-93	Aug-94	Aug-95	Aug-96	Aug-97	Aug-98	Aug-99	Aug-00	**Average for Aug [ML/yr]**
Total [ML/yr]	7.607	7.607	6.655	2.995	7.607	7.607	5.798	7.057	4.908	5.473	**6.331**
	Sep-91	Sep-92	Sep-93	Sep-94	Sep-95	Sep-96	Sep-97	Sep-98	Sep-99	Sep-00	**Average for Sep [ML/yr]**
Total [ML/yr]	7.361	7.361	7.361	6.214	6.214	7.361	6.009	6.730	3.866	7.302	**6.578**
	Oct-91	Oct-92	Oct-93	Oct-94	Oct-95	Oct-96	Oct-97	Oct-98	Oct-99	Oct-00	**Average for Oct [ML/yr]**
Total [ML/yr]	7.607	7.607	7.607	7.119	7.119	4.344	5.090	7.607	6.981	7.607	**6.869**
	Nov-91	Nov-92	Nov-93	Nov-94	Nov-95	Nov-96	Nov-97	Nov-98	Nov-99	Nov-00	**Average for Nov [ML/yr]**
Total [ML/yr]	5.518	7.361	7.361	7.361	7.361	6.210	6.068	7.361	5.264	5.575	**6.544**
	Dec-91	Dec-92	Dec-93	Dec-94	Dec-95	Dec-96	Dec-97	Dec-98	Dec-99	Dec-00	**Average for Dec [ML/yr]**
Total [ML/yr]	5.491	7.607	5.856	7.070	7.607	5.587	5.690	6.969	5.727	2.973	**6.058**

Post-dev water usage [ML/yr]=	66.278
Post-dev rainwater falling (from Post Dev MUSIC model - discharge south & SE) [ML/yr]=	328.000
Post-Dev rainwater discharged into lagoon [ML/yr] =	261.722
Pre-dev rainwater discharged into lagoon (from Pre Dev MUSIC model) [ML/yr] =	77.600
Post-dev excess rainwater discharge into lagoon [ML/yr] =	184.122